

**THE INTERNATIONAL PATENT PRACTICE
NARRATIVE: PATENT AGENTS, EPISTEMIC
CAPTURE AND THE PATENT BARGAIN**

WISSAM AOUN

**A DISSERTATION SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**

**GRADUATE PROGRAM IN LAW
YORK UNIVERSITY
TORONTO, ONTARIO**

June 2023

© Wissam Aoun, June 2023

ABSTRACT

This work explores the question of how professionalization of patent agency along with its accompanying discourse has affected the direction of international patent institutions and networks. Professionalization of patent agency is defined as the government regulation of who may provide patent agent services to the public through the form of professional licensing requirements. To the extent that professionalization of patent agency has created a unique discourse of patent agency, to what degree and in what respects has this discourse transformed global patent institutions? In particular, has this discourse created a form of ‘epistemic’ or ‘cultural’ capture that has the effect of delegitimizing other valid forms of discourse? Through the application of several methodologies, namely, historical analyses, doctrinal analyses and qualitative empirical work, this study attempts to create what epistemic capture theorists refer to as a capture story, which is a story of how cultural influences of a regulated industry – here, professional patent agents – come to dominate the regulatory discourse to the exclusion of other viable, competing conceptions of what constitutes the public interest. This work concludes that professionalization of agency within the patent system is interconnected with enablement as an organizing principle of the patent system as a social institution. Prior to professionalization, when agency was democratized throughout the patent system, so too was democratized enablement a guiding principle of the patent system. The formation of a unique, legitimized professional patent agent epistemic community has resulted in diminishing the democratization of enablement across the patent system as a social institution. This work discusses several of the practical and normative implications of the diminishing value of democratized enablement. Finally, this work concludes with a discussion of the future prospects of agency within the patent system.

ACKNOWLEDGEMENTS

Thank you to my parents, Joseph and May Aoun, who since my youth have instilled in me a deep appreciation for the value of knowledge and education. I am so incredibly thankful for all of the support that you have given me over the last several years, including all of the emotional support that made completing this PhD possible (as well as all of the early morning and late night rides to and from the train station!). I love you so much.

My sincere thanks to Professor Siva Thambisetty and Professor Graeme Dinwoodie, for your support, encouragement and invaluable feedback through every stage of the process. So much of this final product is a result of your thorough and engaged reading of the many drafts that came before it, and it would be no stretch to say that this final version is so much the result of your insightful comments and feedback every step of the way. I have been so fortunate to have you as part of my Committee and will always be thankful that you were here taking this journey with me.

To Professor Sonia Lawrence- you have been more than a support and a guide during this entire process. You have been a friend. A true friend. And for that, you will always be someone I consider a close friend.

To my love, Jennifer. Thank you for your encouragement and loving support, especially during the most difficult times (personally and professionally) of finalizing this work. I love you from the bottom of my heart and with every part of my being. I know that patent law may never be on the top of your list of exciting topics of discussion, but I hope that you are proud of me and this work and that in some way, this final product is an embodiment of the love you have shown me and the love I have for you.

To Baby Aoun... You were not here during this work, yet somehow, you have always been here with your mother and I every step of the way. I only hope that one day you will realize, in your own way, that this work is a reflection of you, the love your mother and I have for you, and how happy you have already made us.

To Moose, Edward and Oscar. Thanks for being my best friends.

Lastly, and certainly not least, to Professor David Vaver. I simply cannot find the words to thank you for all you have done for me. It is not often that I am at a loss for words... But there simply are no words to capture my gratitude. I am not only a better scholar and a better teacher on account of all your mentorship and guidance over the last several years, rather, I am truly a better man in every possible way that a man can be his best self. I do not think I will ever entirely be able to articulate how grateful I am for what you have done for me, and how your mentorship has impacted every aspect of my life. All I can say is thank you... and hope that you are proud of me, this work that I have created and the man that I have become since you came into my life.

Table of Contents

ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
LIST OF ABBREVIATIONS	ix
LIST OF FIGURES	x
CHAPTER 1: INTRODUCTION	1
1. BACKGROUND	1
a. Summary of Conclusions	2
2. SETTING THE STAGE – PATENT AGENCY AND THE INVISIBLE HARMONIZATION OF THE GLOBAL PATENT SYSTEM	7
3. THE SOCIAL CONSTRUCTION OF AGENCY WITHIN THE PATENT SYSTEM – THEORY AND METHODOLOGIES	14
4. GOALS AND OBJECTIVES	17
CHAPTER 2: METHODOLOGY	23
1. INTRODUCTION & BACKGROUND	23
2. METHODOLOGICAL OUTLINE	24
a. Historical.....	24
b. Doctrinal.....	25
c. Qualitative.....	26
3. QUALITATIVE METHODOLOGY	27
a. Theoretical and Practical Foundations	27
b. Semi-Structured Interview Methodology.....	28
4. CONCLUDING REMARKS ON METHODOLOGY AND THE STUDY OF CAPTURE	33
CHAPTER 3: THE BIRTH OF PROFESSIONALIZED PATENT AGENCY	35
1. INTRODUCTION	35
2. THE HISTORY OF PATENT AGENT REGULATION	35
a. The Early ‘Patent Agents’	35
b. Towards a Reformed Patent System and Refined Patent Agency	39
i. The UK.....	39
ii. The US.....	48
c. Regulation and Professionalization of Patent Agency	65
i. The UK.....	65
d. The US Experience in Early Patent Agency	67
e. The Internationalization of Professionalized Patent Agency	70
3. PROFESSIONALIZATION, AGENCY AND PATENT DISCOURSE	73
a. Patent Ideologies, Patent Discourse and the Professionalization of Patent Agency	73
b. Disclosure, Enablement and Patent Agency	76
4. CONCLUSIONS	83
CHAPTER 4: CAPTURE, DISCOURSE AND PROFESSIONAL PATENT AGENCY	89
1. INTRODUCTION	89

2. THE MANY FACES OF CAPTURE	92
a. Public Choice Theory and Regulatory Capture	92
b. Materialist Versus Non-Materialist Capture	95
c. The Theoretical and Methodological Challenges in Capturing Regulatory Capture.....	97
3. DEFINING EPISTEMIC CAPTURE	99
4. CAPTURE AND PROFESSIONALIZATION	105
a. Why do we Regulate Professions?	105
b. How do we Regulate Professions?	108
c. Professional Regulation and the Indicia of Capture.....	110
5. CONCLUSIONS	117
<i>CHAPTER 5: DEFINING PROFESSIONAL PATENT AGENT COMPETENCY.....</i>	<i>120</i>
1. INTRODUCTION.....	120
2. DEFINING PATENT AGENT COMPETENCY	122
a. Why Regulate the Practice of Patent Agency?	122
b. What are the Core Competencies of the Practice of Patent Agency?	125
c. Entry-Level Competency and Patent Agent Malpractice.....	127
d. The Regulation of Patent Agency and the Effect on Patent Quality.....	130
3. PATENT AGENT TRAINING.....	131
4. PATENT AGENT QUALIFYING EXAMINATIONS	139
a. The EPO European Qualifying Examination (EQE)	139
b. The UK Chartered Patent Attorney Examination	151
c. The USPTO Patent Bar Examination.....	156
d. The German Patent Attorney Qualifying Process.....	162
5. OBSERVATIONS	165
<i>CHAPTER 6: DEFINING PROFESSIONAL PATENT AGENT ETHICS</i>	<i>168</i>
1. INTRODUCTION.....	168
3. PATENT AGENT ETHICS – THE US PERSPECTIVE.....	170
4. PATENT AGENT ETHICS – THE UK PERSPECTIVE.....	175
5. PATENT AGENT ETHICS – THE GERMAN PERSPECTIVE.....	181
6. THE IN-HOUSE PATENT AGENT AND THE ‘LAWYER’	185
7. THE BOUNDARY OF PROFESSIONALIZED PATENT AGENCY – THE COMPETENCY/ETHICS PARALLAX	193
8. CONCLUSIONS	195
<i>CHAPTER 7: THE LEGITIMIZING OF PROFESSIONALIZED ‘AGENCY’ IN INTERNATIONAL PATENT PRACTICE PART 1 – PATENT LAW’S WRITER.....</i>	<i>198</i>
1. INTRODUCTION.....	198
2. PATENT LAW’S ‘WRITER’: THE PHILOSOPHY, PRINCIPLES AND PRACTICES OF CLAIMING INVENTIONS.....	199
a. The Wall of Words – Claiming and the Boundary of Invention.....	199
b. The Invention ‘Genus’ – The Claim as an Invention Formula	201
c. The Difficulty with ‘Elemental’ Analysis.....	206
i. Each Element as a Genus	208
ii. The Claimed ‘Invention-as-a-Whole’ as an Element.....	212

iii. The Structure/Function Dichotomy.....	216
3. CLAIMING INVENTIONS – IN PROFESSIONAL PATENT AGENTS’ OWN WORDS	220
a. What is an ‘Invention’?.....	221
b. How to Claim an Invention.....	224
4. CONCLUSIONS	231
CHAPTER 8: THE LEGITIMIZING OF PROFESSIONALIZED ‘AGENCY’ IN	
INTERNATIONAL PATENT PRACTICE PART 2 – PATENT LAW’S READER	238
1. INTRODUCTION - PATENT LAW’S ‘READER’: THE HYPOTHETICAL PERSON	
SKILLED IN THE ART	238
2. ANGLO-AMERICAN LAW’S ‘REASONABLE READERS’	240
a. Contract Law	241
b. The Hypothetical Reasonable Reader and Statutory Context	244
c. The Hypothetical Reasonable Person’s Inherent Expertise and Legal Knowledge	246
d. Summary	248
3. ANGLO-AMERICAN PATENT LAW’S ‘REASONABLE PERSON’ – THE	
HYPOTHETICAL PERSON SKILLED IN THE ART	251
a. The Hypothetical Skilled Reader in the Art.....	251
b. The Hypothetical Person Skilled in the Art of Modern Anglo-American Patent Jurisprudence – The	
Synthesis of Common General Knowledge and Professional Patent Agency?	258
c. The Synthesis of the Hypothetical Skilled Person and Professional Patent Agency – The Hypothetical	
Skilled Infringer?	270
4. LOOKING BOTH WAYS ACROSS THE CHANNEL? – COMPARING THE ANGLO-	
AMERICAN AND GERMAN ‘HYPOTHETICAL PERSON SKILLED IN THE ART’ IN THE	
PRE AND POST EPC ERAS.....	272
a. The German Hypothetical Skilled Person and the <i>Real</i> Skilled Person.....	275
b. The German Hypothetical Skilled Person – Reading to Learn	276
c. ‘Functionally-Oriented’ Claim Construction	278
d. The ‘Claim-as-a-Whole’	280
e. Common General Knowledge and Evident Omissions and Equivalents	282
5. THE INTERNATIONAL HARMONIZATION OF PATENT LAW’S HYPOTHETICAL	
SKILLED PERSON – FROM CURIOUS READER TO POTENTIAL INFRINGER?	287
6. CONCLUSIONS	296
CHAPTER 9: THE DISCOURSE OF PATENT PROSECUTION	304
1. INTRODUCTION.....	304
2. PATENT AGENCY AND INVENTIVE AGENCY – A GROWING DIVIDE.....	305
3. PROFESSIONAL PATENT AGENCY AND THE DISCOURSE OF PATENT	
PROSECUTION – BRIDGING THE GAP?.....	307
4. APPROVAL WITHOUT OFFICE ACTION?	311
5. CONCLUSIONS	317
CHAPTER 10: THE PROFESSIONAL PATENT AGENT AND PATENT QUALITY.....	320
1. INTRODUCTION.....	320
2. PATENT AGENCY AND PATENT QUALITY.....	321

3. PATENT QUALITY IN PATENT AGENTS' OWN WORDS	325
4. THE FORGOTTEN HISTORY OF QUALITY PATENT AGENCY?.....	328
5. CONCLUSIONS	335
CHAPTER 11: MAPPING THE DISCOURSE OF PROFESSIONAL PATENT AGENCY	340
1. INTRODUCTION - REINFORCING THE BOUNDARY OF INTERNATIONAL PROFESSIONAL PATENT AGENCY.....	340
2. THE DISCOURSE OF INTERNATIONAL PROFESSIONAL PATENT AGENCY.....	342
a. The 'Thingness' of Invention - Professionalization of Patent Agency and the Transformation of Invention.....	342
b. The Thingness of Invention, The Thingness of Professionalized Patent Agency and the Thingness of Enablement - Enablement as the Lodestone for <i>Agency</i> in the Patent System.....	348
i. The Thingness of Invention and the Transition from Democratized Enablement to Thingness of Agency	348
ii. Backgrounding Structure, Foregrounding Function – Enablement as the Lodestone for Agency in the Patent System.....	351
iii. The Normative Dimensions of Democratized Enablement.....	358
c. Patent Prosecution and Utilitarian Conceptions of Administrative Justice	360
d. The Professional Patent Agent as 'Teacher'	364
e. Training & Education.....	373
3. CONCLUSIONS	376
CHAPTER 12: THE FUTURE OF PATENT AGENCY.....	378
1. INTRODUCTION.....	378
2. THE PROFESSIONAL PATENT AGENT – THE OLDEST YOUNG PROFESSION IN THE WORLD....	381
3. DEMOCRATIZATION OF INVENTION, DEMOCRATIZATION OF PATENT AGENCY AND THE PATENT DISCOURSE.....	385
4. TECHNOLOGICAL DISRUPTION, PROFESSIONAL SERVICES, AND PATENT AGENCY	390
a. Technological Disruption and the Future of Professionalism.....	390
b. 'Can a Computer Do Your Job?' – Patent Agency in the Age of AI.....	394
5. THE FUTURE OF PATENT AGENT REGULATION.....	401
a. Regulation and Access to Services	401
b. Regulation and an Emerging Patent Discourse	403
6. DECONSTRUCTING THE BOUNDARY – RETHINKING AGENCY WITHIN THE PATENT SYSTEM.....	410
a. Enablement Across the Patent System – Reclaiming the Foundation of Patent Agency.....	410
b. Experimenting with Patent Agency	412
i. Regulation	413
ii. Education.....	416
iii. Patent Office Practice.....	418
c. Procedural Justice	421
d. Democratizing Enablement: Re-Embedding Patent Agency Within the Technical Community	428
i. Re-Coding Patent Agency as a Technical Art.....	428
ii. In-House Patent Agency.....	434
iii. Legal Education, Legal Practice and Professional Patent Agency.....	436
iv. Re-Constituting the Hypothetical Person Skilled in the Art –From Hypothetical Infringer Back to Curious Reader.....	438

v. Functionally-Oriented Claim Construction.....	439
7. CONCLUSIONS	441
<i>CHAPTER 13: CONCLUDING REMARKS.....</i>	<i>445</i>
<i>BIBLIOGRAPHY</i>	<i>447</i>
STATUTES, TREATISES AND REGULATIONS	447
CASES.....	447
BOOKS	454
JOURNAL ARTICLES.....	457
CIRCULARS, BLOGS & ONLINE RESOURCES	474

LIST OF ABBREVIATIONS

- United States of America – US
- United Kingdom – UK
- European Patent Office – EPO
- European Patent Convention – EPC
- United States Patent and Trademark Office – USPTO
- EU – European Union
- EPI – Institute of Professional Representatives before the EPO
- United States Court of Appeals for the Federal Circuit – CAFC
- World Intellectual Property Organization – WIPO
- World Trade Organization – WTO
- WTO Trade Related Aspects of Intellectual Property Treaty – TRIPS

LIST OF FIGURES

Figure 1: Picture from epi newsletter

Figure 2: Scientific American Article Displaying Recently Patented Inventions

Figure 3: Examples of Scientific American articles critical of unethical patent agent business practices

Figure 4: William A. Bell & Co's Mobile Wagon for Displaying Patent Models

Figure 5: Cover of Victor Evans' Popular Circular, "Money in Patents"

Figure 6: Congressional Endorsements in Evans' "Money in Patents"

Figure 7: Congressional Endorsements in Evans' "Money in Patents"

Figure 8: Example of an Advertisement for Victor Evans' Patent Agency

Figure 9: Scientific American editorial criticizing the practice of advertising political connections in association with the practice of patent agency

Figure 10: Scientific American editorial regarding fraudulent activities in the US Patent Office

Figure 11: A collection of Scientific American editorials highlighting patent agents disciplined for unethical behaviour

Figure 12: Abstract illustration of a patent claim – from Faber on Mechanics of Patent Claim Drafting

Figure 13 – Fillable Patent Application Form Proposed by Professor Menell

CHAPTER 1: INTRODUCTION

1. BACKGROUND

This research revolves around an analysis of the international patent agent profession¹- its historical development, similarities and differences when compared to other professions and their regulation. The research question central to this doctoral research is framed as follows:

Has the professionalization of patent agency with its accompanying discourse affected the direction of international patent institutions and networks — and if so, to what degree and in what respects? In particular, has this discourse created a form of ‘epistemic’ or ‘cultural’ capture that has the effect of delegitimizing other valid forms of discourse?

The focus on professionalization, defined as the legal regulation of the practice of patent agency, helps to narrow the scope of the research around a key historical contingency and fulcrum, namely, the time of professionalization of patent agency. This point of distinction also helps to organize the historical research, creating a pre- and post-regulation dividing line from which to organize an analysis. Furthermore, the focus on regulation of the profession connects to a key theoretical orientation of interest, namely, viewing the patent system from the perspective of regulatory theory. These specific research inquiries touch on broader, more profound questions regarding regulation generally, including the proper balance between courts and

¹ Although different jurisdictions interchangeably use titles such as patent agent, patent attorney and/or patent solicitor, this piece uses the term ‘patent agency’ broadly for all such individuals and encompasses the definition of ‘patent agent’ set out in Kara Swanson, ‘The Emergence of the Professional Patent Practitioner’ (2009) 50 Tech & Culture 519, 520, which defines ‘patent agent’ as any “persons who [are] paid to participate in the patent application process as agents of the inventor”. Where it is necessary to distinguish between specific titles for international comparative purposes, such an explicit distinction will be made.

regulatory agencies and how to counter-balance agency capture and self-regulatory institutional design.

As discussed in Chapter 2 regarding methodology, framing the research question as such fits within the proposed research methodology. The proposed methodology sets out an approach that can, at least summarily, provide a proposed answer to the research question that does not necessarily imply any normative assumptions or conclusions as to whether the aforementioned discourse should or should not exist, and if it does exist, whether this is a desirable or undesirable phenomenon. This research will not, however, be entirely descriptive in nature. Rather, as Chapters 11 and 12 will demonstrate, the analysis does provide some normative recommendations for the future regulation of patent agency.

a. Summary of Conclusions

The following chapters will demonstrate that much like licensing regulation of other professions, the licensing of patent agency began with what can at best be considered ambivalence towards competency. One of the key observations emerging from the historical analysis is that the core competencies of patent agency had, for many years prior to and following regulation, been in state of continuous flux. The earliest patent agents struggled to define the essence of their practice and even contemporary professional patent agency is suffering from a crisis of legitimacy stemming from problems surrounding validation of competency-based entry-to-practice requirements. Rather than competency, it was ethical behaviour amongst the profession that was the main concern justifying the earliest regulatory intervention. Furthermore, prior to, and at the time of, regulation, the intersection between public interest and the patent system was the main objective of both regulators and patent agency. Here, public interest can best be described as what will be referred to as a desire to promote

‘democratized enablement’. Agency within the patent system meant enablement- agency revolved around the extent to which the patent system enabled the actual technical community to directly engage in technical activities.

Democratized enablement manifested itself in various forms:

- In the administration of the patent system, namely, in the forms of patent prosecution;
- In the way courts approached the exercise of claim construction; and
- In the way both regulators, and the profession, viewed patent quality.

With respect to patent agency, pre-regulation patent agency in the era of democratized enablement manifested itself as ‘invention agency’, rather than patent agency in its contemporary form. Contemporary professional patent agency is mainly concerned with the preparation and prosecution of patent applications as its core competency. However, patent agency in the form of ‘invention agency’ in the era of democratized enablement, much like agency itself, was embedded within the technical community community. Neither invention nor agency were viewed strictly as ‘things’, rather, both operated as forces permeating throughout the technical community and enabling technical teaching and development. While the preparation and prosecution of patent applications was one of their main service offerings, this was not a discrete service forming the core identity of the invention agent community. Rather, the preparation of patent applications was embedded within a community and culture of technical activity, and invention agents were committed to improving the mechanisms of dissemination of knowledge and education for both inventors and users of invention information. In this sense, invention agents played a crucial role in ensuring that the patent system as a social institution remained embedded within the epistemic community of inventors and skilled technicians during the era of

democratized enablement. To put it simply, the invention agents of this era were the animating force behind the democratization of enablement.

Following regulation of the practice of patent agency, agency became more professionalized and took on a quality of ‘thingness’ (i.e. rather than agency as democratized enablement). The invention agent of an earlier era became the target of this new, discrete group and over time was eliminated by the professional patent agent. Furthermore, as patent agency transitioned from the amorphous invention agent embedded within the technical community to the ‘thing’ that is the professional patent agent, as we shall see in Chapters 7, 8 and 11, so too did invention take on a quality of thingness. The ascendance of the ‘invention as thing’ is in many ways intertwined with the professionalization of agency’s effect in backgrounding democratized enablement:

- Rather than acting as a guiding principle of the patent system as a social institution, enablement now exists solely as a standalone legal doctrine;
- Claim construction has become divided from the question of how the invention enables the technical community, whereas at one point the two were intrinsically connected; and
- Patent quality has largely become disconnected from the question of enabling the individual agency of the technical community.

The following chapters will argue that the time may have come to reclaim democratized enablement as the central guiding principle for agency within the patent system. This is the consequence of several political, economic and technological factors. Primarily, as the era of the Fourth Industrial Revolution is now upon us, AI-driven automated technologies are rapidly eroding the boundaries of various professional fields. In this era of democratized invention, we are now witnessing the patent system pushing deeper into previously uncharted social territories,

including spaces occupied by students in the formative years of their education. As we shall see, professional patent agency may soon feel the effects of these new technological and socioeconomic pressures. Furthermore, this technological revolution has bolstered the field of legal design, supported by the ideology of procedural justice. Procedural justice posits that the guiding principle of government administration should be enabling the autonomy and dignity of individual users. Rather than administrative systems designed by and for legal professionals, procedural justice, and its focus on individual dignity, requires the development of systems directly understandable and accessible by individual end users. The Fourth Industrial Revolution is ushering in new technologies deployed in accordance with the guiding principles of legal design and procedural justice, with the promise of revolutionizing legal systems and processes to make them more user-friendly and accessible.

The irony is that the early USPTO, and its administration of the patent system, was held up to the public as implicitly exemplifying the principles of procedural justice. Early USPTO officials were vocally against the professionalization of patent agency, believing that it ran counter to the principle of a patent office that was in direct contact with the public it was meant to serve. Patent exhibitions were well attended by an inspired public motivated by the patent office's engagement with, and encouragement of, the community of aspiring innovators. Today, after almost a century of professionalized patent agency, patent office practice lies on the opposite end of the spectrum from where it began- an administrative agency operating through an extremely archaic and esoteric set of principles and practices, where anyone outside of its narrow epistemic community could not possibly hope to understand its language. Across the spectrum of government administration, legal design and new legal technologies have already had a substantial impact in supporting the development user-friendly interfaces and processes for administrative decision-

making, which in turn ensures that individuals themselves feel empowered in engaging with government administrative processes. Again, the irony is that the patent system, once a leader in this field, now exists as an outlier amongst other legal systems.

Legal design in the era of the Fourth Industrial Revolution can potentially play a role in supporting procedural justice within the patent system. As we shall see, new technologies are enabling the development of user-friendly interfaces and processes for patent prosecution processes, including the design of clear and understandable patent application forms along with user-friendly technologies and interfaces for patent searching. By re-designing the patent system in accordance with the principles of legal design, this may in turn promote the legitimacy of the patent system as it moves into previous uncharted social spaces. In this regard, the future of the patent system looks much like its past, where democratized enablement again becomes the guiding principle of the patent system. Reclaiming democratized enablement as a guiding principle of the patent system may be manifested in the following ways:

- Regulation: the principle objective of regulation of patent agency should be democratized enablement i.e. to what extent does the patent system enable the actual technical community to use the patent system for technical ends
- Claim construction: claim construction should revolve around the question of what does a claimed invention enable skilled artisans to do
- Patent quality: the question of patent quality should be refocused towards democratized enablement; a quality patent system, and correspondingly, patent document, is one which enables real skilled artisans to use the patent system for technical purposes (interpreting scope of protection, using patents for technical activities, and understanding patent prosecution).

The final chapters of this work will explore the ways in which emerging legal technologies in the era of the Fourth Industrial Revolution may usher in the possibility of reclaiming democratized enablement. The challenges that legal technologies will likely pose to the boundary of professional patent agency that surrounds the patent system may, to the dismay of many professional patent agents, make the return of democratized enablement inevitable.

2. SETTING THE STAGE – PATENT AGENCY AND THE INVISIBLE HARMONIZATION OF THE GLOBAL PATENT SYSTEM

In *The Global Governance of Knowledge: Patent Offices and Their Clients*, Professor Peter Drahos provides a detailed account of the inner workings of the global patent system from the unique perspective of international patent offices. Drahos witnesses firsthand what he calls a ‘private governance network’ consisting of the largest corporate patent filers, patent offices, and the patent agent profession. According to Drahos, patent practice might be one of the most entrenched forms of ‘epistemic’ or ‘cultural’ capture², which involves the creation of a single dominant patent practice discourse resilient against many of the typical forms of political and legal accountability. This dominant practice narrative benefits the interests of large, corporate patent filers, potentially jeopardizing the public interest at the heart of the patent social contract. This contract, which commonly serves as a theoretical justification for patent systems globally,

² Regarding epistemic capture, see Cass R. Sunstein, *Valuing Life: Humanizing the Regulatory State*, (University of Chicago Press, Chicago, 2014) at 32-33. Epistemic capture occurs when a regulator develops a specific view of an issue resulting from the fact that relevant information is provided almost entirely by a distinctive group of people. Sunstein points out that there is a serious concern caused by such asymmetry of information, given that even the most good-intentioned of public officials may have their own perspective “shaped by the limited class of people to whom they are listening”.² Such regulators “might be subject to epistemic capture in the sense that they will ultimately form a view that fits with what they learn from the particular people with whom they speak.” Regarding cultural capture, see James Kwak, “Cultural Capture and the Financial Crisis”, in Daniel Carpenter, David A. Moss (eds.), *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (Cambridge University Book Press, 2013) at 84. In situations of cultural capture (as opposed to traditional notions of regulatory capture), regulators may not necessarily be relegating the public’s interest to their own material self-interest, or acting out of a maliciousness or fraud, rather, prolonged proximity between regulator and regulated may create an environment where regulators unquestionably adopt the narrative of the regulated along with its presumptions regarding public welfare.

specifies that the patent system is intended to serve a broad public interest mandate, by incentivizing creative activity that would not otherwise take place absent the system and diffusing socially valuable invention information for the benefit of society.³

From its earliest days, the patent social contract was developed to encourage, promote, and reward dissemination of useful knowledge created by all inventors, as well as promoting public access to such knowledge. This benefit must be viewed in a broad sense, both in terms of the commercialization of socially useful inventions as well as the contribution of novel inventive information to the store of human knowledge. The grant of property rights, in the form of a patent, acts as an incentive for knowledge creators to produce and disseminate their useful knowledge for the benefit of the public, and both property rights and public access to knowledge must be balanced to ensure the effective attainment of the objectives of the social contract.

The professionalization of patent agency is no doubt intertwined with the establishment of the underlying ideology that has served as the foundation of our patent system in its current form. Numerous studies have examined the various socioeconomic impacts of corporate patent activity, but few have questioned the impact of patent agency on either furthering or hindering the various objectives of the patent system. Furthermore, and most relevant for the purposes of this study, fewer still have questioned the impact of professionalization of patent agency. As Professor Guagnini states:

However the issue I want to highlight here is more narrowly focused: it is the impact that the introduction of the examination had on the profile of the registered [patent] agents. It is not unreasonable to assume that this procedure, not only the examination as such but also the formation by apprenticeship before and after the examination, favored a growing

³ Peter Drahos, *The Global Governance of Knowledge: Patent Offices and Their Clients* (Cambridge University Press, 2010) at 32.

homologation in the characteristics of the new, post [regulation] generation of patent agents. If that was the case, did such homologation extend not only to the characteristics of their profile but also more generally to their approach to the profession? And did that have an impact on the evolving pattern of patents procedures and specifications, favoring the emergence of distinctive and possibly more homogeneous standards?⁴

Academic scholarship of various disciplines has overlooked the patent agent profession, and this inattention may create an incomplete picture of how our current patent institutions have developed. Specifically, what effect has the professionalization of patent agency had on the development of patent law institutions? According to Guagnini:

The changes and the profile of the patent agents at the turn-of-the-century and in the early twentieth, and the process by which their professional interests and agenda were negotiated and defined, deserve to be examined on the basis of a more systematic empirical research. So does the way and the extent to which their interests were brought to bear, along those of the other ‘players’, on the evolution of the ‘rules of the game’- the patent system as an institution...⁵ (emphasis added)

While the role of large multinational corporations and patent offices in shaping various aspects of global patent institutions has been the subject of numerous studies, the conduct and governance of the patent agent profession have received scant attention in existing scholarship.⁶

⁴ Anna Guagnini, ‘Patent Agents in Britain at the Turn of the Twentieth Century: Themes and Perspectives’ in Ian Inkster (ed), *History of Technology*, vol 31 (Bloomsbury Publishing PLC 2012) 154–5.

⁵ *ibid* 159.

⁶ William T. Gallagher, ‘IP Legal Ethics in the Everyday Practice of Law: An Empirical Perspective on Patent Litigators’ (2010) 10 John Marshall Review of Intellectual Property Law [i], 313, 315. Although specifically focused on patent litigators, Gallagher nonetheless points out the surprising paucity of qualitative studies of patent professionals generally, stating “there is little empirical research focused on patent lawyers in general and litigators specifically. We thus know very little about this segment of the legal profession, which is surprising given the increasing significance of intellectual property worldwide over the past two decades and the concomitant transformation of patent law practice from a relatively obscure specialization to an elite and prominent practice area.” (at 310) Also, at 313: “despite the increasing prominence of intellectual property law over the past several

As Drahos points out, ‘without a study of the patent professions of major patenting countries it is hard to say’ what effect the profession is having in exerting a global patent narrative and whether that narrative may undermine the objectives of the patent social contract.⁷

Evidence suggests that the highly technical aspects of patent practice have enabled professional patent agents to exert considerable influence over global patent harmonization. Patent offices have general authority over such procedural matters that "govern the conduct of proceedings in the office," that "facilitate and expedite the processing of patent applications," and that "govern the recognition and conduct of agents, attorneys, or other persons representing applicants or other parties" before it.”⁸ Furthermore, it is over these procedural aspects of patent practice that patent offices are granted wide authority to craft their own rules and processes and are given the greatest level of legal deference.⁹ In the crafting of these procedural rules, the discourse is typically dominated by two groups - patent office representatives and professional patent agents. This insularity creates a form of epistemic or cultural capture, where the entire discourse is dominated by a small group of individuals to the exclusion of other stakeholders, a phenomenon which leaves regulators unable to envision alternative frameworks beyond the customary discourse.

It is through these unseen mechanisms of patent office practices and procedures that a substantial amount of global patent harmonization takes place. These procedural matters, as opposed to substantive aspects of patent law, are the sort of ‘technocratic’ aspects of patent

decades, this area of law remains relatively under-examined and under-theorized from a law and society perspective. For example, we simply don’t know a lot about the key legal actors in intellectual property law (such as lawyers), or about key legal institutions (such as the United States Patent and Trademark Office [‘PTO’]).

⁷ *Supra* note 3 at 310.

⁸ Clarisa Long, “PTO and the Market for Influence in Patent Law”, (2009) 157 U Pa L Rev 1965 at 1980-1.

⁹ See generally, Melissa F. Wasserman, “Deference Asymmetries: Distortions in the Evolution of Regulatory Law”, (2015) 93 Tex L Rev 625.

practice that elicit little political reaction or judicial oversight.¹⁰ It is this technical harmonization, which is the primary field of activity for professional patent agents, along with its intricate web of technical rules and discourse, that creates a “difficult-to-surmount expertise barrier that keeps critical theorists and activist commentators at arms-length.”¹¹

Patent office practice harmonization is particularly troublesome in jurisdictions that are major exporters of patent services (i.e. developing countries and non-developing countries outside of the US/EU/Japan) where domestic patent agents act largely as agents for foreign corporate patent filers.¹² In these jurisdictions, patent agents exercise a tremendous amount of influence over the development of patent office rules and procedures, mainly in the interests of their foreign clients.¹³ Patent offices in these countries view the domestic patent agent profession as their main ‘customers’, making domestic patent agents a, if not the, vital force for domestic intellectual property reform.¹⁴ It is therefore natural for a sort of epistemic capture to occur, where patent practice discourse becomes dominated by a single, continuous narrative which fails to accommodate the needs of underserved domestic market segments and the general public interest, and struggles to imagine alternative forms of intellectual property service delivery.

¹⁰ *Supra* note 3 at 289-290.

¹¹ Siva Thambisetty, ‘The Construction of Legitimacy in European Patent Law’ (2017) 3 IPQ 221, 53.

¹² Wissam Aoun, “Canadian Patent Agent Regulation Reform (Part 2): Governance, Self-Regulation and Canada’s Patent Professional Identity Crisis” (2017) 99 J Pat & Trademark Off Soc’y 388 at 401. See also *Supra* note 3 at 262.

¹³ Siva Thambisetty (n 11) 53–4: as Thambisetty states, the legitimacy of current forms of patent practice in major developed nations ‘may also be enhanced by “technical assistance” provided to less experienced patent offices. These can take the form of hardware like computers that are linked to the same technical and knowledge resources used by the more experienced patent offices, or technical “training” programs or high level “collaboration” between the examiners of different offices...In the global patent system, the development of such “legitimacy networks” is at the heart of the asymmetry in norm-setting power and the depleted ability of newly established patent offices to formulate rules of practice specific to national socio-economic conditions. Such networks can inhibit regulatory sovereignty through largely invisible institutional processes that propel the credibility of claims of legitimacy of examination practices.’

¹⁴ Walter G. Park, “Globalization, Patent Reform, and Patent Professional Services”, (2001) 83 J Pat & Trademark Off Soc’y 303 at 306.

Given the dependency of patent agents' livelihood in these jurisdictions on foreign patent interests and the overlapping proximity between patent offices and agents in jurisdictions around the world, it is not surprising that patent agents are viewed as a key player in harmonizing global patent practice.¹⁵

In a recent analysis, Professor Shobita Parthasarathy has demonstrated how over the course of the late 19th and early 20th Century, professional patent agents and other patent law 'insiders' have constructed their own system of patent administration, governed by its own rules and its own language, which she refers to as patent law's 'expertise barrier'.¹⁶ This expertise barrier was erected by "patent lawyers, companies, and representatives of the PTO, who all had traditional organizational interests in the patent system"¹⁷ and used this barrier to "reinforce[e] a narrow definition of the patent system's role and responsibilities."¹⁸ The system of filing, prosecuting and granting patents for inventions was cast in a strictly formalistic light, exemplary of the legal environment of the era which sought to define the practice of law itself as a scientific endeavour. The highly-accomplished scientists who formed the earliest US patent examining corps, and their case-by-case method of scrutinizing inventions, were to be replaced with a highly formalistic system designed "to operate fairly, objectively, systematically, and in a predictable manner."¹⁹ Consequently, the formalized patent system became its own domain of technical expertise, with its own epistemic community of patent insiders, which "rejected alternative forms of knowledge and expertise and new constituencies"²⁰ and "ke[pt] out civil

¹⁵ *Supra* note 3 at 219-220 and 251.

¹⁶ Shobita Parthasarathy, *Patent Politics: Life Forms, Markets & the Public Interest in the United States & Europe* (The University of Chicago Press 2017) 16-7.

¹⁷ *ibid* 86-7.

¹⁸ *ibid* 16-7.

¹⁹ *ibid* 86-7.

²⁰ *ibid* 16-7.

society groups and the alternative forms of knowledge and expertise that they brought with them.”²¹ Only the major patent filers and their legal representatives – those inside of the patent ‘expertise barrier’ – are “deemed relevant and legitimate” to comment on the functioning of the patent system.²²

As this research will demonstrate, professional patent agents, as a discrete professional identity unto themselves, have indeed made a significant positive contribution to the development of the patent system. For example, within the European context, the EPO is often praised for its high-quality patent administration processes compared to other patent offices²³, a testament to many years of collaborative work between European patent agents and their patent office counterparts. At the same time, over many years of disconnect from the innovation community itself, professional patent agents, as a distinct professional identity, have formed their own epistemic community. This community operates based upon its own customs, conventions, and, importantly, its own language - the language of invention claiming, patent specification drafting, and patent prosecution. As the professionalization of patent agency became more discrete, the language of patent agency, once grounded within the innovation community itself, has now become disconnected from its roots. While administrative efficiency is certainly a desirable objective, the more this language of patent agency becomes self-legitimizing²⁴, the more the epistemic boundary layer that separates the patent system from the innovation community threatens to generate a crisis of legitimacy between the public and the patent system.²⁵

²¹ *ibid* 113–4.

²² *ibid.*

²³ See generally Colleen Chien, ‘Comparative Patent Quality’ (2018) 50 Arizona State Law Journal 71.

²⁴ Regarding the construction of the language of patent prosecution and self-legitimacy, see Siva Thambisetty (n 11).

²⁵ For an excellent application of boundary theory to the patent system, see Shobita Parthasarathy (n 16).

3. THE SOCIAL CONSTRUCTION OF AGENCY WITHIN THE PATENT SYSTEM – THEORY AND METHODOLOGIES

Legal systems, including the patent system, are social institutions formed from various social processes and practices. Viewed from this perspective, like all social institutions, legal systems are formed, reformed and sustained by individuals, based on their beliefs, interests, ideological predispositions and biases. Sociolegal scholars have long recognized that the study of individual actors allows us to better understand how the law and underlying legal ideologies serve to “constrain their imaginations and actions”, thereby maintaining and reinforcing institutions in the face of change.²⁶ As Professor Robert Gordon states:

To put this another way, the power exerted by a legal regime consists less in the force that it can bring to bear against violators of its rules than in its capacity to persuade people that the world described in its images and categories is the only attainable world in which a sane person would want to live.²⁷

Accordingly, the law is:

not only the *product* of such a consciousness but help[s] to reproduce that consciousness by confirming it....the legal forms we use set limits on what we can imagine as practical options: Our desires and plans tend to be shaped out of the limited stock of forms available to us: The forms thus condition not just our power to get what we want but what we want (or think we can get) itself.²⁸

Professor Kara Swanson emphasizes the importance of bringing the social norms and ideologies of the legal profession itself into the sociolegal study of intellectual property law. For

²⁶ Robert W Gordon, ‘Critical Legal Histories’ (1984) 36 Stanford Law Review 57, fn 80.

²⁷ *ibid* 109.

²⁸ *ibid* 111.

example, several studies have demonstrated how the modern notion of ‘invention’ is a construct shaped by the legal system and legal actors responsible for patent management over the course of the late 19th and early 20th Century.²⁹ The foregrounding of individuals themselves, as opposed to legal theory or legal doctrine, in the study of intellectual property helps to uncover the social construction which builds inherent, and often invisible, assumptions underlying what appear to be neutral concepts. As Professor Swanson states:

Bringing the law and lawyers into the social construction of technology should not be read as an invitation to privilege legal stories, but as a contribution to scholarship in both law and history that decenters heroic narratives, giving needed attention to institutions, assistants, consumers, and financiers, as well as to lawyers and their clients, and that also examines the persistence and re-creation of such narratives in law and society.³⁰

The value of qualitative work, and specifically, cultural anthropology, in uncovering the law’s normative effect in developing and sustaining discourses was long ago recognized.³¹ Yet the application of such theories and methods to the study of patent law and practice have been slow to take hold within the academic community. Given the various social, as opposed to strictly legal, roles that patents play in today’s modern society, this reality is as surprising as it is disappointing. As Professor Burk states, “whatever else one might say about the effect patents have on technological innovation, it seems beyond dispute that patents play an important *social* role in industrialized societies.”³² In this sense, it is important to recognize that “particular

²⁹ See generally Carolyn C. Cooper, ‘Social Construction of Invention through Patent Management: Thomas Blanchard’s Woodworking Machinery’ (1991) 32 Tech & Culture 960; Christopher Beauchamp, ‘Who Invented the Telephone? Lawyers, Patents, and the Judgements of History’ (2010) 51 Tech & Culture 854.

³⁰ Kara Swanson, “‘Great Men,’ Law, and the Social Construction of Technology’ (2018) 43 Law & Social Inquiry 1093, 1096.

³¹ (n 26) 95–6.

³² Dan L. Burk and Jessica Reyman, ‘Patents as Genre: A Prospectus’ 26 Law & Literature 163, 164.

political and institutional environments give [patents] meaning and importance” and in order to fully appreciate this social reality we may need to move past “our traditional method for analyzing patents, which focuses on legal language, reasoning, and precedent.”³³ This entails analyzing the patent system from a “bottom up” or “endogenous” perspective, which includes a study of the individual actors that form the social institution that is the patent system.³⁴

While concepts such as ‘invention’ have received considerable attention from sociolegal scholars, the concept of ‘agency’ within the patent system has eluded similar scholarly attention. For the purposes of this study, agency connects to professionalization and regulation of occupational labour, as agency within the patent system has for many decades been professionalized. In the context of professions and professional regulation, professional discourse and its normalizing effects not only impose homogeneity amongst practitioners, but also act to limit professional autonomy of practitioners in carrying out their work.³⁵ Professionals gain social status through professional licensing, and in return, the act of professionalization “obscures the fact that what is normal versus abnormal” in professional practice “is contingent upon that social and cultural context.”³⁶ Much like all discourses, once the professionalization discourse is fully materialized, those entering into it see it as a natural and inevitable state of affairs, despite there being many possible alternatives, with the steady-state typically coinciding with a long-standing business model of production.³⁷ Thus, the social construction of a discourse of professional practice invisibly constrains human agency, the social institutions of a

³³ Shobita Parthasarathy (n 16) 194.

³⁴ Dan L Burk, ‘On the Sociology of Patenting’ (2016) 101 Minnesota Law Review 421, 449.

³⁵ Jessica Reyman, *The Rhetoric of Intellectual Property: Copyright Law and the Regulation of Digital Culture* (Routledge (Taylor & Francis) 2010) 33.

³⁶ *ibid.*

³⁷ *ibid* 73.

professional field imposing on those individuals within it a set of circumscribed views of the world and their role within it.

While interest group dynamics no doubt play a significant role in maintaining the status quo within a professional field, viewing this phenomenon entirely through the lens of material interests overlooks the reality that discourses are sustained through both material and discursive means. The perspective of interest group dynamics often lacks “plausible account[s] of power and social structures”; it also lacks the fact that individuals “are just as much products of socially created and maintained categories of thought and conventional practices... and are constrained by structures of discourse, ways of thinking about reality and right, cultural inheritance, and political and organizational forms that shape desire and channel its expression.”³⁸ The discourse of professional patent agency is more than just interest group dynamics; rather, it is the recursively related relationships between the culture, norms *and* material interests of this group and the role this plays in shaping the contours of the patent system as an institution.³⁹ This recursiveness creates an element of self-perpetuation within the professional space. In this sense, “the peculiarities” of practices of professional patent agency, revolving largely around the drafting and prosecution of patent applications, may “exist [at least in part] in order to perpetuate the community of practice that exists to perpetuate the patent system” in its current form.⁴⁰

4. GOALS AND OBJECTIVES

This research is timely for many reasons. As we enter the era of the Fourth Industrial Revolution, which is ushering in an era of democratized access to information, access to means

³⁸ Gordon (n 26) 74.

³⁹ Jessica Silbey, ‘Heuristic Interventions in the Study of Intellectual Property’ (2016) 101 Minnesota Law Review 333, 338.

⁴⁰ Dan L. Burk and Jessica Reyman (n 32) 183.

of production, and artificial intelligence (“AI”) powered information processing and automation, we have started to see new forms of democratized invention along with the democratization of professional expertise.⁴¹ These two technological disruptive forces, to which the practice of professional patent agency is not immune⁴², may erode the professional barrier separating inventors and patent offices, “mov[ing] these two structures closer together, squeezing out the buffer.”⁴³ Scholarship has recently turned its attention to the patenting activities of small-to-medium enterprises and individual inventors⁴⁴, but few of these studies have engaged in detailed

⁴¹ For an interesting summary discussion of the ‘democratization of expertise’ within the medical practice context, see W. Nicholson Price, ‘Artificial Intelligence in the Medical System: Four Roles for Potential Transformation’ (Social Science Research Network 2019) SSRN Scholarly Paper ID 3341692 4–5 <<https://papers.ssrn.com/abstract=3341692>> accessed 26 February 2019.

⁴² Automation and AI have already started to move into this space and much like other professional services, may soon begin to challenge our traditional conceptions of patent agency. New software solutions can automate searches based on rudimentary invention disclosures, see for example AI Patents: ‘AIPatents’ <https://www.aipatents.com/aip_new/index.html> accessed 26 October 2018; Software solutions now automate file management, see for example Appcoll: ‘AppColl | Cloud-Based Patent and Trademark Management Software’ (*Cloud-Based Patent & Trademark Management Software*) <<https://www.appcoll.com/>> accessed 26 October 2018; New software solutions automate portions of application preparation, see for example Specifio: ‘Specifio :: Auto-Generated Software-Patent Applications’ <<https://specif.io/>> accessed 26 October 2018; See also ‘TurboPatent – Inventing a Better Way’ <<https://turbopatent.com/>> accessed 26 October 2018; Software solutions also automate patent prosecution processes and strategy; see for example ‘TurboPatent Launches AI-Powered RoboReview to Improve Patent Drafting – TurboPatent’ <<https://turbopatent.com/turbopatent-launches-ai-powered-robo-review-to-improve-patent-drafting/>> accessed 26 October 2018; International patent offices are also exploring the use of AI for automating searching and administration. See ‘Meeting of Intellectual Property Offices (IPOS) on ICT Strategies and Artificial Intelligence (AI) for IP Administration’ (World Intellectual Property Organization 2018) UN WIPO/IP/ITAI/GE/18/1; It may not be long before AI-driven software plays a far greater role in drafting claims. See ‘Could a Computer Do Your Job?’ <<http://www.managingip.com/Article/3502938/Could-a-computer-do-your-job.html>> accessed 26 October 2018. In a recent debate hosted by the U.K. Chartered Institute of Patent Attorneys (CIPA), the majority of attendees seemed to believe that such technology may be operable within the next twenty years. The question posed for the debate was whether or not, within the next 25 years, a patent will be filed and granted without human intervention, with the audience voting “roughly 80-60 in favour of the motion ‘This House believes it is inevitable that, within 25 years, a patent will be filed and granted without human intervention’”.

⁴³ Brian Sheppard, ‘Incomplete Innovation and the Premature Disruption of Legal Services’ (2015) 2015 Michigan State Law Review 1797, 1906.

⁴⁴ See for example Stuart J. H. Graham and others, ‘High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey’ (2009) 24 Berkeley Technology Law Journal 1255; Ted Sichelman and Stuart J. H. Graham, ‘Patenting by Entrepreneurs: An Empirical Study’ (2010) 17 Michigan Telecommunications and Technology Law Review 111.

qualitative analyses⁴⁵ examining how these groups engage patent institutions,⁴⁶ and fewer still have analyzed the professional culture, identity and practice of professional patent agency.⁴⁷ This project is an attempt to fill this gap.

This work will attempt to provide recommendations for new forms of patent agent governance alongside potential reform of patent institutions. Such conclusions are pertinent to the current innovation landscape. Patent office practices developed in an era of experimentation⁴⁸ and while treaties have harmonized much substantive law internationally, patent office examination and administration processes remain open to flexibility for achieving various patent law objectives. Academics are now proposing detailed methodologies for experimentation in patent application and prosecution processes.⁴⁹ Invention is becoming democratized, as is the delivery of professional services. With patent agency lying on the nexus of these two movements, questions surrounding the future of patent agency are pivotal to the future of the patent system itself.

Rather than being entirely descriptive, this project proposes a normative orientation directed towards the issue of patent quality, and the question of how the norms and culture of

⁴⁵ For an excellent discussion on the lack of qualitative empirical studies relating to the patent system, along with comparative shortcomings of other forms of empirical analysis with respect to patenting trends, see Jessica Silbey, 'Patent Variation: Discerning Diversity among Patent Functions' (2013) 45 Loyola University Chicago Law Journal 441.

⁴⁶ See for example William T. Gallagher (n 6) 313, 315.

⁴⁷ *ibid* 315. Gallagher highlights how law and society scholarship and legal ethics has largely overlooked patent practice: "There is by now a significant empirical literature that examines large firm and elite lawyers' ethics in a variety of contexts, although none of this literature focuses on patent lawyers."

⁴⁸ John F. Duffy, 'Harmony and Diversity in Global Patent Law Symposium - Patent System Reform' (2002) 17 Berkeley Technology Law Journal 685.

⁴⁹ See Colleen V. Chien, 'Rigorous Policy Pilots: Experimentation in the Administration of the Law Essays' [2018] Iowa Law Review 2313; Colleen V. Chien, 'Four Experiments for Improving the Patent System' (Unified Patent Conference, Santa Clara University, 13 November 2018) <https://docs.google.com/presentation/d/1gcJzwg-kZtCbGUgH3ZkuGUAFYPjsMgrjxE_0pU98qJ0/> accessed 13 November 2018; Colleen V. Chien, 'Policy Pilots: Experimentation in the Administration of the Law' (Social Science Research Network 2018) SSRN Scholarly Paper ID 3300167 <<https://papers.ssrn.com/abstract=3300167>> accessed 30 January 2019.

professional patent agency affect patent quality. As discussed below, history demonstrates that many fundamental patent procedures and doctrines developed through professional patent practice, with the norms and practices of this intermediary profession being judicially, legislatively and institutionally legitimized.⁵⁰ A deeper understanding of the professional norms and interests of this intermediary profession may provide some understanding of the potential ‘distortion’ effect – how the invention is “sanitized, modulated, or otherwise transformed by the legal pencil”⁵¹ - that takes place when inventive agency passes through professional patent agency and what effect this may have on patent quality. In this regard, as discussed under Chapter 2 regarding methodology, an international comparative analysis adds a unique and valuable dimension to the project.

The potential democratization of professional services in this new Fourth Industrial Revolution is not unique to patent agency, and like other professions, patent agency will not remain insulated from its effects. New forms of AI-powered direct-to-user legal services platforms are creating tension with traditional forms of legal service delivery models.⁵² As professional patent agency confronts the Fourth Industrial Revolution era, the question is how far the discourse of professional patent agency may seek to de-legitimize novel forms of professional service delivery within the field of patent practice.

⁵⁰ Dan L. Burk and Jessica Reyman (n 32) 175; See also Siva Thambisetty (n 11) 24.

⁵¹ Jeanne C. Fromer, ‘Patent Disclosure’ (2008) 94 Iowa Law Review 539, 568.

⁵² See for example Martin Schweiger, ‘A Punch Against The Establishment: Contract Drafting Robots Are Legal in Germany’ (*IP Lawyer Tools*, 18 October 2020) <<https://ip-lawyer-tools.com/another-punch-against-the-legal-establishment-legal-text-robots-are-legal-in-germany-for-the-time-being/>> accessed 18 October 2020 Wolters-Kluwer, publisher of legal texts and treatises, has launched a direct-to-consumer, AI-powered contract drafting platform, SmartLaw. A German Bar Association challenged the legality of this site, alleging that it constituted the unauthorized practice of law. Although the Cologne regional court found some of SmartLaw’s marketing material did cross the line, on the whole, it found that the site does not constitute an unauthorized practice of law and thus can legally operate in Germany.

This project is cautious about jumping to normative conclusions. Specifically, whether the conclusion that technological disruption's 'democratization of legal services' is automatically beneficial needs careful consideration. As Professor Brian Sheppard states:

If lawyers stand as a critical buffer between the operation of legal authorities and the heterogeneous goals and values of the public, then disruption would move these two structures closer together, squeezing out the buffer. This has important consequences. Considering the public's efforts to seek relief from the law, legal self-help will increase. When people help themselves rather than seek the assistance of a lawyer, efforts to socialize (which arise from the interactions between client and lawyer) and legitimize (which occur when the lawyer expertly works within the legal framework to persuade others of the legitimacy of the client's non-conformist values or goals) might be weakened. Sometimes it takes a professional third person, or so the argument goes. The hope, however, is that we have been underestimating the ability of people, particularly disenfranchised people, to reach these results on their own or with improved technological tools. Even so, we must be mindful of the possibility that self-help could hurt, rather than help, to bring about progressive ends through the machinery of the law.⁵³

Sheppard's statement of caution applies with equal force to the case of patent agency. Patent agents have long acted as a buffer between the inventive community and patent institutions. The discourse of patent agency may certainly have had an independent effect in shaping the norms and cultures of inventive communities and patent administration. It is however important to exercise caution in jumping to the conclusion that the discourse of patent agency, in and of itself, is detrimental to the functioning of our modern patent systems, such that

⁵³ Brian Sheppard, "Incomplete Innovation and the Premature Disruption of Legal Services" (2015) Mich St L Rev 1797 at 1906-7.

our patent systems would automatically be *better* without the buffer of professional patent agency. The inventing public may hold inaccurate social myths regarding the patent system, such as romanticizing the plight of the ‘heroic inventor’ and irrational fears regarding misappropriation of inventions.⁵⁴ Thus, it is inappropriate to assume automatically that democratized patent agency will automatically lead to a *better* patent system if the system only becomes a reflection of these pervasive and inaccurate social myths. While interest group dynamics – both on the part of professional patent agents and their patent examiner counterparts - undoubtedly play a significant role in maintaining the status quo of professional patent agency, viewing this issue entirely from an interest group perspective might overlook the important social-norm-making dimension associated with maintaining or disrupting the current dominant discourse of professional patent agency. Accordingly, this work will attempt to consider how social norms may have to adapt and change in order in a new era of democratized patent agency.

⁵⁴ See Mark D. Janis, ‘Patent Abolitionism’ (2002) 17 Berkeley Technology Law Journal 899, 904–922 for an excellent discussion of the impact of the myth of the ‘heroic inventor’ on patent reform. See also Mark A. Lemley and Colleen V. Chien, ‘Are the U.S. Patent Priority Rules Really Necessary?’ (2003) 54 Hastings Law Journal 1299.

CHAPTER 2: METHODOLOGY

1. INTRODUCTION & BACKGROUND

The research aims to track patent discourses between the inventive community, patent office officials, courts, and professional patent agents, to understand divergences and similarities between such discourses and the role of professional patent agent discourse in influencing and changing the others. As discussed above, there have been relatively few academic attempts to study the patent agent profession in comprehensive detail. There has also been a paucity of studies that comprehensively examine how individuals engage with the patent system. Scholarship has only recently turned its attention to the patenting activities of small-to-medium enterprises and individual inventors⁵⁵, but few of these studies have engaged in detailed qualitative analysis⁵⁶ and fewer still have qualitatively examined how these groups engage with patent institutions.⁵⁷

In one of the few comprehensive qualitative studies comparing the motivations of innovators with patent law's theoretical assumptions, Professor Jessica Silbey conducted field work involving interviews with dozens of innovators and artists as well as intellectual property attorneys. Silbey's qualitative study demonstrated that the norms of the patent system, and the incentives and protections it provides, often fail to align with the norms of the innovative community, creating a mismatch between layers of social and legal norms.⁵⁸ Silbey's work is no doubt a major contribution to this field of scholarship.

⁵⁵ See for example Stuart J. H. Graham and others (n 44); Ted Sichelman and Stuart J. H. Graham (n 44).

⁵⁶ For an excellent discussion on the lack of qualitative empirical studies relating to the patent system, along with comparative shortcomings of other forms of empirical analysis with respect to patenting trends, see Jessica Silbey, 'Patent Variation' (n 45).

⁵⁷ See for example William T. Gallagher (n 6) 313, 315.

⁵⁸ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (Stanford University Press 2014) 96–7, 102–3.

My proposed research is in many ways inspired by the work of both Silbey and Drahos, in terms of orientation and methodology. Silbey has focused on innovators, only briefly touching on the norms and customs of patent profession. Drahos has focused on patent offices, only briefly touching on the patent profession. Thus, there remains a gap in this literature: a comprehensive and qualitative examination of the culture and discourse of the patent profession, and how such discourse influences innovators, patent offices, courts, and legislators.

2. METHODOLOGICAL OUTLINE

a. Historical

In an attempt to fill this gap, this project will review the historical origins and development of the international patent agent profession. This review will begin with the earliest ‘patent solicitors’ in the UK, continental Europe, and the US and trace the historical development of the profession, from one of the earliest USPTO Commissioner’s critical view of the profession,⁵⁹ to modern day self-regulated patent agents the world over. The review will examine the common norms and discourse of patent agency prior to professionalization, along with the newly ‘professionalized’ patent agent profession’s role in influencing the development of cornerstone aspects of global patent practice, including claim drafting and agent representation requirements.⁶⁰

The historical work not only is complementary to other methodologies but also plays a key role in this project. The objective is to identify changes in norms and discourse between the

⁵⁹ See Wissam Aoun, ‘Canadian Patent Agent Regulation Reform (Pt. 2): Governance, Self-Regulation and Canada’s Patent Professional Identity Crisis’ (2017) 99 *Journal of the Patent and Trademark Office Society* 388, 400 for a detailed discussion of one of the USPTO earliest Commissioners, Thomas Ewing, and his skeptical views regarding professionalization of patent agency. According to Ewing, the key concern of patent agency was ethics, not competency, and it was ‘it was less important that a patent prosecutor be proficient with patent laws and rules than that he be “in actual touch” with, and have the trust and confidence of his clients.’

⁶⁰ *Supra* note 3 at 115.

pre- and post-professionalization eras of patent agency. The historical research will attempt to track the development of professional and public discourses surrounding the purpose and objective of patent institutions and set the stage for qualitative field work. Specifically, historical research completed to date appears to show the development of an unfolding and very different patent discourse before, and after, professionalization of international patent agency. The analysis will demonstrate that much of what patent practice looks like today has been the result of the influence of professionalization of patent agency, with professional patent agents acting as intermediaries between inventors and the patent office.

b. Doctrinal

The historical work also includes a substantial legal doctrinal component. Since the ‘professionalization’ of patent agency, the construction of professional patent practice has largely been recursive in nature. Patent legislation the world over is predominantly skeletal in nature, leaving most legal doctrines to be developed by courts rather than legislators.⁶¹ The objective of the doctrinal analysis is to track changing judicial opinion pertaining to the nature of patent agent practice, from both a historical and also an international comparative perspective. The ‘nature of patent agent practice’ means the assumptions and implications which judges make relating to the role of professionals who prepare and prosecute patent applications, and which inform various patent law doctrines such as claim construction and infringement. This doctrinal work explores how these assumptions and implications regarding professional patent agency contribute to the creation of a doctrinal boundary layer of professional patent agency generating doctrines reflecting and reinforcing the specialized practices of professional patent agents, which in turn

⁶¹ Dan L Burk & Mark A Lemley, “Policy Levers in Patent Law” (2003) 89 Va L Rev 1575–1696 at 1638; Craig -- Allen Nard, “Legal Forms and the Common Law of Patents” (2010) 90 BU L Rev 51–108 at 54: “For example, the entire body of jurisprudence relating to non-literal infringement, claim interpretation, repair-construction, and patent exhaustion is judge-made law.”

reinforce professional patent agents as a discrete epistemic community apart from inventors and skilled artisans.

c. Qualitative

With a historical and doctrinal foundation in place, the methodology will also incorporate qualitative field work involving participant interviews. It incorporates a qualitative exploration of the norms and culture of patent agency, namely, the professional service providers who act as applicants' agents in securing patent protection for inventions. The project's purpose is to better understand how the culture and regulation of professional patent agency - through which the majority of patent applications must pass on their way to and through the patent office - influences the development and institutionalization of norms, rules and processes surrounding patent application preparation and prosecution. The focus is on the patent agent profession as it attempts to map the *discourse* of professional patent agency – the recursively related relationships between the culture, norms, and material interests of this group and the role these play in shaping the contours of the patent system as an institution.⁶² The objective is to add to the small but growing number of qualitative studies examining the professional and ethical identities of patent practitioners.⁶³ Accordingly, this work attempts to connect a historical empirical analysis, a qualitative empirical analysis, and doctrinal analyses of patent law in an attempt to create a 'capture story', as set out in Chapter 4. As with other socio-legal methodologies, this work cannot claim to represent generalizable views of the entire patent agent profession. As discussed in Chapter 4, given theoretical, methodological and resource constraints, it is doubtful

⁶² Jessica Silbey, 'Heuristic Interventions in the Study of Intellectual Property' (n 39) 338.

⁶³ See for example David L. Schwartz, 'The Rise of Contingent Fee Representation in Patent Litigation' (2012) 64 Alabama Law Review 335; William T. Gallagher (n 6); Lynn Mather, 'Scientists at the Bar: The Ethical Worlds of Patent Lawyers' in Leslie C. Levin and Lynn Mather (eds), *Lawyers in Practice: Ethical Decision Making in Context* (University of Chicago Press 2012).

that any capture study can ever honestly claim to accomplish more than attempting to tell a persuasive capture story. Non-materialist forms of regulatory capture nonetheless remain important and under-explored areas of socio-legal studies. The non-generalizable nature of the conclusions should therefore not detract from the significance of such studies' contribution to scholarly discussion.

3. QUALITATIVE METHODOLOGY

a. Theoretical and Practical Foundations

The qualitative methodology in this study was undertaken primarily using semi-structured interviews with professional patent agents and patent examiners. As discussed in the Introduction Chapter 1, the theoretical foundation for much of this work is largely sociolegal in nature. Such qualitative work s often criticized for being solely anecdotal and lacking reliability and validity. This criticism is bolstered by the fact that the interviewees do not constitute a representative sample of all professional patent agents in any of the studied jurisdictions.

Two important methodological approaches are applied to the qualitative side of this work to avoid the work being entirely descriptive and to bolster its empirical legitimacy. To the extent possible, the statements made by interviewees were cross-checked against other available empirical sources, in an application of what Professor Steven Lubet calls 'evidence-based ethnography'.⁶⁴ This evidence-based ethnographic approach is placed within the context of grounded empirical qualitative theory, where qualitative research can be viewed as an exploratory study which sets out a groundwork for further hypothesis development. The

⁶⁴ See generally Steven Lubet, *Interrogating Ethnography: Why Evidence Matters* (Oxford University Press 2018).

hypotheses can then form the subject of further, generalizable empirical work.⁶⁵ As several Chapters will demonstrate, the qualitative interview data set the stage for questions that are explored within these Chapters. Many of these questions are answered through a combination of historical, doctrinal and quantitative empirical methods. Furthermore, many of the overall conclusions of this work are framed as interesting options for further empirically grounded research questions.

b. Semi-Structured Interview Methodology

Methodologically, the qualitative work will utilize semi-structured interviews asking professional patent agents some of the following proposed questions pursuant to the Research Ethics Board (REB) approved Interview Protocol:

- What is an ‘invention’? Is the invention synonymous with the claims?⁶⁶
- Where does the invention exist? Who is responsible for ‘locating’ the invention? The attorney/agent? The applicant? The Patent Office? Courts?
- How do you approach the exercise of claim drafting? How do you approach drafting a claim set, and correspondingly, the independent and dependent claims? How do you approach drafting the detailed description?
- How did you learn claim drafting? Who taught you the ‘art of claim drafting’?
- How do you view your role vis-à-vis the Patent Office and patent examiners?

⁶⁵ For an excellent summary of the principles of grounded theory, see Ylona Chun Tie, Melanie Birks, and Karen Francis, ‘Grounded Theory Research: A Design Framework for Novice Researchers’ (2019) 7 Sage Open Medicine 1.

⁶⁶ There is a growing body of scholarship exploring the question of the ontological nature of ‘inventions’, along with the role of claiming (and correspondingly, patent professionals) in the process of defining the invention. See for example Christopher A. Cotropia, ‘What Is the Invention’ (2011) 53 William and Mary Law Review 1855, 1875–6, 1862, 1898; See also Oskar Liivak, ‘Rescuing the Invention from the Cult of the Claim’ (2012) 42 Seton Hall Law Review 1; Tun-Jen Chiang and Lawrence B. Solum, ‘The Interpretation-Construction Distinction in Patent Law’ (2013) 123 Yale Law Journal 530, 574; ‘Fence Posts or Sign Posts - Rethinking Patent Claim Construction’ (2008) 157 University of Pennsylvania Law Review 1743, 1765.

- What do you believe the applicant's goals or objectives are in terms of acquiring protection for their invention through the patent system? What is your role in furthering that objective?⁶⁷
- What does 'patent quality' mean to you? What is your role or obligation, if any, in promoting 'patent quality'?
- What do you view as the ethical or professional obligations you owe to the *public* (if any at all)?

The main research subjects are professional patent agents. Furthermore, this field work incorporates an international comparative dimension, including interviews with professional patent agents from the UK, US, Germany and several other Continental European jurisdictions. The UK, US, and Germany present several unique differences in patent practice and regulation of patent agents and this work builds upon my previous scholarship regarding international patent practice regulation.⁶⁸ All three jurisdictions have very different patent practice regulatory frameworks. Furthermore, there are several unique differences between US and German patent

⁶⁷ Stephen Yelderman, 'Improving Patent Quality with Applicant Incentives' (2014) 28 Harvard Journal of Law & Technology 77, 80. As Yelderman states, 'Perhaps one reason for this neglect is that many scholars assume that applicants want the kind of vague, overbroad, or otherwise low- quality patents that patent reformers are seeking to prevent...'. One could say that this statement applies equally to patent prosecutors drafting claims- does their approach to claim drafting reflect what applicants actually want, what they believe their ethical/professional/legal obligations require or other professional norms and interests?

⁶⁸ See Wissam Aoun, "Canadian Patent Agent Regulation Reform (Part 1): (In)Validity Issues Surrounding the Canadian Patent Agent Exam" (2017) 99 J Pat & Trademark Off Soc'y 151; Wissam Aoun, "Canadian Patent Agent Regulation Reform (Pt. 2): Governance, Self-Regulation and Canada's Patent Professional Identity Crisis" (2017) 99 J Pat & Trademark Off Soc'y 388.

law⁶⁹ and practice⁷⁰, which make for a fascinating case study examining the effect of practice norms on the development of patent law and vice versa.⁷¹

Seeking out potential European interviewees began by reaching out to various personal contacts in the UK and German patent attorney professions and requesting their participation. My PhD supervisor also reached out to personal contacts in the UK profession to assist in compiling an initial pool of interested participants. A snowballing method was then used to debias the further selection of participants, whereby each of these personal contacts was asked if they could reach out to others in the profession who might also be interested in participating, thereby creating at least one layer of personal separation between the researcher and individual research participants. Furthermore, a Google search with search strings “Patent Attorneys UK”, “Patent Attorneys London”, “Patent Attorneys German” and “Patent Attorneys Munich” was used to compile a list of over fifty different patent firms across the UK and Germany. A standardized email was sent to each of these firms seeking potential interested participants.

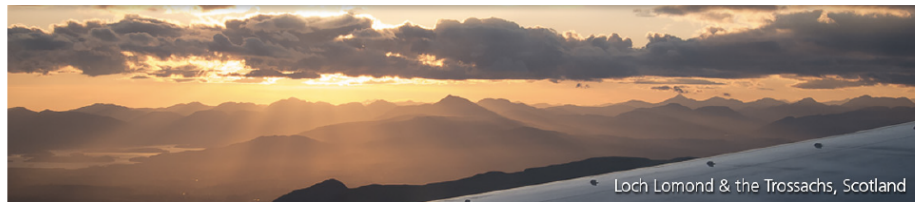
⁶⁹ One interesting difference between U.S. and German patent practice is the “peripheral” versus “central” approach to claim interpretation in each respective jurisdiction. For a summary of these different approaches see Dan L Burk & Mark A Lemley, “Fence Posts or Sign Posts - Rethinking Patent Claim Construction” (2008) 157 U Pa L Rev 1743 at 1778. Furthermore, Germany has for many years utilized a successful “petty patent” system. For an excellent discussion of how various jurisdictions have tried, and to some extent failed, to implement similar systems, see Uma Suthersanen, *Utility Models: Do They Really Serve National Innovation Strategies?*, SSRN Scholarly Paper ID 3139963 (Rochester, NY: Social Science Research Network, 2018).

⁷⁰ One of the most interesting differences between U.S. and EPO practice generally is the prominence of EPO 2-step (or Jepson) style claiming. For a summary discussion on this EPO approach to claiming, see ‘Comparing and Contrasting European 2-Part Claims with US Jepson Claims’ (*IPWatchdog.com | Patents & Patent Law*, 7 December 2016) <<https://www.ipwatchdog.com/2016/12/07/european-2-part-claims-us-jepson-claims/id=75085/>> accessed 14 February 2019. For a discussion regarding Jepson style claiming’s lack of U.S. prominence, see ‘Jepson Claims (Part II)’ (*Patently-O*) <<https://patentlyo.com/patent/2017/09/jepson-claims-part.html>> accessed 14 February 2019: ‘Prof. Kayton, who trained generations of patent attorneys in his PRG classes was particularly adamant about avoiding Jepson claims.’; . With respect to Germany specifically, some studies indicate that the German patent profession and patent examiners often rank highly in terms of respect from their peers with regards to quality and professionalism; see Peter Drahos, *The Global Governance of Knowledge: Patent Offices and Their Clients* (Cambridge University Press 2010) 42, 77, 315.

⁷¹ Dan L. Burk and Jessica Reyman (n 32) 166–7.

A contact at the EPO forwarded the REB approved interview protocol to representatives from the EPI, the professional regulatory body for European patent attorneys. EPI agreed to assist by sending out a notice of this study to its members across Europe, both through email and in their published newsletter, as well as posting a notice of the study on their website.

≡ Menu



Canadian professor seeks interviewees

May 08, 2019

Study Proposes to Examine the Culture and Norms of Patent Attorney Practice



Professor Wissam Aoun (University of Windsor Faculty of Law, Canada) has spent the last several years studying the patent profession from an international comparative perspective. He will be spending the summer of 2019 visiting at Oxford University and the Max Planck Institute for Innovation & Competition in Munich and continuing his research into the European patent attorney profession.

Professor Aoun's project proposes a qualitative exploration of the norms and culture of the patent profession. The purpose of this work is to better understand how the culture and regulation of patent professionals,

Figure 1: Picture from epi newsletter

<https://information.patentepi.org/issue-2-2019/canadian-professor-seeks-interviewees.html>

U.S interview participants were acquired using a similar approach, by first connecting with personal patent attorney contacts in the Michigan area and inquiring whether they would be interested in participating in this study. These contacts were asked to snowball the request to some of their personal US patent attorney contacts. Lastly, a Google search for 'Michigan Patent Attorney' generated a list of just over 20 different patent law firms, each of which was sent a standard participation inquiry.

The semi-structured interviews involved asking interviewees open-ended questions pursuant to the REB approved protocol set out above.⁷² The protocol was used to guide a consistent theme across interviews, but interviews were not limited to these questions. Almost all interviews took place in person, either at interviewees' offices or at public locations (such as cafes). Several interviews took place either through video or teleconferencing. All interviewees signed the REB approved consent for participation form.

With only a few exceptions, almost all interviews were recorded. Handwritten notes were taken during each interview and were then manually typed the day after each interview. A professional transcriber was retained to transcribe all recorded interviews. As per the REB approved protocol, each interviewee and their corresponding interview transcript were assigned a confidential identifier code. The code key is stored on a secured laptop to which no one other than the researcher has access. Throughout this work, interviewee quotes are quoted to each interviewee's confidential identifier number rather than their real name in order to protect confidentiality.

All written transcripts were processed using the qualitative data analysis software AtlasTi. As discussed below, the interview transcripts were manually coded, and AtlasTi supports data analysis by allowing for aggregation of coded themes and breakdown themes per interviewee characteristics (such as experience, background, nationality, etc).

⁷² The following sources provide direction and methodological best practices on how to conduct semi-structured interviews in the intellectual property context: Jessica Silbey, 'IP and Ethnography: A Qualitative Research Approach' in Irene Calboli and Lilla Montagnani (eds), *Oxford Handbook on Intellectual Property Research* (Oxford University Press 2019); Jessica Silbey, 'Heuristic Interventions in the Study of Intellectual Property' (n 39); Jessica Silbey, 'Patent Variation' (n 45); William T. Gallagher and Deborah J. Halbert, 'Intellectual Property and Sociolegal Studies', *Intellectual Property in Context: Towards a Law & Society Perspective* (Cambridge University Press Forthcoming).

By November, 2020, I had reached saturation⁷³ by interviewing 50 attorneys - 33 European attorneys and 17 US attorneys. For the European attorneys, the breakdown per country is as follows:

UK – 12

Germany – 11

Serbia – 1

Italy – 1

Poland – 2

Sweden – 1

France – 2

Netherlands – 1

India – 1 (but trained in the Netherlands)

Czechia– 1 (trained in France, now practising in the UK)

4. CONCLUDING REMARKS ON METHODOLOGY AND THE STUDY OF CAPTURE

The methodological framework, including the several different methodological strands of this work, have been designed and implemented with the objective of building a capture story. However, as set out under this Chapter, and as discussed in detail in the Chapter 4, attempts to create a ‘capture story’ remain just that, the creation of a persuasive story rather than a generalizable empirical study which proves causation. Capture researchers must recognize the limitations of capture – whether materialist or non-materialist forms – as a theory, as well as the methodological options for studying capture. Both researcher and reader must therefore remain

⁷³ For a discussion on how to determine interviewee saturation in qualitative studies, see Greg Guest, Arwen Bunce, and Laura Johnson, ‘How Many Interviews Are Enough? An Experiment with Data Saturation and Variability’ (2006) 18 *Field Methods* 59; Robert K. Yin, *Case Study Research: Design Methods* (4th edn, Sage Publications, Inc 2009).

modest about the limitations and possible conclusions that can be derived from the applied methodologies, and specifically, the qualitative component of the methodology.

However, even the extent of such limitations remains largely speculative, given that non-materialist forms of capture remain an under-explored area of research within the field of sociolegal studies. The methodological options remain underdeveloped and the extent to which any of the methodologies implemented in this study may be useful in creating a persuasive capture story, either in isolation or in any combination, remains to be seen. This requires both courage and humility on the part of the researcher - the courage to attempt to forge a path into what, to date, remains largely uncharted territory, and the humility to accept the outcome. Whatever the outcome may be, having the courage to attempt to chart this path will, one hopes, provide insight and guidance, one way or another, to those who follow, so whatever the results, the attempt itself remains a worthwhile and valuable contribution to this field of scholarship.

CHAPTER 3: THE BIRTH OF PROFESSIONALIZED PATENT AGENCY

1. INTRODUCTION

A detailed review of the origins patent institutions and patent practice is of far greater significance than both satisfying historical curiosity and illustrating the precarious foundation of patent agent regulation. Rather, as Professors Morriss and Nard state, “[e]xplaining the origins of nineteenth century American patent institutions is ... crucial to understanding twenty-first century [patent] law, the current debates concerning patent reform initiatives in developed countries, and the appropriate patent law institutions for developing economies, which today are positioned similarly to the United States [and the UK] in the nineteenth century.”⁷⁴

Furthermore, viewing the patent agent profession as an interest group in and of itself, along with other key interest groups (such as inventors, corporations, the Patent Office, the public), provides key insights into the development of future patent law institutions:

The past ... holds important lessons for the future.... Moreover, focusing on the choice of institutions by interest groups offers insights into the evolution of the institutions as well as the law that they produce. ...The question of institutional choice in the development of patent law is as important today as it was 150 years ago.⁷⁵

Accordingly, the future of the patent agent profession, and the challenges that lie ahead, must be placed within proper context dictated not only by the present and future, but also the past.

2. THE HISTORY OF PATENT AGENT REGULATION

a. The Early ‘Patent Agents’

The practice of patent agency, in both the UK and the US, dates to the early 19th century days of the Industrial Revolution. In the pre-regulation, Industrial Revolution era of patent agent practice, the patent agent profession lacked a discrete set of professional services forming the fabric of what could be called a professional identity. While preparation of patent specifications was undoubtedly a core aspect of their business, their role as an ‘intermediary’ was far broader

⁷⁴ Andrew P. Morriss and Craig Allen Nard, ‘Institutional Choice & Interest Groups in the Development of American Patent Law: 1790-1865’ (2011) 19 Supreme Court Economic Review 143, 144.

⁷⁵ *ibid* 143.

than just as solicitors of patents. The patent agents of this era acted “as intermediaries between inventors, capitalists, innovators and other users of inventive output” which included a wide range of services such as connecting inventors with manufacturers, brokering licensing deals and serving as general commercialization agents.⁷⁶

One of the most important roles of patent agents of this era was the dissemination of inventive knowledge. In the early 19th century, it was a vital contributing force to the democratization of invention. Patent literature was difficult to acquire, and the early patent agents obtained patent documents, compiled large libraries of patent literature, and disseminated this knowledge to clients not only for patentability assessment but also education and inventive activities.⁷⁷

The culture and atmosphere of the artisanal yards and engineering shops of the urban British provinces provide a fascinating case study of early 19th century patent agency, and the burgeoning professionalization of patent agency in the mid-to-late 19th century. Outside the economic and political capital of London, in urban provincial cities such as Birmingham, the patent agency network was ‘complex’, in an environment “in which scientific, artisan and business acumen mixed freely”.⁷⁸ Incremental machinofacture innovation was unleashed in an ecosystem of proximity between innovators, where technical know-how was shared and improved amongst skilled artisans.⁷⁹

The patent system thus came to cross paths with an emerging technology discourse driven by the Industrial Revolution. Previously, scientific discourse was dominated by scientific theorists (or according to some, elitists) of the royal academies and institutions. Along with their role as gatekeepers of scientific knowledge and authority came social prestige. But in the emerging discourse of the Industrial Revolution, the ‘mechanics’ of applied arts sought to elevate their own social status through the social, economic and political means available to them. According to Professor Inkster, this was the era of the ‘rise of artisanal culture’, driven “by sharing knowledge through associations and lecture and.... textbooks” and formed “in local

⁷⁶ Harold Irvin Dutton, *The Patent System and Inventive Activity During the Industrial Revolution 1750-1852* (Manchester University Press 1984) 93.

⁷⁷ *ibid* 90–3.

⁷⁸ Ian Inkster, ‘Highly Fraught With Good to Man: Patent Organization, Agency, and Useful and Reliable Knowledge in British Machinofacture Circa 1780-1851 and Beyond’ in Ian Inkster (ed), *History of Technology*, vol 31 (Bloomsbury Publishing PLC 2012) 132.

⁷⁹ *ibid* 93.

taverns and pubs as well as coffee houses and assembly rooms, that linked a new world of useful and reliable knowledge with artisan skills, intersecting with radical social alternatives and fast moving money makers.”⁸⁰ There seems to be little doubt that the patent system produced tremendous social and economic benefits within these urban provincial communities. Individual inventors climbed both the social and economic ladder through “the capture and ownership of technological knowledge [which] was becoming essential to small-business formation and success.”⁸¹

While patent rights were instrumental in creating a new discourse that improved the social and economic status of the skilled artisans, the “associational culture that forged together patent agency and useful and reliable knowledge was to become the hallmark of Birmingham as an inventors’ emporium.”⁸² According to Professor Inkster:

There seems to be good qualitative evidence that the rise of innovation in Birmingham was strongly associated with increased facilities for knowledge circulation and testing, and for basic technological training, which went well beyond our familiar distinctions between the tacit knowledge of apprenticeship and the trades on one hand, and a higher scientific training on the other. Between such extremes lay an urban culture of information circulation that was constantly tested and reformulated by a competitive culture of innovation pursued by those intent on rising ‘above the Lathe and File’ within one of the most intensive patenting cities in the world. Prior to 1851 this was the environment of patent agency. And this was itself a component of a wide process of machinofacture.⁸³ (emphasis added)

In this environment, patent agency was *informal*, embedded within and acting alongside the many *organizational*, rather than *institutional*, associations common to these urban sites of technical innovation.⁸⁴ Patent agency during this era was “complex”, being intertwined with professional technical associations, clubs as well as an emerging series of lecture circuits “in which scientific, artisan and business acumen mixed freely.”⁸⁵ In this era, “[patent] agency embraced a great deal of business lying beyond the formal institution of the patent system”⁸⁶, and evidence appears to support the conclusion that this form of associative patent agency was linked

⁸⁰ *ibid* 123–4.

⁸¹ *ibid* 125.

⁸² *ibid*.

⁸³ *ibid* 129.

⁸⁴ *ibid* 115–6.

⁸⁵ *ibid* 132.

⁸⁶ *ibid* 117.

to technological improvement, diffusion of knowledge, and incremental innovation within these urban areas.⁸⁷

Even more so than Britain, the early 19th century US inventive landscape was characterized by ‘democratized invention’.⁸⁸ “a broad range of individuals held patents for an equally broad range of inventions.”⁸⁹ These individual inventors required affordable access to secure and reliable patent protection in order to acquire investment, securing manufacturing capabilities, and generally to commercialize their inventions.⁹⁰ As in Britain, this atmosphere of democratized invention created a class of pre-regulation ‘invention agents’ that offered a wide range of services as ‘middlemen’ in the marketing of inventions.⁹¹ Services included acting as intermediaries in the sale of technology, connecting inventors to investors and manufacturers, and often distributing invention information for innovation and commercialization purposes.⁹²

US inventors required access to others’ inventions as sharing was essential to incremental innovation.⁹³ Thus, “inventors and consumers were often the same people, as invention proceeded in large part through practical adaptation of earlier innovations into new and improved forms and products.”⁹⁴ Accordingly, both inventors and patent agents during this era had an important self-interest in ensuring that patent law balanced protection with access. Patent practitioners, as an interest group, were “facilitators of commercial transactions generally...[and] had an interest in making sure patents did not interfere with the broader commercial sphere.”⁹⁵

Although the earliest patent agents in both the UK and the US came from the engineering professions, the line between patent agency and engineering was hardly discrete. In the British urban cities of the Industrial Revolution era, patent agency and engineering formed a sort of partnership, wherein many of the patent agents who sold what we would today consider discrete patent services (e.g., preparation and filing of patent specifications) also engaged in

⁸⁷ *ibid* 139.

⁸⁸ See B. Zorina Khan, *The Democratization of Invention: Patents and Copyrights in American Economic Development: 1790-1920* (1st edn, Cambridge University Press 2005).

⁸⁹ Andrew P. Morriss and Craig Allen Nard (n 74) 171.

⁹⁰ *ibid* 172–3.

⁹¹ *ibid* 180.

⁹² *ibid*.

⁹³ *ibid* 175.

⁹⁴ *ibid*.

⁹⁵ *ibid* 179.

technological consulting and technical publication.⁹⁶ Many of the prominent agents of this era viewed the patent system, dissemination of technical knowledge, and improvement of incremental technical innovation as all being linked. As these agents were also active publishers of leading technological journals, they used their publications to promote the reform of aspects of the patent system, such as promoting dissemination of technical knowledge by improving requirements relating to preparation of technical illustrations.⁹⁷ During this period of technical upheaval and free association of knowledge through various forms, “[patent] agency and technological journalism went hand in hand.”⁹⁸

Patent agents of the early Industrial Revolution era can thus better be characterized as ‘invention agents’, individuals who conceived their role as inventors’ advocates broadly, in legal technical and commercial terms. These informal, organizational aspects of early patent agency, which was intimately connected with professional associations, lecture circuits, and other avenues of associational dissemination of technical knowledge were a key ingredient in the boom of incremental innovation and prosperity of communities outside of major economic and political capitals such as London. While the preparation and prosecution of patent applications was no doubt central to their role, the earliest patent agents viewed this obligation as part of a more holistic inventive endeavour. This included improving the mechanisms of dissemination of knowledge and education for both inventors and users of invention information.

b. Towards a Reformed Patent System and Refined Patent Agency

i. The UK

As the Industrial Revolution approached the mid-19th century, the value and importance of intellectual property increased and the ad hoc patent institutions in both the US and UK required reform. It was at this time that the basic legal and institutional framework for our modern patent systems began to develop, including such fundamental concepts as patentable subject matter, novelty, utility, enablement, and institutions of patent application examination.⁹⁹

Also by the mid-19th century, the increasing importance and value of patent rights “called forth a class of men that occupy an intermediate position [between inventors and the patent

⁹⁶ (n 78) 120.

⁹⁷ *ibid* 116–7; 119.

⁹⁸ *ibid* 119; see also Naomi R. Lamoreaux and Kenneth L Sokoloff, ‘Inventors, Firms, and the Market for Technology in the Late Nineteenth and Early Twentieth Centuries’, *Learning by Doing in Markets, Firms, and Countries* (University of Chicago Press 1999) 22–3.

⁹⁹ Gregory Reilly, ‘Our 19th Century Patent System’ (2018) 7 IP Theory 12.

office].”¹⁰⁰ By 1851, approximately 90% of all patents granted in Britain were handled by a patent agent.¹⁰¹ The labyrinth that was the early 19th Century British patent office, with its Kafka-esque bureaucracy and opaque technical processes, was in many ways the earliest justification for the creation of a patent agency profession, which possessed the esoteric knowledge of how to navigate the patent office maze.¹⁰² In Britain and the US, the first ‘professional’ patent agents - individuals who advertised their services distinctly as preparation and prosecution of patent applications - were former patent office officials who used their knowledge and experience of patent office formalities to guide applicants through the process.¹⁰³ For example, Moses Poole, one of the UK’s first and most influential of early patent agents, held the official public position of Clerk of Inventions at the British Patent Office (as did his father before him). However, while still in his public role, he offered patent agency services for clients which included review of specifications and filings on behalf of foreign clients.¹⁰⁴ Most of the patent agents of the early to mid-19th century were either former patent office officials or practising engineers who gained their knowledge of patent office procedures through their own patenting experience. Few were legally trained.¹⁰⁵

Despite still not having carved out a definite set of professional competencies that defined their precise professional space in relation to others, the earliest patent agents managed to become effective political actors across a variety of political forums. For example, in 1848, a British Treasury Committee was tasked with reviewing the administration of the patent system and options for reforming the costly, convoluted and, at times, opaque patent system. While the subsequent reforms were commendable in largely eliminating the system of patronage that had until then dominated the patent system, patent agents still managed, where possible, to turn the

¹⁰⁰ (n 76) 86.

¹⁰¹ *ibid.*

¹⁰² Dirk Van Zyl Smit, ‘Professional’ Patent Agents and the Development of the English Patent System’ (1985) 13 *Int’l J Soc L* 79, 86.

¹⁰³ (n 76) 86–7.

¹⁰⁴ (n 102) 86–7; See also David Pretel, ‘The Global Rise of Patent Expertise During the Late 19th Century’, *Technology and Globalisation: Networks of Experts in World History* (Springer 2018) 149: “Studies often present patent agents as driving actors in the growth of efficient markets for technology. From this perspective, the presence of expert agents removed constraints in international patenting. However, during the late nineteenth century, agents in many countries were accused of carrying out rent-seeking activities and maintained privileged relationships with officials and commissioners. A question can thus be raised as to whether intellectual property institutions at the close of the nineteenth century were actually open to a broad segment of the population or were instead primarily accessible only to powerful social classes and corporations with a large amount of capital.”

¹⁰⁵ (n 76) 87–8, 90.

discussion to their advantage and promote the need for their services.¹⁰⁶ The mid-19th century British patent agents were a major player in this discourse:

The domination of the findings of this Committee by patent experts was complete. Not only was the evidence of the traditional administrators rejected, but no evidence was placed before the Committee from entrepreneurs or inventors who were primarily interested in the exploitation of their inventions. Therefore, the only version of the possibilities of reform came from the patent experts. Their strategic occupational position had led them to being accepted by the Committee as the only witnesses with the necessary expertise. They were thus able to ensure that their version of how the patent system ought to be changed formed the basis of later debates in the subsequent phase of legislative reform.¹⁰⁷ (emphasis added)

While the work of the pre-regulation ‘invention agents’ of the early 19th century undoubtedly served a valuable public service, and contributed to the growth of an entrepreneurial, innovation-based economy during the Industrial Revolution, it also hindered their ability to professionalize. By the 1850s, the lack of a discrete domain of professional expertise left many individuals who dealt exclusively in the preparation and prosecution of patents feeling insecure and defensive regarding their claim to an area of exclusive expertise.¹⁰⁸ Like other professional groups of the period, 19th century patent agents began to organize themselves and society generally, as discussed in detail below, to create a regulated market for their own discrete set of professional services.¹⁰⁹

Although groups such as lawyers and doctors could define their own professional space with specificity, or at least sufficient definiteness to convince legislators of the need for some form of rank closing to ensure certain levels of competent and ethical practice, patent agents struggled to define their space similarly. Mid-19th century British patent office reforms were largely designed to eliminate barriers between the patent office and independent inventors of modest means: the patent agent thus stood as a symbol of an era meant to be swept away.¹¹⁰ In

¹⁰⁶ (n 102) 95.

¹⁰⁷ *ibid* 94, 96, 97.

¹⁰⁸ *ibid* 83; See also Anna Guagnini (n 4) 146–7.

¹⁰⁹ (n 102) 79.

¹¹⁰ Chartered Institute of Patent Agents, ‘Volume XII, Session 1893-94’ [1893] Transactions of the Chartered Institute of Patent Agents 113.

1882, a group of practitioners created the Institute of Patent Agents, a voluntary association formed to represent the professional interests of patent agents in the hope of eventually professionalizing patent agency like the other professions. However, minutes of the early meetings of the Institute show that the profession was under no illusion that they were swimming against a strong current:

A great deal has been said and written from time to time with a view to show that the business of a Patent Agent is a perfectly superfluous one; that he is merely an obnoxious class of middlemen, his only vocation being to fleece the public by unnecessarily intervening between it and the Patent Office, and extorting heavy fees for doing simple routine work that the applicant for a Patent could just as well do for himself.¹¹¹

As discussed above, the earliest patent agents accumulated a broad scope of legal, business, and technical knowledge and, in addition to providing patent solicitation services, provided a range of services across the commercial spectrum.¹¹² This made it difficult for members of the Institute to define what, precisely, their core professional identity was:

If the profession were called into existence in order to supply a public demand, it should not be difficult to state what the duties of the Patent Agent really are. Upon this point, however, the world, and possibly the profession, is not quite agreed.¹¹³

In an early meeting of the newly formed Institute, one of the most prominent patent agents of this time, A.V. Newton, undertook to elaborate ‘on the Patent Agent and His Profession’.¹¹⁴ Newton provided a detailed, and lengthy, account of an agent’s expertise:

The popular notion of the duties and qualifications of a patent agent may be shortly stated thus: he is fully informed in respect to the law and practice of patents as exemplified by the judgments of the courts and the decisions of the law officers. He is conversant with the several copyright acts, and the mode of securing protection under the same. He is also familiar with the trademarks act and the practice under it, the merchandise marks act, the

¹¹¹ *ibid* 112.

¹¹² (n 76) 91–2.

¹¹³ Institute of Patent Agents, ‘Volume I, Session 1882-83’ [1882] Transactions of the Institute of Patent Agents 161.

¹¹⁴ Chartered Institute of Patent Agents, ‘Volume X, Session 1891-92’ [1891] Transactions of the Chartered Institute of Patent Agents 129–130. Newton’s father, by many accounts, including Newton’s, may have been the first patent agent. In his speech entitled, ‘On patent agency: its origin and uses. A retrospective review’, Newton states: “It is, perhaps, to the father of the writer that the credit is due of originating the profession of Patent Agent, as we now understand it.”

general acts relating to gas and water companies, and is competent to advise respecting the establishment of manufacturing and trading companies under the limited liability acts. He is necessarily familiar with all the manufacturers of this country, not to mention the various industrial exhibitions now so common in London, and the provinces and in foreign capitals. Moreover, he has traced the growth of the various branches of manufactures, from the earliest of their inception to the present time, throughout the printed specifications of English patents, all of which, now numbering 150,000 are open to his inspection in the patent office. He will advise as to the practicality of any mechanical contrivance process submitted to him, asked to the mercantile value of the same, how best an inventor may introduce his improvement to the trade, or to the general public; whether the event of finding someone inclined to take up the invention, a total or partial sale of the patent should be affected, or an exclusive unlimited license granted and on what terms...[the patent agent will be] familiar with all the foreign and colonial patent law [and]... will also be able to advise how to prevent a manufacturer who owns a patent from intimidating the customers of a rival manufacturer by holding up the rival as an infringer... his chief duties are to collect the inventor's ideas, to arrange them in a specification, which will eventually prevent any rival manufacturers from doing anything in the direction of the patent. If the invention is imperfect at the time it is submitted to him, the patent agent will readily remove the difficulty... his great experience giving him facilities which no ordinary inventor could be expected to possess.¹¹⁵

Looking at such a broad swath of expertise and services, Newton and his colleagues in the Institute understood why most members of the public would be at pains to understand how this profession differed in any reasonable way from others, such as engineers, solicitors and barristers, which came before it.¹¹⁶ Not being an expert in either law or applied sciences, “many [may] regard [a patent agent] a defective lawyer or defective engineer.”¹¹⁷ However, to Newton, the patent agent's role was the pursuit of a “higher duty”, being “the main duty of the Patent Agent”, which is “to define and secure to Patentees their legal rights.” Newton believed that a well drafted specification was a patent agent's core competency, but securing a patentee's legal

¹¹⁵ Institute of Patent Agents (n 113) 135.

¹¹⁶ *ibid* 162.

¹¹⁷ *ibid* 204; these were comments by Spence, serving as Vice President of the Institute, on Newton's paper.

rights, while balancing the public role of the patent system in dissemination and development of technology, required that “an efficient Patent Agent ... must also be a man of almost universal talent.”¹¹⁸

To at least one Fellow of the Institute, Newton’s ‘higher duty’ took on an unescapable metaphysical dimension: “the purpose of a specification is accurate definition....Now that requires a quality of mind such as that of the highest philosopher- a power of generalising and classifying...”¹¹⁹ [emphasis added] As we shall see, this philosophical characterization of the claiming of inventions no doubt has the considerable ring of truth. However, philosophers have always struggled to find a market for their services, and if the patent agents of late 19th Century hoped to amass any sort of fortune, they would have to transform the metaphysics of invention into some definite form of commercial practice. It is here where British patent agents of the late 19th century struggled to find consensus among themselves in light of the difficulties in pinning down the practice of patent agency within a constantly shifting bureaucratic, technological, and market landscape.

During the early years of the British patent system, the ideological justifications for the grant of patents over inventions was hotly contested. One might expect that the earliest patent agents, whose professional existence depended largely on securing patent protection for profit, would naturally espouse patents as the only means of promoting invention. However, as Professor Fisher highlights, early patent agents harboured uncertainties about the underlying normative justifications for the patent system and its administration:

Some abolitionists, and even some supporters of the system who felt that justification by incentive undermined their cause, attacked the idea that there was a need to stimulate invention. Sir William Armstrong, president of the British Association for the Advancement of Science in 1863, is reported as saying that ‘the seeds of invention exist, as it were, in the air, ready to germinate whenever suitable conditions arise, and no legislative interference is needed to ensure their growth in proper season’. A number of contemporary patent agents, it seems, also shared this view. One is quoted as saying that ‘A man of true genius can no more resist the exercise of his genius than he can resist the growth of his body... nearly all those [inventions] deserving the name of ‘great’... have

¹¹⁸ *Ibid* at 171: this was a statement made by the Institute’s President, commenting on Newton’s paper.

¹¹⁹ *ibid* 205.

been made without any regard to, or stimulus from the existence of Patent Law.’ Macfie comments on this quote by asking: ‘If this is true of great inventions, how much more must it be of small ones?’ Furthermore, Turner, while justifying the patent system on natural rights grounds, felt unable to accept that any incentive was required to induce invention. The inventive process, he stated, was a product of ‘a taste for experiment, a love of trying’ that was characteristic of the English psyche, there was therefore no need for State intervention to promote such activity. This was a view shared by William Cubitt, President of the Institute of Civil Engineers, who said of invention: ‘I think people will always invent anything that is useful and good, if it will answer their purpose to do so, even without reference to a patent.’¹²⁰

There is perhaps no better example of a fundamental divergence of opinion between patent agents of late 19th century Britain, and an excellent case study of how the landscape of professional patent agency has changed the over the years, than the topic of patent prosecution. Today, prosecuting patent applications through the examination process undoubtedly forms the core of professional patent agency. One might therefore expect professional patent agents naturally to favour comprehensive patent examination, thereby ensuring a role for their services. However, at the first meeting of the Institute, a vocal majority of the Fellows of the Institute voiced fervent opposition against Britain adopting patent examination like the systems that had emerged in other jurisdictions such as the US and Germany. Newton was firmly within this opposition camp:

I am sorry to see, there is an opinion growing among Patent Agents that we should agree to something like the examination of complete specifications... I cannot imagine anything worse for Patent Agents themselves than this kind of examination.¹²¹ [emphasis added]

Although Newton was against formalized patent examination, his views on the matter deserve nuanced consideration. Newton was not advocating for a registration system or a system where novelty and scope of protection were determined entirely through litigation. He welcomed the possibility of an expert class of individuals who might assist both agent and inventor to hone

¹²⁰ Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (Hart Publishing 2007) 75–6. Fisher highlights the interesting conflict this ideological position creates for patent agents’ own commercial self interest, stating at FN 98 ‘One can’t but help wonder if they had really thought the repercussions of this line of argument out fully before proclaiming their belief.’

¹²¹ Institute of Patent Agents (n 113) 100–101.

in on the precise scope of novelty of any given invention as early as possible “in order that I might have the opportunity of setting the specification right.”¹²² Newton believed that if a patent agent was any professional at all, then it should be their job to do the hard work of preparing a detailed and legally accurate specification up front. This was the essence of professionalism: “I presume that I am not the only one who has the feelings of a man who takes pleasure in his work when he thinks he has done it well.”¹²³ Accordingly, examination should not supplant the agent’s professional obligations to the inventor and the public. When “the expenditure of drafting [a specification] has been incurred” by an inventor, the patent agent’s responsibility should not be abdicated to another government agency to redo the work that should have already been completed. As far as Newton was concerned, “[i]f we are not competent to prepare [such] a specification ... the sooner we are swept out of existence the better, I think.”¹²⁴

While many of Newton’s colleagues at the Institute were sympathetic to his views, they were not as optimistic that all patent agents dedicated the same professionalism and effort as Newton when preparing a thoroughly lucid specification. For the less dedicated, examination might be a necessity. Speaking to Newton, another Fellow of the Institute stated:

But everybody does not draw a specification as you? do. You know there are some specifications that go into the Patent Office from which it is utterly impossible to find out what the invention is.¹²⁵

Then, as now, issues surrounding the necessity, extent, and forms of patent examination cut to the heart of the professional patent agent’s *raison d’être*. If the 19th century professional agent’s public status and legitimacy already stood upon a weak foundation, the profession’s own internal divide on such issues could have potentially unraveled the nascent profession. High ranking Fellows of the Institute were well aware of this reality:

I am thoroughly persuaded of the evil that would arise from its going out to the world that we are divided on this subject. Let us keep our divisions to ourselves in this room; let us be something like a political Cabinet and not allow any difference of opinion to be disclosed to the public if we can help it.¹²⁶

¹²² *ibid* 101.

¹²³ *ibid*.

¹²⁴ *ibid*.

¹²⁵ *ibid*.

¹²⁶ *ibid* 121.

Discord on such fundamental issues cut across both internal and external divides. The Institute's primary objective was to professionalize patent agency, which, to a large extent, meant shunning the remaining 'invention agents' until this form of patent agency was eliminated. The Institute strove to define a core set of competencies which distinguished professional patent agency from adjacent fields of practice. It then sought to ensure uniformity, and conformity, by bringing all patent agents under the supervision of a self-regulating body. The invention agents, who actively intermingled patent practice with consulting engineering, techno-journalism and draftsmanship, were the antithesis of this objective.

Furthermore, the profession was divided between 'elite' patent agency firms, headquartered in London and exclusively offering patent preparation and prosecution services for large domestic and foreign corporate clients, and 'outsider' invention agents who mixed patent agency with engineering consultancy in areas outside the major cities.¹²⁷ Even though less than a third of registered patent agents were members of the Institute, they accounted for almost half of the patent filings in the UK¹²⁸ This statistic, however, conceals as much as it reveals. Those outside the Institute accounted for half of Britain's patent filings, but almost exclusively on behalf of domestic inventors, in contrast to Institute members' filings, which largely came from abroad through foreign patent agent networks. The founding Fellows of the Institute had to contend with consistent criticism that the Institute was the creation of a select few members of the profession, and as such, was "the enemy, rather than the friend, of the respectable practitioner."¹²⁹ One of the first Presidents of the Institute was quick to dismiss criticisms that members of the Institute constituted such a small percentage of the overall number of patent agents in the UK: he suggested that most patents agents were not 'bona fide' members of the profession, because of their dishonest advertising practices, propensity for malpractice, or dabbling in patent agency rather than being committed to patenting as their sole occupation.¹³⁰

After the Institute received a Royal Charter - becoming the Chartered Institute of Patent Agents (CIPA) - it continued to lobby for higher barriers to entry. It nevertheless faced stiff opposition from the 'outsiders', who viewed CIPA as a small group of practitioners attempting to

¹²⁷ (n 4) 148.

¹²⁸ *ibid* 149.

¹²⁹ Chartered Institute of Patent Agents (n 110) 101.

¹³⁰ *ibid* 98.

impose their own ‘elitist’ professional standards across the entire profession.¹³¹ The main point of contention between the two groups revolved around the *way* patent agency was practiced: the ‘outsiders’ practised largely in the provincial urban areas where the demand for patent agency service did not justify the same type of exclusive dealing in patent preparation and prosecution services as that of the ‘elite’ practitioners in London.¹³² The outsiders did not exclusively draft and prosecute patent applications. rather, as discussed above, they practised a form of hybrid engineering/patent agency.

The earliest Presidents of the Institute took every opportunity to remind their colleagues that many of these so-called patent agents lacked professional ethics and competency, and their continued existence only threatened public support for professionalization. These claims of incompetence and unethical behaviour were used as a rallying cry for the establishment of entry-to-practise qualifications. Some members of the public argued that “patent agents were the only class to benefit from patents”, a complaint more than likely grounded in frustration from the commercial failure of their inventions rather than any demonstrable evidence of negligence.¹³³ While there were certainly documented examples of patent agent misconduct, it seems that little comprehensive evidence beyond anecdotal stories was ever presented to substantiate claims of malpractice justifying regulatory intervention to protect the public.¹³⁴

ii. The US

On both sides of the Atlantic, allegations of patent agent misconduct nonetheless plagued mid-to-late 19th century patent agents. Many of the allegations came from lawyers, who viewed the non-lawyer patent agent profession as competition for the growing inventor’s market for services.¹³⁵ As in the UK, US historical records show little hard evidence of professional incompetence necessitating regulation.¹³⁶ That is not to say that the profession was not guilty of all sorts of unethical, in some instances, illegal behaviour. Some of the most heinous practitioners, who took money from customers and delivered little in return, showed no remorse

¹³¹ (n 4) 149.

¹³² *ibid* 151.

¹³³ (n 76) 95; in the US context, see Kenneth L. Sokoloff and Naomi R. Lamoreaux, ‘Patent Alchemy: The Market for Technology in US History’ (2013) 87 *Bus History Rev* 3, 9: ‘The most common charge was that [patent] agents exaggerated the value of the inventions they were peddling.’

¹³⁴ ‘Canadian Patent Agent Regulation Reform (Pt. 2)’ (n 59) 400; See also (n 76) 94–5.

¹³⁵ (n 76) 94.

¹³⁶ *ibid* 95: “There is little doubt that some patent agents abused their position of confidence and that some made genuine mistakes, but there is little evidence to suggest that there was any substance in the allegations.”.

for their actions, referring to those unfortunate customers who had been duped into paying for worthless patent services as ‘suckers’.¹³⁷

Accordingly, the issue plaguing the US profession in the late 19th century is best characterized as an issue of professional ethics rather than incompetence. Perhaps most importantly, this behaviour was not necessarily unique to the field of patents. Rather, as Professor Beauchamp points out, corruption across all areas of US government administration and politics was “one of the great preoccupations of the Gilded Age”.¹³⁸ Much like government administration in other fields, such as agriculture and infrastructure, the patent system was rife with various forms of unethical behaviour. The public perception of the patent profession, much like that of lawyers and other agents, was tarnished by conduct involving questionable ethics. One of the most insidious examples was the contingency fee patent agent. Contingency fee practice created an incentive for patent agents to push as many patents through the patent office as quickly as possible with little regard for patent quality.¹³⁹ Again, this was not unique to patent agency: corrupt contingency fee practice began in other areas of federal administration such as veterans’ pension claims. In fact, it was lawyers that had started out representing veterans in making Federal pension claims that leveraged the administrative proximity between the late 19th Century Pension Board and Patent Office to make the expansion into the field of contingency fee patent representation.¹⁴⁰ In addition, the proximity between the profession and the patent office created a strong perception of impropriety, which on occasions went beyond perception.¹⁴¹ Other

¹³⁷ Deborah J. Merritt, ‘Hypatia in the Patent Office: Women Inventors and the Law, 1865-1900’ (1991) 35 *The American Journal of Legal History* 235, 299, where the author recounts the story of John Wedderburn, who ‘had duped thirty-three thousand inventors out of at least five dollars apiece for performing useless legal services. Wedderburn performed sloppy patent searches for his clients, recommended patent applications even for unpatentable inventions, and invariably encouraged appeals from rejected applications. Wedderburn also sent his “suckers” worthless medals and citations to encourage their pursuit of frivolous applications. Thousands of unsophisticated inventors, including numerous women, succumbed to Wedderburn’s schemes before he was disbarred in 1897.’; see also ‘Deceptive Methods of Patent Attorneys’ (1897) 77 *Scientific American* 114; ‘A Patent Attorney Firm to Be Disbarred’ (1897) 77 *Scientific American* 210 highlight the prosecution and disbarring of Wedderburn and the hope that it would restore faith in the profession.

¹³⁸ Christopher Beauchamp, ‘Who Invented the Telephone? Lawyers, Patents, and the Judgments of History’ (2010) 51 *Tech & Culture* 854, 868.

¹³⁹ (n 76) 95.

¹⁴⁰ David McGowan, ‘Lawyering within the Domain of Expertise’ (2015) 84 *Fordham Law Review* 1929, 1949–1950.

¹⁴¹ See for example ‘The Alleged Patent Office Frauds’ (1908) 98 *Scientific American* 162 discussing the first time in history an official of the US Patent Office is charged with this serious of a crime. Ned W. Barton (examiner), Henry E. Everding (lawyer) and John Allen Heany (inventor) were found to have entered into a conspiracy to appropriate the discoveries of inventors and destroy and falsify Patent Office records. The author states that he trusts

issues such as patent agents taking out patents in their own name on behalf of foreign inventors, while occasionally serving legitimate purposes, made patent agents easy targets for allegations of unethical behaviour.¹⁴²

Despite all these difficulties, patent agency proved a resilient and durable business. Its durability rested on two main pillars. Primarily, patent agents were leaders in promoting the narrative of the pioneering and entrepreneurial American spirit. The heroic inventor motif told of inventors' inventive contributions as a key contributor to American greatness, not to mention the enormous fortunes resulting from such heroic endeavours. Patent agents pushed this message through practically every available medium. Whatever the truth of this narrative, it undoubtedly drummed up considerable business for patent agents.

As in the UK, a study of US cities outside of the major political and commercial centers such as Washington and New York illuminate the durability and changing face of patent agency over the course of the 19th century. In cities such as San Francisco and Cincinnati, inventors' self-help organizations and networks formed to promote inventive activities and inventors' interests. These inventors' organizations closely resemble the co-working spaces often found on university campuses - e.g., makerspaces, innovation hubs, and incubators: they were "designed to provide workrooms and machine shops, model makers and draftspeople for the use of the members."¹⁴³ Much like Birmingham in Britain, Cincinnati became a hotbed for the useful arts, and this form of embedded inventive agency took shape within the technical community. By the late 19th century, Cincinnati's reputation as a bustling environment of inventorship had become so well-established nationwide that it was chosen as the meeting place for the first convention of the National Association of American Inventors.¹⁴⁴

Patent agents quickly embedded themselves within these networks largely through their involvement in technical journals. Many of the earliest and most successful owners of patent agency firms were also publishers and/or editors of some of the most widely read technical journals of the time. Perhaps the most successful was the nationally read and distributed

an investigation will reveal what really happened, and that confidence in the Patent Office not be questioned as a result of this incident.

¹⁴² (n 76) 95–6.

¹⁴³ Carroll Pursell, 'The American Patent Agency: The Embedded "Lone Inventor" in American History' (2011) 17 *Icon* 31, 33.

¹⁴⁴ *ibid* 35.

Scientific American magazine, owned and published by Munn & Co. By the mid 19th Century, *Scientific American* could legitimately claim to be the world's leading technical journal, and Munn & Co the world's largest patent agency firm.¹⁴⁵ Munn & Co sought to connect techno-journalism with the world of patents, and, incidentally of course, promote their own patent agency services to their readership. *Scientific American* regularly included relevant patent literature, including newly published patents, within its pages, in between stories of new technological developments and articles promoting the importance of hiring a qualified patent agency firm – their own – to reap the rewards of invention.¹⁴⁶

¹⁴⁵ *ibid* 33; Naomi R. Lamoreaux and Kenneth L Sokoloff (n 98) 22.

¹⁴⁶ (n 76) 85, 94; See also Andrew P. Morriss and Craig Allen Nard (n 74) fn 143: "Of note is that the proprietors of *Scientific American*, Orson Munn and Alfred Beach, were, by 1850, the owners of the largest patent agency in the world."; See also David Pretel (n 104) 10.

Scientific American.

ness for preparing papers for their own inventions. Among the requisites necessary to constitute able Patent Agents, is a clear knowledge of mechanical philosophy, chemistry, and Patent Law, and as there are few who combine these positive essentials, the reason why so few succeed in the profession is made apparent. The publishers of the Scientific American are well known throughout the world as among the most able and accomplished Patent Agents in the profession, and since the introduction of this business into their concern a very large increase has manifested itself in

the number of inventions yearly presented to the Patent Office, and the stimulus given to inventive genius throughout the country by that powerful auxiliary, the Scientific American, has doubtless been the means of increasing two-fold the business of every respectable Patent Agent.¹⁷

Ex-Commissioner Burke,—good authority—has said the same for the Scientific American. Mr. Ewbank would not deny the fact. He knows what it is doing for the Patent Office, as well as what the Ohio Cultivator is doing for the wheat growing interests.

The Patent Agency Business.

Such is the simplicity of the American patent law that the drawings and specifications of applications for patents can just as readily be prepared, if the party is competent, at a distance from the capital, as within its immediate precincts. The result is that applicants unwisely attempt to prepare their own papers; hundreds more employ country lawyers or notaries public, or justices of the peace, or other inexperienced agents, while the remainder entrust their business to the Scientific American Patent Agency and the few other skillful houses who make the preparation of patent papers their speciality. If inventors were more careful at the start to avoid the employment of ignorant persons, they would often save themselves from trouble, delay and exorbitant expense. Many a poor countryman

Patent Soliciting Profession.

It has been wittily said that the man who undertakes to be his own lawyer has a fool for his client. The same is true in a multitude of situations as well as in the practice of law, and we know of some empty purses and broken ambitions to be the result of men undertaking to transact clerical and professional work which comes within the domain of vigilant and well posted specialities. In the domain of mechanical inventions and the patents with which to protect them this is painfully true, and it is even a matter of record that some of the cleverest inventors of our time have beggared themselves in health, courage, and pocket by trying to secure their rights without the help of such expert intervention. A patent solicitor and attorney is of the first importance to an inventor; he is posted as to the expense of any given proceedings in his specialty, he can insure expedition as well as economy, and by his regular and watchful attention to the Patent Office, he is often enabled to spare his client the trouble of instituting what might prove to be wholly worthless claims, and hence the complete loss of his invention so far as securing protection in exclusive rights is concerned.

Figure 3: Examples of Scientific American articles critical of unethical patent agent business practices

Another such publication was the popular *American Inventor* magazine, published by the American Patent Agency firm and its principal, J.S. Zerbe. These magazines, and their patent agent owners, were so successful at promoting the connection between invention, entrepreneurship and competent patent agency that they began to stake out leadership positions in many of the nascent inventors' organizations. To return to the example of Cincinnati's convention of the National Association of American Inventors, "J.S. Zerbe was chosen President [of the Association], and his journal, the *American Inventor*, was designated the 'official organ' of the new group."¹⁴⁷ Control of the means of dissemination of patent literature provided these patent agents with a powerful mechanism for influencing the narrative surrounding patent law and practice, often in directions favorable to their own professional interests. The heroic inventor motif, stories of inventors' contribution to the greatness of the nation, and the necessity of patent protection to propel the engine of innovation were powerful interlinked narratives. One of Zerbe's first acts as President of the Association was to declare that independent inventors had finally come together to protect themselves from the ongoing abuses by large corporate manufacturers, which, of course, patents and experienced patent agency could champion against.¹⁴⁸ This narrative served to bind the group and further patent agent business interests, despite little evidence of its accuracy.¹⁴⁹ By the late 19th century, entrepreneurial patent agents had nevertheless found numerous methods to disseminate patent information and literature in connection with the narrative that heroic inventorship was the path to riches. Apart from technical publications such as *Scientific American* and *American Inventor*, these methods included advertisements and even travelling displays of patent models at trade shows and conferences.

¹⁴⁷ Carroll Pursell (n 143) 35.

¹⁴⁸ *ibid.*

¹⁴⁹ *ibid.* As Professor Pursell points out, while there undoubtedly some examples victimization by the hands of large corporate manufacturers, in fact, it was often other independent operators or small enterprises that were responsible for preying on these independent inventors.



FIG. 1.—In 1891 William A. Bell & Co., patent brokers and solicitors of Sigourney, Iowa, outfitted a wagon for mobilized display of up to 150 patent models and copies of patent specifications. It toured midwestern states in the summer and fall and southern states the following winter. Bell & Co. told inventors that besides taking in state fairs and other large expositions, the “agents having the wagon in charge . . . call on Manufacturers, Speculators and Buyers. . . . Do not miss this good opportunity of having your patent brought before those most likely to buy territory.” (Warshaw Collection, National Museum of American History.)

Figure 4: William A. Bell & Co's Mobile Wagon for Displaying Patent Models¹⁵⁰

Victor Evans is an excellent example of an entrepreneurial patent attorney of this era. Evans published a widely-distributed circular entitled ‘Money in Patents’ in which he made such bold claims as “[a] patent with merit is an easy road to wealth”.¹⁵¹ His advice to aspiring inventors was simple: “Stop, think and invent something valuable. Patent it and make a fortune.”¹⁵² Evans’ circular was filled with endorsements from the most prominent politicians of the day, no doubt lending an air of credibility to his proclamations. Evans also advertised his services in all the leading technical publications, offering coupons for discounted service fees and ‘money back guarantees’ to patrons for whom he was unable to secure patent protection. Evans’ “success was due at least as much to his business acumen as to his legal skills”,¹⁵³ and while his aggressive

¹⁵⁰ Carolyn C. Cooper (n 29) 963.

¹⁵¹ Victor J. Evans (ed), *Money in Patents* (Victor J Evans & Co 1914) 22.

¹⁵² *ibid* 58.

¹⁵³ ‘Victor Evans, Patent Attorney Extraordinaire’ <<http://www.streetsofwashington.com/2011/05/victor-evans-patent-attorney.html>> accessed 19 August 2022.

marketing practices provoked the ire of many of his contemporaries,¹⁵⁴ the success he achieved in building what was, at the time, one of the largest patent agencies in the world, was undeniable.¹⁵⁵



Figure 5: Cover of Victor Evans' Popular Circular, "Money in Patents"

¹⁵⁴ See for example Thomas Ewing and Miles Poindexter, 'Indorsements of Patent Attorneys by Congressmen' (1914) 111 *Scientific American* 246, 246 where the authors are highly-critical of the practice of endorsements of patent attorneys/agents by sitting Congressmen and other politicians. Thomas Ewing, one of the authors of the article, was a former Commissioner of the USPTO, and was, throughout his career, remarkably hostile towards patent agents, viewing the profession as an unnecessary barrier between inventors and the patent office. see also 'Use of Congressmen's Names for Advertising' (1916) 114 *Scientific American* 236; 'Official Endorsement and Patent Advertising' (1916) 114 *Scientific American* 54 for a discussion of a bill to restrict congressional endorsements in patent agent advertising; John Boyle, 'A Blue Sky Law for Patent Advertising' (1920) 2 *Journal of the Patent Office Society* 508.

¹⁵⁵ 'Victor Evans, Patent Attorney Extraordinaire' (n 153): to this day, the Victor building, which Evans built to house his massive patent agency business, still stands in downtown Washington.

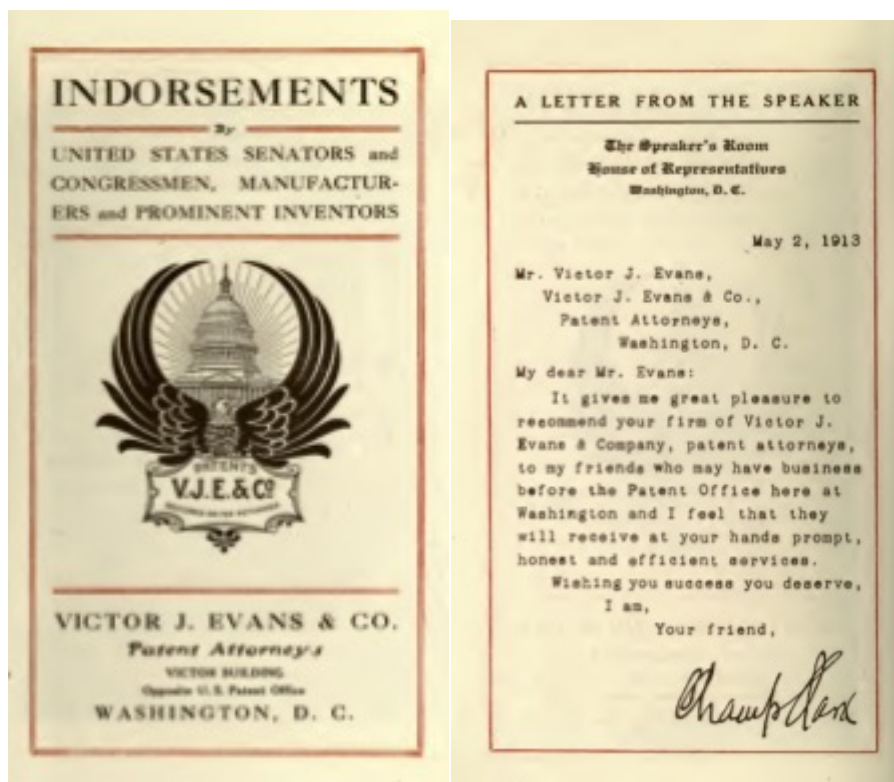


Figure 6: Congressional Endorsements in Evans' "Money in Patents"

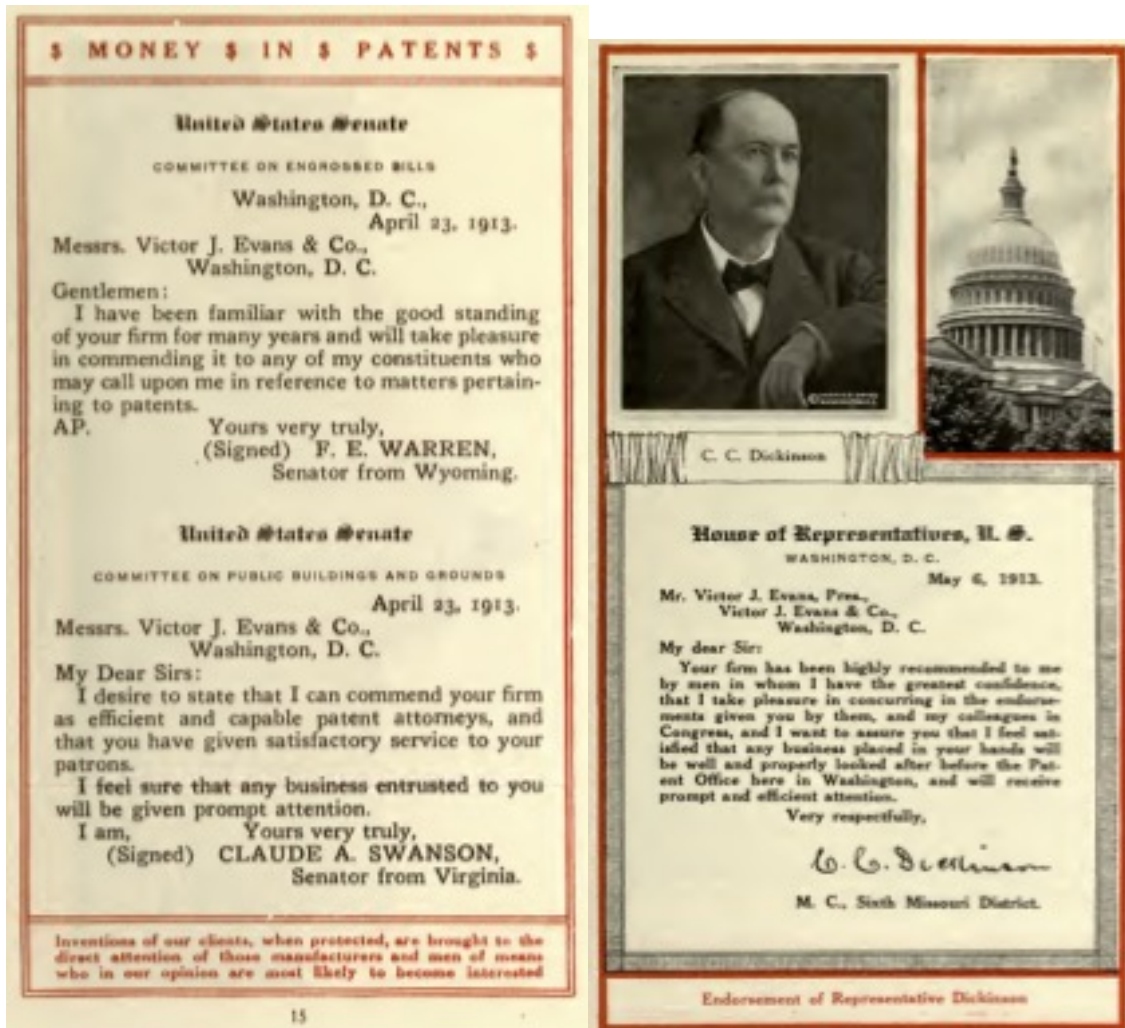


Figure 7: Congressional Endorsements in Evans' "Money in Patents"

A. 4. Suggesting your opinion upon, we would suggest that you present your idea for review of priority claims. After this, place the entire matter in the hands of an attorney. Do not get a good patent for you at a cost cheaper than you could do it yourself.

You can get right about and manufacture the article while the patent is pending, and you can label the article "patent pending." It will be done. Your full protection does not mean until you have actually secured the patent and your inventions stand in the courts.

SPECIAL FILES

(1121) Andrew Jackson, St. Louis, Mo., has submitted a design for a chair provided with holes for drawing the, the chair and chair frame. The request is for a patent.

A. 5. Your suggestion for a system for making dental lines are probably to be patented, but whether such an idea would be practical in working form which we cannot definitely advise. There is no the market today a patented straight edge provided with holes with which it is possible to make dental, dental or old and new lines.

There are also filing devices with which work may be substantially accomplished. These are generally in the form of various disks which are made to roll along the straight edge.

Both suggestions are included in the drafting files. We would advise mental investigation before proceeding with the patent.

FOUNTAIN GUNS

(1122) Andrew Jackson, St. Louis, Mo., has submitted a design for a fountain gun with a trigger for the liquid, a tube extending to the nozzle and holes in the back to permit the fluid to flow down on the back.

A. 6. The suggestion for a fountain gun for you is not at all new. Fountain pens are well known and, as a matter of fact, they are designed with certain forms of back tubes. Instead of having the back open between the work of the nozzle, the work of the back chamber is done by the fountain and the back tube or back tube right down to the bottom of the back.

It is extremely doubtful that you can secure a patent unless you have a design. We consequently advise no further action.

Thought Transference?

BY DAVID MANSERD VAN ARDENNE

(Continued from page 296)

by F. Sauerbrey and G. Selensky, and more recent experiments of the author indicate. At a distance of several meters with relatively simple means, transference effects could be shown. The author tried by using an aperiodic induction, that with a range of 200- to 2,000,000 waves frequency had the proportionately high grade of intensification of 10,000, it he could show an electric high-frequency field in the vicinity of the hand. Fig. 2. The shocking box and the electric connection on the side with the antenna can be clearly understood from Fig. 3. On the left there is also an apparatus built, that by the assistance of an absorber, however, registers slow ultra-violet rays. Fig. 4 shows the general look-up, using an interferometer and a very sensitive vacuum tube indicator. In these experiments the highest high-frequency field due to thought transference could be detected within the frequency range of the induction. It is only by transference action that any induction appeared in the motion of the vacuum tube indicator. After these negative results by a more sensitive apparatus, we might suspect that the frequency of electric waves due to thought would be outside the band of frequency of the aperiodic induction we are dealing—that is to say, they have a still higher frequency. It certainly would be possible in a considerable time to develop an interferometer in which the frequency of 2,000,000 waves per second would have a good degree of intensifying power. Further experiments will show if with the help of such an interferometer the problems alluded to in this paper can be solved.

PATENTS TRADE-MARKS AND COPYRIGHTS



OUR OFFER: FOR THE PROTECTION YOUR FIRST STEP. The inventor should write for our blank form—"RECORD OF INVENTION." This should be signed, witnessed, and returned to us, together with model or sketch and description of the invention for INSPECTION and ADVICE FREE!

Our FIVE Books Mailed Free to Inventors

Our Illustrated Guide Book

HOW TO OBTAIN A PATENT

Contains full instructions regarding U. S. Patents, Our Methods, Terms, and 100 Mechanical Movements illustrated and described.

OUR TRADE-MARK BOOK

Shows value and necessity of Trade-Mark Protection. Information regarding Trade-Marks and unfair competition in trade.

OUR FOREIGN BOOK

We have Direct Agencies in Foreign Countries and secure Foreign Patents in shortest time and at lowest cost.

PROGRESS OF INVENTION

Description of World's Most Pressing Problems by Leading Scientists and Inventors. All Communications and Data Strictly Confidential. Interference and Indisposition Suits Prosecuted.

DELAYS ARE DANGEROUS IN PATENT MATTERS

IMPORTANT! To Avoid Delay!

YOU SHOULD HAVE YOUR CASE MADE SPECIAL IN OUR OFFICE to save correspondence, secure protection and early filing date in the Patent Office. To secure special preparation of your case send \$25.00 on account with model or sketch and description of invention.

Our Lawyers Practice in all U. S. Courts and defend Clients in Suits involving Patents, Trade-Marks and Copyrights

OUR ORGANIZATION OFFERS PERSONAL SERVICE

By Experienced Patent Lawyers, Solicitors and Draftsmen

We regard a satisfied client as our best advertisement, and furnish, upon request, lists of clients in any state for whom we have secured patents.

Highest References—Prompt Service—Reasonable Terms

FREE COUPON

VICTOR J. EVANS & CO.

Registered Patent Attorneys

MAIN OFFICES: 715 Ninth St., Washington, D. C.

BRANCH OFFICES: 1807 Washworth Bldg., New York City; 325-329 Liberty Bldg., Philadelphia, Pa.; 514 Empire Bldg., Pittsburgh, Pa.; 1156 Tacoma Bldg., Chicago, Ill.; 3019 Market Bldg., San Francisco, Calif.

Gentlemen: Please send me FREE OF CHARGE your books as described above

Name.....

Address.....

Please say you saw it in SCIENCE AND INVENTION.

Figure 8: Example of an Advertisement for Victor Evans' Patent Agency

According to Professors Morriss and Nard, the development of US patent institutions from the early to mid-19th century was very much the "story of the creation and growing dominance of the patent bar as an interest group."¹⁵⁶ The US 1793 Patent Act, which operated as a registration rather than patent examination system, was largely structural, rather than

¹⁵⁶ Andrew P. Morriss and Craig Allen Nard (n 74) 148.

substantive in nature. Accordingly, early 19th century patent law “open[ed] a new avenue for change [and] gave entrepreneurial lawyers a choice in how to shape patent law to their, and their clients’, preferences.”¹⁵⁷ It is in this context that the US patent profession developed what Professor Nard refers to as its single most important innovation - the patent claim.¹⁵⁸ The lack of an examination system created the substantive problem of defining and delimiting what constituted an ‘invention’:

The 1793 Act did not provide a means to resolve this problem as it merely required the inventor to “distinguish” his invention “from all other things before known,” and did not specify how one was to do so. Lawyers engaged in the practice of patent law created the means of doing so: the patent claim as a component distinct from the specification, allowing applicants to separate the new from the old. The claim provided guidance for jurors as to the patentee’s invention and called “attention to what the inventor considered the salient features of his invention.” An important consequence of the development of the patent claim was that the demand for expert legal counsel in preparing patent documents increased as technology grew more complex.¹⁵⁹ (emphasis added)

Entrepreneurial US patent practitioners saw an opportunity to work within the open space of the 1793 Patent Act to create a legal mechanism for defining intellectual property rights, as well as what would later become the central feature of patent agency, namely, working with patent claims. As Professors Morriss and Nard state, “developing the patent claim can thus be seen as an entrepreneurial response by the nascent patent bar, providing them with a service to offer potential clients.”¹⁶⁰ When the patent act was amended in 1836 and created a statutory requirement for patent claiming, it was merely formalizing what the profession had created and customarily practiced for many years prior.¹⁶¹ While the seeds of claiming may have been planted elsewhere, the institutionalized practice of patent claiming expanded rapidly outward around the world from the practice of US patent agents.¹⁶² This was the result of their efforts to

¹⁵⁷ *ibid* 152.

¹⁵⁸ Craig Allen Nard (n 61) 66.

¹⁵⁹ Andrew P. Morriss and Craig Allen Nard (n 74) 154–5.

¹⁶⁰ *ibid* 231.

¹⁶¹ *ibid* 155.

¹⁶² See generally William Redin Woodward, ‘Definiteness and Particularity in Patent Claims’ (1947) 46 Michigan Law Review 755 discussing how the practice of patent claiming began in Britain, but became statutorily formalized and gained considerable judicial importance in the US. At 756, Woodward states: ‘The problem of the validity of patent claims, both as to form and scope, has a peculiar acuteness in American law, because of the special status that the claims have in the American patent law, a status which is approached abroad in the British Commonwealth but is not found in some important countries.’

assert the widest possible rights on behalf of their clients while maintaining an entrepreneurial space for their own services.

It is important to recognize that the 1836 Patent Act also created another powerful interest group: the patent examining corps. By re-instituting a patent examination system alongside statutorily mandated patent claims, the patent agent profession found a corresponding group with vested interests in maintaining a specialization surrounding patent claiming. Realization of the patent agent professional ideal in many ways depended on the patent office maintaining its separation from inventors: direct connection between the patent office and inventors would have meant elimination of the intermediary role filled by patent agents.¹⁶³ As in the UK, some powerful patent office officials were critical of the idea of intermediaries standing between the patent office and the public it was meant to serve.¹⁶⁴ However, the intimate, personal links between patent agents and the early UK and US patent offices certainly played a strategic part in ensuring a role for intermediary professional patent agents.¹⁶⁵

This brings us to the second pillar of US patent agents' longevity, namely, their entrepreneurial flexibility. By the turn of the 20th Century, the US market for inventive activity had taken off. Few of the leading corporations manufacturing and marketing innovative products had yet developed business models revolving around the internalization of inventing activity. They instead viewed acquisition of external invention as the best approach to R&D.¹⁶⁶ This created a robust market for independent invention and a need for intermediaries specializing in the marketing of inventions. In this world of unregulated patent agency, "[v]irtually any businessman could perform this function" of invention brokering, "[b]ut it was common for patent solicitors and agents to play the role of middleman."¹⁶⁷ So while US patent agency began predominantly as the prosecution of patents through the maze of patent office practices, patent agency in the late 19th Century transformed into a broad form of patent marketing:

Although the original function of these specialists was to shepherd applications for patents through the official review process and (in the case of the lawyers) to defend previously issued patents in interference and infringement proceedings, as time went on

¹⁶³ (n 102) 86.

¹⁶⁴ Wissam Aoun, 'Canadian Patent Agent Regulation Reform (Pt. 2)' (n 59) 400.

¹⁶⁵ (n 102) 86.

¹⁶⁶ Naomi R. Lamoreaux and Kenneth L. Sokoloff (n 98) 41, 44.

¹⁶⁷ *ibid* 24.

they acquired additional functions and often began to serve as intermediaries in the sale of technology.¹⁶⁸

As with the earliest US patent agents, unscrupulous behaviour was not uncommon amongst this burgeoning class of patent marketers.¹⁶⁹ Thus, as in the UK, a class of patent practitioners, which felt that patent brokering was unethical and tarnished the reputation of a profession desperately seeking legitimacy, voiced considerable opposition against such practices. However, unlike the UK, turn-of-the-century US patent solicitors were waging a losing battle against a large mass of practitioners who had moved into patent commercialization.¹⁷⁰

The changing landscape of editorial articles in *Scientific American* from the mid-to-late 19th century demonstrates that patent solicitors were in many ways losing economic ground to patent marketers. The journal's publishers knew that they came dangerously close to a perception of conflict of interest in publishing a technical journal while also actively promoting their own patent agency business. By many accounts, they managed to balance these potentially conflicting interests appropriately for most of the 19th century.¹⁷¹ Those like *Scientific American*, that were continuously attempting to walk such a fine ethical line, naturally took issue with many of the practices associated with patent marketing. It may, however, have been more commercial than ethical concerns that drove Munn & Co's backlash against seemingly unethical business practices. The fact that *Scientific American* began to publish an increasing number of articles warning the public against unethical patent practitioners suggests Munn & Co's growing insecurity about their continuing loss of an increasing amount of business to this new class of patent agent.¹⁷²

¹⁶⁸ *ibid.*

¹⁶⁹ Kenneth L. Sokoloff and Naomi R. Lamoreaux (n 133) 14.

¹⁷⁰ Naomi R. Lamoreaux and Kenneth L Sokoloff (n 98) 24.

¹⁷¹ Kenneth L. Sokoloff and Naomi R. Lamoreaux (n 133) 13.

¹⁷² *ibid* 14.

Scientific American

NEW-YORK, JUNE 18, 1853.

Patent Agents—A Caution.

It is well known to many of our readers that there are located in the City of Washington a vast horde of self-styled "solicitors," who profess to undertake all kinds of professional business before the different departments of the Federal Government. This class of solicitors are for the most part shipwrecked politicians, who hang about the corridors of the public buildings, something after the style of the "Peter Funks" of this city,—ready, with the most obsequious politeness, to undertake all kinds of jobs, and for very small fees. Of course, having once, perchance either by implication or in fact, been the suckers of government pappage, they are supposed to understand the "ropes," and of course have more influence in the proper direction than any other class of men.

We feel called upon, as an act of justice to ourselves and other respectable Agents, to ~~caution inventors and patentees against~~ such characters,—they are unreliable, and, like sharks, feed upon humanity, whose vitals they search after, not only in the streets and public buildings of Washington, but throughout the whole country. This nuisance became

Figure 9: Scientific American editorial criticizing the practice of advertising political connections in association with the practice of patent agency

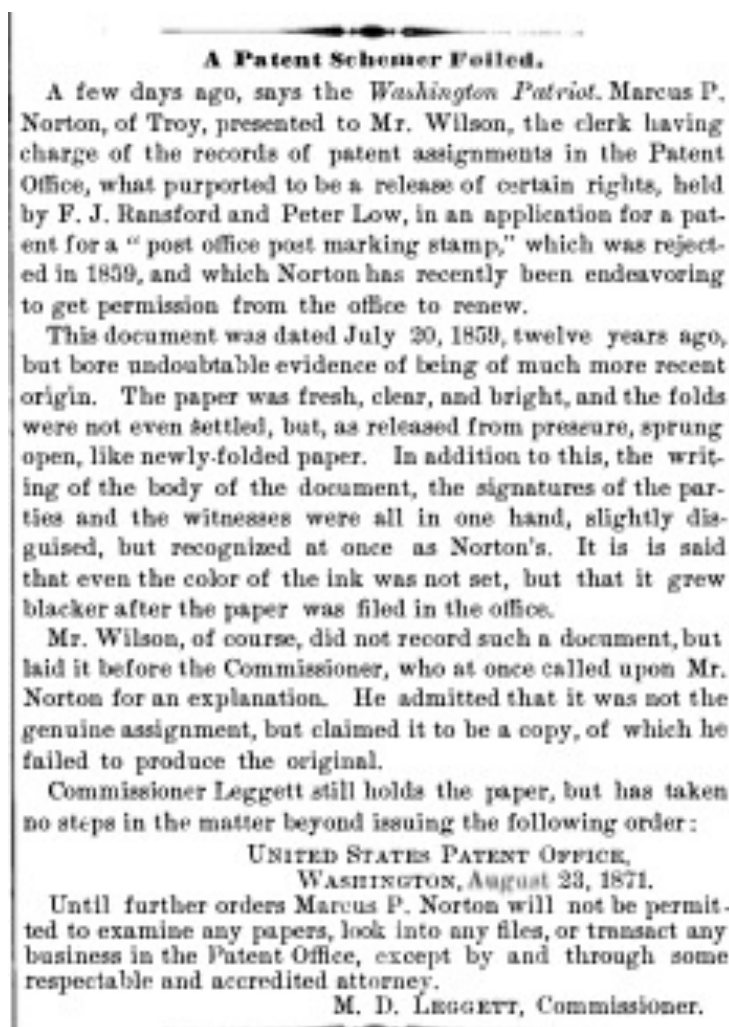


Figure 10: Scientific American editorial regarding fraudulent activities in the US Patent Office



Figure 11: A collection of Scientific American editorials highlighting patent agents disciplined for unethical behaviour

c. Regulation and Professionalization of Patent Agency

i. *The UK*

It was in the late 19th century, following reform of both the British and US patent systems and the increasing momentum of professionalization in other areas of service, that patent agents in both the UK and the US sought to professionalize and regulate entry to their profession.

Professionalization began in earnest in the UK in 1882, after formation of the Institute of along with its push to regulate the practice of patent agency.¹⁷³ The Institute maintained strict entry guidelines for new Associates, requiring either five years of practice experience or the passing of a rigorous set of examinations.¹⁷⁴ The Institute was relentless in lobbying for the creation of a public register of patent agents along with entry qualifications, which the Board of Trade established in 1889.¹⁷⁵ However, the initial set of entry requirements were limited. They required only some proof of patent agency experience, and precluded individuals who were not entered on the register merely from using the ‘patent agent’ title rather than prohibiting them from offering patent solicitation services.¹⁷⁶ Shortly thereafter, the Board of Trade amended its regulations to create an examination requirement for entry to the registry.

By the turn of the 20th century, CIPA had taken a firm hold of the profession. A majority of registered patent agents were CIPA members, and CIPA was exclusively responsible for setting entry standards.¹⁷⁷ Early in the century, a requirement for registration as a patent agent became formal education through an accredited program or five years of apprenticeship, followed by passage of a set of rigorous examinations.¹⁷⁸ While formal education was an acceptable substitute for apprenticeship, hiring by elite firms in London typically required newly minted patent agents to have completed an apprenticeship at an equally prestigious firm.¹⁷⁹ The Chartered Patent Agent, as the member of a distinct regulated profession, was officially born.

As in the decades leading up to regulation, CIPA’s legitimacy as the regulator of the profession thereafter was a regular cause for heated debate. Again, the conflict was often between the Fellows of CIPA and the ‘outsiders’, with the latter accusing the former of using this

¹⁷³ (n 4) 147.

¹⁷⁴ *ibid.*

¹⁷⁵ *ibid* 148.

¹⁷⁶ *ibid.*

¹⁷⁷ *ibid* 152–3.

¹⁷⁸ *ibid* 153.

¹⁷⁹ *ibid* 154.

self-regulation framework as a means of reinforcing the market dominance of the elite London firms. While it is difficult to ascribe intentions to CIPA, it is hard not to recognize some level of self-contradiction in its regulatory approach. Even though the Fellows of CIPA invested much effort into distinguishing the ‘real’ practice of patent agency – namely, the drafting and prosecution of patent applications – from the amorphous practices of the ‘outsider’ invention agents, the post-regulatory profession still struggled to define the essence of patent agency. The earliest patent agent qualifying examinations covered a broad hodgepodge of topics, including comprehensive sections on physics, electricity and chemistry, as well as sections covering aspects of general commercial law. The principles and practices of patent preparation and prosecution seemed to make up a much smaller section of these examinations compared to these other topics.¹⁸⁰

This ongoing debate cut to the heart of what it meant to be a patent agent. More importantly, the debate revolved around the old question of who was entitled to decide what ‘patent agency’ *should* be:

Obviously the interests of the public could hardly be overlooked by the parties involved; nobody objected to the necessity to prevent and to sanction misconduct. However, the decision to create a Register had other more controversial implications: what was at stake was the definition of who was entitled to practice in a publicly recognized and therefore legitimized way. The fact that, along with the Register, the Board of Trade established also examinations as a procedure for the admission of agents, to be adopted subsequently to the first round of enrolments, suggested that they were moving in that direction. And yet neither that body nor the Patent Office took it upon itself the responsibility of conducting the examinations: that task, as well as the keeping of the Register, were delegated to a private association, the Institute of Patent Agents; the same association was entrusted with the task of levying registration fees and organizing the examinations.¹⁸¹ (emphasis added)

A.V. Newton, who had gone to great lengths to define the essence of patent agent professionalism, and who was regarded by his peers as a beacon of patent agent integrity, could

¹⁸⁰ See Institute of Patent Agents, ‘Volume VIII, Session 1889-90’ [1889] Transactions of the Institute of Patent Agents 327 for what appears to be the first qualifying examination for registered patent agents in the UK. In addition to covering patent law topics, this examination also included detailed exam papers covering topics such as machinery, manufactures, chemistry, electricity and heat.

¹⁸¹ (n 4) 148.

not help but feel some sympathy for those who criticized CIPA's practices. The combination of a poorly defined professional space and the lack of transparency surrounding CIPA's decision-making processes were certainly cause for criticism:

After the fact it is easy to see why in our profession jealousy has been created. If publicity to our proceedings had been designedly eschewed, that result could not have been better attained, for the public know nothing of the Institute's work, except through the actions in the Law-courts apparently instituted to crush rival practitioners.¹⁸²

d. The US Experience in Early Patent Agency

Over the course of the 19th century, the influence of US patent agents continued to grow and develop into a highly-effective interest group: "the rise of patent specialists produced a relatively concentrated group with both a strong interest in patent law's development and the means to influence it."¹⁸³ However, it was the American legal profession - the formally trained lawyers - which "possessed considerable social status and market power" that came to dominate patent agency.¹⁸⁴ The legal profession, which was gaining power through its own effective professionalization efforts, wielded considerable influence:

[T]he creation of the patent bar produced a group of attorneys with the combination of deep knowledge and personal interest in patent law's development that yielded an effective interest group. Unlike patentees and technology consumers, the patent bar was not widely dispersed. Even the lawyers outside Washington were brought together through journals and meetings. The patent bar's interests lay in creating an effective system of patent rights that maximized the value of its services in the acquisition, trading, and defense of patent rights.¹⁸⁵ (emphasis added)

Furthermore, with the institutionalization of a patent examining corps, patent agents no longer had to seek reform through courts and/or legislation to benefit their own interests and the interests of their clients. Given the highly specialized nature of claim drafting and examination, patent agents and the patent office had in many ways become joined at the hip, and patent agents now found that they could lobby for change, such as revised patent examination standards and lowering patentability thresholds, directly through the patent office.¹⁸⁶ This hyper-proximity between the patent office and the agent profession continued into the early 20th century, where

¹⁸² Chartered Institute of Patent Agents (n 110) 128.

¹⁸³ Andrew P. Morriss and Craig Allen Nard (n 74) 179.

¹⁸⁴ *ibid.*

¹⁸⁵ *ibid* 181–2.

¹⁸⁶ *ibid* fn 145.

by some accounts, as many as half of all US patent practitioners began their careers as patent examiners.¹⁸⁷

The story of the regulation of patent agency was very much the story of the growth of the legal profession, which in the early days of its own professionalization, sought to expand its scope of exclusivity and professional identity to include all groups involved in any form of legal practice. With the growth of the invention market towards the end of the 19th century, this brought lawyers and non-lawyer patent agents squarely into conflict.

While the legal profession was unable to convince Congress to eliminate the non-lawyer patent agent, it was successful in securing a number of entry barriers to practice. From 1869 onward, a “‘good moral character and intelligence’ requirement had to be met in order for individuals to be entered on the Register of patent agents.¹⁸⁸ For various reasons, these requirements were loosely, if at all, monitored by the Patent Office.¹⁸⁹ The legal profession continued to push for a closing of the ranks of patent practitioners with an imposition of an entry examination, a suggestion hotly contested by the early 20th century Patent Office. According to Patent Office Commissioner Thomas Ewing, the patent agency problem was one of ethics, not competency: “it was less important that a patent prosecutor be proficient with patent laws and rules than that he be ‘in actual touch’ with, and have the trust and confidence of his clients”.¹⁹⁰ However, several factors aligned in favour of regulating the profession. The growing political influence of the practising Bar along with the ineffectiveness of the Patent Office in enforcing ethical regulations set the stage for regulatory intervention. Furthermore, the early 20th Century US corporate landscape saw major shifts in corporate R&D practices. As discussed above, prior to the early 1900s, few corporate entities internalized R&D efforts, and instead relied on external acquisition of inventions to fuel product development. This in turn fueled the creation of patent marketers as the dominant form of patent agency through the turn of the 20th century. However, the internalization of corporate R&D in the early 1900s led to less need for external patent acquisitions, thereby causing patent agency once again to shift focus back to the narrow domain of patent prosecution.¹⁹¹ This focused on patent prosecution led to greater ties between the

¹⁸⁷ William Hubbard, ‘Razing the Patent Bar’ (2017) 59 Arizona Law Review 383, 426.

¹⁸⁸ Wissam Aoun, ‘Canadian Patent Agent Regulation Reform (Pt. 2)’ (n 59) 400.

¹⁸⁹ *ibid.*

¹⁹⁰ *ibid.*

¹⁹¹ (n 98) 49.

profession and the Patent Office, thereby greasing the wheels of potential reform proposals. In 1934, the alignment of these factors led to a legislated competency examination requirement in order to practice before the US Patent Office.¹⁹²

It was not long after institutionalization of the entry-to-practice requirements, including institution of the US Patent Bar Exam, that professional patent agents began vigorously enforcing their professional boundaries. The earliest border skirmishes took place between the pre-professionalization patent practitioners and licensed lawyers, both of whom were attempting to carve out their respective spaces of exclusive entitlement to practise. It quickly became clear that each group was determined to carve out its own professional space, with professional patent agents prohibiting licensed lawyers from encroaching on practice before the patent office and licensed lawyers prohibiting patent agents from engaging in the practice of law.¹⁹³ However, soon thereafter both professional patent agents and licensed lawyers turned their attention to those who practised as the pre-professionalization ‘invention agent’. There is no doubt that many such practitioners, including ‘invention development and promotion’ companies preying on naïve independent inventors¹⁹⁴ and professional patent agents engaged in aggressive advertising campaigns¹⁹⁵, straddled the line of ethically acceptable behaviour. However, this boundary policing did not stop only at invention promotion companies of dubious ethical standing. For example, publicly funded non-profit laboratories providing patent services as part of their sponsored innovation R&D services soon came within the entitlement-to-practice crosshairs.¹⁹⁶ In a sense, the questionable ethical practices of the mass market invention promoters provided US professional patent agents with the justification to erect boundaries between patent agency and inventive agency *generally*, in all of its forms.

Interestingly, post-regulation professional patent agents policed against the same conduct which, only several decades earlier, had led to the emergence of their profession, namely, aggressive mass marketing of invention promotion services to independent inventors and small

¹⁹² Wissam Aoun, ‘Canadian Patent Agent Regulation Reform (Pt. 2)’ (n 59) 401.

¹⁹³ See *Chicago Bar Assn v Kellogg* (1949) 83 USPQ 269 determining that professional patent agents are prohibited from providing opinions relating to infringement and enforcement of patents.

¹⁹⁴ See Robert J Thomas, ‘Invention Development Services and Inventors: Recent Inroads on Caveat Inventor’ (1978) 60 *Journal of the Patent Office Society* 355 for a discussion of the attempts, across much of the 20th Century, to regulate invention development services both at the US state and federal levels.

¹⁹⁵ See for example *Miller v Watson, Comr Pats* (1961) 131 USPQ 435 (DC DistCol); *In re Blasius* (1961) 128 USPQ 482 (Comr Pats).

¹⁹⁶ See for example *Battelle Memorial Institute v Green* (1962) 133 USPQ 49 (Ohio Ct App).

enterprises. Once the profession was established with a regulatory framework controlling entry and entitlement to practice, it kicked out from under it the ladder it had used to ascend to its plateau of professionalism. Perched upon this plateau, patent agency would now remain distinct from inventive agency and could use the force of law to reinforce the boundary between itself and the inventive community. To enter the patent system, inventive agency would now need to pass through professional patent agency to assume a form that the law recognized and that was largely shaped by and for professional patent agents. New forms of inventive agency, such as non-profit research and innovation centres and research universities, emerged; so too did new forms of patent service providers, such invention development and marketing services. But when these entities attempted to experiment and shape new forms of patent agency, as had the patent agents of the previous generation, the professional patent agents extinguished their attempts by strictly enforcing the entitlement to practice boundaries. Patent agency thus became locked into the professional form that it largely holds today.

e. [The Internationalization of Professionalized Patent Agency](#)

The development of the patent agent profession was born not only from the growing phenomenon of professionalization, but also from the rise of corporatization. In many respects, the transition from ‘democratized invention’ to corporate dominance over inventive matters called for the creation of a specialized practitioner with specific expertise in patent office practice.¹⁹⁷ As Professor David Pretel states, “[t]he transition to a modern corporate business model and the growing demand for trained experts in patent issues were closely related.”¹⁹⁸ The internalization of patent expertise through the development of corporate patent departments was one reflection of the transition between the late 19th and early 20th century from individual to corporate inventive activity.¹⁹⁹ At the turn of the century, in both the UK and the US, corporate patent activity replaced the individual inventor as the centerpiece of patent practice and the

¹⁹⁷ Kara Swanson (n 1) 535–6. According to Swanson, the U.S. patent practitioner was actually born from another legal innovation resulting from the rise of corporatization, the in-house counsel: “In addition to development of the law firm, legal practice also changed with the increasing prominence of in-house counsel—lawyers salaried by the corporations they advised. The corporate lawyer—the counselor—was a creature of the late nineteenth century and replaced the old-fashioned courtroom advocate as the new model of the legal profession. In certain businesses such as sewing-machine manufacture, telegraphy, and telephony, the legal advisor to a corporation needed a strong knowledge of patent law and came to perceive the drafting of patents as crucial to his client’s business. By the turn of the century, corporations that developed the first industrial research laboratories also created patent departments, incorporating invention and patenting into their basic business strategy.”

¹⁹⁸ (n 104) 19.

¹⁹⁹ *ibid* 20.

patent narrative.²⁰⁰ The significance of this fact cannot be overstated. As Professor Bracha puts it:

In 1885, only 12 percent of patents were issued to corporations. Slightly more than one hundred years later, the proportions had completely reversed: by 1998, only 12.5 percent of patents were issued to independent inventors. These two statistics define the end points of a process that, more than any other single factor, drove changes in patent law over the past one hundred years.²⁰¹ [emphasis added]

Along with this transition from individual to corporate patentees came the internationalization of the patent system. Here, patent agents were instrumental in developing a global framework for corporate expansion of patent rights, acting as the ‘invisible’ agency that shaped international transmission of patents.²⁰² By the end of the 19th century, patent agents had become a central and indispensable part of the global patent system, particularly outside the major industrialized nations in countries such as Spain, Brazil and Portugal.²⁰³

With the growth of industry, led by such notable inventors as Edison, Marconi and Westinghouse, came the need to develop systems to extend patent protection globally. It was here that the international patent agent profession began to take shape, as a means for the transnational transfer of rights over inventions.²⁰⁴ A study of the development of pivotal treaties for the international protection of patents rights, such as the foundational Paris Convention of 1883, shows international networks of patent agents as being largely instrumental in their negotiation and completion.²⁰⁵ Global networks such as the International Federation of Patent Agents (FICPI) allowed agents from the major industrial nations, as well as the European periphery and the developing world, to meet and form connections, to the point that members of these elite organizations relied solely on their mutual membership as key indicators of trust and

²⁰⁰ (n 78) 94; See also Patricio Sáiz, ‘Social Networks of Innovation in The European Periphery: Independent Versus Corporate Patents in Spain Circa 1820-1939’ (2012) 37:4 Historical Social Research 348, 348–9.

²⁰¹ Oren Bracha, ‘Owning Ideas: A History of Anglo-American Intellectual Property’ (Harvard 2005) 2215–6 <<https://law.utexas.edu/faculty/obracha/dissertation/>>.

²⁰² (n 104) 3.

²⁰³ *ibid* 9.

²⁰⁴ *ibid* 22.

²⁰⁵ *ibid* 11–2.

recognition of expertise.²⁰⁶ Then, as now, few other professions had this international level of connectivity.

Patent agents outside of the major industrial nations did not simply act as domestic agents for foreign corporate interests. They also used their control over technical trade journals and their political connections to push for patent reforms that were favourable to both their clients' and their own, interests.²⁰⁷ This phenomenon served the interests of the major corporate clients of elite agents in industrial nations, and also agents' professional interests in the management of international patent rights. As global patent activity began to increase, elite patent agent firms around the world wished to see as much harmonization of patent laws as possible so as to reduce the risk of professional negligence in transmitting patent rights between jurisdictions.²⁰⁸

International patent agency at the turn of the century nevertheless tells a story of two worlds: that of the major industrial jurisdictions, such as the US and UK, and all the rest, the non-major jurisdictions that included peripheral European countries such as Spain and Sweden. In the latter group of countries, small groups of patent agents headquartered in capital cities practically monopolized all the patent work, most of it coming from the major industrial countries.²⁰⁹ Thus approximately half-dozen Spanish patent agent firms then controlled about 70 percent of all Spanish patent applications, and "the totality of 'elite' foreign patents were channeled through these leading agencies."²¹⁰ In Spain, as in many of the other non-major countries were largely limited to those foreign patentees who could afford the high agent fees.²¹¹ Countries such as Brazil, Mexico, Portugal, and India had some of the most expensive patent agency fees in the world.²¹²

The 'elite' versus 'outsider' patent agent conflict was not limited to the major industrial nations. For example, in Spain at the turn of the 20th century, the country's patent agency business was consolidating into a very small group of patent agents, who functioned mainly as domestic agents filing Spanish patent applications on behalf of elite foreign agents and their

²⁰⁶ *ibid* 14–5.

²⁰⁷ *ibid* 10–1.

²⁰⁸ *ibid* 17.

²⁰⁹ *ibid* 9.

²¹⁰ David Pretel and Patricio Sáiz, 'Patent Agents in the European Periphery: Spain (1826–1902)' in Ian Inkster (ed), *History of Technology*, vol 31 (Bloomsbury Publishing PLC 2012) 107.

²¹¹ *ibid*.

²¹² (*n* 104) 22.

corporate clients.²¹³ These agents, mostly headquartered in the capital city, were legally trained and highly active in the movement to professionalize the practice of patent agency. However, a number of smaller engineering firms catered to assisting domestic Spanish inventors and industrialists.²¹⁴ After professionalization of patent agency in Spain, which brought entry-to-practice requirements and the creation of a public register of qualified agents, the larger elite firms appeared to absorb the smaller firms and consolidate their grasp over the entire profession.²¹⁵ Thus, Professor Pretel concludes that it was the internationalization of corporate patenting, along with its corps of elite agents, that seems to shaped the professionalization of patent agency in Spain.²¹⁶

Pretel raises several important points about these issues that are as relevant today as they were in the late 19th century. With the growth of corporatization and the professionalization of patent agency, patent institutions that had been open and designed for a broad segment of the public may have become “primarily accessible only to powerful social classes and corporations with a large amount of capital.”²¹⁷ Furthermore, while global patent agent networks were instrumental in creating an efficient international framework for transmitting patent rights, they themselves remained a barrier for patenting across national boundaries: for in most jurisdictions, a domestic patent agent was (and still is) required to acquire domestic patent protection.²¹⁸ Thus, patent agents, especially in countries outside of the major industrial jurisdictions, may have become “actors that support an excessive concentration of power over technologies.”²¹⁹

3. PROFESSIONALIZATION, AGENCY AND PATENT DISCOURSE

a. Patent Ideologies, Patent Discourse and the Professionalization of Patent Agency

A discussion of the role of patent agency and its professionalization in influencing the development of the patent system as an institution must begin at an ideological level. Fundamentally, the Industrial Revolution was more than a technical revolution, for it ushered in

²¹³ (n 210) 107.

²¹⁴ *ibid.*

²¹⁵ *ibid* 110.

²¹⁶ *ibid* 111.

²¹⁷ (n 104) 23.

²¹⁸ *ibid.*

²¹⁹ *ibid* 3; See also Peter Drahos (n 70) 219–220: “Developing countries like India, which want to play in the patent-based global economy, need armies of good patent attorneys just as much as they need scientists, since what counts is not invention, but patentable invention.”

philosophical debates over the control of ‘technology’. An emerging entrepreneurial middle class was developing, one that was empowered by new reforms directed towards the dissemination of knowledge, hostility towards patronage domination of government bureaucracy and the creation of labor rights. Many within this emerging class staunchly supported the idea of property rights over the product of intellectual labour; but they also viewed monopolies as a vestige of patronage governance and so were hesitant to fully embrace the strong property rights associated with the grant of patents. Even those who supported property rights for inventions had mixed feelings about the administration of such rights, whether through examination or automatic creation.

Late 18th Century Britain set the stage for “new concepts of patent rights supported by [new] ideological justifications”, creating new tensions between those that viewed patents solely as royal privileges and emerging natural rights and utilitarian justifications. However, this conflict was in many ways separate and distinct from the ideological divisions pertaining to administration of the patent system.²²⁰ As Professor Bracha states:

The ideological divisions of the time regarding patents are often described in terms of a view of patents as natural rights, versus an opposing view of patents as state created privileges. This, however, is only part of the picture. There were, in fact, two lines of division that did not completely overlap. One division was between those who claimed that patents were pre-political natural rights, recognized but not created by the state, and their opponents who viewed patents as state created entitlements. There was a second disagreement over whether patents should be privileges granted on a case-specific basis by the crown, or general rights to which anyone who met general patentability criteria should be entitled. The divisions with respect to these two different issues were not always identical. Some of those who claimed that patents were natural property rights did not seem to challenge the basic patent-privileges framework. Others sang the praises of a patent rights regime under which the state had no discretion regarding the grant, and yet adhered to a positivist concept of patents.²²¹

From an administrative perspective, within this emerging discourse surrounding control of technology, many within the entrepreneurial middle class wished to see an ideological construction of the control of technology that in many ways would have involved no role for

²²⁰ Oren Bracha, ‘The Commodification of Patents 1600-1836: How Patents Became Rights and Why We Should Care Symposium - Intellectual Property at a Crossroads: The Use of the Past in Intellectual Property Jurisprudence’ (2004) 38 Loyola of Los Angeles Law Review 177, 246.

²²¹ *ibid* 207.

professional patent agents at all.²²² The early pre-regulation ‘invention agents’ were not a discrete professional group; rather, as discussed above, patent agency was latent and homogenous within the inventive community. The significance of the active exercise of power by a newly ‘professionalizing’ patent agent group cannot therefore be discounted. Its “position of trust” as a professional group was in many ways authored by the profession itself and achieved through its own social and political action.²²³ The nascent profession mastered the ability to “disagree with fractions of the middle class without having to move outside of the middle class ideal”; it thus allowed patent agents to harness the ideological power of middle class ownership of the product of its labour while circumventing middle class hostility towards bureaucracy, professionalization, and monopolies.²²⁴

In Britain, patent agents used their political influence and connections to build institutions that required their specialized form of legal expertise. In many respects, this same influence not only developed institutions, but also furthered a political ideology that justified those institutions. Although many during the pre-1850s era accepted the rationale for a patent system, disagreement about the formal institutions of the system still existed. As we have seen, even as the need for patent examination was politically accepted, a major ideological battleground remained regarding the role of ‘scientific’ versus ‘legal experts’ in assessing the scope of invention and patent rights. Influential members of the scientific community believed that the assessment of inventions was a scientific question to be assessed by scientists, while patent practitioners argued that patentability was essentially a legal question. The position of the scientific community, which might have effectively eliminated the professional independence of patent agents, were vigorously disputed by the profession.²²⁵ The political abilities of the agents compared to the scientists were however so dominant that even the establishment of examination by scientifically trained patent examiners was viewed as a compromise on their part.²²⁶

These ambiguities within the middle class ideal regarding control of technology is what provided the early patent agents with room to manoeuvre.²²⁷ According to Smit, it was here that

²²² (n 102) 102.

²²³ *ibid.*

²²⁴ *ibid.*

²²⁵ *ibid* 99.

²²⁶ *ibid* 100.

²²⁷ *ibid* 101.

the early patent agents “not only marshalled and deployed ‘ideological resources’ but went further and themselves created such resources, particularly through their conceptive work in the legal sphere.”²²⁸ Once patent agents authored the necessary conceptual discourses, they could then move to shape patent legislation and institutions. This ultimately resulted in the authoring of the discourse of their own professional identity, as the resources and institutions they helped to usher into existence also required their professional services for the public to effectively navigate.²²⁹ As many agents of the period were also firmly entrenched within the network of the most widely read technological publications of the time, they were able to publish pieces arguing for “sophisticated ideological justifications” for a patent system that ensured a central role for patent agents.²³⁰ With the rise of corporatization and global corporate patenting, patent agents within the European periphery also became vocal advocates for patent reform. In countries such as Spain, domestic patent agents used their political influence and control over technical publications to lobby for patent reforms that aligned with both foreign corporate strategies and also streamlined patent processes involving a central role for domestic patent agents.²³¹

The foregoing discussion raises some very important questions. If the ideological foundations for a patent system - whether justified by natural right or positive law, or based on royal prerogative or more formally institutionalized - caused so much disagreement and conflict, how could the earliest patent agents bridge these cascading levels of divisions to promote a system that ensured them such a prominent role? What ideological tools did they deploy to bring together these disparate philosophical and practical divergences to create a modern form of patent system which required their professional services? Perhaps most importantly, what, if anything, connections the professionalization of agency within the patent system and the creation of such ideological tools?

b. Disclosure, Enablement and Patent Agency

Professors Burrell and Kelly suggest that disclosure, which was at the heart of the narrative of the patent bargain between inventor and state, served as the ideological tie that bound all the

²²⁸ *ibid.*

²²⁹ *ibid.*

²³⁰ *ibid* 90.

²³¹ (n 210) 110.

conflicting forms and ideas that supported the British patent system across the 17th, 18th and early 19th Centuries. Originally, the British privilege system awarded grants of monopoly or compensation to importer and inventor equally, so long as whoever requested the privilege undertook to provide the public with the benefit of the new and useful art. Some undertook to train new apprentices, while others had to demonstrate the direct industrial benefit of the new technology they were introducing. Some importers were granted protection in return for disclosing the invention to the British public through whatever means were available at the time. Thus, public utility, rather than inventorship, was in many ways the heart of the patent bargain of the era of royal privileges.

As the social ideological justifications for the British patent system at the tail end of the privileges era began to shift from public utility to rewarding inventors, the justification for maintaining a system for the granting of patents required a common denominator across the differing ideologies: “public dissemination had by this point come to stand in place of public utility.”²³² As Professors Burrell and Kelly state:

By 1800, the questions to which Parliament would address itself when deciding whether to authorise a reward had become well established. Parliament continued to emphasise the importance of public dissemination. In the case of requests for direct financial payments (and particularly those where no patent had ever been granted), the question of the public’s ability to access the invention remained a key consideration. Petitioners seeking financial rewards therefore stressed that a reward was warranted precisely because the specifics of the invention had already been disclosed to the public. Detailed publications, both within the elite virtual public space of the scientific “republic of letters” and pamphlets designed to be read by (or read to) the masses, often preceded claims for direct payments.²³³

When the heroic inventor began to take centre stage - causing disarray and discontent between social factions subscribing to different ideological justifications for a patent system - disclosure emerged as the focal point. All could agree that whether the applicant was importer or heroic inventor, the patentee had to disclose their invention to the public to benefit from such rights:

²³² Robert Burrell and Catherine Kelly, ‘Parliamentary Rewards and the Evolution of the Patent System’ (2015) 74 Cambridge Law Journal 423, 427.

²³³ *ibid* 440.

By focusing on the act of public disclosure, the law could treat the importer and the inventor as equally deserving – the benefit to the British public, who would gain access to an invention for the first time, was the same in either case. Such equivalence would have been much more difficult to justify had patent law ultimately been centered on a narrative of creativity, genius, and a natural right to property.²³⁴

Even those who believed in inventors' moral entitlement to patent protection had to acknowledge that inventors could choose to keep their inventions secret without the possibility of a government reward, thereby reinforcing disclosure as the justification for government intervention. From the outside looking in, all perspectives focused on disclosure as the normative rationale underpinning the patent system.²³⁵ Accordingly, even as importers began to be disqualified from patent protection in favour of the heroic inventor, disclosure remained the constant thread across this ideological shift.

Furthermore, as the shift from royal privileges to an institutionalized patent system was taking hold, so too were concepts of public disclosure and dissemination changing in light of emerging technologies. Although mass dissemination had not yet become the standard by the early 19th Century, the emerging social concept of 'public disclosure' required making information available to anyone who wished to access it (such as making documents openly available in a government office) rather than only to a small segment (such as a technical guild).²³⁶ As technology further developed, so too did prevailing views on what constituted public disclosure, moving from anything that was not kept secret to knowledge that was actively disseminated to those who would have use for the information and could continue to ensure its further dissemination to others.²³⁷ As the era of printed publication and mass dissemination emerged, for the first time, documentary disclosure was being viewed as an acceptable form of public disclosure. This ushered in the era of the patent specification as an effective means of disclosure.

As we have seen, the earliest patent agents were slow to accept the idea of an institutionalized patent system grounded in formalized patent examination. Despite social and

²³⁴ *ibid* 441.

²³⁵ *ibid* 445.

²³⁶ *ibid* 429.

²³⁷ *ibid* 429–430.

political thought slowly transitioning towards acceptance of such a system, “[l]egal doctrine and legal thought changed little... and remained the firmest bastion of the traditional institutional model of patent privileges.”²³⁸ Once again, disclosure was the holy grail that served all purposes, practical and ideological, tying together conflicting positions around a point of agreement. New perspectives on public disclosure, and specifically, the view that a documentary specification could constitute an adequate public disclosure, is how “[t]he legal community [who were] among those most resistant to change and most entrenched in the old privilege framework”²³⁹ eventually became vocal supporters of an institutionalized patent system.²⁴⁰ From the perspective of professional self-interest, disclosure through the patent system ensured a role for professional patent agents in the new world of institutionalized patent agency. The emerging class of professional patent agents could carve out a role for themselves as those responsible for the preparation and prosecution of patent specifications.

As discussed above under Chapter 3.2.a., the earliest patent agents played a key social role in promoting broad dissemination of inventive knowledge through innovative means during the 19th Century. Newton reminded his colleagues in the early days of the Institute that his father, arguably one of the world’s first patent agents, was pioneering not as a solicitor of patents *per se* but rather as a disseminator of inventive knowledge:

But as the grant of Patents [in Britain] increased without any material increase in the number of published specifications, a growing need for further information as to the subject matter of new Patents began to be experienced, and it was to supply this need that the ‘London Journal of Arts’ was established, in the year 1820, by the writer’s father... The main object of this new Journal was to give, for the first time, an intelligible notice of every current invention contained in the Patent Records.²⁴¹

It was Newton’s father’s trailblazing patent agency work which eventually led to patent system reforms. Soon after the elder Newton began actively disseminating patent knowledge, the nascent Patent Office of the era followed suit, resulting in “the right of the public to a free

²³⁸ Bracha (n 220) 211.

²³⁹ *ibid* 209.

²⁴⁰ Robert Burrell and Catherine Kelly (n 232) 434.

²⁴¹ Chartered Institute of Patent Agents (n 114) 130–131.

examination of specifications of Patents ... by the official publication of all recorded specifications, and the opening of the Patent Office Library to all comers.”²⁴²

While the US environment of the early-to-mid 19th Century certainly placed far more emphasis on the connection between patents, incentivizing inventorship, and entrepreneurship, one cannot overlook the fact that diffusion of technological knowledge played an equally important role.²⁴³ Rather than undermining the position that disclosure served as the ideological clearing house for patent agency, the foregoing reinforces it by demonstrating the amorphous and flexible nature of disclosure. Historical evidence makes a very compelling case that, whatever their motivations or underlying ideological predispositions, US patent agents made a significant contribution to the early US patent system’s ability to effectively diffuse technical knowledge.²⁴⁴ Patent agents of this era constructed an ideology linking patents, entrepreneurship, and the heroic inventor, and accordingly, created publications and institutions to promote this ideology. The 19th century US Patent Office showcased patent models as a means to inspire the pioneering and innovative spirit of US inventors.²⁴⁵ Patent documents from the late 19th and early 20th Century were written in also written in such fashion as to inspire the entrepreneurial creativity of US innovators, as they often included detailed sets of illustrations which in and of themselves told amazing stories of inventive ingenuity.²⁴⁶ Some of the leading technical journals of the era, a few of which remain in existence today, were established to promote patents, patenting, and the pioneering spirit of US inventorship. The technical journals of UK patent agents of the time were more akin to textbooks, used for teaching and circulation of knowledge within a discrete segment of the technical community. While the animating ideologies underlying each system may have been different, both relied on disclosure as the mould with which to shape patenting and patent agency. Early US patent agents may have been superior to their UK counterparts in aligning their

²⁴² *ibid* 132.

²⁴³ Naomi R. Lamoreaux and Kenneth L Sokoloff (n 98) 22.

²⁴⁴ *ibid* 23.

²⁴⁵ In fact, the 19th Century US Patent office was a popular tourist destination, so much so that revenue generated from tourist activities were used to fund other government projects. See Kara Swanson [@KaraWSwanson], ‘Fun Fact: The 19th c Patent Office Was Such a Popular Tourist Site That a Collection Box for Coins to Help Build the Washington Monument Was Placed in Its Display Hall during the 23 Years Monument Construction Was Halted for Lack of Funds.’ <<https://twitter.com/KaraWSwanson/status/1467966401293930498>> accessed 28 May 2022.

²⁴⁶ See William J Rankin, “The ‘Person Skilled in the Art’ Is Really Quite Conventional: U.S. Patent Drawings and the Persona of the Inventor, 1870-2005” in (who is the editor?) *Making and Unmaking Intellectual Property* (Chicago: University of Chicago Press, 2011).

own professional self-interests with the emerging ideology of heroic inventors and patents as incentives for entrepreneurship: their means of disclosure, across various forms and aspects, were shaped and leveraged to elevate both this ideology and their own professional interests. Yet in both cases, regardless of the ideological ends which disclosure may have served, be it inspiring entrepreneurial and inventive creativity or circulating useful knowledge amongst the technical community, disclosure remained the core of patent agency.

Even the early USPTO quickly adopted the disclosure narrative as its underlying philosophy, and as a bridge to connect an institutionalized patent system to patent agency. One of the Office's earliest Assistant Commissioners suggested that "when looked at from the right point of view the interests of the inventor, his attorney, and the examiner are, or should be, substantially one and the same."²⁴⁷ How could such disparate, and often conflicting, interests find alignment? It was through the locus of disclosure that all agents of the patent system "are in fact all attorneys for a public benefactor":

... it will not do to merely encourage inventors by securing them in their rights; another thing quite as important - and I think this is the thing usually overlooked - is that the inventor must be required to teach the public the use of his invention at the earliest possible time. I think we have never half realized the extent to which the publication of an invention stimulates other inventions, brings about improvements in methods of manufacture, supplies manufacturers with forethought and extended vision, and cultivates in the public mind a taste and desire for new and better things.²⁴⁸ [emphasis added]

This historical analysis demonstrates that no matter one's ideological commitments, their views on the proper role of a patent office in administration of a patent system, or their views on the 'rights' versus 'privileges' debate, everyone could rally around disclosure as the ideological clearing house which permitted all potentially conflicting views to converge on a single point of agreement. The disclosure function of patents was the tie that bound these conflicting discourses together, including forming the foundation for patent agency across its shifting forms.

It is important to provide a subtle, but significant, point of clarity. As Professors Burrell and Kelly point out, the political ideology of disclosure eventually manifested itself in Britain in the

²⁴⁷ F. W. H. Clay, 'The Relation of the Examiner to the Inventor and His Attorney' (1918) 1 *Journal of the Patent Office Society* 8, 9.

²⁴⁸ *ibid* 9–10.

legal doctrine of “sufficiency of disclosure”, which eventually found counterparts in other jurisdictions such as the US. During the era of privileges, before the full-scale development of mass printing technologies, those requesting royal privileges had to demonstrate sufficient public access to the inventive knowledge in question. As discussed above, social notions of what constituted ‘public disclosure’, along with a lack of technical means for mass distribution of knowledge, meant that ‘disclosure’ was initially synonymous with the training of apprentices or other forms of demonstration that others could replicate the invention going forward.²⁴⁹ It was this enabling of other technicians in the ongoing practising of the invention that justified the grant of privilege. It was not so much that this enabling force was ever called into question as the ideological foundation when specifications began to take centre stage; rather, it was that many legislators of the early 19th Century era had doubts as to whether a documentary specification could be *enabling* in the ways that previous forms of disclosure had been. As new publishing technologies emerged, so too did social concepts of what constituted adequate public disclosure and specifically, adequate enabling disclosure. The emergence of the legal doctrine of sufficiency of patent disclosure was largely a recognition of the political and legislative landscape that preceded its earliest judicial proclamations, including the terms upon which previous royal privileges had been granted.²⁵⁰

Thus, it was not disclosure *per se* that acted as the ideological clearing house across the shifting patent landscape of the 17th, 18th and 19th Centuries. Rather, it was *enabling* disclosure. Similarly, the cornerstone of the earliest forms of patent agency was *enablement*. As we have seen, these forms were really ‘invention agency’: patent agency was intertwined with inventive activity, and thus, with the technical agency of the community of innovators and skilled artisans, to the extent that the patent system *enabled* the individual technical agency of the members of this community. Invention during this era was *dynamic*: it was teaching, learning, building, innovating, commercializing, rather than a static *thing*. Similarly, the core of early patent agency was enabling others to understand and implement the inventive contribution to the state of the art, namely, enabling the agency of the technical community. Viewed from this dynamic perspective, we see that invention, patent agency, disclosure and, perhaps most importantly,

²⁴⁹ Robert Burrell and Catherine Kelly (n 232) 426, 428.

²⁵⁰ *ibid* 428, 437.

enablement, have historically been intertwined and formed the foundation for the early patent system across shifting ideological landscapes.

4. CONCLUSIONS

An examination of the early days of patent agency, compartmented to today's form of professional patent agent practice, is an eye-opening experience for the uninitiated in historical patent practice. Specifically, "[t]he contrast with today's attitude toward patents, advertisers, publicity on patents, and patent professional ethics, is striking."²⁵¹ As one author has put it, in somewhat tongue-in-cheek fashion, "[t]hose were merry days when inventor, attorney, and the [Patent] Office were all one happy family."²⁵² While this hyper-proximity justifiably raised eyebrows in relation to conflicting interests, it is also important to keep sight of the minutiae of early patent agency and the technical environment across the 19th century. Patent agency in this era was intertwined with technical agency. In the mid-19th century, practically every major technical and engineering publication was intrinsically bound up with patents: between articles highlighting the opening of a new engineering trade school or advertisements for new agricultural technologies one could find articles promoting recently granted patents.²⁵³ On both sides of the Atlantic, patent agency flowed freely amongst the inventive community, patent agents, and the patent office.

The earliest patent agents of the First and Second Industrial Revolutions were more than just experts in the acquisition of patent rights. Rather, they were agents of knowledge dissemination, creating texts to share inventive knowledge amongst themselves in an environment that did not distinctly distinguish boundaries between patent agency and inventive agency.²⁵⁴ This was a time when the preparation and prosecution of patent applications were firmly rooted within the technical community. In the pre-professionalization era of patent agency, patent practice was far more entrenched within the inventive community itself. The earliest patent treatises, including treatises directed to the drafting and filing of patent applications, were authored with inventors, rather than patent professionals, as the intended audience. These early patent agents published prominent technological journals and, as innovators themselves, were a leading voice in reforming patent office processes to improve the

²⁵¹ Harvey W. Mortimer, 'Patents a Century Ago' (1964) 46 *Journal of the Patent Office Society* 666, 666.

²⁵² *ibid* 670.

²⁵³ *ibid* 666.

²⁵⁴ Ian Inkster (n 78) 127, 129.

patent system's means of disseminating useful knowledge (such as improving the state of patent technical illustrations). The leading forms of patent agency of this era "were fully engaged in reforming the [patent office] institution itself."²⁵⁵

Two key points mark the transition era leading up to professionalization of patent agency. The earliest agents were institution builders, in that they constructed the social institutions necessary to protect and promote inventors' interests as they went along. These 'interests' were viewed as far broader than simply the acquisition of patent rights through the patent system. They included improving the state of technical disclosure generally, and the patent document became the principal means for the demarcation and organization of technology.²⁵⁶ Furthermore, in both the US and Britain, the mid-to-late 19th century atmosphere of 'democratized invention'²⁵⁷- where "a broad range of individuals held patents for an equally broad range of inventions"²⁵⁸- created a class of pre-regulation 'invention agents' that offered a wide range of services as 'middlemen' in the marketing of inventions.²⁵⁹ These services included acting as intermediaries in the sale of technology, connecting inventors to investors and manufacturers, and to a large extent distributing invention information for innovation and commercialization purposes.²⁶⁰ There was no clear boundary between institutions, at least from the perspective of patent agency. The earliest patent agents were skilled technicians, brokers, facilitators of means of manufacturing and experts in the acquisition of patent rights. Thus, the era of democratized invention was also the era of democratized patent agency.

Over the course of the early 20th century, as globalization of industry expanded and a greater share of innovative activity was captured by large corporate R&D, the professional patent agent replaced the more endogenous form of patent agency that had previously existed.²⁶¹ Professional patent agents, along with their patent office counterparts, patent examiners, streamlined the patent application and acquisition process in order to maximize the efficient

²⁵⁵ *ibid* 119.

²⁵⁶ For an excellent discussion on the role of patent documentation in the construction of technoscientific order, see Eva Hemmungs Wirtén, 'How Patents Became Documents, or Dreaming of Technoscientific Order, 1895-1937' (2019) 75 *Journal of Documentation* 577.

²⁵⁷ See B. Zorina Khan (n 88).

²⁵⁸ Andrew P. Morriss and Craig Allen Nard (n 74) 171.

²⁵⁹ *ibid* 180.

²⁶⁰ *ibid*.

²⁶¹ David Pretel (n 104) 20.

administration of patent rights across international jurisdictional lines.²⁶² Professional regulation of patent agents ensured that once patent office practices coalesced into an efficient process (rather than the more ad hoc forms of patent agency of an earlier era), all patent professionals would be inculcated in this culture to ensure the stability of the global patent system.²⁶³ As Professor Bracha states:

[P]atent prosecution was firmly in the hands of a distinct professional class. Inventing and obtaining a patent came to be seen as two distinct practices. Prosecution grew to be an increasingly bureaucratized procedure. It took the form of formalized communication between bureaucrats and professionals over the text of the patent and related documents.²⁶⁴

The holistic and embedded form of pre-professionalization patent agency lacked the professional boundaries customary of today's form of patent agency. In retrospect, it is easy to perceive this era as a period of wildly uncontrolled unethical practices. Yet the reality is far more complex. As the practices of the pre-regulation 'invention agents', discussed above, indicate, these individuals played a variety of roles in the patent services market, including assisting in introducing inventors to manufacturers and acting as patent brokers. At the turn of the 20th century, when patent agent regulation was beginning to take shape on both sides of the Atlantic, a lively debate existed amongst patent agents regarding the propriety of agents acting as patent brokers.²⁶⁵ The more 'elite' agents located in major cities such as London and New York were strongly against any such conduct, viewing an agent's role in the narrow sense of preparation and prosecution of patent applications. However, many agents felt that such practices were not entirely improper, provided that adequate steps were taken to eliminate any conflicts of interest

²⁶² *ibid.*

²⁶³ Anna Guagnini (n 4) 154–5.

²⁶⁴ Oren Bracha, 'The Emergence and Development of United States Intellectual Property Law' in Rochelle Dreyfuss and Justine Pila (eds), *The Oxford Handbook of Intellectual Property Law* (Oxford University Press 2018) 252.

²⁶⁵ This debate was not limited to Britain or to the late 19th century. For a discussion of this debate in the U.S. context, see Naomi R. Lamoreaux and Kenneth L. Sokoloff, 'Intermediaries in the Market for Technology, 1870-1920' [2002] NBER Working Paper No. 9017 1, 16: "Of course, patent lawyers could not all be trusted to be reliable intermediaries. Just as advice manuals cautioned inventors not to use intermediaries who advertised in trade publications, there were warnings to be wary of unscrupulous patent agents and attorneys. Indeed, some practitioners themselves took the extreme position that it was improper for members of their profession to function as intermediaries."; In more recent times, there has been considerable concern regarding 'invention promoters' who offer to assist individual inventors in marketing their technology. See Thomas (n 194) for a discussion of deceptive practices of these entities and legislative attempts to curtail their behaviour.

between agent and client. Despite protests from some prominent firms, many US patent agents of the late 19th Century had largely transitioned and thrived in the field of patent brokering. While this debate was, and in many ways still is, presented as a question of ethics, Professor Guagnini reframes it within the context of patent agent professionalization and its relationship with the inventors' community:

[T]he different attitudes among the practitioners seem to bring back the problem outlined before, namely that also their involvement in intermediation might somehow relate to specific characteristics and professional interests of different segments of the professional community, into what they regarded as the prevalent interests of their clients.... The attitudes of patent agents whose portfolio was closely associated to particular sectors might have reflected or responded to the interests of their particular clientele.²⁶⁶

Where professionalization draws distinct boundary lines between occupational groups, any crossing of these lines is often viewed as a competency and/or ethical breach. But in the pre-regulation era, prior to the drawing of such professional boundary lines, where broad notions of patent agency, technical innovation, dissemination of knowledge, and business acumen mingled freely, it is hard to draw such clear-cut distinctions. It is possible that in this environment, the form of patent agency was intertwined with the needs of individual inventors, and the combination of corporatization and the professionalization movement may have *institutionalized* patent agency into a single, acceptable form directed almost entirely to the prosecution of patent applications.

Admittedly, these questions raise a chicken/egg dilemma: did professionalization limit individual inventors' inventive activity and access to the patent system, or was professionalization an effect of the growing corporatization of the patent system and thus a natural response to changing socioeconomic landscapes? Similarly, was the effect of patent agency on the development of patent institutions and substantive patent law a natural reflection of changes in the socioeconomic landscape, or was it the combined result of the over-influence of corporate and patent agent professional interests; if so, has institutionalized patent agency in

²⁶⁶ (n 4) 158.

some ways disconnected the patent system from its earliest foundations within the technical community?²⁶⁷

Some suggest that professional patent agents, along with other patent system ‘insiders’ such as patent examiners, may have played a key role in shaping the patent system to their own views and professional interests rather than simply being passive agents responding to changing economic and technical environments. As Professor Parthasarathy states, patents and inventions evolved and transformed from technical processes involving scientific practitioners, analyses, and standards into ‘technical objects’ involving their own form of technical expertise.²⁶⁸ Perhaps most importantly, Professor Parthasarathy suggests that this evolution did not generate the professionalism of patent agency rather, it may have been the other way around: “[t]he definition of the patent evolved... to gain the acceptance of system stakeholders.”²⁶⁹ To put it differently, professional patent agency may not have entirely emerged as a consequence of developments in the patent system which called forth this special class of service provider; rather, patent agency pre-dated many of the formalized aspects of the patent system and in many ways, was, in and of itself, a cause of many these changes. Professional patent agents developed systems and practices based on their own professional interests and world views of what the patent system should be and then redeployed these ideas to shape the patent system to their views.

The question of how, and to what extent, professionalization of patent agency may have shaped the international patent system will be explored in greater detail in the coming chapters. However, two important conclusions, which will cut across the following chapters, can be drawn from our historical analysis. Primarily, the form of patent agency in the early days of the patent system was constantly shifting and morphing along with the changing technological and economic landscape. The idea that patent agency is, or should be, predominantly an exercise in preparing and prosecuting patent applications was never firmly the foundation of this professional space. The fact that the world’s largest firm of patent solicitors of the 19th Century had, by the early 20th century, struggled to stay in business in the face of competition from patent agents practising predominantly as patent brokers is testament to this reality. Furthermore,

²⁶⁷ (n 78) 140: “It might be that as institutional reform intended to formalize and regulate the forms of agency within patent systems, so too it may have separated the patent system from its earlier information base.”

²⁶⁸ Shobita Parthasarathy (n 16) 27–8.

²⁶⁹ *ibid.*

disclosure acted as the ideological clearinghouse which permitted patent agency, and the administration of the patent system, to continuously transform and reshape across changing social, economic and political landscapes while still garnering public acceptance for the patent system and a role for patent agents. As noted, it is essential to recognize that it was not simply disclosure, but *enabling* disclosure, which was the ideological bedrock for the early patent system and patent agency. Accordingly, one can reframe this idea by stating that enablement was the cornerstone of patent agency leading up to, and in the early years following, the professionalization of patent agency.

CHAPTER 4: CAPTURE, DISCOURSE AND PROFESSIONAL PATENT AGENCY

1. INTRODUCTION

This work seeks to trace the discourse of professional patent agency. Discourse refers to the epistemic enclosure which defines the framework of received assumptions and understandings that serve to limit the imagination of alternatives to the current system of acquisition of patent rights. Although discourse analysis is most frequently associated with sociological theory, it is not limited to this field. From the perspective of analytical philosophy, a defined field of professional activity, for example, the practice of medicine, may be defined as the set of all acceptable practices constituting the ‘practice of medicine’. From this perspective, the discourse surrounding the set constituting the field of practice is *not* the set of acceptable practices, rather, “for any given analysis, we can call the group of all objects that are candidates for inclusion in or exclusion from sets the universe of discourse.”²⁷⁰ [emphasis added] The epistemic enclosure surrounding a field of practice limits not what is considered acceptable modes of practice, rather, it limits what may even be considered as valid discussion surrounding acceptable modes of practice. This, to put it simply, is what discourse does; “the result is to prevent the fullest range of policy options for a given objective from being openly aired and debated.”²⁷¹

Accordingly, for the purpose of this analysis, the discourse of patent agency is taken to mean the set of professional competency and ethical obligations that define not merely the professional identity of today’s modern patent agent, but what is open for consideration and

²⁷⁰ Jeremy N. Sheff, ‘Legal Sets’ (2018) 40 Cardozo Law Review 2029, 2040–1.

²⁷¹ David Vaver, ‘General Introduction’ in David Vaver (ed), *Intellectual Property Rights: Critical Concepts in Law*, vol I (Routledge 2006) 8.

discussion surrounding the acceptable modes of patent agency. This project will seek to discover how this discourse captures the imagination of professional patent agents, thereby foreclosing their ability to conceive of, and correspondingly delegitimizing, other potential forms of patent agency that may improve the overall functioning of the modern patent system. Furthermore, this work also explores how the discourse of patent agency reinforces a distinct boundary between patent agency and other forms of social discourse, the most important being the discourse of skilled artisans and inventors themselves. Patent law around the world still places inventors and hypothetical skilled readers as the centerpiece of patent doctrine, yet there is little doubt that patent application format and acquisition processes are growing more disconnected from the technological discourse familiar to these individuals.²⁷² This research thus seeks to form part of a growing academic literature which attempts to “bridge the disconnect between patent law and the norms of science.”²⁷³ This work will explore the ways in which professional patent agent discourse differs from and, accordingly, maintains a separation between the patent system and technical discourse and thereby requires technical and inventive agency to pass through professional patent agency in order to effectively access the patent system to achieve technical objectives.

²⁷² See Lisa Larrimore Ouellette and Daniel E. Ho, ‘Improving Scientific Judgments in Law and Government: A Field Experiment of Patent Peer Review’ (2020) 17 *Journal of Empirical Legal Studies* 190 wherein the authors conduct an empirical assessment of the potential value that actual scientific peer review may provide in improving patent examination. The authors suggest that actual researcher peer review does provide benefits in the form of more robust patent examination, but the costs might outweigh the benefits. One of the key challenges highlighted by the authors is the fact that researchers, even those with considerable patent experience, struggled to understand patent legalese.

²⁷³ Sean B. Seymore, ‘The Teaching Function of Patents’ (2009) 85 *Notre Dame Law Review* 621, 627; See also Timothy R. Holbrook, ‘Patent Anticipation and Obviousness as Possession’ (2015) 65 *Emory Law Journal* 987, 996; Professor Holbrook’s project seeks to articulate the principles of obviousness in doctrines reflecting technical, rather than economic, principles. In Holbrook’s words, this approach ‘affords a more robust, technologically rooted explanation for these doctrines that more accurately tracks the ways that technologists encounter patent law. As such, the proposed framework may help develop patent law norms that are more accessible to the law’s intended audience—scientists, engineers, and other innovators.’

The theoretical discussion of this chapter will lead into the next two chapters covering patent agent professional competency and professional ethics. In any professional field, the boundary between those permitted to engage in professional practice, and those forbidden from practising, is defined by the twin pillars of competent and ethical practice. Those wishing to enter into a regulated field of practice must prove that they have acquired sufficient knowledge of competent and ethical practice and must continue to meet those standards of practice to avoid legal repercussions (such as entitlement-to-practice claims, malpractice claims, or professional discipline). A detailed analysis of patent agent professional competency and ethics must thus remain central to a discourse analysis of professional patent agency.

This discussion in the following chapters will focus on the “highly developed art”²⁷⁴ of patent drafting, and how it differs from other areas of legal and technical discourse and therefore reinforces aspects of patent law’s exceptionalism. This is how the legitimacy of professional patent agency is socially constructed and legitimized largely through what Professor Siva Thambisetty calls the “textualisation” of patent practice.²⁷⁵ This textualisation revolves around the esoteric practice of claiming inventions, including how claims are managed by patent offices through patent prosecution, and “facilitate[s] agency in the patent system.”²⁷⁶ The esoteric form and process of invention claiming is subject to little oversight from other social actors “and yet influences every patent applicant who seeks a patent on her invention.”²⁷⁷ From this perspective, “claim language, are [sic] not simply texts, rather they are intermediaries that give access to a

²⁷⁴ *Brenner v Mason* (1966) 383 US 519 (USSC) 534.

²⁷⁵ Siva Thambisetty, *supra* note 14 at 4: According to Thambisetty, textualisation allows patent offices, and correspondingly, professional patent agents, “to create, repair and maintain [their] own legitimacy in the face of competing values” (at 6).

²⁷⁶ *ibid.*

²⁷⁷ *ibid* 11.

much wider view of agency.”²⁷⁸ The insularity and lack of connection between the language of invention claiming and the broader social world causes invention claiming to become “a conduit between the social world and third parties and over time generates an epistemic community.”²⁷⁹

As discussed above, this project is apprehensive about jumping to normative conclusions, as the legitimacy created by the practices of “[t]extualisation [of claiming inventions] is not in itself a normative phenomenon.”²⁸⁰ Rather, this work will explore the extent to which this discourse of professional patent forecloses the possibility of patent agency becoming an agent of change within the patent system rather than being an agent of continuous self-legitimization of the status quo.

2. THE MANY FACES OF CAPTURE

a. Public Choice Theory and Regulatory Capture

Regulatory capture is a long-standing theory that has captivated political scientists, economists, sociologists and lawyers alike. It is a theory often stated with broad generality: special interest groups shape regulation to their benefit rather than the public interest, influencing regulators to benefit the regulated rather than the public and selective enforcement of existing regulatory standards to allow regulated industries to avoid scrutiny.²⁸¹ The concept of regulatory capture can be succinctly defined as a situation where a regulatory body is, over time, influenced to prefer the interests of the regulated over its mandate to protect a broader public interest, and exercises decision making which benefits the interests of the regulated as opposed to the public’s interest.

²⁷⁸ *ibid* 16.

²⁷⁹ *ibid* 17.

²⁸⁰ *ibid* 4.

²⁸¹ Mark Lokanan, ‘Regulatory Capture of Regulators: The Case of the Investment Dealers Association of Canada’ [2017] *IJ Public Administration* 1, 1.

Regulatory capture, as defined above, begs the almost self-evident question of why would regulators favour the interests of those they regulate over their public interest mandate? The answer to this question is found within the broader confines of public choice theory. Public choice posits that political processes and outcomes, like most arm's length interactions, are the product of self-interest, utility and incentives. As such, political actors are, more or less, motivated by individual self-interest and respond to individual incentives, which, at times, may or may not align with broader public interests.²⁸² Special interest groups, which are often in a position to more effectively lobby regulators and influence political outcomes, are far better positioned to achieve advantageous regulatory outcomes than the public broadly. As Professors Morriss and Nard summarize:

The basic public choice insights concerning legislation are deceptively simple: small, homogenous organized interest groups have an advantage in the political competition to obtain benefits and avoid costs because they offer politicians a ready source of both votes and the money necessary to obtain votes. The smaller and more homogenous the interest group, the less costly it is to organize. As even the most publicly-spirited politician cannot advance the public interest without being in office, politicians are inevitably drawn to aid interest groups in pursuit of the votes and money the interest groups can provide. The result is that the political process tends to bestow benefits on concentrated interest groups while dispersing costs over the broadest possible population. The relatively small number of individuals in the interest group thus reaps large rewards while

²⁸² Andrew P. Morriss and Craig Allen Nard (n 74) 145; see also Paul J. Larkin, 'Public Choice Theory and Occupational Licensing' (2016) 39 Harvard Journal of Law & Public Policy 209, 233–4.

the relatively large number of individuals in the unorganized general public bears individually small, dispersed costs.²⁸³

Regulatory capture, as an offshoot of public choice theory, suggests that regulators may, over time, come to regulate in the interest of the regulated rather than the public interest given that regulated special interests can exert political forces on regulators that dispersed and often unorganized public interests cannot. Professor Daniel Carpenter, a leading regulatory capture theorist, provides one of the most succinct definitions of regulatory capture: regulatory capture is “the result or process by which regulation is, at least partially by intent and action of the industry regulated, consistently or repeatedly directed away from a defeasible model of the public interest and toward the interests of the regulated industry.”²⁸⁴ Both public choice theory and regulatory capture are based on economic models of human behaviour, and specifically, assume that individuals respond to incentives which further their own material self-interest. Accordingly, regulators, pursuing their own individual self-interest, may be incentivized by any number of factors to regulate in favour of the special interests of the regulated as opposed to their mandate to further the public interest.

Carpenter highlights the difference between regulatory capture taking place either in law or in the administration of law, which leads to very important distinctions under the regulatory capture framework between what Carpenter calls ‘statutory capture’ and ‘agency capture’. In statutory capture, special interest groups directly lobby legislators, apart from any specific regulatory agency actions, for legislative provisions which favour special interests. In agency capture, certain goals are expressed in legislation but the achievement of these goals through the

²⁸³ Andrew P. Morriss and Craig Allen Nard (n 74) 193.

²⁸⁴ Daniel Carpenter, ‘Detecting and Measuring Capture’ in Daniel Carpenter and David A. Moss (eds), *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (revised, Cambridge University Book Press 2013) 60–1.

administration of the legislation is “distorted, corrupted, watered down or otherwise turned into an industry’s advantage.”²⁸⁵ The statutory capture versus agency capture distinction draws a line between political lobbying activities to have private interest favouring legislation enacted, and administrative discretion granted pursuant to enacted legislation which is exercised in favour of regulated special interests.

b. Materialist Versus Non-Materialist Capture

As an economic theory, regulatory capture presumes that individuals are incentivized to act in their own material self-interest. As such, traditional theories of regulatory capture are referred to as materialist forms of capture, given that the capture mechanisms in question are assumed to involve material incentives for regulators to prefer regulated industry interests over public interest. Typical materialist capture mechanisms that are often used to evidence the presence of regulatory capture include phenomenon such as the ‘revolving door’ between regulator and industry. In the revolving door scenario, high-ranking regulatory officials are induced to follow industry promoting conduct with the incentive of high-salaried industry positions upon departing the public sector.²⁸⁶ In the patent agency context, as described under Chapter 3, the revolving door between the patent office and professional patent agency has been well-documented since the inception of patent examination.

However, in recent years, there has been a growing body of literature pertaining to non-materialist theories of capture. Non-materialist theories of capture suggest that in some instances, regulators may not necessarily be incentivized by their own individual material self-interest to promote industry interest above the public interest. Rather, prolonged proximity between the

²⁸⁵ *ibid* 59.

²⁸⁶ For a discussion of the ‘revolving door’ phenomenon, see generally Haris Tabakovic and Thomas G. Wollmann, ‘From Revolving Doors to Regulatory Capture? Evidence From Patent Examiners’ [2018] NBER Working Paper Series <https://www.nber.org/system/files/working_papers/w24638/w24638.pdf>.

regulator and regulated industry may create an environment where regulators unquestionably adopt narratives of the regulated as presumptive definitions of what constitutes the public interest.

Cultural capture, a term coined by Professor James Kwak, has become an oft-cited example of non-materialist capture. In one of his frequently cited works, Professor Kwak uses the 2008 financial crises as a case study in cultural capture. According to Kwak, prior to the 2008 financial collapse, of the four major regulators responsible for oversight of the US banking industry, none had a mandate of protecting consumers.²⁸⁷ It was not until the Dodd-Frank Act was passed in 2010, and with it the creation of the Consumer Financial Protection Bureau, that a regulatory body was tasked with protecting consumers. Following the 2008 financial collapse, many questioned that how such a regulatory oversight could have happened. Kwak proposes that cultural capture of regulators could have been one of the main causes of this regulatory failure. According to Kwak, regulators, having spent decades in close proximity to the regulated banking industry, came to identify with the regulated's predominant narrative that consumers' interests were best protected by free market competition. Accordingly, regulators adopted the view that being 'stewards of an efficient financial system' was their public interest mandate.²⁸⁸

Accordingly, under cultural capture:

[T]he entire language of the policy debate is shaped by an elite group that has gained dominance in promoting and controlling policy outcomes; further, the language of

²⁸⁷ James Kwak, 'Cultural Capture and the Financial Crisis' in Daniel Carpenter and David A. Moss (eds), *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (Cambridge University Book Press 2013) 84.

²⁸⁸ *ibid.*

regulation is shaped by the common backgrounds, education, experience, and intermingling of the more powerful players in the policy formation process.²⁸⁹

In instances of non-materialist capture such as cultural capture, regulators are not necessarily induced to prefer industry interests over the public interest by the possibility of individual material incentives. Rather, cultural captures shapes the views of regulators by foreclosing debate pertaining to rival ideological systems that might otherwise be contested.²⁹⁰ Therefore, “[c]ultural capture [i]s not fueled by corruption or dishonesty, but rather by a commitment to certain key priorities shared among regulators and industry.”²⁹¹ The significance of this cannot be overstated, as it highlights the fact that capture is not always caused by an institutional failure to balance individual incentives or by deceptive motives on the part of regulators. Rather, as discussed in greater detail under Chapter 4.3, one of the major causes of non-material capture is informational deficiencies.

c. The Theoretical and Methodological Challenges in Capturing Regulatory Capture

Although capture theories can be stated relatively succinctly, many theoretical and methodological challenges have plagued capture scholars for decades. The first hill to climb, and possibly the most challenging to overcome, is how does one define ‘public’ interests versus ‘industry’ interests? What methodology should be used to define the public interest?²⁹² Furthermore, can every shift away from public interest and towards industry or professional interests be considered ‘capture’? Can every gradual bureaucratic drift of administrative bodies

²⁸⁹ Lawrence G Baxter, ‘Capture in Financial Regulation: Can We Channel It toward the Common Good Essay’ (2011) 21 Cornell Journal of Law and Public Policy 175, 183.

²⁹⁰ James Kwak (n 287) 79.

²⁹¹ Jakob Schemmel, ‘The ESA Guidelines: Soft Law and Subjectivity in the European Financial Market - Capturing the Administrative Influence’ (2016) 23 Indiana Journal of Global Legal Studies 455, 482.

²⁹² Daniel Carpenter (n 284) 60.

away from their original regulatory purpose towards industry-promoting interests be considered capture?²⁹³ Without precise definitions for these concepts and methodologies for evidencing their existence, an allegation of regulatory capture can easily be wielded by any party disagreeing with any decision made by a regulatory body.²⁹⁴

Carpenter states that several generations of regulatory capture research have provided unsatisfactory definitions of what regulatory capture is and how to prove its existence.²⁹⁵ Methodologically, capture should not be posited entirely on a theoretical basis without any empirical evidence- “a combination of quantitative and qualitative evidence in which various types of evidence corroborate one another – amounts to a gold standard of proof.”²⁹⁶ Carpenter’s concept of a capture story can be an important methodological tool for those studying non-materialist forms of capture. As defining the public interest in any given case study can be difficult – perhaps more so in non-materialist forms of capture as in materialist forms of capture²⁹⁷ – Carpenter suggests “we abandon any pretense of knowing the public interest and instead focus on ‘circumstance evidence’ consistent with a capture ‘story’.”²⁹⁸ This approach is the most empirically grounded, and a capture story can be constructed through a variety of

²⁹³ *ibid* 62–3; See also Richard A. Posner, ‘The Concept of Regulatory Capture: A Short, Inglorious History’ in Daniel Carpenter and David A. Moss (eds), *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (Cambridge University Book Press 2013). At 51, Posner suggests that ‘the deflection of an agency from its original goals may accompany the natural tendency of an institution to bureaucratization, but it is not entailed by it.’ Furthermore, at 50, Posner states that ‘perhaps the most marked development in a mature commission is the growth of a passivity that borders on apathy. There is a desire to avoid conflicts and to enjoy good relations with the regulated groups.... the period of maturity culminates in the commission’s surrender to the regulated... The commission finally becomes a captive of the regulated groups.’

²⁹⁴ Daniel Carpenter (n 284) 64.

²⁹⁵ *ibid* 57.

²⁹⁶ *ibid* 63.

²⁹⁷ Brett H McDonnell, ‘Financial Regulation Reform and Too Big to Fail’ (2011) 1 *American University Business Law Review* 113, 121.

²⁹⁸ Daniel Carpenter (n 284) 62; see also Mark C. Niles, ‘On the Hijacking of Agencies (And Airplanes): The Federal Aviation Administration, “Agency Capture,” and Airline Security’ (2002) 10 *American University Journal of Gender, Social Policy & the Law* 381, 393.

methodologies, including historical, doctrinal and ethnographic, all of which attempt to demonstrate “how cultural influences may alter regulatory outcomes.”²⁹⁹

Non-materialist capture as a field of academic inquiry has grown substantially over the last decade.³⁰⁰ While some commentators suggests that non-materialist forms of capture are theoretically the most likely to exist, they are often “the least demonstrable” from an empirical perspective.³⁰¹ Shared understandings serving as a foundational backdrop for demonstrable practices within a given field of study might seldom be explicitly stated.³⁰² Qualitative interview analysis may be necessary to uncover the unspoken beliefs animating the regulatory frameworks and customary practices within a field of study.

3. DEFINING EPISTEMIC CAPTURE

As with other forms of non-materialist capture, epistemic capture has, in a relatively short period of time, seen substantial growth as an area of academic interest. This is fascinating given its unique beginning as a theory describing how political radicalization, conspiracy theories and hate crimes (including terrorism) proliferate across social institutions, the most notable being the internet. Professors Cass Sunstein and Adrian Vermeule appear to have been the first to use the term ‘epistemic capture’, which derived its origin from the related sociopolitical theory of ‘crippled epistemology’.³⁰³ The theory of crippled epistemology, first set out by Professor

²⁹⁹ ‘Request for Proposals: Cultural Influences in Regulatory Capture’ (*Social Science Research Council (SSRC)*) <<https://www.ssrc.org/programs/scholarly-borderlands/cultural-influences-in-regulatory-capture/request-for-proposals-cultural-influences-in-regulatory-capture/>> accessed 10 December 2021.

³⁰⁰ J Jonas Anderson, ‘Court Capture’ (2018) 59 Boston College Law Review 1543, 1557–8, 1563; see also ‘Cultural Influences in Regulatory Capture’ (*Social Science Research Council (SSRC)*) <<https://www.ssrc.org/programs/scholarly-borderlands/cultural-influences-in-regulatory-capture/>> accessed 10 December 2021.

³⁰¹ Anderson (n 300) 1583.

³⁰² James Kwak (n 287) 79.

³⁰³ See Cass R Sunstein, ‘The Office of Information and Regulatory Affairs: Myths and Realities Commentary’ (2012) 126 Harvard Law Review 1838, s FN 83 where Sunstein first introduces the term ‘epistemic capture’ and says “I am grateful to Professor Adrian Vermeule for this term”.

Russell Hardin, suggests that social extremists, such as terrorists and radical conspiracy theorists, are often neither unintelligent nor inherently malicious. Rather, their worldviews may be shaped by the very insular and socially isolated environments within which they are embedded, leading to a crippled epistemic perspective of the world that is the by-product of their minimal information sources and limited ability to derive new knowledge.³⁰⁴

Sunstein recognized that in theory, regulators were at a possible risk of epistemic capture if they only communicated with, and relied on information from, a distinct set of people such as the industries they regulate.³⁰⁵ As Sunstein states:

Consider the important idea of “crippled epistemology,” applied to extremists who think as they do because they are listening only to people with extreme views. In principle, regulators could also have a crippled epistemology simply because of the particular people from whom they hear. All of us learn from those with whom we speak, and it is possible that those inside the government develop skewed views because they engage exclusively, or too much of the time, with people having one point of view.³⁰⁶

In the regulatory context, epistemic capture occurs when a regulator develops a specific view of a regulatory issue resulting from the fact that relevant information is provided almost entirely by a distinctive group of people. According to Sunstein, there are concerns caused by such asymmetry of information, given that even the most well-intentioned of public officials may have their own perspective “shaped by the limited class of people to whom they are listening.”³⁰⁷

³⁰⁴ See generally Russell Hardin, ‘The Crippled Epistemology of Extremism’ in Albert Breton and others (eds), *Political Extremism and Rationality* (Cambridge University Press 2014).

³⁰⁵ Sunstein (n 303) 1861.

³⁰⁶ *ibid* 1862.

³⁰⁷ Cass R. Sunstein, *Valuing Life: Humanizing the Regulatory State* (University of Chicago Press 2014) 32–3.

Such regulators “might be subject to epistemic capture in the sense that they will ultimately form a view that fits with what they learn from the particular people with whom they speak.”³⁰⁸

The result of epistemic capture is that it creates “systematic distortion [e]ven if the [regulatory body] is genuinely trying to act in the public interest”, given that the regulator in question has a narrow view of what public interest might be.³⁰⁹ The distortion caused by epistemic capture may lead to regulatory frameworks that tend to systematically and unknowingly foreclose a full discussion of all possible regulatory options.³¹⁰ This is caused by a significant insularity between the regulator and professional interest groups, leading to a substantially foreclosed flow of information to the regulator.³¹¹ The result is a form of “collective cognitive bias... in which different views are not even perceived, let alone recognized and properly analyzed.”³¹² It is important to highlight that much like other forms of non-materialist capture, epistemic capture is not the result of regulators pursuing industry interests over public interests as the result of individual material incentives, and “even the most well-motivated government agents may experience a form of ‘epistemic capture,’ when their backgrounds and experiences lead them to form judgments that are misaligned with the interests of their principals.”³¹³

³⁰⁸ *ibid.*

³⁰⁹ Dorothy Shapiro, ‘Lessons from SEC v. Citigroup: The Optimal Scope for Judicial Review of Agency Consent Decrees’ (2014) 15 *Journal of Business and Securities Law* 63, 89.

³¹⁰ See Daniel Heck, ‘How Have We Gotten into This Mess? And How Can We Get Out?’ (*Medium*, 25 May 2021) <<https://danheck.medium.com/how-have-we-gotten-into-this-mess-and-how-can-we-get-out-bf131cc97d35>> accessed 10 December 2021 for one of the simplest definitions of epistemic capture: ‘Epistemic capture is what happens when a social system persistently cultivates less true or less warranted beliefs and prevents the cultivation of more true or more warranted beliefs. (Warranted beliefs are just beliefs based on good reasons.)’.

³¹¹ Shapiro (n 309) 98.

³¹² Baxter (n 289) 184.

³¹³ Oren Bar-Gill and Cass R Sunstein, ‘Regulation as Delegation’ (2015) 7 *Journal of Legal Analysis* 1, 13.

As epistemic capture was born in the context of political extremism, some may question whether such a theory has any application to study of professions and professional regulation. However, crippled epistemology and epistemic capture can, in theory, form within any social institution wherein social networks are substantially insular and information flows are limited. Furthermore, while we may believe that extremism is limited to those cases of political extremists, such as conspiracy theorists and proponents of terrorism, any form of insular group of individuals can become polarized at the hands of epistemic capture. Once a tight-knit social institution is formed, epistemological crippling may result from common internal group dynamics:

A crippled epistemology can arise not only from informational and reputational dynamics within a given group, but also from self-selection of members into and out of groups with extreme views. Once polarization occurs or cascades arise, and the group's median view begins to move in a certain direction, doubters and halfway believers will tend to depart while intense believers remain. The overall size of the group may shrink, but the group may also pick up new believers who are even more committed, and in any event the remaining members will, by self-selection, display more fanaticism. Group members may engage in a kind of double-think, segregating themselves, in a physical or informational sense, in order to protect their beliefs from challenge by outsiders. Even if the rank and file cannot coherently do this, group leaders may enforce segregation in order to insulate the rank and file from information or arguments that would undermine the leaders' hold on the group.³¹⁴

³¹⁴ Cass R. Sunstein and Adrian Vermeule, 'Conspiracy Theories' [2008] John M. Olin Program in Law and Economics Working Paper No. 387 13–4
<https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1118&context=law_and_economics> accessed 10 December 2021.

The reality is that any “[m]embers of informationally and socially isolated groups tend to display a kind of paranoid cognition”, and regulated professions are not excluded from this phenomenon.³¹⁵ Although it may seem counterintuitive, epistemic capture may be ripe to develop within the context of professions, and in particular, self-regulating professions, where despite a high level of education and desire to pursue high ethical standards, these highly-insular groups of like-minded individuals are prone to move towards extreme positions on issues of professional interest.³¹⁶ In these circumstances, “group members come to rely exclusively on one another to validate new information, and everything that they believe is a product of interactions within their enclaves.”³¹⁷ Groups of confident, highly intelligent and high functioning individuals may be most susceptible to epistemic capture than others, with such groups moving to extreme positions regarding perceptions of fairness and issues that affect their sense of ‘group belongingness’.³¹⁸ As Sunstein points out, such groups have what he refers to as a natural, built in rhetorical advantage in favour of those seeking higher penalties for breach of accepted group norms, and as such, may tend towards stringent protection of their group identity and insularity.³¹⁹ What is perhaps most interesting about this phenomenon is that it is unlikely to be motivated by malice, ignorance or based entirely on incentives for material self-interest. Rather, as Sunstein highlights, studies in organizational behaviour suggest that within group dynamics, there are strong social utility justifications for individuals to avoid going against the group grain, which over time can cause gradual group polarization. As Sunstein summarizes, “when people

³¹⁵ *ibid* 14.

³¹⁶ Cass R. Sunstein, *Going to Extremes: How Like Minds Unite and Divide* (Oxford University Press 2009) 42–3.

³¹⁷ *ibid* 52.

³¹⁸ *ibid* 42.

³¹⁹ *ibid* 35.

shift in groups, it is often for perfectly sensible reasons.”³²⁰ Ultimately, even the most well-intentioned group of individuals working within a regulatory framework designed to pursue public interest objectives might eventually find themselves far from the original regulatory justifications for which the institution itself was created.

Epistemic capture bears considerable connection and resemblance to Foucault’s concept of an episteme. An episteme revolves around a system of unstated assumptions and beliefs which form the foundation a field of scientificity, such that the universe of what can and cannot be subject of valid consideration within the field, and those who decide what can and cannot be considered, are structured by these unstated beliefs.³²¹ Foucault’s preoccupation in his discussion of epistemes is how any given group of individuals come to ‘know’ the world around them. Central to this analysis of ‘knowing’, who gets to claim that they ‘know’ within a given field, how it is they come to ‘know’ the objective world and what these ‘knowers’ view as valid for consideration within their field, is the concept of censure. In circumscribing a field of knowledge, a distinction lies between what is acceptable and unacceptable for consideration. This distinction revolves around censoring. It is important to be clear about what is meant by censure. Here, censure is not the intentional act of considering an aspect of the objective world and then rejecting it from further discussion. The fact that something is even considered and rejected makes it part of the discourse of the given field. Rather, censure is a form of unacknowledged self-discipline, where the ‘knowers’ within a given field unintentionally filter

³²⁰ *ibid* 32–3.

³²¹ See Michael Foucault, ‘Truth and Power’ in Colin Gordon (ed), *Power/Knowledge. Selected Interviews & Other Writings 1972-1977* (Pantheon Books 1980) 197 wherein Foucault defines episteme ‘retrospectively as the strategic apparatus which permits separating out from among all the statements which are possible those that will be acceptable within... a field of scientificity, and which it is possible to say are true or false. The episteme is the “apparatus” which makes possible the separation, not of the true from the false, but of what may from what may not be characterized as scientific.’

parts of reality such that it remains entirely outside the discourse of the field. In a way, this self-censored, filtered aspect of reality is not even perceived and remains ‘unknown’. Thus, how any given group of people come to ‘know’ the world is largely the result of their unspoken, self-disciplining of what inputs are perceived and which they unknowingly censure from consideration.

Sociologists have recognized that Foucault’s insights regarding epistemes can be applied to various layers and dimensions of social reality.³²² Specifically, in analyzing the contours of epistemic capture, Foucault’s insights pertaining to epistemes, and specifically, censure, provide valuable research tools. The researcher must focus not only on the discourse of what is said, but also what remains unsaid (i.e. censored). The unsaid helps to identify the framework through which the subject knowers within the field in question perceive the world around them, and ultimately, helps to trace the boundaries of the captured discourse.

4. CAPTURE AND PROFESSIONALIZATION

a. Why do we Regulate Professions?

Why do we regulate the practice of certain occupations? What is the reason for restricting individual liberty to practise certain occupations to those who have complied with specific regulatory requirements? What is the purpose of requiring individuals to obtain a license to practice within certain fields, and correspondingly, how do we set any such licensing requirements?

From an economic perspective, occupational licensing is a form of market regulation intended to reduce market failures associated with asymmetry of information. Occupational licensing theory suggests that consumers frequently lack the knowledge to assess service

³²² Majella O’Leary and Robert Chia, “‘Epistemes’ and Structures of Sense-Making in Organisational Life’ University of Exeter Discussion Papers in Management 14.

provider quality in the marketplace, and as such, cannot adequately distinguish between competent and incompetent service providers in an entirely free market. Occupational licensing ensures that all practitioners possess a minimum threshold of competence to practice within a given field, in order to reduce the aforementioned problems associated with asymmetry of information. By ensuring that all service providers meet a basic threshold of competency and/or ethical standards of practice, consumers can rest assured that they can efficiently select an adequate service provider.

The opposing side of this scenario is that licensing impedes the free market offering of services, along with corresponding above-market costs to consumers and the loss of individual liberty to pursue any profession of one's own choosing. Thus, a very delicate balance must be struck when it comes to occupational licensing, so as to ensure that practitioners meet a minimum threshold of competence and ethical standards will also ensure freedom of choice for consumers and prospective practitioners.

Summarizing the foregoing, Professor Michael Kane succinctly states that licensing serves:

to protect the public by ensuring that candidates who are admitted to practice in a profession have met certain basic qualifications... Licensure is not intended to provide a guarantee of excellent performance, nor does it claim to predict how well candidates will perform if admitted to practice. Rather, it certifies that new practitioners have met the basic requirements that are designed to provide the public with some assurance that they are qualified to practice.³²³ [emphasis added]

³²³ Michael T. Kane, 'Reflections on Bar Examining' [2009] The Bar Examiner 6
<http://www.ncbex.org/assets/media_files/Bar-Examiner/articles/2009/780409_Kane.pdf>.

Occupational licensing is not intended to serve as a guarantor of success in practice, as it is doubtful whether licensing bodies could develop an objective definition for ‘successful practice’ within a given field along with fair, standardized criteria for assessment.³²⁴ Individual employers may decide what skills and competencies are required for their own definitions of what constitutes successful performance of an occupation and devise their own forms of assessing such standards. However, licensing is not employment testing, and the emphasis and focus of occupational licensing is minimal competence within a given field of practice. This minimal, entry-level competence is not synonymous with being a ‘good practitioner’, rather, it is simply the level of competence sufficient to prevent public harm. Given that occupational restrictions invariably impose costs on the public and would-be practitioners, setting minimum entry-level competency standards is significant and important endeavour. Licensing should be as minimal a regulatory intrusion as necessary to protect the public from the risk of loss associated with incompetent practice.

Challenges often arise when attempting to measure the social costs and benefits associated with occupational licensing. How does one quantify the risk of loss associated with the potential for harmful practice in any given unregulated occupational market? Even quantifying price increases resulting from occupational licensing can be an extremely difficult analysis. There is rarely any quantitative data to support either side of a specific occupational licensing debate, and such regulatory interventions justified on theoretical bases of likelihood of harm.³²⁵ That there are social costs and effects on individual liberty is frequently taken as a given, and as such, most occupational licensing theorists take an apprehensive approach towards

³²⁴ American Educational Research Association, American Psychological Association, National Council on Measurement in Education, *Standards for Educational and Psychological Testing* (American Educational Research Association 2014) 178.

³²⁵ Hubbard (n 187) 396.

the regulation of service providers. It is generally accepted that licensing should be disfavoured where quantifying the extent of market failure is uncertain, as occupational licensing almost always produces social costs but might only occasionally produce social benefits.³²⁶

b. How do we Regulate Professions?

Occupational licensing requirements often come in a variety of well-known forms, including completion of an accredited educational component, successfully passing a licensing examination and/or continuing education requirements. Legislation may define a relatively precise scope of regulated practice and grant a regulatory body authority to police against unauthorized practice by only allowing licensed individuals who have completed the necessary licensing requirements to engage in a field of practice. Certification, in contrast to licensing, permits anyone to practice within a given field, but restricts use of a professional certification title to those who have successfully completed specific regulatory requirements.

While the various forms of occupational licensing requirements may be well accepted, the question of which form of regulatory intervention is most appropriate in any given circumstance is subject to considerable debate.³²⁷ The strictest of licensing requirements placed upon those wishing to practice within a field are often justified in circumstances where the risk of loss due to incompetent provision of services can be catastrophic. The practice of medicine for example, which involves significant risk to individual health and safety and where incompetent practice could result in the loss of life, is stringently regulated. Similarly, licensing requirements are theoretically justifiable in fields of practice involving significant potential for external

³²⁶ *ibid* 397.

³²⁷ Nuno Garoupa, 'Regulation of Professions' in David Levi-Faur (ed), *Handbook on the Politics of Regulation* (Edward Elgar Publishing Limited 2011) 454–5.

damages to an unsuspecting public, such as the potential public harm associated with poorly designed structures.

The provision of services relating to personal property or individual contractual relations, while certainly capable of leading to significant damage resulting from incompetent practice, typically do not involve the same possibility of catastrophic loss or substantial third-party externalities as in fields such as medicine or public engineering. Furthermore, loss associated with incompetent practices can often be quantified, and as such, can be covered by the regulatory requirement that practitioners maintain an adequate level of liability insurance. Concerns regarding choice of service provider in these situations predominantly revolve around asymmetry of information between consumer and service provider. As such, provision of services in these fields are likely best regulated through certification rather than licensing of service providers, as certification can provide consumers with the necessary signal of service quality while still permitting freedom of choice. Furthermore, certification likely minimizes unnecessary social costs associated with reduced supply of service providers that quite often characterize strictly licensed occupations.³²⁸

The key to determining the appropriate regulatory intervention in any occupational scenario is validation. Validation is the exercise of ascertaining the knowledge and skills which are indicative of the minimum entry-level competency standard within a given field. While the

³²⁸ For an interesting discussion of mixed licensing/certification regimes, see United States of America, Federal Trade Commission, ‘The Costs and Benefits of Occupational Regulation (Report Prepared by Carolyn Cox, Susan Foster)’ (Federal Trade Commission 1990) 43–6 <https://www.ftc.gov/system/files/documents/reports/costs-benefits-occupational-regulation/cox_foster_-_occupational_licensing.pdf>. For example, the accounting profession has moved to a mixed model of regulation wherein services having no substantial externalities, such as bookkeeping and personal tax accounting, have been completely deregulated, and activities involving significant externalities, such as auditing of publicly traded companies, are reserved for individuals with certain designations. Similarly, in the field of engineering, certain activities involving substantial potential for externalized harm, such as the design of structures, are reserved for licensed engineering professionals, whereas other design activities are regulated through a certification model.

science of validation – known as psychometrics – has consistently developed and redeveloped approaches to assessing validity over the course of last several decades, a number of consensus best practices exist.³²⁹ To avoid perceptions of arbitrariness, the entire validation process should be well-documented and based on unbiased evidence.³³⁰ While subject matter expertise is certainly important, care should be taken to ensure that standard setting processes are not biased due to over-representation of professional opinions. If a licensing examination is used to regulate entry into a field of practice, examination validation may be jeopardized if it places too much emphasis on content that is irrelevant to minimum entry-level competency standards, including peculiar testing formats and inappropriate distribution of mark weighting across tested content.³³¹

One of the most overlooked, yet core tenets of validation is that validation is essentially a question of interpretation. A valid occupational regulatory intervention is one that supports the interpretation that one who successfully completes the necessary requirements is minimally competent to practice in the field and one who cannot successfully complete the necessary requirements lacks the necessary minimal competence. To support validation, demonstrable evidence linking the inferences and assumptions underlying this interpretive argument is required, including evidence refuting any counter-arguments potentially undermining the accuracy of the proposed interpretation.³³²

c. Professional Regulation and the Indicia of Capture

³²⁹ Benjamin Michael Superfine, 'At the Intersection of Law and Psychometrics: Explaining the Validity Clause of No Child Left Behind Education, Legislation, Law & Social Science Research' (2004) 33 *Journal of Law & Education* 475, 476–7.

³³⁰ Michael T. Kane, 'Validating the Performance Standards Associated with Passing Scores' (1994) 64 *Review of Educational Research* 437.

³³¹ Wissam Aoun, 'Canadian Patent Agent Regulation Reform (Part 1): (In)Validity Issues Surrounding the Canadian Patent Agent Exam' (2017) 99 *Journal of the Patent and Trademark Office Society* 1, 7.

³³² Michael T. Kane, 'Validating the Performance Standards Associated with Passing Scores' (n 330) 432.

Even a summary analysis of most occupational licensing frameworks, and especially self-regulatory frameworks, would lead many to perceive at least some indicia of regulatory capture. There are many reasons to believe that most self-regulatory models of occupational licensing are the result of professional self-interest as opposed to public interest. Empirical analyses have uncovered that in many instances, it is service providers, rather than the general public, who lobby for self-regulation of a given field of service.³³³ This in and of itself raises questions as to who is meant to be the intended beneficiary of the regulatory intervention. Furthermore, validation of entry-standards is meant to be based on objective, evidence-based criteria, and yet substantial disparity exists across jurisdictions with respect to entry standards for similar professions.³³⁴ This undermines the claim that the validation of occupational licensing standards is a scientific, rather than political, exercise. Given that capture tends to be most prevalent in situations where private interests are focused and well-organized compared to a much broader general public, consumer protection regulation is frequently cited as a breeding ground for capture.³³⁵ As discussed above, occupational regulation is essentially consumer protection regulation given that it is justified on the basis of asymmetry of information between service providers and consumers, thereby placing occupational licensing within the capture cross-hairs.³³⁶

Most professions, including legal service professions, were born during an era where consumer self-help was unavailable due to a paucity of information sources, and as such, consumers had to rely on the agency of educated and informed professionals to bridge this

³³³ Paul J. Larkin (n 282) 226.

³³⁴ *ibid* 219–20.

³³⁵ Rachel E. Barkow, ‘Insulating Agencies: Avoiding Capture Through Institutional Design’ (2010) 89 *Texas Law Review* 15, 65; see also Nuno Garoupa (n 327) 456.

³³⁶ John Blevins, ‘License to Uber: Using Administrative Law to Fix Occupational Licensing’ (2017) 64 *UCLA Law Review* 844, 853.

knowledge gap. As knowledge has become far more democratized in modern times, one would also expect that knowledge based professional services would similarly be moving towards democratization. However, studies show that self-regulated professions are resistant to deregulatory reform, with some recent studies suggesting that very few US self-regulated professions have ever been deregulated.³³⁷

What is perhaps most interesting is that most occupational licensing frameworks place a tremendous amount of emphasis on competency as the focus of the regulatory intervention. Most regulated service fields utilize competency-based methods, such as licensing examinations, as the key barrier to entry to the field in question. A historical analysis of the origins of most regulated professions indicates that the initial public interest justifying many occupational licensing interventions most often pertained to concerns relating to unethical service providers rather than competency.³³⁸ As discussed under Chapter 3, the historical origins of the regulation of patent agents demonstrated this same concern for ethical behaviour as opposed to competency. The gradual shift towards competency-based standards as the almost all-encompassing focus of most occupational licensing frameworks no doubt raises concerns regarding the possibility of non-materialist forms of capture.

Despite the presence of these various indicia of capture in the occupational regulation, researchers must be apprehensive about the possibility of hastily jumping to conclusions

³³⁷ *ibid* 848, 869. See also Paul J. Larkin (n 282) 225.

³³⁸ In the Canadian context, see for example the excellent work of Professor Tracy Adams: Tracy L. Adams, 'Legislating Professionals: Private Member Bills for Entry to Practice Professions in Ontario, 1868-1914' (2005) 18 *Journal of Historical Sociology* 172; Tracy L. Adams, 'Professional Self-Regulation and the Public Interest in Canada' (2016) 6 *Professions and Professionalism*; Tracy L. Adams, 'Self-Regulating Professions: Past, Present, Future' (2017) 4 *Journal of Professions and Organization* 70. Adams demonstrates that it was not clear whether the earliest Canadian regulation of professions as intended to regulate expertise, and that legislators were often ambivalent regarding competency. Even when competency was considered, it was often balanced against other pressing public concerns, such as ensuring access to services in underserved areas, and frequently, when expertise and access to services came into collision, the latter would often triumph over the former.

regarding capture. The existence of an occupational licensing system, and specifically, self-regulation, does not automatically lead to the conclusion that it was or is the product of capture. For example, while above-market service prices are certainly in the best interests of regulated service providers, this does not automatically mean that it does not also serve public interests. From a theoretical perspective, the promise of above-market returns to regulated professionals is often posited as one of the theoretical justifications for occupational licensing, in that it is viewed as the price the public pays for professional services. The insulation from regular market forces and the relentless flow of competition is what permits regulated service providers to focus on acquiring and maintaining a level of competent and ethical standards that in theory might not be possible if one had continuously to focus on surviving in a hostile marketplace. Accordingly, at least from a theoretical perspective, self-regulation and above-market prices are not, in and of themselves, a demonstration of capture and professional rent seeking.³³⁹

In recent years, scholars of non-materialist capture have turned their attention to the legal profession, and specifically, legal professionals practising before regulatory bodies such as tax authorities³⁴⁰, securities regulators³⁴¹ and financial regulators.³⁴² Legal professionals practicing in these regulatory spaces might be particularly prone to propagating epistemic capture, given that these legal professionals are often socialized and conditioned to hold certain views pertaining to the regulated field, and as mobility between regulator and private practice is

³³⁹ Nuno Garoupa, 'Regulation of Professions in the US and Europe: A Comparative Analysis' [2004] Texas A&M University School of Law Studies Research Paper Series 8
<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=640502>.

³⁴⁰ See for example Dominic De Cogan, 'A Changing Role for the Administrative Law of Taxation' (2015) 24 Social & Legal Studies 251.

³⁴¹ See for example James D Cox and Randall S Thomas, 'Revolving Elites: The Unexplored Risk of Capturing the SEC Symposium: Deconstructing the Regulatory State: Perils and Possibilities' (2018) 107 Georgetown Law Journal 845.

³⁴² See for example Baxter (n 289).

common in these fields, regulatory policies might end up reflecting these views.³⁴³ As one recent commentator has suggested, the relationship between regulatory legal professionals and regulators is largely recursive, where each shapes the other's view of the regulatory space, and those on both sides of the regulatory divide:

[Frame] knowledge within a particular field... exhibit[ing] a 'shared set of normative and principled beliefs', 'shared causal beliefs' that elucidate 'the multiple linkages between possible policy actions and desired outcomes', 'shared notions of validity' for 'weighing and validating knowledge in the domain of their expertise' and 'a common policy enterprise'.³⁴⁴

However, it is important to critically assess what, precisely, these studies actually tell us about the presence of capture. For example, recent studies of capture in the patent law field observe the insularity between the US patent bar and the CAFC (which hears all appeals in patent law matters) and suggest that this might lead to the possibility of capture.³⁴⁵ Other studies highlight the high incidence of US patent examiner turnover to private practice as a possible indicator of USPTO capture.³⁴⁶ While some of these studies suggest that the presence of such indicia is synonymous with capture, few go any further than documenting observations of the potential indicia of capture.

³⁴³ Cox and Thomas (n 341) 883.

³⁴⁴ (n 340) 256, citing P. Haas, 'Introduction: Epistemic Communities and International Policy Coordination', (1992) *International Organization* 46(1) 1.

³⁴⁵ See Anderson (n 300); although not explicitly referencing capture, Professor Gugliuzza in Paul R Gugliuzza, 'The Supreme Court Bar at the Bar of Patents' (Social Science Research Network 2019) SSRN Scholarly Paper ID 3347935 <<https://papers.ssrn.com/abstract=3347935>> accessed 27 July 2019 discusses the effect of lawyer background and expertise might have on outcome of patent law cases argued before the United States Supreme Court.

³⁴⁶ See for example Haris Tabakovic and Thomas G. Wollmann (n 286); Prithwiraj Choudhury and Tarun Khanna, 'The Future of Patent Examination at the USPTO' [2017] Harvard Business School Case 617.

Recent studies of capture within fields of legal practice before administrative bodies take a nuanced view of non-materialist capture. For example, in a recent analysis of the epistemic effect of the practice of tax professionals on the interpretation of tax legislation, Professor De Cogan recognizes the potential for epistemic capture through professionalization, but that professionalization alone does not automatically lead to a conclusion that capture exists. As Professor De Cogan states, “[t]he epistemic community framework thus leads us to a conclusion that ...[t]he way in which tax legislation is understood can be framed within restricted communities of experts but the precise consequences of this and the extent of community power is likely to depend strongly on context.”³⁴⁷ Professor De Cogan is careful to note that “the involvement of private sector actors in tax interpretation may be essential to the effective implementation of Parliamentary prescriptions and does not necessarily entail bias or ‘epistemic capture’ although it may in some cases do so.”³⁴⁸

Similar to the field of patent law, tax legislation sets out statutory concepts such as “‘income’, ‘profits’ or ‘gains’” which trigger statutory effects. As with patent law terms such as ‘obviousness/inventive step’, these tax law concepts are meant to derive meaning from real commercial and accounting practices while recognizing that “these concepts are artificial and have no direct correspondence to any external reality.”³⁴⁹ It is here that Professor De Cogan suggests that even if epistemic capture exists, it may not necessarily be an undesirable or detrimental phenomenon. Taxpayers, much like inventors and skilled artisans, do not form a single homogenous identity but vary widely across industries and demographics. Tax professionals, as a far more uniform group compared to ‘taxpayers’, might play a beneficial role

³⁴⁷ Dominic De Cogan (n 340) 256.

³⁴⁸ *ibid.*

³⁴⁹ *ibid* 255.

in shaping consistent interpretations of legislation.³⁵⁰ From this perspective, tax professionals might act like an interpretive clearing house, whereby the categories of tax law are constructed through their advocacy and recursively deployed to provide certainty and efficiency.³⁵¹ As Professor De Cogan states:

[T]ax professionals can help to construct fact patterns that lie outside the core application of rules but which achieve a beneficial result for their client taxpayer. If successful, more taxpayers adopt that fact pattern, making what was once an unusual and unanticipated circumstance into a commonplace.³⁵²

What we see in these contemporary studies is to some extent an application of Carpenter's words of caution to capture researchers. Recent analyses are apprehensive about jumping to conclusions that capture, whether materialist or non-materialist, exists based solely on the presence of one or more indicia of capture.³⁵³ Furthermore, without some careful elaboration of the purposes of the regulatory framework in question, the public interest and private interests at play, it is difficult to draw any definitive conclusions as to whether capture is undesirable. As Professor De Cogan's analysis of tax professionals highlights, epistemic capture might be a desirable phenomenon if it leads to an overall increase in public welfare resulting from interpretive efficiency and standardization of practices. In some instances, these outcomes might be part of the regulatory objectives and, as such, serve the public interest. To put it in theoretical terms, there must be a normative framework through which one views the research

³⁵⁰ *ibid.*

³⁵¹ *ibid* 255–6.

³⁵² *ibid* 254.

³⁵³ See for example Clarisa Long, 'PTO and the Market for Influence in Patent Law' (2008) 157 University of Pennsylvania Law Review 1965, 1970: 'Adam Jaffe and Josh Lerner, for instance, show that the Federal Circuit has been more likely to find patents valid and infringed than did the appellate courts before. While this does demonstrate that expectation baselines about the enforceability of patents have changed, without more, it doesn't prove that the Federal Circuit has been captured.'

data, in order to determine whether capture (if it exists at all) is normatively desirable or undesirable.

5. CONCLUSIONS

The preceding sections have laid out the various theoretical and methodological challenges associated with studying and diagnosing capture. The predominant themes emerging from this discussion are caution and comprehensiveness. Caution means that researchers should be apprehensive about assuming that any regulatory framework that may demonstrate some of the indicia of capture is automatically the product of capture. Comprehensiveness safeguards caution. Researchers must elaborate the purposes of the regulatory framework as well as the public and the industry interests involved. However, studies of non-materialist forms of capture must go beyond just interests to include an exploration of ideologies, beliefs, use of language and other discursive practices that might serve to elucidate the boundary between what is and is not recognized as acceptable for consideration within the field in question. This elaboration of purposes, interests and beliefs provides a normative direction for what might otherwise only be a descriptive project of observations of actions and outcomes.

Carpenter emphasizes the importance of demonstrating intention on the part of the regulated as a key indicator of capture. Admittedly, Carpenter's main focus is materialist forms of regulatory capture, and as such, this begs the question whether, and to what extent, professional intent to shift the regulatory discourse towards professional, as opposed to public, interest must be evidenced in order to demonstrate non-materialist epistemic capture.

Materialist forms of regulatory capture may be a particularly insidious species of capture, one that carries with it significant political, and in some instances, legal repercussions pursuant to

administrative law.³⁵⁴ It is for this reason that contemporary capture researchers often refer to non-materialist capture taking place in the “regulatory-adjacent spaces” which exist “outside of the formal procedures outlined by administrative law.”³⁵⁵ Intention, or lack thereof, is one of the key differences between epistemic capture and materialist forms of regulatory capture. The search for epistemic capture is a search for epistemic foreclosure, whereby those within the enclosed field of practice operate with unconscious biases which restrict individual agency.³⁵⁶ This is precisely the reason why epistemic capture should not require demonstration of intent, because those within the epistemically enclosed field lack a full perception of reasonable alternatives that they might otherwise be alive to. Intention, in most instances, insinuates knowledge of alternatives and a concerted effort and desire to steer regulation, law and practices away from those alternatives. Identifying the lack of this perception is the primary focus of a study of epistemic capture and in many ways runs counter to identifying intent. As such, identifying epistemic capture does not require evidence of intention; to the contrary, evidence of intent vitiates the likelihood of epistemic capture.

A key indicator of epistemic capture is the slow and gradual shift from an initial median point towards an extreme position far from the initial policy objectives and justifications of the regulatory intervention. As discussed under Chapter 4.3., this shift might be the result of many sensible reasons and behaviours that commonly occur within internal group dynamics.

Phenomena such as bureaucratic drift, characterized by a lack of concerted interest group intent and posited as antithetical to materialist forms of regulatory capture, could very well contribute

³⁵⁴ For an excellent discussion, see David E. Bernstein, ‘The Due Process Right to Pursue a Lawful Occupation: A Brighter Future Ahead’ (2016) 126 Yale Law Journal Forum 287.

³⁵⁵ See ‘Request for Proposals: Cultural Influences in Regulatory Capture’ (n 299).

³⁵⁶ Anderson (n 300) 1562: ‘In contrast [to materialist capture], information capture does not require that the agency employee be conscious of his or her capture.’ Furthermore, at 1564, Anderson points out that non-materialist forms of capture do not require knowledge of benefitting industry over public interest.

to epistemic capture. It is also important to point out that present day epistemic capture could stem from historical materialist regulatory capture, and that current practitioners might be ignorant of the roots of modern policies and practices as well as the alternatives foreclosed by such historical interest group activity. This might be true of many professional fields of practice where the long-forgotten seeds of regulatory capture have given birth to a tree with branches that have grown so wide from the trunk that the roots are hardly perceptible from the treetop. As one scholar puts it, in many fields of practice, “expertise might always already come ‘captured’ to a certain degree... therefore need[ing] a steady, synthetic influx of public interest.”³⁵⁷

³⁵⁷ Schemmel (n 291) 482.

CHAPTER 5: DEFINING PROFESSIONAL PATENT AGENT COMPETENCY

1. INTRODUCTION

This chapter will examine patent practice texts, governance models, patent agent licensing examinations, and jurisprudence in an attempt to define the core competencies of professional patent agency. It will consider the important and often overlooked question of who governs professional patent agency. For example, in the US, responsibility for governing who may represent others in patent matters before the USPTO falls squarely on the USPTO. This naturally opens up questions of potential conflicts of interest between the mandates of patent offices and professional patent agents. According to Professor David Hricik, the USPTO views its core objective as examining patent applications, while the determination of who should practise before it is considered peripheral to this mission at best. Accordingly, the CAFC has interpreted the scope of the USPTO's authority as narrowly revolving entirely around practitioner eligibility.³⁵⁸

One recent judicial decision defined 'practice before the USPTO as follows:

Practice before the Office in patent matters includes, but is not limited to, preparing and prosecuting any patent application, consulting with or giving advice to a client in contemplation of filing a patent application or other document with the Office, drafting the specification or claims of a patent application; drafting an amendment or reply to a communication from the Office that may require written argument to establish the patentability of a claimed invention; drafting a reply to a communication from the Office

³⁵⁸ David Hricik, 'Aerial Boundaries: The Duty of Candor as a Limitation on the Duty of Patent Practitioners to Advocate for Maximum Patent Coverage' (2002) 44 South Texas Law Review 205, 212–3.

regarding a patent application; and drafting a communication for a public use, interference, reexamination proceeding, petition, appeal to or any other proceeding before the Patent Trial and Appeal Board, or other proceeding. Registration to practice before the Office in patent cases sanctions the performance of those services which are reasonably necessary and incident to the preparation and prosecution of patent applications or other proceeding before the Office involving a patent application or patent in which the practitioner is authorized to participate.³⁵⁹

Professor Peter Drahos frames the competency of professional patent agency as a largely bureaucratic practice:

The comparative advantage of patent attorneys lies not in their knowledge of patent law, but in their knowledge of many hundreds of rules and guidelines that make up patent procedure and the drafting of claims that define the invention. A key part of their work is keeping track of the many deadlines that exist for the submission of documentation that accompanies the application process, deadlines which if not kept to will result in extra fees or in some cases the loss of the applicant's rights. The tedium of precise time and document management over what may be many years in relation to a single application, which may end up being withdrawn or rejected, is the price patent attorneys pay for the lucrative practices. Like tax attorneys, they help their corporate clients navigate through these rules, delaying, speeding up, splitting or redrafting the application as needs be.³⁶⁰

The fact that professional patent agency revolves almost entirely around patent office practice simultaneously reveals and conceals much about the nature of patent agent practice.

³⁵⁹ *Luv N' Care, Ltd v Williams Intellectual Prop* [2019] 18-mc-00212-WJM-KLM, 6-7 (D Colo) 6; this definition is derived from, and essentially paraphrases, USPTO regulations under 37 C.F.R. § 11.5(b)(1).

³⁶⁰ (n 70) 55–6; In the Canadian context, see Wissam Aoun, 'Canadian Patent Agent Regulation Reform (Part 1)' (n 68) 10–11.

While patent drafting has often been described as one of the most challenging of all legal drafting, the realization that the profession is as socially constructed as the patent system itself leads to the conclusion that much, if not all, of the accepted practices of professional patent agency could be changed at any moment.³⁶¹ However, the fact that many of the core aspects of patent agent practice have existed largely in the same form for so many years, creates the mistaken impression that professional patent agency is an inevitable consequence of the existence of rights to inventions. It is precisely this mistaken sense of inevitability that “makes textualisation [of invention claiming] a potentially distorting process in patent law.”³⁶²

This chapter will include qualitative interview data, focusing not only on what interviewees believe professional patent agent competence to be, but also on their views on how professional competence contributes to defining patent agent professional identity. This will include discussions surrounding patent agent training, the professional patent agent licensing process, and patent agent regulatory frameworks.

2. DEFINING PATENT AGENT COMPETENCY

a. Why Regulate the Practice of Patent Agency?

What is the expertise that forms the professional identity of a patent agent? This question invariably leads to the more practical questions of how and why do we regulate patent agents? If the standards of eligibility that must be demonstrated to enter this field of practice are synonymous with the minimum entry-level competencies of a patent agent, then what precisely

³⁶¹ A. Samuel Oddi, ‘Patent Attorney Malpractice: An Oxymoron No More’ (2004) 2004 University of Illinois Journal of Law, Technology & Policy 1, 20–21: According to Oddi, “compared to other professions (e.g., medicine, accounting, or engineering), [patent agent] practice standards may be subjective, as opposed to an objectively recognized standard that can be documented by reference to an authoritative source.”; see also H. E. Dunham, ‘Drafting Patent Claims’ (1947) 29 Journal of the Patent Office Society 318, 319: “While, as we have indicated, the art of claim drafting is highly developed, we find that, unlike the scientific arts, there are few general formulas or rules which can be laid down with respect to the drafting of patent claims and that almost any rule, which may be laid down, is subject to many exceptions.”.

³⁶² Siva Thambisetty (n 11) 21.

are these competencies? How do these competencies relate to the public interest, however defined, in regulating this field of practice?

If regulation of a professional field of practice is a matter of public interest, what are the overarching public interests justifying the regulation of the practice of patent agency? In areas such as health, engineering or justice, there exist externalities justifying regulation in the public interest apart from asymmetry of information within the consumer-professional relationship. For example, there are concerns with maintaining public health, apart from individual health concerns, which justify regulation of health professionals. There is a public interest in ensuring that structures are designed by licensed engineers to avoid public injury due to negligence. A strong justice system, many would argue, requires an independent legal profession to ensure separation of powers and protection from illegitimate government encroachment on individual rights and freedoms. All these fields involve significant externality considerations which often cannot be adequately remedied solely by private action (i.e. tort negligence claims) thereby justifying state governance in the public's interest.

Do any such public interests justify the regulation of patent agency? There are no immediately apparent externalities involved in the patent system as one would encounter in other professions. Some might argue that without necessary regulation to ensure a competent body of domestic patent agents offering valuable service, the system will not function as intended and the public will lose faith in the patent system, which will in turn effect economic growth and innovation. One might argue that innovation requires the certainty that the patent system affords, and accordingly, the set of standards and practices of professional patent agency ensure the overall efficient operation of legally certain patent system.

The challenge with the above-referenced certainty argument, as it connects with the necessary regulation of the practice of patent agency, is that it is an assertion that rests on very little empirical foundation. Regulatory theory suggests that in fields of service involving individual property rights and interests with no significant externalities, the lack of externalities justifies a certification rather than licensing regime.³⁶³ In these circumstances, regulation is justified almost entirely on market inefficiency considerations such as asymmetry of information, and as such, it is the market rather than the public interest more broadly that has a predominant

³⁶³ 'Canadian Patent Agent Regulation Reform (Pt. 2)' (n 59) 395.

interest in professional regulation. Accordingly, market-based solutions, such as certification designations, are the preferred mechanism rather than state-imposed licensing. Following this reasoning, it appears that patent agency should operate as a certification rather than a license.³⁶⁴

In the European context, it seems that one of the predominant reasons that the EPO regulates European patent attorneys is administrative efficiency. By requiring that European patent attorneys master EPO practices (through qualifying as a European patent attorney), administrative inefficiencies associated with inexperienced practitioners prosecuting EPO applications are minimized.³⁶⁵ Furthermore, requiring foreign nationals to appoint a European patent attorney to conduct business before the EPO ensures the presence of a jurisdictional agent upon whom notice of proceedings may be served.³⁶⁶ In that sense, EPO competency regulation appears to be as much, if not more, about administrative efficiency as it is about market efficiency. Apart from regulation of practice before the EPO, individual European countries regulate their own domestic patent agent professions. The reality is that for most European countries, domestic patents are most often administered through the EPO. After an application is successfully prosecuted at the EPO, domestic agents in various European countries simply act to courier the application through the formalities of their own domestic patent office. These domestic agents collect relatively large fees from translations into domestic languages, with some critics questioning whether these regulatory frameworks remain in existence solely through patent agent lobbying for rent-seeking purposes.³⁶⁷

Outside of the world's most active domestic patenting jurisdictions, namely the US, Japan, China, UK and Germany, most domestic patent agents simply act as patent couriers, filing patent applications prepared abroad with their domestic patent office at the behest of foreign corporations and/or patent agents.³⁶⁸ This often causes client capture: domestic patent agents act

³⁶⁴ *ibid* 426–9.

³⁶⁵ Lise Dybdahl Osterborg, 'The European Patent Attorney – A New Profession' (1994) 25 *IIC* 315, 332.

³⁶⁶ Dennis Thompson, 'The Draft Convention for a European Patent' (1973) 22 *International and Comparative Law Quarterly* 51, 74–5.

³⁶⁷ Vincenzo Di Cataldo, 'From the European Patent to a Community Patent' (2002) 8 *Columbia Journal of European Law* 19, 29; See also Theo R Bremer, 'Commentary: Patent Protection in Europe and Japan Part II: Patents: Section II(A): Europe: Chapter 27' (2000) 4 *International Intellectual Property Law & Policy* 27, 27–2; See also Walter G Park, 'Globalization, Patent Reform, and Patent Professional Services' (2001) 83 *Journal of the Patent and Trademark Office Society* 303, 317, 332; See also Lee Rouso, 'Japan's New Patent Attorney Law Breaches Barrier between the Legal and Quasi-Legal Professions: Integrity of Japanese Patent Practice at Risk Comments' (2000) 10 *Pacific Rim Law & Policy Journal* 781, 794.

³⁶⁸ (n 70) 255, 262.

almost entirely on behalf of large foreign corporate interests at the expense of domestic interests, particularly the interests of small-to-medium inventors.³⁶⁹ Some qualitative evidence suggests that foreign client capture has left the reputation of domestic patent attorney professions in numerous jurisdictions in disrepute.³⁷⁰ Given the precarious regulatory nature of these domestic patent agent professions, domestic patent agents often lobby against any forms of patent reform which may threaten their livelihoods.³⁷¹ As domestic patent agents are largely dependent on foreign interests for their livelihood, it is not surprising that domestic patent agents in many jurisdictions lobby for harmonization of domestic patent laws with that of major patent exporting countries (such as the US and the EU). Thus, there is also a strong likelihood that patent agents from major patenting jurisdictions support stringent regulation of domestic patent agents in patent service exporting countries (despite their rent seeking behaviour), as these domestic patent agents act as a strong domestic lobby for pro-patent legislation.³⁷²

b. What are the Core Competencies of the Practice of Patent Agency?

In light of the foregoing, how do we define the core competency of a patent agent?

Compared to other professions, how should we approach the task of defining patent agent competency? As Professor Samuel Oddi points out, the unique nature of patent agent practice which makes comparison to other professions difficult. According to Oddi, “compared to other professions (e.g., medicine, accounting, or engineering), [patent agent] practice standards may be subjective, as opposed to an objectively recognized standard that can be documented by reference to an authoritative source.”³⁷³ The standards-versus-rules based nature of substantive patent law is such that there are few statutory and/or case law based rules regarding patent agent practice, and specifically, claim drafting and patent prosecution.

That is not to say that there are no standards, or to down-play the skill involved in the art of claim drafting, which has been recognized as one of the most challenging of all legal drafting. Yet some question whether claim drafting is in fact as exceptionally unique as proclaimed, given that other complex and high-stakes areas of law require sharp drafting skills without the benefit

³⁶⁹ *ibid* 44, 219–220, 225, 262.

³⁷⁰ *ibid* 299, 309.

³⁷¹ (n 367) 306.

³⁷² *ibid*. This has been a historical Phenomenon. For example, in Spanish context, see; (n 210) 99.

³⁷³ A. Samuel Oddi (n 361) 20–21.

of being one's own lexicographer.³⁷⁴ From a licensing perspective, the difficulty lies in the fact that there have been few attempts to articulate a clear standard or approach to what constitutes good claim drafting, let alone minimally-competent claim drafting. Historically, on an international basis, there have been very few university-based programs or comprehensive academic attempts to study the art of claim drafting.³⁷⁵ There is a distinct possibility that the number of accepted standards of professional conduct with respect to claim drafting may correspond to any number of different expert opinions on the matter.³⁷⁶

Apart from an abstract discussion of the difficulties associated with drafting 'good' claims, from a practical perspective, how does one distinguish 'good' claim drafting from minimally competent claim drafting for licensing purposes? Is it possible? From whose perspective should one measure optimal claim drafting: a judge, a hypothetical skilled person, a hypothetical marketplace competitor or the general public? More importantly, what objective does testing claim drafting, from a licensing perspective, achieve? According to Professor Thomas:

The quality of patent claims varies, of course, because drafters possess differing degrees of legal competence and technical foresight. It is nonetheless an extremely difficult task to assess the capabilities of a particular claim drafter beyond a rudimentary level. The long history of our patent system suggests that patent professionals have consistently failed to draft claims of optimal scope, however, and that imposing more onerous obligations upon them is unlikely to enhance social welfare.³⁷⁷

Thomas further opines that, contrary to conventional wisdom, claim drafting and prosecution may be most challenging for inventions that present only a narrow advancement in the art, whereas "pioneer inventions are not always accompanied by such difficulty in drafting claims."³⁷⁸ Accepting the validity of the foregoing, and given that the majority of patents covering 'incremental' innovation, which are the most challenging to draft, are owned by

³⁷⁴ Michael J. Meurer and Craig Allen Nard, 'Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents Exchange: The Doctrine of Equivalents' (2004) 93 Georgetown Law Journal 1947, 1975.

³⁷⁵ John R. Thomas, 'The Question Concerning Patent Law and Pioneer Inventions' (1995) 10 High Technology Law Journal 35, 55–6.

³⁷⁶ *ibid.*

³⁷⁷ John R. Thomas, 'Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era' (2005) 87 Journal of the Patent and Trademark Office Society 781, 168–9.

³⁷⁸ 'The Question Concerning Patent Law and Pioneer Inventions' (n 375) 56.

sophisticated corporate clients that can effectively gauge practitioner quality in the market place, who then is patent attorney regulation intended to protect?

c. Entry-Level Competency and Patent Agent Malpractice

If entry-level patent agent competence is synonymous with practitioner malpractice, what does this teach us about practitioner licensing? Many empirical studies have demonstrated that the overwhelming number of patents have little, if any, value.³⁷⁹ Furthermore, empirical studies suggest that many granted patents are likely invalid, i.e., should never have been granted in the first place. By some accounts, the percentage of internationally in-force patents that are actually invalid and should never have been granted may be anywhere from twenty-five percent to as high as over seventy percent.³⁸⁰ Professional patent agents would likely respond that it is a patent office, rather than practitioner, responsibility to ensure that only valid patents are granted. Presumably, the majority of these patents were drafted and filed by professional patent agents, calling into question whether it is in the public interest to have a professional class of practitioners contributing to the creation of an abundance of invalid patents creating dead-weight costs on society.

From a malpractice perspective, the likelihood of success in patent practitioner negligence cases is mitigated by the fact that the quantum of damages in patent cases are largely speculative- although patent owners always tend to subjectively increase the value of their patent rights, in reality, any patent value at all may be difficult to prove.³⁸¹ In the US context, in order to establish causation in cases alleging malpractice in relation to patent drafting, the plaintiff must prove that the invention would have been patentable and/or sustained infringement had the attorney not drafted the claim too narrowly.³⁸² Where validity of the patent is in issue, the plaintiff must demonstrate that the claims they believe they should have been entitled to and should have received had the attorney not acted incompetently would have been granted by

³⁷⁹ See for example Mark A. Lemley and Carl Shapiro, 'Probabilistic Patents' 19 J Econ Persp 75, 79-80: 'Only 1.5 percent of all patents are litigated, and only 0.1 percent are litigated to trial Of patents litigated to a final determination, . . . 46 percent are held invalid.'

³⁸⁰ For an excellent discussion, along with statistics, see generally Joachim Henkel and Hans Zischka, 'How Many Patents Are Truly Valid? Extent, Causes, and Remedies for Latent Patent Invalidity' (2019) 48 European Journal of Law and Economics 195.

³⁸¹ (n 361) 3, 7.

³⁸² *Minkin v Gibbons, PC* (2012) 680 F3d 1341 (Fed Cir) 1348.

USPTO.³⁸³ Suffice to say that based on the combination of all of these elements, proving patent drafting malpractice is steep hill for any plaintiff to climb.

It is difficult to track actual numbers of patent practitioner malpractice claims, given that insurer information is often unavailable, but by some estimates, by 2009, there had been only 24 reported patent malpractices cases in the US within the previous two decades, and of those cases, only a handful have involved malpractice in claim drafting/prosecution.³⁸⁴ The overwhelming majority of reported cases involving allegations of patent practitioner negligence pertaining to procedural rules, including failures to meet certain statutory deadlines.³⁸⁵ In the few cases

³⁸³ *Davis v Brouse McDowell, LPA* (2010) 596 F3d 1355 (Fed Circ) 1363–4; see also *Minkin v Gibbons, P.C.* (n 382) 1349: ‘[The] ultimate burden in this case is to establish the likelihood that her inventions would have been held patentable on examination in the PTO.’

³⁸⁴ Historical data is lacking, but see B Joan Holdridge, ‘Malpractice of Patent Attorneys’ (1958) 7 *Cleveland-Marshall Law Review* 345, 352 where the author suggests that as of the early 1950s, there had been very few reported patent attorney malpractice cases relating to drafting errors. ; See for example *Byrne v Wood* [2009] LEXIS 61782 (US Dist Ct Motions) for a case involving allegation of negligence in claim drafting. In recent years, there have been several cases involving allegations of malpractice in relation to patent drafting. However, few of these cases have proceeded to trial, and as such, there remains little judicial pronouncement relating to the nature of incompetent drafting. See for example *Solar Dynamics, Inc, Appellant, v Buchanan Ingersoll & Rooney, PC, and Christopher E Paradies*, (2017) 211 So 3d 294 (Fla Dist Ct App 2017), a case involving allegations that a patent attorney’s failure to draft broad claims covering the full scope of the invention led to collapse of a potential licensing arrangement and entry of competitors into the marketplace. The case was resolved on grounds of jurisdiction between state and federal courts and as of writing, it appears that this case has been discontinued. See also *Cold Springs Harbor Lab v Ropes & Grey LLP* (2011) 762 F Supp 2d 543 (US Dist E NY 2011). In this case the patent attorney copied eleven pages of text from another scientist’s patent of a related invention. Copied portions were included in the “Detailed Description of Certain Preferred Embodiments” of three patent applications. The plaintiffs alleged the copying of text created the perception that the plaintiff’s invention was not unique. After a lengthy battle in various jurisdictions, the parties settled in 2014. In *Immunocept, LLC v Fulbright & Jaworski, LLP* (2007) 504 F3d 1281 (Fed Circ) the plaintiff developed a hemofiltration system and sought financial partners to proceed with clinical trials and commercialization. Talks with a potential investor failed because the investor did not think their patent would hold up to competitors. The plaintiff then alleged their patent attorney erred in drafting the patent failing to provide adequate protection. The District Court granted summary judgment in favour of the law firm on the grounds that the malpractice claim was barred by the two-year statute of limitations. The Court of Appeal affirmed the decision. See also ‘McDermott Sheds Claims In Bra Co.’s \$5.9M Malpractice Suit - Law360’ <<https://www.law360.com/articles/654622/mcdermott-sheds-claims-in-bra-co-s-5-9m-malpractice-suit>> accessed 27 May 2019 for discussion of a recent case involving allegations of patent drafting malpractice (the statement of claim can be found at <https://www.scribd.com/document/237164029/Runberg-Inc-d-b-a-Zephyrs-v-McDermott-Will-Emery-LLP-Complaint-for-Legal-Malpractice>). As of writing, it appears that this case remains unresolved.

³⁸⁵ See (n 361) fn 117 For a summary of all reported decisions pertaining to allegations of patent malpractice up to 2004. Based on a review of Oddi’s summary, almost all reported decisions involved malpractice allegations involving largely procedural matters, such as failure to a patent application within a statutory deadline, misadvising on the availability of foreign patent protection, failure to pay maintenance fees, failure to file office action responses before the relevant deadlines and filing incomplete applications. In the UK context, see for example Rose Hughes, ‘Carpmaels & Ransford Sued for Missed Appeal Deadline’ (*The IPKat*) <<https://ipkitten.blogspot.com/2021/06/carpmaels-ransford-sued-for-missed.html>> accessed 24 November 2022 for a summary for a recent claim filed against a leading UK patent firm related to allegations of missed deadlines.

involving allegations of negligence relating to patent drafting/prosecution, plaintiffs have struggled to prove negligence apart from any issues surrounding quantum of damages.³⁸⁶

With respect to European Patent Attorneys, allegations of malpractice are addressed by the EPI's disciplinary committee.³⁸⁷ Disciplinary committee decisions may be appealed to the EPO's Disciplinary Board of Appeal (DBA), and DBA decisions are final and cannot be appealed.³⁸⁸ Decisions of the EPI disciplinary committee are difficult to locate (as they are not published), but a review of published DBA decisions shows that there have been very few, if any, allegations relating to patent drafting/prosecution malpractice. The overwhelming majority of DBA decisions relate to matters such as fee disputes between attorney and client³⁸⁹, missed filing deadlines³⁹⁰, breach of professional advertising regulations³⁹¹ and issues relating to client confidentiality.³⁹²

Although data are difficult to acquire, it seems that similar trends exist in other comparable jurisdictions to both the US and Europe, namely, that the overwhelming majority of professional patent agent malpractice claims relate to procedural matters rather than patent drafting substantive patent prosecution.³⁹³ It is difficult to draw any definitive conclusions from this fact, given that professional patent agency is stringently regulated in most of these jurisdictions and one could make the argument that it is regulation that is responsible for limiting such incidents of malpractice. Of course, as with all areas of occupational licensing, propositions relating to the effect of regulation on limiting malpractice are difficult to empirically test. However, as discussed in the following section, studies from jurisdictions that have deregulated

³⁸⁶ See for example *Minkin v Gibbons* (2012) 680 F3d 1341 (Fed Cir); *Byrne v Wood, Herron & Evans, LLP* (2011) 450 F App'x 956 (Fed Cir); *Collard & Roe, PC v Vlacanich* (2004) 789 NYS 2d 599 (NY App Term 2004).

³⁸⁷ The Disciplinary Committee enforces regulations pertaining to patent attorney practice; see Regulation on Discipline for Professional Representatives (OJ EPO 1978).

³⁸⁸ See *D02/06* (DBA); *D07/05* (DBA).

³⁸⁹ *D01/18* (DBA); *D01/98* (DBA).

³⁹⁰ *D02/10* (DBA); *D25/05* (DBA).

³⁹¹ *D10/88* (DBA); *D04/83* (DBA).

³⁹² *D11/91* (DBA).

³⁹³ For the Canadian context, see 'Access to Information Request No. A-2017-01275' (Canada, Ministry of Innovation, Science and Economic Development 2017). According to the material provided pursuant to this Access to Information request, CIPO has received few, if any, documented reports of patent agent negligence. Most Canadian reported decisions revolve around procedural matters, such as failure to respond to patent office communications. See *University of Alberta v Canada (Attorney General)* 2018 FCA 36 aff'g 2017 FC 402 (FCA); See also *Ocean Rodeo Sports Inc v Oyen* 2019 BCSC 1393 (BCSC) [2] involving allegations that the patent agent in question 'negligently failed to secure protection for the invention by missing a filing date'.

the practice of patent agency call into question the effect that regulation, or lack thereof, has on practitioner competence and incidents of malpractice.

d. The Regulation of Patent Agency and the Effect on Patent Quality

Based on all the foregoing, it is only natural to question the justification and effects of the regulation of patent agents. The work of Port et. al. challenges the alleged ‘truism’ that “high, reified standards...for individuals to become patent attorneys is somehow connected to the ‘quality’ of American patents.”³⁹⁴ According to Port et. al., countries have “for good or bad reasons (or for no reason we can discern at all), established a uniquely reified class of individuals who can become patent attorneys” under the apparent assumption that doing so maintains a level of quality in patent practice.³⁹⁵ Tracing US history of patent practice, Port et. al. state that the establishment of technical education prerequisite to sitting for the Patent Bar was “meant to serve as a proxy for possession of the technical knowledge necessary for a practitioner to ‘render applicants for patents valuable service,’ therefore ensuring the quality of patents applications.”³⁹⁶ However, as discussed above, historical evidence of practitioner incompetence is sparse.

Nicholas Matich summarizes the origin of USPTO patent practice regulation, stating that “the primary purpose of the USPTO's regulations, ratified by Congress, was to prevent fraud, not to regulate professional competence. The USPTO specifically cited fraud as the justification for the rules, and the rules imposed no new requirements on attorneys because they were presumed to be competent and adequately regulated.”³⁹⁷ Furthermore, according to Port et. al.:

This reified standard, created by one person to avoid fraud on the public, has rendered today a very valuable monopoly for those admitted to the patent bar. Today, it is said that this monopoly is required to ensure American patent quality instead of avoiding fraud on the public. That is, one rhetoric has been replaced with another.³⁹⁸ (emphasis added)

Accordingly, “although the high price of entry is a positive for subsisting patent attorneys as they understandably protect market share”³⁹⁹, Port et. al. question the merit of the assertion

³⁹⁴ Kenneth L Port, Lucas M Hjelle and Molly Littman, ‘In Pursuit of Patent Quality (and Reflections on Reification)’ (2016) 20 Marquette Intellectual Property Law Review 79, 81.

³⁹⁵ *ibid.*

³⁹⁶ *ibid* 86–7.

³⁹⁷ Nicholas Matich, ‘Patent Office Practice after the America Invents Act’ (2013) 23 Federal Circuit Bar Journal 225, 234–5.

³⁹⁸ (*n* 394) 87.

³⁹⁹ *ibid* 83.

that this new, dominant rhetoric is necessary to ensure patent quality. Adopting the Organisation for Economic Co-operation and Development (OECD) definition and data regarding ‘patent quality’, they examine the patent quality of various jurisdictions around the world with disparate levels of patent agent standards of practice. The authors conclude:

If reification of admission standards impacts patent quality, there should be disparate levels of quality between the disparate countries. In fact, we see no significant difference in patent quality between the countries of the United States, the United Kingdom, Japan, France, Canada and Germany, even though these countries have very disparate standards regarding admission to the patent bar... all of these countries have essentially the same rate of patent quality as determined by the OECD.⁴⁰⁰

Substituting ‘patent enforcement’ statistics as a measure of patent quality, as opposed to OECD definition and data, the authors find that “reified patent bar admission standards, at best, have a dubious, if any, correlation to quality if quality is defined as the win rate of the respective patentees.”⁴⁰¹ Although the definitions used for ‘patent quality’, as any definition of ‘quality’ generally, can be debated, the authors’ analysis seems to correspond with studies from other jurisdictions which appear to demonstrate that deregulation of respective domestic patent agent professions has not lead to an influx of incompetent practitioners into the market.⁴⁰² The authors frankly conclude that “there appears to be no evidence to support a causal connection between quality of admissions to the patent bar and patent quality.”⁴⁰³

3. PATENT AGENT TRAINING

As discussed in detail below, many jurisdictions require aspiring patent agents to complete an apprenticeship period in addition to successfully passing qualifying examinations in order to be licensed as a professional patent agent. Even in jurisdictions such as the US which do not have a mandatory apprenticeship requirement, the lack of formal, institutional training programs means that training in a professional setting is one of the only means of acquiring knowledge of the practice of patent agency.

⁴⁰⁰ *ibid* 113: “this is a very hard argument for subsisting patent attorneys to accept because it is against their economic self-interest. Naturally, subsisting patent attorneys want to maintain the levels of reification to minimize competition. ... it is against subsisting patent attorneys’ self-interest to share the monopoly”.

⁴⁰¹ *ibid* 114–5.

⁴⁰² Wissam Aoun, ‘Canadian Patent Agent Regulation Reform (Pt. 2)’ (n 59) 427–8.

⁴⁰³ (n 394) 115, 118.

Interviewees were asked about their professional training experience. Several themes emerged from the interview data, which, interestingly, appeared largely consistent across jurisdictions. This statement from a UK patent attorney in many ways sums up the essence of a similar story told by patent agents in every jurisdiction:

I hadn't seen a patent before I got to work. So it was very much the way that I worked with a partner. For the first two months, you went through files. That's how you got used to it. Know how things look like. I think we had a one-week introduction course. A kind of crash course. This is a patent, and this is a claim and things like that. Essentially getting into profession, talking to a person or listening to them doing their job. The people I worked with in the early stages were old school. They agitated a lot. So that's how I learned. In the beginning, it was absolutely nothing. For the first six months, you probably know nothing useful. You can find your way around. You can see a document and understand what it is about, you can read a patent specification...and I was searching for records for the first four weeks.... Mostly it was learning by example. And the people I worked with, particularly the patent drafting thing, it is like an art, and it was taught through example. The people you worked with had their own particular likes and you were trained accordingly. [#31]

Most patent agents painted a similar picture of their training, where some training courses (whether in-house or external) supplemented what was largely a sink-or-swim apprenticeship, the success of which is largely dependent on the development of a personal relationship with an experienced mentor who is willing to train. One surprising commonality is that practically all experienced patent agents across all jurisdictions that were trained in private firms often referred to their apprenticeship in language reminiscent of military training. As one UK practitioner stated, “most of the senior partners were born in the 1930's... that's pre-war stuff! And that is where that mentality came from [#12].”

This military style training often involved harsh feedback and ridicule:

So, at very end of the old days... it was quite hands-on training. It was very much an apprenticeship so that you when you did to work, you'd sit with the trainer, your boss basically, and they rip your work to shreds... You did learn by mistake. And it was definitely part of the game, which was to absolutely demolish everything that you did, and it was awful! [#12]

According to another interviewee:

the initial training is you do some work; you have very little guidance about what you're supposed to be doing. Someone rips it to shreds. You feel as though you've been completely chewed out, and then you go back and read it. And that feedback loop continues until it's right. [#32]

The 'game', as one practitioner suggested, is part of a "rite of passage... and I think some of the mentality was 'I went through this, so, so do you!'" [#32]. Practically all US practitioners with twenty-plus years of experience (and some with less experience) stated that many of those who trained them were former military personnel who treated training as if it was military-style boot camp. They stated that their mentors were prone to anger and felt no hesitation in yelling at them in the presence of others and berating them for making mistakes. Their impressions of this style of training were bittersweet. Although the humiliation could be painful, many suggested that this approach ingrained in them the absolute and inviolable duty to always remain vigilant in protecting your client's interests. As one interviewee stated, referring to apprenticeship under a former 'military man' with over forty years of patent experience:

Interviewee: *He always said that: 'Hey, I want to review your claims, the way that a judge would review those claims if you're before him in district court and he's really on you on what those claims mean. I want you to be able to stand up to that type of pressure.' And so he was pretty strict and pretty blunt with his criticisms of your work product....*

Me: *It sounds like, if I understand what you're telling me, from your perspective, you actually had quite a remarkable apprenticeship.*

Interviewee: *Yes, absolutely. It was and, and like I said the gentleman that I worked with was very critical and very blunt but it did give you a thick skin and it made you think about every single word in your claim. I know when I write a claim now [many] years later I sit there and I still think about every single word. And you know, that that was so ingrained in my mind because had if you brought him a poor work product that was poorly thought out, he would let you know about it and it wouldn't be a pleasant experience. You found that actually the more potential that he saw in you, the more direct and blunt he would be with you because he had high expectations and wanted you to succeed. And although it wasn't pleasant going through it, it really was very helpful and*

a lot of people will tell you the same thing who trained underneath him that it's painful to go through it, but you're awfully glad that you did. And I try to pass that on to the people who I train right now, but in a little bit more of a pleasant approach. [#6]

Practitioners trained within an in-house environment – most often in a corporate in-house environment – told a very different story. Most of these agents spoke highly of their apprenticeship, telling stories of a learning environment which nurtured not only their enthusiasm for patents but also for the company's technology. A UK patent attorney, who had been trained in-house at a large multi-national corporation spoke of an environment where patents, inventors and invention were all intertwined as part of an overall corporate innovation culture. For this practitioner, it was proximity to actual inventors and the real technology that was invaluable:

[The corporation] had a small department, there were one or two people and qualified attorneys, and me as the trainee. And they were helpful, there was not much in the way of formal training, just doing jobs and them criticizing it! One big advantage of being in the industry as it was at [this corporation], you could see the inventor, you could get your hands on the inventor, and I learned an enormous amount about semiconductor devices because you could get the inventor alone. And in industry, especially in those days, you could spend all morning discussing the technology and the background.... That was absolutely invaluable in understanding technology. I still find my time in the industry, the training as a [patent] engineer, is still invaluable, even all these years later. [#10]

As another UK patent practitioner stated:

Interviewee: I was working very closely with a qualified patent attorney ... He was supervising everything that I was doing at that stage. I was attending meetings with him. I was given examination reports to look at. At the very beginning, he gave me only European work because he thought it was good to have consistency then we started looking at other foreign jurisdictions like Chinese and Japanese... he said in the US, they do things differently, so it was better to kind of learn before and then start throwing US prosecution in the works.

Me: So this work that you were doing, you managed it through firms or all in-house?

Interviewee: We managed it all in-house.

Me: So you were involved in all aspects of the process, including corresponding with external firms?

Interviewee: Yes. It was drafting and reviewing technical applications. We had in-house technical searches, so you'd review search reports, discuss them with inventors, managers, deciding whether something was worth drafting. Then the drafting process, prosecution, all the way through to defending opposition, launching oppositions, I mean all that you have in Europe. We did all of that. So in the four years that I was there, I did some of all of those processes. I was very lucky. I think I got to see a really good full picture, the whole process of patenting, and the whole range of responsibilities for a patent attorney. We also looked at agreements in-house, so we would review basic non-disclosure agreements, as well as patent office prosecution... 'here's an examination report, here's what we filed, here's what they've said, read the documents. Tell me what you think. Do you think they're right, they're wrong? Why do you think they're right, you're wrong?' So it was good. [#20]

The distinctions between in-house and externally trained patent agents are numerous and the reasons for their prevalence multi-faceted. For example, the above-referenced attorney acknowledged the inherent conflict and tension associated with in-firm training, in that firms will not likely want to see their trainees qualify as licensed patent attorneys if that means they might likely become competition in the future:

It's a balance, I think between what the employers want you to get, the [type of] support where you're able to work for them. So if they just don't have jobs that they have to worry about in a sense, they can rely on you more, to be qualified, but all they want then is for you to pass the exam. They don't want you to become a well-rounded attorney, then you can go and work somewhere else and do a better job. They want you to do their job better. [#20]

Similarly, an in-house patent attorney at a large multi-national corporation suggested that while he was completing the European qualification process alongside candidates from across

Europe, he noticed a distinct difference between those that were being trained in-house and those being trained in large private firms. Specifically, while attending training courses at CEIPI, he commented that those coming from large firms seemed to lag behind those working in-house in terms of knowledge of fundamental principles and practices. Overall, he commented on his experience as follows:

I must say that I had a great mentor. It's a really good patent team that we have here and the quality of inhouse training is really high... This is because the patent department in my company has been there for a long time and has a very good atmosphere. People are helping as there is no feeling of competition between people. I have noticed the individuals coming from the patent firms, were less prepared and they were given less help and attention....I think at CEIPI the worst cases that I have seen, were coming from firms... Some big firms hire a number of junior attorneys and they then compete against each other and that is really bad. [#18]

Another in-house attorney for a large multi-national corporation received a comprehensive in-house training, being sent to various corporate R&D offices in different countries around the world, stating that he was “*thoroughly trained under the hands of expert searchers and patent information analysts from across Europe and around the world.*” [#1].

Whether trained in-house or in private practice, or whether training did or did not include institutional training courses, the key to success seems to be mentorship. When one European patent attorney was asked about the European qualification process, she responded that the qualification framework was both necessary and beneficial but that “*the most important thing is getting a good mentor.*” [#13] Another attorney stated “*I had a mentor who was not there and that meant that, I had to do a lot to learn. From the start, I had to find my own way.*” [#27] Although this specific attorney was able to eventually find his own way through available professional training programs and self-training, in his words:

I am pretty sure that, for many, it would have been hell.... Yes. The courses were very good because they give you guidance in the direction and they provide you with all the information. The courses are very essential. But the courses, stay at the theoretical level and one gets the practical level by mentorship. The mentor brings you into contact with new cases... and situations. He assigns you various tasks and guides you on how to perform them. [#27]

A French patent attorney spoke of a fantastic apprenticeship experience, which, was largely the result of the mentorship she had received from a senior attorney at the firm:

Interviewee: It was a really great experience. At [my firm], you get thrown in the deep end and then you are pulled out before you drown. I was meeting clients and they were talking to us about their inventions and then I was drafting and then my mentor would see that and tell me that it's horrible, but that's ok. So, I was in my mentor's office for almost 90% of the time when I was at work. He would take me to all the meetings and all the clients. And that is how I learned. So, there was a lot of mentoring and individual work as well. I would write my own responses to office actions and drafts.

Me: Did you find this apprenticeship helpful in developing you as the professional that you are?

Interviewee: Absolutely. It was more than helpful. It was defining. I don't think that you can become a good patent attorney any other way. It is really by experience, types of files you have, types of clients you have, and the exposure you get to them as young attorney.
[#7]

A German attorney who has spent her entire career in private practice shared the same experience:

Me: So would you say your mentorship experience was good?

Interviewee: It was excellent. Because my supervisor was an excellent patent attorney mentor. And I learned a lot. [#11]

On the other end of the spectrum, a recently qualified European patent attorney (now practicing in the UK) recounted her struggles in entering the profession, which she largely blamed on the poor mentorship she received during her early years in practice:

We were just three trainees and [the supervisor]. In the beginning, he just kept giving us responses to EPO communications, mostly for one of the clients of the firm. ...It was a lot of exploration as well because [the supervisor] would remain quite busy and was not able to give us enough time. ... It was quite difficult to get a feedback from [the

supervisor]. Because, I would do a piece of work, and they would either approve or change stuff and file the response. And that was it. It was very difficult to get feedback on your work. [#24]

This attorney suggested that her lack of mentorship, and corresponding lack of practical experience, made progressing through the qualification process “*insanely difficult*”. [#24] For example, she struggled to pass the opposition paper (Paper C of the EQE) given that “*I had drafted just one opposition during my training period, and that too after pestering my boss by asking him again and again.*” [#24] This attorney stated that two items made up for the lack of mentorship, which, otherwise, may have led to a failure to qualify as a European attorney. The first was largely the result of luck, having the opportunity to work on freedom to operate (FTO) opinions for a client who needed to know whether they could safely operate without infringing any third party rights:

...then a big thing I started to do was freedom to operate studies (FTO) which, I found quite unusual, based on my posterior experience. When I moved to the UK, I found out that there are almost no FTO studies here. But I did quite a lot of that. Because, we used to have clients, who were ... doing a lot of FTOs ... and we were doing a lot of this for them. And that I would say, was very useful for me. Because I did not learn how to read claims and how to make sure that things are or are not anticipated until I just learned how to do FTO studies. [#24]

The second was the EPO’s Candidate Support Program, which was designed to pair aspiring European patent attorneys from countries that have recently joined the EPC with experienced mentors from other EPC jurisdictions. As these countries often lack an established domestic patent agent profession, aspiring European patent attorneys have minimal opportunities for proper training. The Candidate Support Program not only offered her mentorship, but also led to moving from her home country for work at an established UK firm:

EPO in cooperation with EPI set up a program which they called Candidate Support Program. I applied for that and got accepted. And then I went for courses, and it was in the framework of this program, which was immensely useful. I met many people. We were

quite an international group. We were twenty trainee attorneys from all over Europe or Eastern Europe... We went all around Europe to attend various courses. [I had] no contact with anybody who was qualified or had qualification, a few steps ahead of me. So, I didn't really know how to do things... finally, I entered this Candidate Support Program, and somebody told me what I should be doing and that was quite useful. [#24]

Accordingly, regardless of jurisdiction, it appears that success in the field of professional patent agency revolves almost entirely around mentorship, with training remaining an individual, one-on-one endeavour between aspiring practitioner and experienced mentor. Furthermore, individual patent agent perceptions of the quality of their training seem to correspond with proximity to actual inventors and technology- they go hand in hand. The practice of patent agency is abstract and academic to those who have not had the opportunity to engage with real inventors, in a real innovation environment, which helps to place patent agency within the context of inventive agency. The unfortunate reality is that the lack of structured training programs in most jurisdictions means that many aspiring agents never receive quality mentorship and struggle to enter the profession. It appears that it is the combination of both of these factors that lead to in-house trained agents expressing the greatest perception of quality and satisfaction in apprenticeship.

4. PATENT AGENT QUALIFYING EXAMINATIONS

a. The EPO European Qualifying Examination (EQE)

In Europe, to become licensed to represent others in the presentation and prosecution of patent applications before the EPO, individuals must successfully complete a two-year apprenticeship period followed by successfully passing the European Qualifying Examination (EQE). The EQE was established in 1979, shortly after passage of the EPC, and tests candidates' knowledge and aptitude to represent applicants before the EPO. Part of the rationale for the EQE is the lack of regulatory consistency across EPC jurisdictions, in that some jurisdictions maintain a specific professional patent agent regulatory framework, some permit all lawyers to practice patent agency without further qualifications and some jurisdictions lack any regulatory framework at all. As such, one of the objectives of the EQE was standardizing practice before the EPO across a patchwork of European patent agent frameworks.

The EQE is offered in English, French, and German (i.e. all three official languages of the EPC) and is comprised of five papers. The pre-examination paper, a pre-condition to writing the four main papers of the EQE, assesses a candidate's ability to answer legal questions and questions relating to basic patent law principles. If a candidate passes the pre-examination paper, they may move on to write the main EQE exam, which consists of papers, A, B, C, and D. Paper A examines a candidate's ability to draft claims and the introductory part of a European patent application. Paper B examines a candidate's ability to prepare an official letter of reply to an EPO examiner rejection involving the citation of prior art. Paper C requires candidates to draft a notice of opposition to a European patent. Paper D assesses a candidate's ability to answer legal questions and to draft legal assessments. The four main papers are held once a year, typically in February or March.

In order to qualify to write the EQE, candidates must have a scientific or technical qualification in the discipline of biology, biochemistry, chemistry, electronics, pharmacology, or physics. The EQE Exam Secretariat decides whether a candidate's credentials satisfy requirements in accordance with Article 11(1)(a) of the Regulations on the European qualifying examination (REE) and Rules 11 to 14 of the implementing provisions to the regulations (IPREE). Each year, the EQE is developed by an EQE Board comprising representatives selected by both the EPO and the EPI.

As with many jurisdictions, there is a lack of detailed historical record regarding development and administration of the EQE. Although the EQE has been in effect since 1979, the EPO only publishes statistics, such as numbers of writing candidates and pass rates, dating back to 2002.⁴⁰⁴ Interviews with representatives from EPO and EPI members of the EQE Board (which members come from various European jurisdictions) indicated that at one time, the EQE suffered from a number of validation issues, including both lack of adequate training and preparatory material as well as problems with content/construct issues in exam setting. Interviewees stated that in the early days of the EQE, pass rates were dismally low. Practically all of these interviewees suggested that the high number of appeals from previous decades were a reflection of these issues. Some representatives from the EPO suggested that low pass rates and high numbers of appeals in the early years of the EQE were the result of over-influence of the

⁴⁰⁴ European Patent Office, 'EQE Results and Statistics' <<https://www.epo.org/learning/eqe/statistics.html>> accessed 23 September 2021.

profession in setting and administering the examination. Over time, the EQE Board began to reflect a far more balanced mix of EPO and EPI representatives, and this, according to several interviewees, has led to a far more balanced and fair EQE.

Experienced practicing attorneys, from various European jurisdictions, reflected on the early days of the European patent attorney profession, and the poor state of the EPO's licensing framework. One of the EPO's first Directors once commented that "everybody has been able to agree that better training possibilities are necessary" to counteract the fact that "the education of patent agents in all [EPC] countries fundamentally still has the character of the traditional master apprenticeship known since the guilds of the Middle Ages."⁴⁰⁵ At that time, the nascence of many experienced patent practitioners in various individual jurisdictions with expertise in new EPO practices (and who were grandfathered in as European patent attorneys), combined with a paucity of training programs, led to young practitioners struggling to qualify as European patent attorneys:

... for the EQE at that time, you had to have experience for four years, so I did it one year after my German examination. And there was nearly nothing. There were three courses in Strasbourg offered by CEIPI. I did only one of them. And that was all. And at that time, it was far more difficult, because you didn't even know what to expect. Because nowadays, for the EQE, they publish all the papers, they publish the examiner's report. And nothing of that sort was available at that time. [#11]

The available data seem to support this feedback. Since inception of the EQE, candidate appeals pertaining to decisions of the EQE Secretariat have been heard by the EPO's Disciplinary Board of Appeal. The EPO publishes Disciplinary Board decisions dating back to 1980. Reviewing publicly available decisions of the Disciplinary Board of Appeal, approximately 339 decisions relate to EQE appeals, while others relate to matters of European attorney competency and ethics violations. With respect EQE appeals, these are split between appeals relating to the exam itself, such as candidates alleging the certain questions were unclear or that their exam was mismarked, and appeals relating to Secretariat determinations that a

⁴⁰⁵ Lise Dybdahl Osterborg (n 365) 328.

candidate's educational background does not meet the necessary requirements to qualify them to write the EQE.

Furthermore, since 2002, the EPO has published results and statistics of each year's EQE exam administration, including number of candidates writing the EQE and overall pass rates. As shown in Table 1 below, the number of EQE candidates has increased significantly since 2010 but the pass rate has remained relatively stable, hovering around 32%. Table 2 presents data regarding candidate appeals relating to the EQE. As shown in Table 2, the number of appeals appear to have decreased from an average of 1.3% of all exams administered between 2002-2009, to only 0.17% between 2010 – present.

Year	Total # of Candidates Writing EQE	EQE % Pass Rate
2019	1746	38.5
2018	1696	31.1
2017	1665	35.7
2016	1669	30.8
2015	1685	34.8
2014	1647	26.3
2013	1832	38.1
2012	2283	26
2011	2245	24.3
2010	2171	29
2009	616	37
2008	583	41.5
2007	684	24.1
2006	676	37.1
2005	659	34.6
2004	639	33.6
2003	547	29.4
2002	498	35.5
	Overall Average Pass Rate	32.8
	Average Pass Rate: 2010-2019	31.5
	Average Pass Rate: 2002-2009	34.1

Table 1: Source: Statistics
<https://www.epo.org/learning/eqe/statistics.html>

	Total # of Candidates Writing EQE	% Average EQE Pass Rate	# of Appeals	Appeals as % of total # of EQE exams written	Type of Appeal (EN decisions)		
					# of Appeals pertaining to EQE Exam Result	# of Successful Appeals pertaining to EQE Exam Result	% EQE Exam Appeal Success Rate
2010-present	18,639	31.5	32	0.17	23	8	34.8
2000-2009	4902*	34.1*	62	1.3	40	7	17.5
1991-1999	unknown	unknown	29	unknown	28	5	17.9

Table 2: *Reflects data available since 2002

The decreased number of appeals since the start of the 2010 decade also reflects the significant effort put into overall improvement of the EQE process. Training programs, such as the CEIPI EQE preparatory course, have been created, a robust curriculum has been developed and made readily accessible to all candidates, and sample responses from previous years are published. According to representatives from the EPO, data in Table 2 reflect the success of these efforts: the fact that the number of appeals as a percentage of overall number of EQE exams written has significantly dropped while maintaining steady pass rates, combined with the fact that only meritorious cases seem to be subject to an appeal (as evidenced by the increasing success rates of EQE exam appeals) indicates that overall, the EQE process has become far more fair and psychometrically valid than it once was.

In meeting with members of the EQE Board, it became clear that considerable effort and resources are devoted to ensuring that each year's EQE is as fair as possible. For example, Members of the EQE Board collaboratively draft proposed EQE questions as a group and it typically takes between two to three years, and approximately twelve rounds of revisions, before any given question might ever actually appear before a candidate in a real EQE setting. During this time, proposed questions are circulated between both previous and subsequent years' Board members, who were not involved in preparing those questions, as well as external test takers (such as volunteer EPO examiners) who all provide feedback relating to clarity in an attempt to

resolve any and all potential sources of ambiguity. Furthermore, post-EQE administration in any given year, EQE markers come together and mark several exams as a group and use this opportunity to spot any potential sources of ambiguity that emerge among candidate solution papers. The marking criteria are reconfigured such that these ambiguities are resolved in favour of candidates. As several Board Members suggested, the purpose of the EQE is not to deceive or confuse candidates, rather, it is meant to be a transparent and straightforward test of entry-level competency demonstrating sufficiency to practice before the EPO. In this regard, the EQE ensures that year after year, previous years' EQE papers are published along with detailed solution guides, and with that, consistency in paper format and marking scheme are maintained in order to bolster legitimacy.

The EQE Board prides itself on transparency, and in meeting with representatives from the Board, one cannot help but get a sense of overwhelming authenticity. They are receptive to any and all feedback pertaining to possible areas of improvement. Members of the Board are very kind and generous with their time and it was clear from the beginning that any and all questions regarding the EQE and its development were fair game. Both EPO and EPI Board Members take their responsibility to ensure a fair and valid EQE is administered each year very seriously. Furthermore, they welcome academic inquiry and encourage external analysis. They recognize the possibility of professional capture and are transparent in acknowledging that steps must be taken to ensure that the EQE does not become disguised gatekeeping.

Despite these considerable efforts, challenges still abound. Although the EPO has suggested that its attempts to modernize the EQE by moving it to an online platform (largely provoked by the COVID pandemic) have been a success, candidates seem to strongly disagree.⁴⁰⁶ Some experienced members of the European patent attorney profession praise EQE administration as a complete training cycle which has improved quality of input to the EPO⁴⁰⁷, while others suggest that the emphasis on technical aspects of EPO practice overlooks the need to train future European patent attorneys in more strategic patent portfolio management

⁴⁰⁶ Rose Hughes, 'EPO Declares EEQE Format Went "Very Smoothly", but Do Candidates Agree?' (*The IPKat*) <<https://ipkitten.blogspot.com/2021/03/epo-declares-eeqe-format-went-very.html>> accessed 17 March 2021.

⁴⁰⁷ 'Epi Information | Thoughts on EQE Training' <<https://information.patentepi.com/2-16/thoughts-on-eqe-training/>> accessed 15 April 2019.

thinking.⁴⁰⁸ All of this has led to recent calls for a major overhaul of the entire EQE process, in order to modernize the training process and better align assessment criteria with the necessary criteria for entry-level practice.⁴⁰⁹

The availability of training opportunities remains a key issue in debates surrounding EQE reform. Representatives from the EPO suggested that training programs offered through Strasbourg's Centre D'Etudes Internationales de la Propriete Intellectuelle (CEIPI), one of Europe's leading IP research institutions, are largely responsible for the improvements in the quality of EQE candidate training over the last several decades. According to these interviewees, CEIPI was initially established to serve as a training ground for future European patent attorneys, but over time, has become far more focused on IP research than attorney training. Some interviewees lamented the fact that most academics at CEIPI show little, if any, interest in the practical realities of the European patent attorney profession. To these interviewees, the general culture at CEIPI has historically been that the research agenda takes overwhelming priority to training, and that many CEIPI researchers tend to 'look down upon' CEIPI's attorney training division. Accordingly, several interviewees suggested that it was the sustained effort by a handful of EPO and EPI representatives that resulted in the creation of a robust attorney training program at CEIPI, which, has made a significant contribution to the overall fairness and validity of the EQE process.

It is difficult to either confirm or refute much of this feedback regarding the CEIPI patent attorney training program given the paucity of publicly available information. Other than interviewees stating that the CEIPI EQE training program is collaboratively developed by representatives from CEIPI, the EPO and EPI, minimal published information is available regarding this development work. Furthermore, interview feedback suggests that comparative EQE pass rates data between candidates who complete the CEIPI EQE training program versus those that do not exists, but this data is not made publicly available for unknown reasons.

Feedback from European patent attorneys regarding the CEIPI program paints a cloudy picture. For example:

⁴⁰⁸ 'Epi Information | The Patent Attorney of the Future: The Dutch View' <<https://information.patentepi.org/issue-4-2018/the-patent-attorney-of-the-future-the-dutch-view.html>> accessed 22 November 2019.

⁴⁰⁹ Rose Hughes, 'EPO Plans Radical Shake-up of EQEs 2024 Onwards' (*The IPKat*) <<https://ipkitten.blogspot.com/2021/04/epo-plans-radical-shake-up-of-eqes-2024.html>> accessed 8 October 2021.

Me: So you teach at CEIPI, Is there some sort of curricular validity at CEIPI with respect to the EQE?

Interviewee: It is not so thorough. The way the course is run, there are variations. It partly depends upon time availability. Some people do the whole days at a time. [CIPA courses for UK qualifying attorneys] are run in the evening. There are three hours slot three times a week. There was a structure that mentioned that these are the topics and these essentially work through the EQE. The structure [CEIPI] ha[s] got is, like, we say that this week's topic is novelty. Novelty part 1 and you should cover the topic from articles 52 to 54, and in novelty part 2, we will cover the other articles. So that kind of structure is there. But actually what you delivered after that was largely up to you. We tried as a group of teachers to make it interactive. So it was more like a question and answer and feedback from practitioners about their experiences. [#31]

Despite their sincere authenticity, EQE Board Members appear to demonstrate a tunnel vision focus on the EQE's technocratic nature as the sole measure of the examination's substantive validity. For example, when asked whether any efforts had been made to include greater public involvement on the EQE Board or in development of European patent attorney regulation standards generally, beyond just EPO and EPI members, the response was that it was highly unlikely that anyone outside of the profession would be interested in participating. Yet there was no indication that attempts to foster greater public participation had ever actually been made, which is surprising given that regulatory best practices around the world have moved towards greater public participation in self-regulatory licensing bodies.

Furthermore, the Board's sole focus seemed to be on administrative efficiency as the EQE's main regulatory objective. For example, an EQE Board Member indicated that if the cost of administering the EQE resulted in an even 1% increase in the EPO's prosecution efficiency, by ensuring that European patent attorneys and EPO examiners 'were on the same page and speaking the same language', then the cost of administering the EQE and regulating European patent attorneys more than paid for itself in administrative cost savings. It was suggested that the EPO had, at some point in time, completed an administrative cost-benefit analysis and determined that the EQE and regulation of European patent attorneys generated far more than a

1% administrative efficiency in relation to patent prosecution administration, and as such, this occupational licensing intervention was undoubtedly justified.

Some studies have disputed the validity of the ‘administrative efficiency’ rationale for regulating professional patent agents.⁴¹⁰ When asked if EPO analyses regarding the EQE’s impact on efficiency had considered broader economic impacts beyond internal EPO administration, such as the effect that professional regulation may have on price and access to professional services, the response seemed to be one of surprise that this question was even asked. There was no indication as to whether any such broader economic analyses had ever even been considered, let alone undertaken. Recent theories of occupational regulation suggest that validation of licensing regulatory interventions should include more than validation of licensing program content and must consider broader social and policy outcomes (such as effects on cost and access to services).⁴¹¹ Lack of broad representation on the EQE Board, including lack of psychometric experts and experts from other professional fields, likely contributes to the European patent attorney regulatory framework’s all-encompassing focus on EPO technical rules and administrative efficiency.

Interviewees confirmed the highly technocratic nature of the EQE licensing process. Many European patent attorneys suggested that the EQE is largely used by the EPO to shape European patent attorneys into the EPO mold. As one highly experienced UK practitioner stated:

... the [EQE], it's very cleverly used by the EPO to mold patent attorneys in the way they want them to act and behave and use the law. And the strongest, example I have with that is the problem-solution approach. Old school patent attorneys, the British ones, used to moan and groan about that. It's not really in the EPC anywhere. It's in their guidelines. It's just a made-up thing. It's an administrative tool to assess inventive step. No one dares say that anymore. And the reason is that everybody who's on the EQE board has been trained that problem-solution is the only way, they've been told it. It's beyond it, it's like

⁴¹⁰ A Report to the Hon. Peter J. McGauran MP Minister for Science and Technology (Australia), ‘Review of the Regulation Regime for Patent Attorneys’ (1996) 44- regarding unqualified individuals generally, whether service providers or individual filers, the Committee quickly dismissed any suggestion in favour of regulation to prevent administrative burden, stating that they did not “not find plausible the argument that an unacceptable burden would be placed on the Patent Office by opening up representation to the unqualified.”

⁴¹¹ Michael T. Kane, ‘Validation’, *Educational Measurement* (4th edn, Praeger Publishers 2016) 56: ‘we may prefer to exclude reflection on [social and political] consequences from meanings of the word validation, but...cannot deny the obligation’; see also Brian E. Clauser and Melissa J. Margolis, ‘Testing for Licensure and Certification in the Professions’, *Educational Measurement* (4th edn, Praeger Publishers 2006) 722.

training kids something and then they never question it. I think it's not a bad idea. It means that everybody- examiners and attorneys- can talk the same language. And it's a very good administrative system that has been used a little bit by the EQE for a bit of brainwashing.... [#12]

Interview feedback confirmed these distinctions between experienced and novice practitioners in relation to perception of the EQE's effectiveness as a licensing intervention. For example, although many experienced practitioners were critical of the technocratic nature of the EQE, most recently qualified European patent attorneys saw the EQE's technocratic focus as being beneficial, as it trained them on how to do their job of effectively communicating with the EPO. One interviewee stated that their firm advertised on the firm website and to their US patent attorney counterparts (from which much of their foreign patent prosecution work derived) that their young associates were experts in navigating the EPO's problem-solution approach to assessing inventive step.

Speaking with several recently qualified European patent attorneys, each seemed to confirm that the EQE is designed to teach European patent attorneys how to speak the language of EPO patent examiners, which, in their view, was not necessarily undesirable. For example:

You're forced into really learning the EPO's problem-solution approach, just like their textbook way. Which I think has been quite useful. I've started writing my EPO responses using the problem-solution. You don't necessarily want to commit to as lawyers, but I think that definitely helped. [#23]

One interviewee stated that the EQE papers B & C were meant to mold young practitioners into the EPO's problem-solution approach [#28]. Another interviewee felt that studying for the EQE was in essence an exercise in “*learning how to pass the exam*”, which meant learning how to do the job the EPO wanted them to do. [#4]

Numerous interviewees commented on the highly artificial, and often contrived nature of the EQE's question formats. For example, one recently qualified European patent attorney stated:

I did the drafting paper and the Amendment paper under the old practice. It was still electromechanical (“EM”) on one side and chemical on the other side. So, in the EM part, it all depends on finding the right sentences in the paper. All of it, working with language and I just did not feel very confident that I had enough practice for that. Also, there is this time constraint. You can do it when you have ample time in your office and

there is no pressure. I can respond to any EPO communication anytime when I can take my time. But in the EQE, you have four hours and you have to do it in that time. I found it really difficult and B paper, even more. Because B paper was only 3 hours and it was an insanely short time for me. I needed at least an hour to read the stuff. It was very long, and I was not taking exams in my first language, which definitely contributes to the pressure one feels. [#24]

Yet despite these issues, many young European patent attorneys see little cause for concern. A recently qualified European patent attorney, who also recently sat on the EQE Board, suggested that the EQE required little, if any, improvement:

INTERVIEWEE: You are asking the best person to know this because I am on the [Board]. And we are into this discussion these days. In general, our qualification process is close to ideal. Because, it takes scientists or engineers, so that, they understand the technical stuff behind everything. And I find that really important because that makes it less formal procedure and more of substance. So, there is this great first step, that we take scientists and engineers and then we make them learn the law. Which is the second step to make them a patent attorney. If I can have any influence, I will strongly fight for keeping this process this way. I am going to vote for it to stay like it is.

Me: Is there anything that you would like to see changed?

INTERVIEWEE: I don't think so. There are few things that we are working on to change but they don't have to do anything with changing of principles. [#24]

This feedback is quite surprising, given that professional patent agent qualifying exams across Europe, including the EQE, have been subject to substantial criticism in recent years and are currently undergoing major revisions. A recent study suggests that “[t]here is a strong feeling among the tutors and some qualified European patent attorneys that some [EQE] Exam Papers are too remote from reality, even considering the fact that the [EQE] Exam Papers have

necessarily been adapted to the specific exam needs.”⁴¹² Yet recently qualified practitioners, many of whom have been recruited directly from university with little professional experience, seem to have a narrow reference against which to measure the EQE licensing intervention. This perspective circumscribes their view of the profession, along with the validity of entry qualifications. Many of these recently qualified patent attorneys view their practice as an occupation, rather than a profession, and as such, view the qualification process as ‘on the job training’.

In response to growing concerns regarding the EQE’s validity, the EPO has committed to implementing significant reforms to the European patent attorney licensing process over the coming years. The recent COVID pandemic required transferring the EQE to an online format, and the EPO has viewed this challenge as an opportunity to modernize the EQE process. The main thrust of these modernization efforts is adoption of a ‘modular’ system of European patent attorney training, which applies educational best practices relating to reinforcing key concepts and assessing application of knowledge through formative assessments.⁴¹³ What is quite intuitive about the new, proposed modular system is that it views digitization of the EQE not only from the perspective of convenience to candidates and efficiency in administration for the EPO, rather, it recognizes that new online examination platforms are able to leverage technology for the purposes of improving testing generally.⁴¹⁴ For example, the module system will build formative assessments using gradually increasing methods of testing difficulty, such as basic true/false, followed by smart multiple choice questions and finally constructed responses, all of which can be administered and mentored through an online platform. This is an impressive, forward-thinking approach to education, training and testing, and hopefully this commitment to modernization will extend to other areas of the licensing framework such as broader public representation in the licensing administration process.

⁴¹² EPI, ‘E:EQE Discussion Paper’ (EPI 2021) 1 <https://www.epi-learning.org/local/staticpage/view.php?page=eEQE_DiscussionPaper> accessed 8 October 2021.

⁴¹³ See generally EPI (n 412). For example, with respect to basic concepts of claiming inventions, candidates are slowly introduced to the topic through considerations ‘of whether an embodiment of client’s invention or a competitor’s product falls within a scope of a given claim’ [p 4]. From there, candidates learn intermediate claim analysis, such as the basic structure of claims, and are tested using online, smart multiple choice questions [p 4]. Candidates then move on to more advanced techniques such as drafting claims based on hypothetical invention scenarios [p 4].

⁴¹⁴ *ibid* 8: ‘In view of the digitalisation of the European Qualifying Examination, we have an opportunity to reconsider the structure and content of the Exam.’

b. The UK Chartered Patent Attorney Examination

As discussed in detail under Chapter 3, the UK was one of the first jurisdictions in the world to require licensing of patent agents through the form of a licensing examination. However, it is important to recognize that to a large extent, the patent agent profession has been deregulated in the UK. Specifically, one need not be licensed to represent others before the UK IPO. The CIPA and the Intellectual Property Regulation Board (IPReg) qualify individuals to use the Chartered ‘patent attorney’ designation and govern professional conduct of Chartered attorneys, but anyone may represent individuals before the UK IPO. Thus, the UK utilizes a certification, rather than licensing, model for UK professional patent agents.

The consultative process that resulted in the current certification model for UK Chartered patent attorneys is the same process that led to the end of the Chartered patent attorney monopoly over practice before the UK IPO. The current certification model resulted from two separate initiatives launched in the late 1980s and early 1990s; the Intellectual Property Rights and Innovation Initiative focused on making the patent system more accessible to the UK public and an Office of Fair Trading report, ‘Review of Restrictions on the Patent Agents’ Profession’ that examined the regulatory scheme for patent agents on its effect on consumers. Despite vigorous arguments put forth by CIPA in favour of maintaining the status quo, which at that time was a licensing model, these initiatives determined that the then current regulatory model led to exorbitant fees for patent services and undermined small firm and sole inventors’ use of the patent system.⁴¹⁵ The result was deregulation of practice before the patent office. The current UK certification model was viewed as a form of regulatory compromise- practice before the patent office was deregulated, in that one no longer needed a license to represent others before the UK IPO, but CIPA and IPReg are permitted to govern use of the Chartered patent attorney designation.

Other than deregulation in favour of a certification model, the qualifying process for Chartered UK patent attorneys has remained relatively stable for many years. Similar to the EPO’s EQE, the UK requires completion of a set of Foundation examinations before a candidate can move on to write the four Final papers. The four Final papers cover the following topics:

⁴¹⁵ See A Report to the Hon. Peter J. McGauran MP Minister for Science and Technology (Australia) (n 410) 39–40 where the Committee cites the United Kingdom’s “Review of Restrictions of the Patent Agents’ Profession, Office of Fair Trading, September 1986” Report.

Advanced IP Law and Practice, Drafting of Specifications, Amendments of Specifications and Infringement and Validity. The Final papers are typically offered one annually. All papers of the qualifying examination are set by the Patent Examination Board (PEB), which is an independent CIPA committee acting according to IPReg guidelines.⁴¹⁶

Despite the fact that deregulation of the patent agent profession in the UK was meant to remedy many of the problems associated with the licensing examination framework, in recent years, the UK system of examination has still faced consistent challenges and criticisms. Two recent independent reviews have called into question the validity of current UK qualifying examinations. Throughout the mid 2010s, candidates regularly protested that the examination suffered from serious construct issues, including inconsistency from year to year and lengthy questions that could not be completed within the allotted time frame. The Quality Assurance Agency (QAA) of the PEB recommended the initiation of an investigation into poor candidate pass rates over the previous years.⁴¹⁷ This resulted in a commissioned investigation, commenced in 2016 and carried out by Middlesex University (the “Middlesex Report”), pertaining to the psychometric validity of the qualifying examinations.

The IPReg endorsed the Middlesex Report, calling it a “comprehensive, well researched and an important milestone, for the first time gathering data and evidence about this matter in a collaborative manner and providing a clear path forward through a number of ‘Suggestions’.”⁴¹⁸ One commentator stated that the Middlesex Report “was damning... [t]he papers [of the UK Chartered patent attorney qualification examination] were criticised for too much reliance on memorising obscure content, lack of relevance to professional work and inconsistent marking schemes.”⁴¹⁹ Although IPReg commended the Middlesex Report to CIPA and its PEB, it “was

⁴¹⁶ ‘Regulations’ (CIPA) <<https://www.cipa.org.uk/patent-examination-board/regulations/>> accessed 4 October 2021.

⁴¹⁷ ‘Annual Report 2016/2017 | The Intellectual Property Regulation Board’ <<https://ipreg.org.uk/about-us/annual-reports/annual-report-20162017>> accessed 14 February 2020; see also Rose Hughes, ‘BREAKING: 2018 FD4 (P6 - Infringement and Validity) Pass Mark Reduced’ (*The IPKat*) <<http://ipkitten.blogspot.com/2019/02/breaking-2018-fd4-p6-infringement-and.html>> accessed 14 February 2020.

⁴¹⁸ ‘Annex_7_-_IPReg_Application_to_LSB_2018_Fees_-_Consultation_Papers.Pdf’ <https://lsbstaticwebsites.z33.web.core.windows.net/Projects/independent_regulation/PDF/2017/Annex_7_-_IPReg_Application_to_LSB_2018_Fees_-_Consultation_Papers.pdf> accessed 4 October 2021.

⁴¹⁹ Rose Hughes, ‘Gantry-Gate: Have Your Say in the Mercer Review’ (*The IPKat*) <<http://ipkitten.blogspot.com/2020/02/gantry-gate-have-your-say-in-mercer.html>> accessed 14 February 2020.

largely ignored” and “little was done in the wake of the Middlesex Report to address [the] concerns.”⁴²⁰

Suffice to say that the UK Chartered patent attorney qualification process is suffering from a crisis of legitimacy. Efforts to institutionalize training, including CIPA coordinated exam tutorials and a university-based program at Queen Mary University in London, have done little to remediate what appear to be years of frustration. Interviewees suggested that some form of certification mechanism is necessary to signal competency to public, and despite the many faults, a qualifying examination process remains an essential component of an effective system of patent agency:

I think one thing about exams is that they are quite practically valid. They are not law exams. In the UK, there are four papers one is law and practice paper, but a good chunk of that is advising a client rather than asking about the law that you learned. The other three are essentially the things that you are doing in the job, amendment paper, drafting paper and infringement, and opinion paper. Sort of teaching fit for purpose. The concept of having those types of exams is to cover essentially the things that a patent attorney does in his job. I think it's very important as people come from that doorway where you prove that you can draft a patent application to a certain standard. Now its always [the case that] drafting patent applications can be subjective things. They flip flop things like one year they say claims were far too broad and the next they say claims were very narrow. It is subjective whether you got the right language, and you got the right point of novelty, but if you pass the paper, you are good enough to do the job. I think they are tough exams. The benefits of tough exams is that when you pass them, you get the confidence that you are good and people know that you have achieved a certain level of competency. They know that you are coming from a tough selection process. [#31]

According to another interviewee:

I have friends that sat for [the Chemistry PhD entrance exam], for example, and that was incredibly well structured. You read almost a text book. There were questions in the textbook. You attend classes and take exams, and exams were based on textbook. But that didn't happen in patent profession. I don't know what that is. It was more of on the job

⁴²⁰ *ibid.*

training kind of approach. There may well be a syllabus, but it so broad and isn't very helpful. It is not particularly instructive, but on the other side... I think the profession tries to give you certain sort of work to help you develop the skills that you need to pass the exams...[#29]

While most interviewees acknowledged this long-standing sense of frustration, many suggested that the 'this is the way its always been done' mentality remains largely to blame for the poor state of affairs:

Tutorials have always been there. They were hit and miss despite being beautifully well-intentioned, and they were still pretty effective... sometimes you would get some real bullies! Telling you 'this is shit!'. The current structure, if I remember correctly, I think the structure probably came in in the early 2000s. And I think it's, as the real old Victorian leaders started dropping off and people moved on from 'I went through this, you need to as well', it seemed to get a little more gentle. [#12]

Most UK attorneys were blunt in their assessment of the UK Chartered patent attorney qualification process, referring to the exams as an "annoying" part of the process [#13] and often suggesting that the examinations set the standard too high. Although the UK has moved from a licensing to a certification model, most interviewees suggested that patent agents cannot work in the UK without having received their Chartered patent attorney designation. Thus, the restrictiveness of the exams may still have some anti-competitive effects:

Me: You say that exams are a little tougher than being minimally competent. Do you think that it falls negative for the people who aren't qualified or what affects it has on the accessibility of services or anything like that?

Interviewee: I think UK exams do set the standards too high. I do know, but there is a huge number of people who quit the profession because they couldn't pass the exam. My previous firm there was a colleague who passed the UK exams, but there was one paper he couldn't, and for the past three to four years, essentially, he was doing the job of everyone else who passed that paper. So the firm felt confident that he was qualified. [#31]

Following publication of the Middlesex Report, candidates continued to voice their concerns that the UK qualifying examinations have been plagued with serious invalidity issues.⁴²¹ Only a few short years after publication of the Middlesex Report, CIPA announced that it would undertake yet another review of the qualifying examination framework⁴²², and in 2020, former EPI president, Chris Mercer, was retained to conduct a review of the entire UK qualification examination process (the “Mercer Review”).⁴²³

The Mercer Review stated that the objective of its recommendations was to foster greater access to the profession by critically assessing the current state of entry qualifications.⁴²⁴ Interestingly, the Mercer Report highlighted that an important distinction must be made between eligibility to enter the profession and being fit to practice, the latter requiring many years of experience to achieve. Accordingly, the focus of entry qualifications must be eligibility to enter the profession rather than fitness to practice.⁴²⁵

The Mercer Report acknowledged that many candidates were receiving insufficient on-the-job training⁴²⁶, especially those working outside of the core patent attorney firms located in London.⁴²⁷ On that note, the Mercer Report acknowledged the importance of institutional training programs, such as those offered by Queen Mary and Brunel University, as important paths to entry to the profession, while stopping short of suggesting that all training beyond foundational courses should be moved into the university space.⁴²⁸ On this note, outside of some discussion of general English law principles as part of foundational courses, the Mercer Report suggested that the current examination content included too much legal knowledge which should be scaled back to focus on core patent agent practice topics.⁴²⁹

⁴²¹ See for example Rose Hughes, ‘Gantry-Gate: CIPA Releases Statement on FD4/P6 (Infringement and Validity)’ (*The IPKat*) <<http://ipkitten.blogspot.com/2019/03/gantry-gate-cipa-releases-statement-on.html>> accessed 14 February 2020.

⁴²² ‘CIPA Announces a Review of the Training, Support and Assessment of Students | Chartered Institute of Patent Attorneys’ <<https://www.cipa.org.uk/policy-and-news/latest-news/cipa-announces-a-review-of-the-training-support-and-assessment-of-students/>> accessed 14 February 2020.

⁴²³ Hughes, ‘Gantry-Gate’ (n 419).

⁴²⁴ Joel David Briscoe and others, ‘Mercer Review’ (2021) 50 *CIPA Journal* 8, 9.

⁴²⁵ *ibid* 10.

⁴²⁶ *ibid* 15.

⁴²⁷ *ibid*.

⁴²⁸ *ibid* 12.

⁴²⁹ *ibid* 11.

Specific to the current exam papers, the Mercer Report acknowledged the artificiality of the current examinations which relied more on exam writing technique than knowledge⁴³⁰, and had candidates focusing on mark gathering strategies in writing their exams rather than demonstrating competency.⁴³¹ Furthermore, it was acknowledged that in recent years, exam creep had entered into the examinations⁴³², whereby exam length and content had become overly lengthy and which exam inflation requires reversing.⁴³³ Effort must be made to limit papers to the core areas of practice, namely, competent drafting and prosecution of patent applications.⁴³⁴

Despite many years of challenges relating to the perception of regulatory within the profession, the Mercer Report found that the many still seemed confused regarding the respective relationships between CIPA, which is the professional association representing the professional interests in UK Chartered patent agents, and patent agent regulatory bodies such IPReg.⁴³⁵ Both to remedy this perceived bias, as well aiding in developing occupational standards aligned with public rather than professional interests,⁴³⁶ the Mercer Report recommended that the regulatory body responsible for setting and administering the qualifying examination should include a greater representation of professionals from outside the patent agent profession.⁴³⁷

At the time of writing, the Mercer Report had only recently been released. It remains to be seen which of the recommendations will be implemented, how they will be implemented, and most importantly, what effect this will have on the UK profession.

c. The USPTO Patent Bar Examination

⁴³⁰ *ibid* 16.

⁴³¹ *ibid* 27.

⁴³² *ibid* 23, 24.

⁴³³ *ibid* 24.

⁴³⁴ *ibid* 27. As stated at p 24: 'FD2 should be limited to drafting a patent application suitable for filing at the IPO in a form where the claims are clear, novel and arguably inventive over the prior art presented in the question and where the description is sufficient. FD3 should be limited to answering an official letter from the IPO which raises novelty and inventive step objections and providing a set of claims which deals with the objections and which does not add matter or lack clarity. FD4 should be limited to requiring the candidates to demonstrate that they can construe a set of claims, evaluate prior art, determine whether the claims as construed are novel and inventive over that prior art and determine whether the activities of a potential infringer are infringing acts, all according the case law in the UK.'

⁴³⁵ *ibid* 27–28.

⁴³⁶ *ibid* 29.

⁴³⁷ *ibid* 28.

Much of the history of the US professional patent agent profession was outlined under Chapter 3.2.d. Focusing specifically on the US Patent Bar Exam, unlike the other jurisdictions discussed herein, there seems to be some historical record, albeit an imperfect one, of the development and changes to the USPTO Patent Bar Exam over the last century. For example, several scholars have compiled a database of previous USPTO Patent Bar Exams dating from the 1930s to the late 2000s.⁴³⁸ Although USPTO Patent Bar Exams from the 1930-1950 era varied from year to year in form and substance, beginning in the 1960s, the USPTO set out to improve the psychometric quality of the Exam.⁴³⁹ From the early 1960s onward, USPTO Patent Bar Exams demonstrated a diverse mix of claim drafting questions, implementing various question methodologies, including short answer questions and constructed claim drafting questions based on hypothetical invention disclosures.⁴⁴⁰ Questions covered by the USPTO Patent Bar Exam afforded candidates flexibility in crafting hypothetical claim sets, including providing feedback on the underlying rationale supporting their proposed claims.⁴⁴¹ Exam questions were developed by the USPTO in conjunction with practising attorneys, which practising attorneys were also responsible for providing training programs to prospective candidates. Accordingly, USPTO Patent Bar Exam content and constructs from this era challenged students to think critically about invention claiming and strategizing in light of USPTO prosecution rules and regulations,

⁴³⁸ See 'Patent Office Studies' <<https://www.law.uh.edu/patentofficestudies/>> accessed 4 January 2022; See also Christi J Guerrini, 'The Decline of the Patent Registration Exam' (2012) 91 Nebraska Law Review 325, 329- Guerrini took the lead on creating this archive: "I collected eighty-one registration exams administered over the course of forty-nine non-consecutive years, with each full decade represented by at least five years' worth of exams".

⁴³⁹ Guerrini (n 438) 344, 347.

⁴⁴⁰ 'USPTO Patent Bar Exam, February 1968'

<<http://www.law.uh.edu/patentofficestudies/Decline%20of%20the%20Patent%20Registration%20Exam/Exam%20Questions/1968-02%20Exam.pdf>>.

⁴⁴¹ 'USPTO Patent Bar Exam, November 1965'

<<http://www.law.uh.edu/patentofficestudies/Decline%20of%20the%20Patent%20Registration%20Exam/Exam%20Questions/1965-11%20Exam.pdf>>- Paper 1 included a diverse and comprehensive mix of short answer questions, and Paper 2 include two separate claiming exercises, one involving claim interpretation and revision and one involving claim drafting; see also 'USPTO Patent Bar Exam, April 1989'

<<http://www.law.uh.edu/patentofficestudies/Decline%20of%20the%20Patent%20Registration%20Exam/Exam%20Questions/1989-04%20Exam.pdf>> wherein instructions stated that, "For purposes of this examination, you may not be your own lexicographer to name the elements identified above. You must use the terminology set forth in the above description. Your claim must define a scissors that is operative in the manner described and shown above. You may not describe any of the above mentioned required elements in terms of means plus function." the object of the question was to demonstrate candidate ability to draft a claim using the elements provided, which claim clearly defines how the claimed elements interrelate to each other, as opposed to being able to merely draft a broad claim.

while avoiding the harshness of an overly formalistic approach to assessment. This format of the USPTO Patent Bar Exam remained in effect until the late 1980s.

In the early 1990s, responsibility for development and administration of the USPTO Patent Bar Exam was transferred to the USPTO's Office of Enrollment and Discipline (OED). Evidence suggests that in the years shortly after responsibility for administering the USPTO Patent Bar Exam as transferred to the OED, efforts were made to remain connected with private practitioners for assistance in developing and validating exam questions. However, it appears that come the mid-1990's, this practice was slowly phased out.⁴⁴² Shortly thereafter, the USPTO Patent Bar Exam was moved onto an entirely online format, and comprehensive claim drafting questions were eliminated in favour of an entirely multiple choice examination. Today, the substance of the USPTO Patent Bar Exam focuses almost entirely on the rules and regulations relating to USPTO processes and procedures.

According to Guerrini, the late 20th century changes to the USPTO Patent Bar Exam have severely undermined the psychometric quality of the USPTO Patent Bar Exam:

[F]or the first few decades of its history, the [USPTO Patent Bar] exam was an increasingly rigorous and comprehensive assessment. But as the twentieth century came to a close, the PTO implemented a number of changes to the exam that have had the effect of undermining its validity, reliability, and fairness.⁴⁴³

Guerrini suggests that the slow degradation of the USPTO Patent Bar Exam was the result of “practical considerations stemming from a shortage of funds and labor”⁴⁴⁴, which led to the outsourcing of exam development and administration to a third-party testing service. The USPTO Patent Bar Exam is now the only professional patent agent qualifying examination in the world that does not test claim drafting competency through actual claim drafting exercises. This, according to Guerrini, results in the possibility of a substantial number of practitioners passing the USPTO Bar Exam despite lack of competency in a professional patent agent's core skill, which ultimately “undermines confidence in the [USPTO]'s institutional legitimacy.”⁴⁴⁵

⁴⁴² Guerrini (n 438) 345.

⁴⁴³ ‘Patent Office Studies’ (n 438).

⁴⁴⁴ Guerrini (n 438) 331.

⁴⁴⁵ *ibid* 369.

While the US is the only jurisdiction that utilizes a professional third-party testing organization for professional patent agent qualifying examination validation and administration, it is unknown whether any validation of claim drafting exercises has even taken place. Representatives from the USPTO stated that validation efforts undertaken by the USPTO indicate that entry-level competency in claim drafting can be adequately tested through the USPTO's current USPTO Bar Exam format, specifically, multiple-choice based questions as opposed to constructed response questions. Several Freedom of Information requests relating to any and all validation efforts made by the USPTO in relation to the USPTO Patent Bar exam returned only heavily redacted reports.⁴⁴⁶ Virtually all information relating to USPTO validation efforts were redacted, and the only material provided was a report from the USPTO's external testing service provider, Prometric, in response to a USPTO request for proposal. The provided information suggests that it is the USPTO that is responsible for all examination development, and that Prometric administers the exam material as provided by the USPTO.⁴⁴⁷ There is some suggestion that the USPTO's testing service provider does provide psychometric validation support, but details regarding the nature of this support are sparse.⁴⁴⁸

Interestingly, the material does allude to the possibility of reintroducing claim drafting questions at some point in the future:

*Automated Scoring of Claims Items: Our relationship with [Educational Testing Service] and its expertise in the field of automated scoring of constructed response materials positions Prometric to support future USPTO initiatives. This could be highly valuable should the USPTO decide to reintroduce an essay component of the registration examination. Automating the data collection and scoring with significantly increased accuracy and processing speed.*⁴⁴⁹ [emphasis added]

The above-referenced passage seems to support the position that the true reason for the USPTO's elimination of claim drafting questions is the resources consumed by marking, which,

⁴⁴⁶ 'FOIA Request No. F-17-00336' (United States Patent and Trademark Office 2018) Freedom of Information Request- this request returned a 207 page report, more than half of which was completely redacted.

⁴⁴⁷ *ibid* 143.

⁴⁴⁸ *ibid* 147: 'Prometrics psychometricians will continue to provide item analysis information to allow the USPTO to analyze their items for potential problems and determine where changes are necessary. Determining whether an item is performing well requires the use of statistics... we will provide these statistics, along with response quantities, response frequencies and average answer time for each item... allowing the USPTO electronic access to all statistical data.'

⁴⁴⁹ *ibid* 130.

ultimately, suffered from undue subjectivity.⁴⁵⁰ Furthermore, information received from Freedom of Information requests include very little pertaining to validation of the USPTO Patent Bar exam beyond stating that the online delivery methodology contributes to the legal defensibility of the exam.⁴⁵¹

The current state of the USPTO Patent Bar could be reflective of a general US approach to occupational licensing as a form of risk management, where minimum, entry-level professional competency is viewed as being largely synonymous with the threshold for professional negligence and ‘professionalism’ is generally viewed as a customer service or consumer quality issue.⁴⁵² Many US patent attorney interviewees readily acknowledged that passing the USPTO Patent Bar Exam did not guarantee that one was qualified to practice in the field. Rather, to these interviewees, the purpose of the USPTO Patent Bar Exam was not to certify that one was entirely fit to practice, rather, it was to weed out those who were not serious and dedicated about practicing and thus posed a risk to the public. Even highly experienced practitioners, who reminisced about how they passed the USPTO Patent Bar back when it was handwritten and candidates had to actually draft patent claims, did not seem bothered by the fact that the current exam has dramatically shifted to an entirely multiple-choice exam focusing on patent office rules and regulations. When asking European patent attorneys about whether the standard for the EQE was set too high, and should be set closer to a minimum level of competency, some stated that ‘minimum competency’ was a US approach as opposed to a European standard which ensures actual ability to practice.

If one does accept that the threshold for a professional patent agent qualifying examination should focus on minimal entry-level competency, is the USPTO Patent Bar Exam’s lack of substantive assessment relating to patent claim drafting really a cause for concern? As discussed under Chapter 5.2.b., the true core of patent agent competence is knowledge of patent

⁴⁵⁰ John R. Thomas, ‘Claim Re-Construction’ (n 377) 168–9: ‘Even the [USPTO] realized that assessing claim drafting skills is quite difficult. Recently, the [USPTO] abandoned the claim drafting portion of its registration examination in favor of a series of multiple-choice questions. The official explanation for the shift was that the examination was too time-consuming to grade, although persistent complaints were heard about the subjectivity and inconsistency of [USPTO] exam scoring as well.’

⁴⁵¹ ‘FOIA Request No. F-17-00336’ (n 446) 129.

⁴⁵² Keith M. Macdonald, *The Sociology of Professions* (Sage Publications Ltd 1999) 117–8; Macdonald states that in the early days of professions, both in the UK and US, professionals emphasized the values of ‘respectability and gentlemanly character’ as justifying their special social status apart from entrepreneurial traders. However, after successfully erecting barriers to entry, many professions shifted back to entrepreneurial behaviour, ‘with the increased emphasis on commercialism as a social value always more prevalent in the USA’ than in the UK.

office rules and regulations, and regulation's effect on quality of patent drafting is highly debatable.⁴⁵³ Furthermore, as set out under Chapter 4.4.a., if minimal competency is synonymous with malpractice, then the overwhelming number of incidents of malpractice relate predominantly to patent office processes and procedures. As such, it seems to make sense that the focus of a professional patent agent qualifying examination would be patent office rules and regulations. Furthermore, although candidates do not require a law degree to qualify as a US patent agent, the reality is that the large majority of US practitioners are US patent attorneys (i.e. have graduated from a US law school). Ethical and competency standards form part of US law school curricula and are imposed by State Bars across the country. If the regulatory objective is to eliminate unethical practitioners, much of the work may already have been completed through formal legal training.

Perhaps more importantly is the question of whether it is truly possible to assess competent claim drafting beyond a bare minimum standard. As Professor Thomas states, the difficulty in assessing claim drafting competency for the purposes of a patent agent qualifying examination is part of the challenge in assessing *good* claim drafting generally:

In this rarefied field, identifying cues of professional competence may prove difficult even for sophisticated enterprises. The most reliable measure of drafters' skills, the litigation track record of their patent claims, is virtually never available. Only a small percentage of patent claims are litigated, and only a fraction of those asserted ever receive a full-blown construction by the judiciary. Absent unusual circumstances, this construction will take place many years - sometimes decades - after the claims were initially submitted to the PTO... PTO difficulties with respect to a simplified, stylized claim drafting exercise suggest more daunting concerns for competitive enterprises in high-tech industry. Suboptimally drafted claims may arise not from applicant shirking, but rather from a persistent and widespread inability to discern good claim drafters from bad.⁴⁵⁴

⁴⁵³ (n 70) 55–6; In the Canadian context, see Wissam Aoun, 'Canadian Patent Agent Regulation Reform (Part 1)' (n 68) 10–11.

⁴⁵⁴ John R. Thomas, 'Claim Re-Construction' (n 377) 168–9.

Accordingly, it may be the case that the US approach to licensing of professional patent agents may be the most realistic, and thus, psychometrically sound amongst the jurisdictions covered herein.

d. The German Patent Attorney Qualifying Process

The German patent attorney qualifying process is highly unique amongst the jurisdictions discussed herein. Primarily, in terms of educational qualifications, all prospective German patent attorneys must have an advanced degree (no less than a Masters degree) in a field of applied science and several years of practical work experience, or, as one interviewee put it, one must actually have worked in a field of invention. Furthermore, qualification as a German patent attorney entitles individuals to represent others before the German patent office during patent prosecution as well as in German federal court in patent litigation proceedings.

The German patent attorney qualifying process is also unique in that it is highly structured and institutionalized training program. Aspiring German patent attorneys must complete an educational component, with courses in various legal topics taught by legal experts including professors and judges. Each candidate must also complete a period of internship at both the German Patent Office and the German Federal Court. Finally, candidates must successfully pass a series of qualifying examinations covering a range of patent practice topics, including drafting and infringement.

One highly experienced German patent attorney, who has been involved in the training and licensing process for both the EQE and the German qualifying examinations, stated that the German training system was different, and in many ways, more complete than the EPO's more '*technocratic*' EQE. [#30]. Similar to other interviewees, he stated that while the EQE training and licensing process has improved considerably over the years, it is still very much focused on training candidates across Europe how to do things "*the way the EPO wants them done*" [#30]. The German system, however, is much more fundamental and foundational. While courses remain heavily focused on theory, they provide a deeper understanding of the legal processes involved in patents. Furthermore, completing a court internship period provides a fundamental understanding of the legal system generally.

Another German patent attorney suggested that the German patent attorney qualification process is "*more important professionally*" than the European patent attorney process. Given its broader legal focus, including its emphasis on legal argumentation rather than solely the

technical formalities of prosecution as is the case with the “*technocratic*” EQE, the German qualifying process contributes to a far greater professional identity than the European process [#35].

Most German patent attorneys felt that their training to qualify as German patent attorneys was far more complete and contributory to their own sense of professional identity than the European patent attorney process. As one German patent attorney stated:

Me: You have been through the German system and the EPO system. Tell me in your view, what is your impression of both in contributing to creating ‘you’ as the professional you are?

Interviewee: I think the German system is much more about shaping a person to become an attorney because it is academic. The German approach to many things is academic. They want you to learn how to apply law. This is how a German lawyer is supposed to act, at least through the perspective of academics to reach the correct conclusion. And this is the thinking and approach to law which I would not have had without having gone through the German education system.

Me: Do you think this process is necessary for becoming an attorney? Either at German or EPO level. Does it shape you into a professional?

Interviewee: Yes. I would say the EQE is nice because it brings you to a certain level of European Patent Law, but it is not shaping you to think like an attorney... It is focused on the European Patent Convention and maybe the PCT but that is it. If you go through the German training, you see all sorts of laws. We have looked into copyrights law, anti-competition law, constitutional law and many more. Without all this, maybe my horizon wouldn’t be where it is right now. [#5]

Another German patent attorney recalls the significance of the court internship as part of the qualifying process:

The court [internship] was very useful and is still. The time at the court, on the one hand, we were for eight months at the patent court and could be two months at a civil court. So I had two months at Munich, which also has a court for IP and for six months with courts

within the federal patent court... We had a privilege because we were allowed to sit with judges when they deliberated and discussed the cases. So we got an impression of how they come to their conclusions, how they come to the decision, and this is something which I think is extremely useful, particularly for our profession. Because later on, you have to present things and should know how they see things, how they evaluate, and so on... During the time at the federal court, and that's still the case, you have courses, which are offered by Judges. And it's about civil law, about patent law, trademark law, about all. Anything that has to do with our profession. [#11]

Although most experienced German patent attorney interviewees complimented the German qualification system and its comprehensive role in shaping the professional identity of German practitioners, many also lamented the fact that the standards have slowly decreased over the years. At one point, aspiring German patent attorneys spent almost an entire year (or more) completing their court and patent office internships. Now, most candidates will spend no more than one month at each of the Federal court and patent office. In many ways, this change, which harmonizes many aspects of German patent agent training with that of other jurisdictions (i.e. few jurisdictions require nothing more than completing a patent agent apprenticeship period followed by completion of qualifying exams) is reflective of harmonizing changes to German patent law generally. As discussed in detail in forthcoming Chapter 8, the unique aspects of the pre-EPC German patent system likely contributed to the German approach to patent agent training. Specifically, the substantial ‘central claiming’ focus of the German patent system meant that much of the heavy lifting in defining the scope of patent protection took place in German Federal Court. A distinct separation was drawn between courts and the patent office, each contributing in their own way to defining the scope of an invention. As such, the work of a patent agent in defining the scope of protection afforded to a patented invention took place as much in Federal court as it did in the patent office. Now, harmonization has constrained the scope of various German equivalency doctrines in favour of the formalism of peripheral claiming. German Patent Agency, much like the rest of the jurisdictions examined, now exists more in the patent office than it does in Federal Court, and it is debatable whether the same need for intensive judicial internship training is as necessary as it once was. As the scaling back of

education and internship requirements continue to progress, it remains to be seen what the resulting effect will be on the professional identity of German patent attorneys.

5. OBSERVATIONS

At the time of writing, in both the UK and before the EPO, professional patent agent qualifying examinations are currently undergoing extensive reviews along with radical reorganization of professional patent agent qualification processes. Despite several attempts at reform, an overwhelming sense of discontent continues to plague the profession. Even the ability to voice concerns might be a sign of progress. As one practitioner put it:

There used to be a general fear to say anything to bosses about the poor state of the practice and training, but as time has gone on, new trainees starting to come through are 'very forthright' in their expectations, and they starting saying 'this is rubbish!' [#32]

The enduring sense of discontent may be a sign that the qualifying process in the UK and the EPO has failed to keep up with developments in other professional fields with respect to regulatory best practices, including training and education. The stories of abusive behaviour reminiscent of a long gone time when professions operated according a rite of passage mentality is testament to this fact. As one interviewee stated:

I do think that ... this is a tough job, you need to really work and get into it. In the end, the [qualification process] increases the professional and professionalism. It gives people real confidence in their job, that 'I can tell you this' ... The bad side of it, I think we are a little bit like Victorianism of professions, and I think the exams are maybe a little bit out of date, especially the British ones. The European ones, I think they do try move with time a little bit more. But the Brits may be a bit out of touch.... So they could be better aligned with modernity in two ways. Firstly, the modern job has changed a bit. So I think it's still testing the same core skills, but I think the focus of the profession is shifting slowly ... Certainly, as I've said, since I started my training, the whole nature of training has changed. So anyone my age, running those exams, probably needs to take a deep look at what's going on now to make sure that they move with it. I think that also, we need better alignment with modern education. I think we have to keep the same standard, we have to make it challenging because it's a challenging job. And we all know people coming in who can't do it. ... But on the other hand, I don't feel that putting someone through a four or five hour marathon is really reflective of working life. It's not

a stamina test, which is sometimes what we see at the moment, we need to find a better way of testing knowledge, competence, application of what you learned, commercial, all the other stuff, without literally exhausted people.... We normally have time to think... I think there's a balance there somewhere... so those two modernizations of aligning better with the modern job and aligning better with modern education techniques. Probably, especially with the UK. The Europeans, we're still very much 'sit in a room and bash it out', you know, do we still really need that? [#12]

Interview data shows that US and German practitioners view their licensing frameworks in a far less critical light than their counterparts from other jurisdictions. In fact, most felt that the regulatory process was adequate, and in some instances, were complimentary of the current licensing process. There are several similarities between the US and Germany with respect to professional patent agent qualifying processes which might help to shed some light on these results. Both jurisdictions place tremendous emphasis on general legal education as part of their qualifying process; the former, by virtue of the fact that most agents are legally trained attorneys and the latter due to the intensive legal course work forming part of the educational requirements. US patent attorneys and German patent attorneys both have a right to represent clients in matters of patent litigation. While both jurisdictions utilize a licensing examination for entry to the profession, the examination component forms only a small part of the overall professional qualification process, and the exams themselves are far less onerous than those of other jurisdictions. When it comes to licensing examinations, the US has applied the softest touch of any of the reviewed jurisdictions.

Experienced patent agents in various European jurisdictions seem to recognize this reality. As one highly experienced UK patent attorney stated:

[T]he legal profession has done a much better job of changing with the times [than patent agents]... The [patent agent] profession has struggled to keep up with general societal changes in education and business practices, and is just now getting caught up... we're quite a long way behind. [#12]

Furthermore, as discussed above, practically all interviewees emphasized the significant role that mentorship plays in the qualifying process. Here again, the US and Germany stand out among other jurisdictions. The US legal profession has a long history of emphasizing the

importance of mentorship, beginning in law school and carrying out through the early years of practice. Similarly, the internship aspect of the German qualification process provides aspiring German patent agents with the close mentorship of experienced judges and patent office officials. The main criticism that German patent attorney interviewees directed towards the German licensing process was that this mentorship aspect is slowly evaporating as court and patent office internships are scaled back.

Mentorship is one of the key themes that contributes to the clear divide between those agents trained in-house and those trained in private practice. The former expressed greater satisfaction with their training experience, including mentors who cared far more for their development. Those trained in-house received a far more holistic experience, wherein the finer details of patent drafting and prosecution were integrated into the overall innovation strategy of the company. To quote Professor Jessica Silbey, in-house IP practitioners are “members of the same moral universe” as the company’s innovating scientists and engineers.⁴⁵⁵ To some extent, this same reality characterizes the German patent attorney qualifying process, whereby practical work experience eligibility requirements, combined with judicial and patent office internships, ground patents, and patent agency, within a broader context of how patents touch on reality beyond just the technical exercise of drafting and prosecuting patent applications. The UK and EPO notion of patent agency remains rooted in competency being synonymous with technocratic patent office processes for acquiring patents. As discussed under Chapter 5.4.c., the US Patent Bar Exam remains narrowly focused on patent office processes, but the effect of institutionalized legal education reinforces both legal competency and ethical awareness within the profession. Accordingly, a standard of professional entry-to-practice elevated beyond the standard of malpractice may not be necessary within the US context. Without the same legal foundation that underpins the US profession, the UK and EPO may not be able to implement a US style licensing examination model which would still successfully mitigate against concerns surrounding professional competency. Accordingly, despite their best efforts, the UK and EPO professional licensing frameworks may be facing validation and legitimacy issues for many years to come.

⁴⁵⁵ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58) 63.

CHAPTER 6: DEFINING PROFESSIONAL PATENT AGENT ETHICS

1. INTRODUCTION

This chapter explores the boundary line between ethics and competency in the field of professional patent agency. The qualitative interview data indicate that the question of professional ethics is directly tied to the issue of professional self-reflection. As many interviewees stated, they were genuinely, and pleasantly, surprised by questions surrounding their own self-reflective view of their professional ethical commitments, given that they have had few (if any) opportunities over the course of their careers to engage in such reflection. For example, one highly-experienced UK patent attorney, who has been a leader at the highest levels of regulation of the profession, stated:

“I found the conversation very interesting and it caused me to think about a number of things that I had not previously considered in relation to the job that I do.”

Another experienced UK and European patent attorney stated:

“As I said to one of my colleagues ...it’s not often you find someone with a genuine interest in our profession so [our discussion] offered an unusual opportunity to discuss my experience and my opinions regarding patent practice.”

It would be surprising to hear such statements from highly experienced practitioners in other professional fields. However, in most jurisdictions, the licensing of professional patent agency revolves almost entirely around professional competency, in terms of testing candidates’ abilities

to demonstrate certain entry-level competencies through licensing examinations, with little emphasis on professional reflection. One fascinating aspect of the regulation of professional patent agency is that there are few jurisdictions that implement a rigorous institutional education program for entry to the field of professional patent agency. The profession has traditionally viewed its ethical obligations narrowly, in terms of duties and obligations to clients and the patent office.⁴⁵⁶ In this regard, the lack of institutionalized education undoubtedly plays an important role in lack of ethical self-reflection amongst practitioners.

The challenge with an over-emphasis on licensing intervention and competency-based standards as the sole criterion for entry-to-practice is that it overlooks the formative aspects of ethical practice. In socially constructed professional fields, this includes overlooking that what is defined as ‘competency’ is inherently intertwined with ethical practice; what is competent is inherently a value judgment. This phenomenon in turn reinforces the discourse of professional agency:

The focus on knowledge and training, on professional skills, techniques and strategies, becomes the basis for a legalistic world-view which in turn is translated into a form of discourse and a way of life... Professionalism masks the value dimension of particular practices, stances and goals.⁴⁵⁷

Recent empirical research seems to suggest that professionals develop their lasting sense of professional identity while participating in a program of professional education.⁴⁵⁸ The interview

⁴⁵⁶ In the Canadian context, see ‘Consultation: A Governance Framework for IP Agents Part 2: Governance Model’ (Innovation, Science and Economic Development Canada 2016) Submission to Innovation, Science and Economic Development Canada 191–2.; see also Siva Thambisetty (n 11) 48–9.

⁴⁵⁷ James R. Elkins, ‘Ethics: Professionalism, Craft, and Failure’ (1985) 73 Kentucky Law Journal 937, 946–7.

⁴⁵⁸ See Professional Standards Authority for Health and Social Care, ‘The Regulator’s Role in Professional Identity: Validator Not Creator’ (2018) 8 <https://www.professionalstandards.org.uk/docs/default-source/publications/research-paper/professional-identity-and-the-role-of-the-regulator-overview.pdf?sfvrsn=dc8c7220_4>. Although this study was limited in its scope, covering only health care

data appear to confirm this reality within the professional patent agent context; professional patent agents coming from jurisdictions with robust institutionalized education seemed generally more self-reflective and more cognizant of the deep ethical dimensions of the nature of their practice.

This chapter explores the question of patent agent ethics largely from the perspective of professional patent agent interviewees. It interrogates the interview data, demonstrative of the surprisingly conflicted sense of ethical reflection amongst professional patent agents. What is fascinating is that unlike any other issue discussed with interviewees, the question of ethics launched discussions that ranged across the unlikeliest of spectrums, from the narrow view of ethics as black letter patent office rules to discussions regarding international relations.

3. PATENT AGENT ETHICS – THE US PERSPECTIVE

Practically all US patent attorney interviewees answered the question of what they view their professional ethical duties by referencing US law on inequitable conduct. The judicially crafted doctrine of inequitable conduct originated from a trilogy of US Supreme Court cases that applied the equitable doctrine of unclean hands to patent disputes involving allegations of patentee misconduct.⁴⁵⁹ Since that time, the US duty to disclose all information known to be material to patentability has been codified under 37 CFR 1.56 of the Code of Federal Regulations. The

professionals in the U.K., the authors found that the most direct influence on professional identity ‘are the patients, educators, mentors and colleagues that students interact with whilst training.’

⁴⁵⁹ In the first of these cases, *Keystone Driller Co v General Excavator Co* (1933) 290 US 240 (USSC) the patentee intentionally withheld from the PTO a prior public disclosure. The USSC upheld dismissal of the claim for infringement on the grounds of inequitable conduct; In *Hazel-Atlas Glass Co v Hartford-Empire Co* (1944) 322 US 238 (USSC) the USSC found that the patentee fabricated evidence in support of its application to the PTO, holding that “complete denial of relief” was appropriate; Finally, in *Precision Instruments Manufacturing Co v Automotive Maintenance Machinery Co* (1945) 324 US 806 (USSC) the USSC upheld a district court dismissal of the plaintiff’s claim on account of inequitable conduct due to the fact that the plaintiff had suppressed knowledge of the alleged inventor’s perjury in statements before the USPTO in an interference proceeding; See also *Kingsland v Dorsey* (1933) 338 US 318 (USSC).

remedy for inequitable conduct, referred to as the atomic bomb of defenses, is to render the entire patent invalid.⁴⁶⁰

In the leading decision pertaining to inequitable conduct, *Therasense, Inc v Becton Dickinson & Co*, the US Court of Appeals stated that to demonstrate inequitable conduct, the accused infringer must prove that the patentee:

- Knew of the reference, ex. prior commercial sale;
- Knew that it was material; and
- Made a deliberate decision to withhold it (i.e., acted with specific intent to deceive the PTO).⁴⁶¹

Under this test, materiality and intent must be considered separately.⁴⁶² The ‘but-for’ standard for materiality requires that the PTO would not have allowed a claim had it been aware of the undisclosed prior art.⁴⁶³ As evidence of direct intent is often difficult to acquire, a court may infer intent from indirect and circumstantial evidence, provided that clear and convincing evidence demonstrates that intent to deceive must be “the single most reasonable inference able to be drawn from the evidence.”⁴⁶⁴ The evidence must demonstrate that the patentee “made a deliberate decision to withhold a known material reference.”⁴⁶⁵ Post-*Therasense* jurisprudence has found that “carelessness, lack of attention, poor docketing or cross referencing or anything else that might be considered negligent or even grossly negligent” are not enough to prove intent,

⁴⁶⁰ *Aventis Pharma SA v Amphastar Pharms, Inc* (2008) 525 F3d 1334 (Fed Circ) 1349.

⁴⁶¹ *Therasense, Inc v Becton, Dickinson & Co* (2011) 649 F3d 1276 (Fed Circ) 1290: “in assessing the materiality of a withheld reference, the court must determine whether the PTO would have allowed the claim if it had been aware of the undisclosed reference.”

⁴⁶² *ibid.*

⁴⁶³ *ibid* 1292.

⁴⁶⁴ *ibid* 1290.

⁴⁶⁵ *ibid* 1291.

rather, one must prove that the patentee had actual intent to deceive the PTO.⁴⁶⁶ Furthermore, the submission of erroneous data, without further proof of an intent to deceive, has been found insufficient to prove inequitable conduct.⁴⁶⁷ The materiality of undisclosed prior art is assessed on a preponderance of evidence standard⁴⁶⁸, and prior art that might not invalidate a claim under the clear and convincing standard in patent litigation can still qualify as being but-for material under the preponderance of evidence standard.⁴⁶⁹

Since *Therasense*, the atomic bomb of defenses has hit US patentees who knowingly failed to disclose the offering of products for sale prior to the priority date⁴⁷⁰ as well as those who failed to disclose their prior circulation of product brochures.⁴⁷¹ Furthermore, those who failed to disclose a district court's claim interpretation, which contradicted the patentee's position in an examination proceeding,⁴⁷² as well as those who have filed false affidavits⁴⁷³, have also had their patents invalidated due to inequitable conduct.

Although the *Therasense* standard is much more lenient than the state of the law of inequitable conduct law the preceded it, the severe outcome of a successful inequitable conduct defense has led to a chorus of commentary calling for the doctrine's partial or total dismantling.⁴⁷⁴ In recent years, the volume of prior art submitted as part of US patent applicant

⁴⁶⁶ *Ist Media LLC v Electronic Art, Inc* (2012) 694 F3d 1367 (Fed Circ) 1375.

⁴⁶⁷ *Hospira, Inc v Sandoz, Inc* (2012) 2012 WL 1587688 (DNJ).

⁴⁶⁸ *Aventis Pharma SA v Hospira Inc* (2012) 675 F3d 1324 (Fed Circ).

⁴⁶⁹ *Am Calcar, Inc v Am Honda Motor Co* (2014) 768 F3d 1185 (Fed Circ).

⁴⁷⁰ *GS CleanTech Corp v Adkins Energy LLC* (2020) 951 F3d 1310 (Fed Circ); see also *Apotex Inc v Chepalon Inc* (2011) 2011 US Dist Lexis 125859 (EDPA).

⁴⁷¹ *Worldwide Home Products v Bed Bath and Beyond, Inc* (2015) 74 F Supp 3d 626 (SDNY).

⁴⁷² *Masimo Corp v Philips Elec North Am Corp* (2014) 2012 WL 4365191 (D Del).

⁴⁷³ *Intellect Wireless Inc v HTC Corp* (2013) 732 F3d 1339 (Fed Circ).

⁴⁷⁴ See for example Melissa Feeney Wasserman, 'Limiting the Inequitable Conduct Defense' (2008) 13 Virginia Journal of Law & Technology 1; Christopher A. Cotropia, 'Modernizing Patent Law's Inequitable Conduct Doctrine' (2009) 24 Berkeley Technology Law Journal 723; Eric E Johnson, 'The Case for Eliminating Patent Law's Inequitable Conduct Defense' (2017) 117 Columbia Law Review Online 1; Tun-Jen Chiang, 'The Upside-down Inequitable Conduct Defense' (2012) 107 Northwestern University Law Review 1243; Adam R Andrea,

Information Disclosure Statements to the USPTO has increased almost five-fold.⁴⁷⁵ Although the various possible reasons for this exponential increase in disclosure are unknown, some suggest that it is “[t]he prospect of a future accusation of inequitable conduct [that] pushes applicants to overload patent examiners with prior art references of dubious value.”⁴⁷⁶ Criticisms relating to increased litigation costs associated with defending meritless inequitable conduct allegations and potential reputational damages to accused patent attorneys are hard to ignore.

As stated above, practically every US interviewee framed their ethical duties, to a lesser or greater extent, in terms of US inequitable conduct doctrine. Most expressed their ethical duties not so much as striving for an ideal for the betterment of their client’s interests or increasing public welfare, but as a fear of being hit with claims of misconduct. Most practitioners acknowledged that their view of equitable conduct, or rather, fear of inequitable conduct, meant that they dumped any and all prior art that they may come across into the applicant’s Information Disclosure Statement without any characterization of said prior art vis-à-vis the claimed invention. Characterization, in their view, was the Patent Office’s role. When one interviewee was asked whether he characterizes the prior art in any way on filing an application, he fervently responded “*No way. You are asking for malpractice if you do that.*”⁴⁷⁷ [#15]

‘Exergen v Wal-Mart: A Costly Cure for the Plague of Inequitable Conduct Claims’ (2010) 20 DePaul Journal of Arts, Technology & Intellectual Property Law 449; Kerri M Patterson, ‘Inequitable Conduct Post-Therasense’ (2014) 27 Georgetown Journal of Legal Ethics 825.

⁴⁷⁵ ‘Applicant Submitted Prior Art’ (*Patently-O*) <<https://patentlyo.com/patent/2022/01/applicant-submitted-prior.html>> accessed 7 February 2022.

⁴⁷⁶ Eric E Johnson (n 474) 2.

⁴⁷⁷ Interestingly, this interviewee stated that the large majority of his work comes from Japanese clients. Japanese patent practice requires characterization of prior art vis-a-vis the claimed invention, and in this interviewee’s on words, the applications coming to him from his Japanese clients are far narrower than is customary under US practice due to these realities of Japanese patent law. Yet evidence suggests that Japanese patent applications filed in the US, which precisely characterize the prior art vis-a-vis the claimed invention, are no more likely to be the subject of inequitable conduct claims. See David Hricik and Mercedes Meyer, *Patent Ethics: Prosecution* (Matthew Bender & Company, Inc 2016) s 7.07 at FN 28.

There is no doubt that the prospect of inequitable conduct allegations looms large in the minds of US practitioners. The fear of inequitable conduct may be imposing unseen agency costs on US patent applicants. Fearing the potential repercussions of malpractice allegations, US patent practitioners will tailor their practice towards avoiding any characterization of known prior art, avoiding searching for prior art references, and when references are available, simply dumping all of these references on an examiner in an Information Disclosure Statement.⁴⁷⁸

While the repercussions of inequitable conduct are potentially devastating to both client and attorney, is the likelihood of being found guilty of inequitable conduct more apparent than real? From a regulatory perspective, similar to incidence of malpractice, the number of annual complaints to the USPTO's OED in relation to ethical violations remains relatively low.⁴⁷⁹ In the post-*Therasense* landscape, the somewhat heightened standards of materiality and intent mean that only the most egregious cases of unethical conduct will likely lead to a finding of inequitable conduct. This is particularly the case with respect to characterization of the prior art. As Professors Hricik and Mercedes state:

For that reason, courts continue to reject [inequitable conduct] arguments based on mischaracterization where the reference was disclosed to, described, and considered by the examiner... Ironically, the bogeyman of inequitable conduct has become so great that many practitioners now avoid preparing a background of the invention section in an application listing the closest art because of fears that they may mischaracterize a reference. This is now

⁴⁷⁸ Thomas F. Cotter, 'An Economic Analysis of Patent Law's Inequitable Conduct Doctrine' (2011) 53 Arizona Law Review 735, 774–5.

⁴⁷⁹ David Hricik and Mercedes Meyer (n 477) s 1.03: 'Over the last twenty years, the number of disciplinary actions for practitioners has increased, but still only number about fifty decisions annually.'

extending to the fear that references may be mischaracterized in summaries submitted with an [Information Disclosure Statement].⁴⁸⁰

As we shall see under the forthcoming Chapter 8, there are many potential patentee and public benefits associated with clear and precise characterization of the prior art vis-à-vis the claimed invention, including favourable litigation treatment for patentees and a greater public notice of scope of the claimed invention. However, the tension surrounding inequitable conduct prevents US patent practice from embracing these possibilities. Few would recommend eliminating some form of inequitable conduct sanctions. Rather, it is US patent practitioners' hyper-sensitivity to the prospect of inequitable conduct that prevents the casts a dark shadow over patent practice. As Professors Hricik and Mercedes suggest, “[i]f we ridded ourselves of the inequitable conduct bogeyman, perhaps we would have greater freedom in being more candid in our presentation of information to the USPTO.”⁴⁸¹ Ridding ourselves of this bogeyman may correspondingly improve patent quality to the benefit of everyone involved.

4. PATENT AGENT ETHICS – THE UK PERSPECTIVE

The UK perspective was unique amongst the analyzed jurisdictions. As discussed under Chapter 5.4.b., the training and qualifying of UK patent agents are different from most comparator jurisdictions; most UK patent agents are recruited directly out of university, many with little practical experience, and the training and qualification process occurs largely ‘on-the-job’. Unlike in the US and Germany where the training process for most professional patent agents involves institutionalized education with a substantial legal education, along with substantial professional applied science experience in the case of German patent attorneys, most UK patent attorneys receive little legal education beyond what is covered in the UK qualifying

⁴⁸⁰ *ibid* 9.02.

⁴⁸¹ *ibid*.

examinations. As seen in the passages referenced in Chapter 6.1 above, opportunities for self-reflection are scarce in the qualifying process for UK patent attorneys.

This lack of self-reflection frequently manifested itself within the interview data as conflicted perceptions of ethics, with some practitioners being torn between the idealism of their previous lives as scientists and the view that they must ignore all sense of greater ethical responsibility in favour of simply playing the rules of the patent game. Some UK practitioners became visibly uncomfortable when asked about ethics. When touching on the ethics of the pharmaceutical industry (which made up most of this practitioner's client base), the interviewee in question became uncomfortable responding, as if they had violated their client's trust, and asked to end the interview so that they could return to their busy work schedule [#13].

One of the more pronounced idealistic tensions came from a UK attorney who when asked about ethical obligations, expressed conflicted sentiments about the patent system in its entirety:

Interviewee: I think I'm unusual for a patent attorney that I think in an ideal world our profession wouldn't be necessary. I guess I'm probably more of a socialist than those people, in the patent profession.

Me: Why? So you are saying that there wouldn't be a patent system, not necessarily 'you' as a patent attorney?

Interviewee: No. There wouldn't be a patent system and so you wouldn't need us, because people would be rewarded for their efforts, and a different mechanism, so you'd be encouraged to innovate and to disperse your knowledge in a way, though some other means.

[#20]

This same UK attorney expressed conflicted feelings about doing work for large pharmaceutical companies which can file large numbers of speculative patent applications and

then choose which of these underlying inventions they wish to commercialize: the attorney had experienced the effect this can have on crowding out smaller companies from taking products to market. When asked about their feelings pertaining to this practice, and their role in it, the interviewee said that the system should not work this way but felt conflicted about what their role is, or should be, in relation to these sorts of practices. [#20]

One interviewee, who was born, raised, and trained as a patent attorney in one of the smaller jurisdictions that recently joined the EPC, suggested that the patent system may do more harm than good to their home country. When asked about professional ethical responsibility, the conversation quickly turned to how the patent system may prevent manufacturing in their home country: this would lead to decreased industry as well as increased prices for pharmaceutical products, which may not be in the overall public interest in their home country. As this agent works predominantly in pharmaceuticals, she expressed a sense of personal ethical conflict given this reality but admitted that she did not fully understand how best to reconcile this conflict with her work [#22].

When the head of the patent department for a large firm was asked if they ever think of ethics in a broader, public interest sense, they responded

“[T]o some extent, but not hugely. Client is first and foremost in my mind, but yeah, sometimes, you think that is overly broad, or the monopoly that they get from this isn’t justified. But I’m part of the system. Perhaps the system is the necessary evil in some respect... As for me, it’s just a system I’m participating in. And trying to get best results for my client.” [#29]

Recently qualified UK patent attorneys, all of whom had been recruited directly out of university and were trained entirely in private practice firms, seemed to view their ethical

obligations narrowly and entirely in terms of the technical exercise of prosecuting patent applications for their clients. For example, one recently qualified attorney did not believe that their ethical obligations encompassed any broader, public ethical obligations beyond those to their client, stating *“that’s the role of the patent office. I think the patent proprietors need us and the public needs the Patent Office.”* [#28] Another recently qualified attorney stated:

“I see my role as we have clients, they work decently and we’ll try and get them valid claims. But I don’t see my role as contributing to whether the patent system is necessarily being ethical or unethical, because it very much depends who patentee is. Certainly, there are situations where patents can cause problems for small businesses. So I’m not under any illusion that I didn’t understand that’s part of the core job.... I think ethics are determined by who the client is. I mean, arguably you can say that maybe some of these [patents] are prohibitive to small businesses or individuals or something like that. Maybe it’s not a level playing field... I think that is a matter of the ethics of an industry itself, but I think these issues are not with patents. I think you have society structured the way we do. For example in pharmaceutical, it costs billions or several billion to produce per drug on the market and if there’s no patent, then that company goes bust and then there’s no incentive to manufacture. So I think it is sort of tied to capitalism. You can’t have one without the other.” [#4]

Some interviewees were far more direct and to the point:

Me: Do you feel you have any sort of ethical responsibility to the public, or something like that, or is that...

Interviewee: Well, no. I’m doing a job for my client. [#13]

When another interviewee was asked if they had any ethical concerns or obligations pertaining to the patent system. They responded *“I cannot think about these things... it is entirely*

the patent office's responsibility to think about these issues and not the [patent] attorney's concern." [#16]

Some UK attorneys acknowledged the conflict between their practices and the perspective of inventors, especially with respect to claiming inventions. Regardless, they brushed aside these concerns as part of the game:

"Patents are basically a game and you're conveying things with a gloss. You know sometimes, obviously it's truly an invention, but even with the true inventions you're trying to claim them so broadly that towards the periphery you are venturing into things, which are debatable, whether they're invented or not. But that's one of my jobs, that's what I'm trying to do for my client, which is maybe not justified by the innovation that the scientist has made but is a broadening out. I don't feel it is morally wrong, whereas I think about these scientists, who've worked in the field and they feel that it's not right. To me, it's just a tool." [#13]

An exchange with a young UK patent attorney encapsulates much of the conflicted feelings common to many UK attorneys:

Me: In your opinion, what are your ethical obligations?

Interviewee: I have to work in the best interest of my client... I am not quite sure that I totally agree with the whole patent system and idea of monopoly. I am a patent attorney and whenever I do my patent attorney job, then my first and foremost interest is to protect my client's interest. So, my obligation is first to the client.

Me: If I heard you correctly, you don't believe, or you do believe, in monopolies and patents?

Interviewee: No. I don't quite so much believe in it. I'm not sure. That's something I am still in the process of working out for myself.

Me: Do you sometimes feel personally conflicted?

Interviewee: Yes, sometimes I do. All these IP rights are a great idea. But sometimes they are misused, and I do not like this misuse. I think in a sense, I probably contribute to it at least a little bit because of what I do.

Me: In your opinion, what are some examples of misuses?

Interviewee: I used to have a client, who basically would patent things for the second time. They had a patent for something and then they try to reword it in a very clever way so that nobody would ever recognize that it was actually the same thing and they would try to patent the same thing for the second time. And I think this is not right. This is not how it should be. I feel that I do not have a lot of room to disagree with it. Also, because, I am just one person and the whole system is like this and the system actually allows this because the examiners sometimes are not doing a good job and things happen. And I cannot do anything about it.

Me: Do you feel that you have some sort of ethical obligation to the public? Or is it, as a professional, your obligations are to the client, first and foremost?

Interviewee: I personally think that my obligation is to my client and that's it. I would really like if it wasn't this way. If I also could say that, this is not right, and I am not going to do that. But I don't think I can do this. I don't think, it is realistic to even think this to happen, anytime. In one sense, I am in service and I am paid for my service and I have to do the things I am paid for and I need to do it in their best interest. But at the same time, I would really like, if I could sometime say 'No' to a dishonest business for the sake of my obligation to the public. [#24]

As the foregoing demonstrates, many UK patent attorneys are ‘inside the game’ so to speak, and as such, see their ethical obligations entirely in terms of the rules of the game. As with the discussion of competency in the previous Chapter 5, many recently qualified UK patent attorneys who have entered the profession directly upon graduation from a university program may lack an outside perspective from which to navigate ethical issues. More importantly, as will be discussed below under Chapter 6.7 many of these recently qualified attorneys may struggle to recognize that every rule of practice may simultaneously be both a matter of competency and ethics, and as such, may erroneously believe that these deep ethical conflicts can be pushed *outside* of the field of practice.

5. PATENT AGENT ETHICS – THE GERMAN PERSPECTIVE

Some of the most fascinating interview feedback came from German patent attorneys. All German patent interviewees expressed a deep sense of ethical commitment beyond just duties owed to their client. Several German patent attorneys stated that they would not file patents over weapons, guns or bombs, with one interviewee stating that they had turned down several such clients in the past [#11]. When asked about the public dimension of their ethical obligations, most German patent attorneys were emphatic that they viewed their ethical identity as being as much about the public as it is the client. One attorney stated that ethical duties towards the public are “*the core of our job!*” [#33] This core requires that the patent system continues to serve the public and is accessible by the public in every way possible. This includes ensuring that cost of services does not exclude sole inventors and small enterprises, ensuring that the public has access to patent documents as a tool for knowledge dissemination and ensuring that claims remain as legible as possible so as to clearly delineate the scope of an invention. [#25; #33]

One highly experienced German practitioner provided an interesting perspective on claim drafting and the important public role this serves. According to this attorney, scientists and engineers often lack precision in articulating and exchanging knowledge between one another, relying instead on shared tacit knowledge and technical understandings to fill in much of the gaps. So much tacit knowledge and unspoken understandings go into technical discourse, and while this in many ways works on a day to day basis, it may not be the most effective way to codify and document technical advances for broader dissemination. As such, the drafting of good quality specification and claims is as much about delineating claims for the public as it is for protecting the client:

Interviewee: I think we are doing an important job by doing the 'translation'. Because otherwise, if you don't have this translator, as it might be possible if you have direct contact between the inventor and the patent office, because, at the patent office, the examiners are also coming from the scientific world. What makes it very difficult, then is the examiner might understand the inventor, but in the end, the public might not understand. And this is important because we do something which has a big influence on the public also. The patent system is important for society because, on the one hand, it motivates people to tell about their inventions. So for the publication of the invention, they get protection for some time. And by telling about their invention, they are enriching the prior art... And it is the gift of the whole patent system that you have this publication so that others can learn from it and can further develop things. And to do this, everyone has to understand what is written. Patent language is difficult to understand, but I think scientific language can at times be even more difficult. And on the other side, the broader public audience would have to spend much more time to understand because they do not get the 'translated' text.

Me: If I understand what you've said correctly, it's almost that you see it as your role as an attorney also serves a public function in the system. This translation, as you call it, in itself furthers and serves a public purpose, the way you said it?

Interviewee: Yes, we could just have it where inventors go directly to the examiners, they're both scientists. And you know, they're both technologists, they can speak to each other in their language. But first of all, one, without the attorneys and what they provide, you wouldn't be promoting the system, you wouldn't be getting as much scientific disclosure and technical incentive, and secondly, the efficiency of the communication just wouldn't work. Because patent lingo has a lot of complexity to it. But scientific language is quite complex as well. And if you didn't have this sort of structure that streamlines the communication, it would just always be miscommunication. And a lot of inventors would not understand enough, that they have invented more than they initially tell you. So the attorney helps to broaden that full scope of the invention and its disclosure out and communicate it more clearly than otherwise would be the case.⁴⁸² [#11]

This perspective regarding the drafting of claims was unique among interviewees. For example, some UK interviewees suggested that claims are their own “*professional language*” for patent agents, and just like professional discourse in other fields, which appear obscure to outsiders, the insiders understand it and use it to efficiently do their work [#14]. The idea that one should strive to make patents accessible to an audience beyond just the insiders of the patent system rarely came up in interview discussions, and when the subject was broached, most interviewees brushed it aside as being an unlikely goal to shoot for. The historical analysis from

⁴⁸² The US Court of Appeals for the Federal Circuit has also expressed this ideal in relation to patent prosecution—see *In re Zletz* (1989) 893 F2d 319 (Fed Circ) 322: ‘An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible.’

Chapter 3 demonstrates that there was a time when patent agents were society's translators of technical knowledge, and as such, enabled technical and innovative agency. However, as we shall see in Chapter 8, it is highly debatable whether the patent document, in its modern form, is comprehensible to anyone other than professional patent agents or legal specialists. However, it is interesting that so few interviewees provided such an articulate view of their ethical responsibilities as revolving around the ideal of being society's innovation taxonomists, and that specification and claim drafting should, ideally, serve as much of a public function as it does the interests of individual clients.

Discussions pertaining to ethics frequently transformed into a conversation about professional identity, including whether German patent attorneys viewed themselves more as engineers and scientists or lawyers. German patent attorneys, more than any other interviewees, were quick to respond that they viewed themselves as being *both* scientists/engineers *and* lawyers. Across US and UK interviewees, there seemed to be no consistent responses- some were adamant that they were more 'lawyers' than engineers, whereas one US patent attorney suggested that having a law degree did not make much difference for him vis-à-vis a profession he could likely have learned and succeeded in without one [#9]. However, upon being asked about ethics, German practitioners often moved unprompted into questions of identity, and were far more likely than any other interviewees to express a sense of pride and dignity in being *both* scientists/engineers and lawyers. One interviewee even indicated that they still practised as an engineering draftsman as a side job, preparing design drawings for various local firms (including for some patent clients).

Furthermore, the question of ethics often resulted in German patent attorneys' unprompted discussion of how they view themselves as 'European' patent attorneys as much as they do

German patent attorneys. One interviewee took the opportunity to confirm that the German profession, by viewing itself as being as much European patent attorneys as they are German patent attorneys, remains committed to the European project [#30]. While questions about professional ethics serving as a launching pad for frequent incursion into political territory was unexpected, this political aspect does have historical roots. Dr. Kurt Haertel, a German patent attorney and former President of the German Patent Office, has often been referred to as the father of European patent law and the EPO. As one of the major forces in coordinating the foundation for what would become the EPC and the EPO, Haertel was firmly committed to the cause of a unified Europe. In the aftermath of WWII, Haertel believed that trans-European institutions were the only way to prevent the horrors of another Continental war. Specifically, he believed that a trans-European patent office could be the centerpiece of various trans-European institutions, given his belief that science and innovation were the universal language that transcended the other political disagreements that still divided Europe. As such, Haertel's goal of building a trans-European patent office was as much about uniting a post-war Europe as it was about harmonizing patent law.⁴⁸³ To this day, the European patent attorney profession remains the only trans-European profession and many German patent attorney interviewees felt a distinct ethical dimension resulting from this reality.

6. THE IN-HOUSE PATENT AGENT AND THE 'LAWYER'

Patent agents practicing in-house and those patent agents with comprehensive legal training presented their own unique themes. With in-house attorneys, their sense of ethics largely aligned with the ethical standards of both the company they worked for as well as the company's

⁴⁸³ Pascal Griset, *The European Patent: A European Success Story for Innovation* (European Patent Office 2013) 72.

innovating scientists. Many shared a deep sense of responsibility beyond just playing the game and furthering their client's interests:

So my first and foremost, my primary responsibility or obligation is towards my company because this is a company that has employed me for a particular role, and it is expected of me to do some things which are expected of this role... Of course I mean there is an element of ethical responsibility to the public at large, and that would mean that we don't give colourable interpretation to a particular limitation if I am trying to project something as new which is already a subject matter which is known or has fallen into the published domain. So that's a minimum standard which I think we need to follow. [#1]

For example, one interviewee, who has spent many years working with various non-profit research institutions, stated:

If I come across something that is problematic or I find that we are very close to something already done, then, that is to be discussed with the inventor. Actually, I think it is unethical to just do what inventors tell you to do. If he tells me, this is the invention, just write it down... I'll never do that... I am the gatekeeper, so, I have responsibility towards the system as well.... I think, the patent system is not there to protect companies, it is there to help translate knowledge into some use for society. I think, it is for the betterment of mankind or it should act that way. That's why we invented the patent system. That's why, the system should promote making available better medicines, better methods and of course the company should be rewarded. But that is not the principal goal, in my honest opinion and maybe I am totally naive in this. But this is how I work. So there needs to be that connection between what you are doing. [#27]

This interviewee frequently expressed frustration between the mismatch between the norms of the scientific community and that of the patent agent community. Specifically, he believed that the over-zealous wordsmithing permitted by patent claiming practices as well as the ‘data dumping’ used by larger corporations could often undermine patent law’s balancing objectives:

Scientists I worked with, they work in institutes like [a leading European Cancer research institute]. I think it is actually true for all scientists. They are driven by the technology. And I also think that there is a large part of the inventors that say ‘this is beautiful, let’s share’. I mean, this is why they are doing stuff. For all scientists, the main drive is finding solutions to problems. Where do science and the patent system mismatch? I think this problem is increasing.... I can give an example. In Europe, we are not allowed for ethical reasons, to claim methods of treatment. So, we have to claim it in a certain construct. It doesn’t say, method of treating the patient using vitamin C, rather we claim vitamin C for use in treating a patient. The problem is that this is allowed for drugs and medical stuff... the patent system still allows too much for bigger companies to frustrate the system. Many smaller firms come to me and reference bigger firms that have hundreds of patents in this technology, ‘where should we go to use this technology?’ And there are many applications out there and these are applications have hundred of pages with so much information in them, which, have not been tested or confirmed or are only ideas. Because you can keep a patent application alive for twenty years, you don’t know what is going to happen. And the system is not yet accurately active to that. Why does the patent system not immediately tell that, at the moment, you don’t have experimental support of proof of what you are doing is actually something? I normally tell clients at the start that, this patent you may never get because [you] are confronted by piles of documents which may or may not now or in the future be of

relevance. And there you see that patent system blocks technology or development of technology. Because it allows the big ones, who have funds, who can spend 20-30 thousand Euros on the drafting of just one patent application. So much information lies in the system because the system takes so long to take care of it, and it remains in uncertainty. [#27]

With respect to experimental data, one European patent attorney recalled an incident that had taken place while working in-house at a pharmaceutical company. His supervisor had asked him to file a patent application including hypothetical prophetic examples of the invention instead of examples of real test data, which, at the time of filing, were not available. While the use of such prophetic examples is permitted under some domestic patent laws, such use has been the subject of considerable criticism.⁴⁸⁴ This attorney had refused to do so, feeling that such a patent filing was morally wrong and contrary to the patent system's spirit of true disclosure of knowledge. Other German patent attorneys expressed similar serious ethical reservations against such practices despite their legality [#2], with one interviewee stating "*I have recently seen a large experimental report which is so faked that it hurts. I don't know how people can do that.*" [#5] Following this incident, the acrimonious relationship between the attorney and supervisor had strained to such a point that the attorney eventually decided to seek employment elsewhere. [#19]

Legally-trained patent agents also seem to hold their own unique views with respect to ethics. The fact that UK practitioners who have completed substantial legal training beyond their patent agent qualifications have a different sense of ethical obligations suggests that legal training alters the ethical disposition of Anglo-American professional patent agents. Most UK interviewees

⁴⁸⁴ In the US context, see Janet Freilich, 'Prophetic Patents' (2019) 53 U.C. Davis Law Review 663; Janet Freilich and Lisa Larrimore Ouellette, 'Science Fiction: Fictitious Experiments in Patents' (2019) 364 Science 1036; Janet Freilich, 'The Replicability Crisis in Patent Law' (2020) 95 Indiana Law Journal 431.

seemed to view ethics narrowly as ‘playing the rules of the game’ as best as possible. To them, the game is real, as are its rules. However, when the game *itself* was brought into focus, interviewees were forced to confront unacknowledged ethical conflicts by recognizing that the game itself is a construct and thus imbued with ethical priorities. Interviewees resolved these ethical conflicts by either reluctantly acknowledging the tension or recoiling from it all together in favour of an ‘I am just doing my job’ disposition.

However, legally-trained interviewees were not just in the patent game, but also *outside of it*, recognizing that the game *itself*, as a sociolegal construct, can be played as much as playing the rules of the game. For many of these interviewees, ethical conflicts are resolved by one overarching ethic – furthering my client’s interests. These interviewees are under no misconceptions regarding the ethical dimensions of what might otherwise appear as ethically-neutral rules of the game, but regard their higher calling as being a ‘hired gun’ for their client’s interests. The patent game is a means to this end, the rules of which can be played or, if necessary, changed altogether to better the client’s position. When an Anglo-American trained lawyer, now practising as a European patent attorney, was questioned about claim drafting practices and patent prosecution ethics, the conversation resulted in him smiling and responding that prosecuting patents was not ‘his job’. He stated that prosecuting patent applications was only *a part* of his job, his job being to manage his client’s interests in developing and commercializing technology [#17]

One interviewee summarizes this perspective:

We live in an administerial world...I think in general, there is a system here. IP in general, the existence of IP generally helps businesses, innovations and companies. I am a strong believer that IP in general as a system levels the playing field that allows the smaller

companies to enter the field that otherwise is swamped by the sheer mass, establishments and greater resources of larger companies. So the system I think is good for the public as a whole. However, like every single system that works, it is far from perfect. Everything is flawed. Often you get patents granted, which are of dubious value or questionably invalid, then that causes one set of unintended consequences, then you have a big sort of surge of litigation ... On the other hand, let's work on the basis that all institutions are flawed, all humans are flawed, all judgments are not perfect. So, if you err on the side of letting things through which should not be, then you can spend a vast amount of money trying to do further examinations and it will make the system unaffordable. Or you can make it difficult, which normally happens, and in that case, genuine inventors and companies with limited funds end up paying a lot of money to get what they should be entitled to, through a system, which is flawed. And you are never going to get it right. I think it's our job to navigate the system... it is a commercial system, it's not there to further whatever idealistic views people promote at their end. It's for small, medium and large businesses to promote their technological investment and it largely works. It can't work in a utopian socialist world where everyone can have whatever. So, it is going to cost money to play the system properly. Those who have more resources will have an edge. You get reasonable decisions at reasonable times, reasonable value and the fact that these are not perfect decisions have some inevitable consequences. [#14]

This same phenomenon has been recognized by others studying Anglo-American common law lawyers operating in administrative institutions adjacent to legal spaces. For example, in their comprehensive study of the field of private international arbitration, Professors Dezalay and Garth suggest that the Anglo-American common law lawyers, driven by a laser-focused ethic to

advance their client's interests, "put the rules of the game into play" by investing in the construction of institutions that serve their client's interests.⁴⁸⁵ From this perspective, Anglo-American lawyers operating in these adjacent legal spaces often identify as "double agents", in that they are operate to further the interests of their clients both from a business and legal perspective.⁴⁸⁶ As one interviewee stated, "*I think for my client, my job is more than just being a patent attorney, it is sort of technical, business consultancy because it is me who is going beyond.*" [#14] Recognizing that "institutions have no reality other than the strategic use that is made of them by different social groups", these lawyers will either play by the rules of the system, or, change the system itself, depending on what best serves their client's interests.⁴⁸⁷

This phenomenon also exemplifies a distinction between Anglo-American common law lawyers and Continental civil law lawyers (such as those from the German legal tradition), with the former trained in an adversarial system where the lawyer's unyielding duty is to advance the client's cause and the latter being trained in an inquisitorial system where the lawyer's duty is to "clarify [the client's position] and aid the judge in rendering good justice."⁴⁸⁸ Many Anglo-American patent attorney interviewees commented that their German counterparts were 'too close' to the patent office and did not fight hard enough to push their client's interests. [#3; #21]. One interviewee recalled an opposition proceeding before the EPO, where the opposing party was represented by a German patent attorney. This UK patent attorney stated that their German counterpart spent most of their submissions attempting to clarify certain claim terms, and then

⁴⁸⁵ Yves Dezalay and Bryant G. Garth, *Dealing in Virtue: International Commercial Arbitration and the Construction of a Transnational Legal Order* (University of Chicago Press 1996) 92–3.

⁴⁸⁶ *ibid* 119.

⁴⁸⁷ *ibid* 16–7.

⁴⁸⁸ *ibid* 56; see also *ibid* 68, where the authors suggest that civil law lawyers, in contrast to Anglo-American common law lawyers, are trained to pursue the general ideal of justice, must in some instances maintain a healthy separation from their client.

seemed dismayed when this interviewee dedicated his submissions to proposing an interpretation that best served his client's position. Following the hearing, the German attorney chided him, accusing him of abusing the opposition process. [#3] To some extent, interview data from German patent attorneys correspond with these observations. For example, one German patent attorney acknowledged that during patent prosecution, he felt that his role was to work with the patent examiner to clarify and craft claims that were understandable and clearly conveyed the scope of the invention. However, he felt that this approach did further his client's interests, as the best possible patent was one with a clear prosecution record with all prior art listed and characterized, claim scope easily ascertainable and claims directed to a clear technical contribution over the art. To this German attorney, the best way to accomplish this goal was to work with examiners, rather than taking an adversarial position. [#34]

The ethical distinction between legally-trained and non legally-trained patent agents is subtle, yet significant. The legally-trained attorney recognizes the socially constructed parameters of the patent system, along with its embedded ethical commitments. While one might debate whether the 'hired gun' ethical imperative of the Anglo-American common law layer is normatively desirable, one consequence of comprehensive legal training is that these professionals maintain an epistemic separation from the current form and system of patent prosecution. Most UK patent attorneys, who remain embedded within the system from entry to the profession, on-the-job training and then through to practice, view ethical obligations in a framework that remains *within* the system. Most interviewees navigated ethics in terms of the rules of practice. However, legally-trained interviewees view ethics from *outside* the system, and recognize the system and its rules as a manifestation of certain ethical commitments, which may or may not coincide with their own commitments to furthering their clients' interests.

7. THE BOUNDARY OF PROFESSIONALIZED PATENT AGENCY – THE COMPETENCY/ETHICS PARALLAX

What is the essential professional duty of a professional patent agent? As Professor Hricik states, “[a patent agent’s] professional responsibility is to assist his or her client in defining her invention to obtain, if possible, a valid patent with maximum coverage.”⁴⁸⁹ In order to do so, the agent must “draft claims that reach to, but not beyond, the maximum allowed by the prior art and consistent with the scope of the invention.”⁴⁹⁰ However, “while [this] is easily stated, determining whether a [professional patent agent] has, in fact, complied with the duty to obtain maximum coverage will be a complex issue in most cases.”⁴⁹¹ The reasons most often set forth as the cause of this complexity is patent law’s archaic language, drafting conventions and convoluted web of rules and regulations that appear far removed from the technical environment that creates the underlying inventions.⁴⁹²

However, examining the above-referenced professional patent agent’s statement of duty, an unappreciated question comes to light. Is this duty to seek a valid patent with maximum coverage commensurate with the scope of the invention a competency obligation, an ethical obligation, or both? Professors Hricik and Mercedes, in their treatise on patent prosecution ethics, suggest that the line between ethics and competency may not be as distinct as some might envision.⁴⁹³ Even the most ardent formalist, who views both ethical and competency obligations

⁴⁸⁹ David Hricik, ‘Aerial Boundaries’ (n 358) 217.

⁴⁹⁰ David Hricik and Mercedes Meyer (n 477) s 7.07.

⁴⁹¹ David Hricik, ‘Aerial Boundaries’ (n 358) 217; see also David Hricik and Mercedes Meyer (n 477) s 7.07 where the authors state: ‘As a general principle, and absent contrary instructions from a client, a practitioner should seek for a client the broadest valid claims available. The problem with that simple statement is that many practical and legal concerns can call for a competent practitioner to avoid seeking claims as broad as the applicant arguably is entitled to.’

⁴⁹² David Hricik and Mercedes Meyer (n 477) s 7.01.

⁴⁹³ For example, see *ibid* where the authors refer to competency as an ethical duty; see also Thomas F. Cotter (n 478) 752 where Professor Cotter questions whether the US inequitable conduct doctrine can truly be considered a matter of ethics, or, whether it is a matter of administrative efficiency and thus, a matter of professional competency.

entirely from the perspective of patent office rules, must face the reality that terms such as ‘scope of protection’ and ‘the invention’ are highly contested and debated. These terms rest upon one’s normative and epistemic views of what the patent system is meant to achieve.

As discussed in Chapter 3 and Chapter 4.4, the historical origins of most regulated professions, including the patent agent profession, demonstrate that the ‘public interest’ which demands regulatory intervention is often more concerned with ethical practice than competent practice. To the professional who sees their peer deliver services falling below the professionally accepted standard of care, their colleague is guilty of incompetence. To the client who has paid for and received inept services, they may perceive themselves as the victim of an unethical swindler. In many ways, the boundary of socially constructed fields of practice is a parallax which can be viewed *simultaneously* as both a competency and ethical boundary.⁴⁹⁴ To those inside the field looking outwards, the boundary line appears as a competency boundary separating the expert knowers from the non-experts, and those who fail to follow accepted standards are guilty of malpractice. To those who are outside looking in, the boundary line appears as an ethical boundary, demarcating a set of principles and values that those within a field are meant to uphold and promote in service of the public interest.

Professor James Elkins succinctly summarizes this point by stating that legal professionals “disguise ethics in the name of ... professional malpractice, but it is ethics nonetheless.”⁴⁹⁵ As Professor Elkins states:

The view that legal ethics is the study of an ethical code or a study of the law of lawyering is a perfect example of how the ideology of professionalism transforms ethics

⁴⁹⁴ Reference to ‘parallax’ is inspired by Slavoj Žižek, *The Parallax View* (MIT Press 2006) wherein Žižek draws out the concept of the Kantian antinomy as a ‘parallax’.

⁴⁹⁵ James R. Elkins (n 457) 945.

so that it supports traditional approaches to lawyering instead of becoming the basis for a critical perspective on lawyering... At best, the ideology of professionalism promotes reform while legitimating an entire structure of normative conventions that are only nominally related to ethics.⁴⁹⁶

Practitioners in legal service fields are often “blinded to the belief system embedded in professional ethos”⁴⁹⁷ given that “[legal] professionalism masks the value dimension of particular practices, stances and goals.”⁴⁹⁸ Accordingly, “an ethics of professionalism is an ethics that forgets itself.”⁴⁹⁹

Much of the interview data, and specifically, interview data from the UK, seems to support this view. New practitioners enter the field blind to much of the underlying value system and beliefs which support the patent system. As such, each successive generation of new practitioners enter a field that has already *forgotten* the ethical dimensions of patent agency of the previous generation before it. The paucity of avenues for professional self-reflection forecloses the opportunities for remembering.

8. CONCLUSIONS

Returning to the beginning of this Chapter, the surprise expressed by some interviewees pertaining to lack of opportunities for professional self-reflection may be symptomatic of a greater ethical dilemma slowly manifesting itself within the patent agent profession. As Professor Elkins suggests, “an ethics of professionalism is an ethics of complacency, a complacency that embraces the existing professional ethos”⁵⁰⁰ and as such, “[legal service

⁴⁹⁶ *ibid.*

⁴⁹⁷ *ibid* 959–60.

⁴⁹⁸ *ibid* 947.

⁴⁹⁹ *ibid* 948.

⁵⁰⁰ *ibid.*

providers] live in a simplified amoral universe partly because they are not compelled by the ethics of professionalism to reflect on whether what they do is good.”⁵⁰¹ This situation seems to be exacerbated within the UK profession, where increasingly, new patent agents are recruited into the profession directly from school to the firm where they are trained on the job. There is little opportunity for self-reflection, and accordingly, the ethical dimensions of patent practice are never truly confronted and navigated. Previous studies have suggested that patent agents’ scientific background equips them with a unique sense of ethical reflection and moral compass that is a customary component of most scientific training programs.⁵⁰² In some ways, new patent agents are asked to forget this scientific morality in favour of an ethical code comprised of rules of practice handed down to them. The ethics of the ‘outside’ of the profession is kept outside. As the boundary between inside and outside of the profession is simultaneously one of competency and ethics, the lack of ethical reflection only serves to reinforce epistemic barriers.

The interview data suggest that the ethical dimensions of practice may run deeper than previously expected. German practitioners’ sense of ethics is intertwined with a complex set of historical realities, professional identity and the dynamics of present-day international relations. It is often said that the European patent attorney profession is the only trans-European profession. While some have explored this reality from a comparative regulatory perspective, few have delved into the ethical dimensions of what it truly means to be a member of a trans-European profession while also attempting to retain some semblance of a national identity.

Legally-trained patent agents were, as a result of their comprehensive legal education, far more likely to view the patent system as a construct compared to non-legal patent agents. This

⁵⁰¹ *ibid.*

⁵⁰² Lynn Mather (n 63) 265–266.

reality cuts both ways, in that the legal training provided these agents with a perspective of an *outside* of the system, rather than confining ethical considerations entirely to the internal rules of the game. However, these agents were also far more likely to subscribe to an ethical commandment of ‘further my client’s interests at all times’, which brings with it its own set of tunnel vision issues. Regardless, the outsider perspective may be more favourable to an ethical view based entirely on internal rules and regulations, because, as discussed, this view overlooks the numbers ethical dilemmas which form the fabric of the boundary of the profession. As we shall see in the coming chapters, “[a]s the critiques from outside gather force...[t]he internal cracks and strains become more obvious.”⁵⁰³

⁵⁰³ James R. Elkins (n 457) 948.

CHAPTER 7: THE LEGITIMIZING OF PROFESSIONALIZED ‘AGENCY’ IN INTERNATIONAL PATENT PRACTICE PART 1 – PATENT LAW’S WRITER

1. INTRODUCTION

This chapter and the next will focus on the extent to which the customary practices of patent agents have historically been legitimized through judicial recognition. For example, patent agents and their patent office counterparts develop techniques of practice, including the form and substance of patent documents, which are then assessed by judges in accordance with the general prescriptions of patent legislation on a case-by-case basis. Judicial pronouncements are then assimilated and redeployed by patent agents within their practice, thereby legitimizing these practices as law. The analysis presented in these chapters will include a significant historical component, tracing how judicial impressions of the practices of professional patent agents have changed from the earliest days of international patent systems to modern times.

These chapters will demonstrate that in the late 19th and early 20th century, generalist judges (i.e. those who were not specialized in patent practice) took a somewhat critical view of the ‘ant-like persistence’ with which professional patent agents carried out their craft.⁵⁰⁴ Furthermore, this chapter will also shed light on the changes that the hypothetical person skilled in the art has undergone over the course of the 20th century, and how, from both an legal and

⁵⁰⁴ This phrase comes from *Lyon v Boh* 1 F2d 48 (1924) [SDNY] (SDNY): ‘I now turn to the claims. The case is the common one of needless elaboration of distinctions which are verbal and details which are trivial. It is absurd to apply in all such cases the rule that claims must at any cost be treated as patentably differentiated. Courts have descanted upon the abuse again and again, but the antlike persistency of solicitors has overcome, and I suppose will continue to overcome, the patience of examiners, and there is apparently always but one outcome.’; While Justice Learned Hand’s statement may seem like a back-handed jab at patent agents, at least one author regards this as a ‘(perhaps backhanded) compliment to patent practitioners’- see ‘A Blog with a Name - “Ant-like Persistence”’ (*Ant-like Persistence*, 3 May 2014) <<https://blog.oppedahl.com/?p=174>> accessed 26 September 2019.

international comparative perspective, the Anglo-American hypothetical person skilled in the art has come to dominate international patent practice. As we shall see in the forthcoming Chapter 8, as the judiciary has become specialized in patent practice, many patent doctrines, including doctrines of claim construction, have come to recognize customary patent agent practices and conventions to such an extent that the hypothetical person skilled in the art has become almost indistinguishable from a professional patent agent. Some have gone so far as to suggest that it is time to recognize that the true interpretive community of patents is professional patent agents, and that the artificial construct that is the hypothetical skilled person should be viewed as a hybrid skilled artisan/attorney.⁵⁰⁵ These chapters will critically assess the effects of this judicial legitimization of the customary practices and conventions of professional patent agents and demonstrate how this legitimization has shifted the discourse of patent agency from knowledge dissemination to legality, and concurrently, has undermined the patent system's ability to enable inventive agency.

2. PATENT LAW'S 'WRITER': THE PHILOSOPHY, PRINCIPLES AND PRACTICES OF CLAIMING INVENTIONS

a. The Wall of Words – Claiming and the Boundary of Invention

In patent law and practice, the 'name of the game is the claim'.⁵⁰⁶ Patent claims are one sentence statements in language which define the scope of protection afforded to an invention under patent law. Today, patent claims are used both to assess the validity of patented invention

⁵⁰⁵ For an excellent discussion regarding the patent attorney as audience of claim construction, see John M. Golden, 'Construing Patent Claims According to Their Interpretive Community: A Call for an Attorney-Plus-Artisan Perspective' [2007] *Harvard Journal of Law & Technology* 321; The desirability of this approach has more recently been suggested, albeit in the European context- see Willem Hoyng, '2019 Sir Hugh Laddie Lecture: No Cats and No Doctrine of Equivalence?' (University College of London, 13 June 2019) <<https://www.youtube.com/watch?v=ijTCBjTYMpo>> accessed 11 August 2019.

⁵⁰⁶ Giles S. Rich, *Extent of Protection and Interpretation of Claims-American Perspectives* (1990) 21 *Int'l Rev Indus Prop & Copyright* L 497 at 499.

as well as whether a third party is infringing patent rights. Words once used to help direct patent examiners and judges to the novel features of an invention have, over the course of the last one hundred years, ascended to a reified position unlike any other legal writing.⁵⁰⁷ Today, ‘invention’ has not only taken a backseat to patent claims, but the invention is at often treated as non-existent compared to the words of a patent claims which in and of themselves entirely define the scope of patent protection. At its worst, the word ‘invention’ is something that professional patent agents treat as some that should be avoided at all costs. The all-encompassing focus on patent claims has affected all aspects of patent drafting and prosecution. The fear of unduly limiting the scope of patent claims has led to a practical prohibition on use of the word ‘invention’ in patent applications.⁵⁰⁸ While novelty is a key ingredient of invention, there is no legal requirement to highlight the novel feature (or features) of an invention in either the claims or the detailed description in a patent application and patent applicants rarely do so. The lack of emphasis on novelty “prevents us from distinguishing the words that represent what the patentee added from the words that don't, and it accordingly means that we are even further removed from the invention we are supposed to be protecting.”⁵⁰⁹

What is perhaps more surprising than the reification of patent claims over and above any discussion of invention is that over the course of the 20th century, patent law has developed the strange analogy of comparing inventions to land, with patent claims being analogized to fence posts encircling a geographical territory the same way that real fence posts would encircle a plot of land. Practically every interviewee from the US or UK used some form of this analogy in relation to patent claims and the art of claim drafting. As we shall see, there is perhaps no legal

⁵⁰⁷ Mark A Lemley, ‘Point of Novelty’ (2011) 105 Northwestern University Law Review 1253, 1275.

⁵⁰⁸ Oskar Liivak (n 66) 47.

⁵⁰⁹ ‘Point of Novelty’ (n 507) 1275.

analogy more inapt for its intended heuristic purpose than the analogizing of patent claims to ‘fence posts’ and inventions as ‘territory’.⁵¹⁰ This analogy only serves to obfuscate the nature of the invention claiming process, by conjuring up images of an inventor as a land prospector or gold miner, somehow finding themselves on uncharted territory and staking their claims as far and as wide as the eye can see. Similarly, claims are treated as imaginary land claims that somehow magically emerge, untethered to any sort of centre and expanding outward as far as possible towards charted territory. Of course, this analogy holds true for neither land prospecting nor patent claims. Land prospecting begins with hitting paydirt, and the scope of one’s potential land claims extend outward from this centre.⁵¹¹ Similarly, one’s patent claims must emerge and grow outward from a created embodiment (or embodiments), which serves as the basis for all patent rights.

To get a true sense of the relationship between invention, patent claims and useful legal heuristics, it is important to begin with an exploration of how patent claims are constructed by patent agents.

b. The Invention ‘Genus’ – The Claim as an Invention Formula

How does an invention, in the form of tangible embodiment, transform into a claim? What is the nature of this process of transformation, and what can this transformation tell us about how claims can and should be interpreted? The process of transforming an intangible and ephemeral invention into a construct recognized by law most certainly revolves around patent claims.

Leading treatises on patent drafting recommend that the patent drafting process begin with the

⁵¹⁰ For one of the numerous examples of criticisms of the land/fence posts analogy, see for example Margaret Jane Radin, ‘Patent Notice and the Trouble with Plain Meaning’ (2016) 96 B U L Rev 1093, 1116: ‘[T]he idea that patent claim notice could be rendered precise enough to justify an analogy with physical fences is illusory.’

⁵¹¹ This analogizing of patent claims to land claims in many ways connects to the prospect theory of patents. However, even if one accepts the prospect theory as an underlying rationale for patent protection, the analogy remains incomplete. See for example Christopher A. Cotropia (n 66) 1902–3.

drafting of a claim, or most often a set of claims, as the first step in documenting an invention in the form of a legally acceptable patent application. From beginning to end, claims take center stage in the patent law forum. However, stating that the patent application process begins with claim drafting obfuscates the fact that almost every patent application must begin with an embodiment (or embodiments) of the invention. Even if the drafter begins *writing* the patent application by first writing patent claims, the claims reflect material information the drafter receives from the inventor(s) and the available embodiment(s) of the invention.

To state that the tangible form is *an embodiment* of the invention rather than the invention *itself* alludes to the objective of the claim drafting exercise. Invention claiming begins with the embodiment(s), and thus, in actuality, the patent application process begins with the *description* rather than the claims. As Lourie J. of the CAFC has stated, contrary to popular opinion, “meeting the description requirement is the first task in drafting a patent application”.⁵¹² Stated within the context of chemical and biochemical inventions, Lourie J. succinctly elaborates what is at the heart of claiming an invention:

Although one may envision a general concept, what one usually does first in making or isolating a chemical or chemical-related invention is to obtain a specific material or materials. One then broadens the concept to extend it as far as one envisions that other materials will have the same utility and can be similarly made. That broadened concept becomes the genus in a patent application that is both the broadest statement constituting a written description and usually claim 1. One then elaborates to fill in the genus with representative examples of compounds or substances that fall within the genus.⁵¹³

⁵¹² *Enzo Biochem, Inc v Gen-Probe Inc* (2002) 323 F 3d 956 (Fed Circ) 974.

⁵¹³ *ibid* 974–5.

Although stated within the context of chemical and biochemical inventions, Lourie J.'s articulation of the invention analysis and claiming process applies equally to all inventions. The movement from one or more *embodiments* to the *claimed invention* is an exercise in generalization. More importantly, this *transition* from embodiment(s) to claimed invention is the essence of agency within the patent system, and rather than the claims themselves, it is this *transition* that is the true focus of practically all patent doctrine. Although it is rarely explicitly stated (if at all) and often done without explicit awareness, courts, when applying patent law doctrines such as claim construction, are actually examining the contours of this transition under the guise of a focus on the claims. To put it simply, the entire claim construction exercise is an exercise in articulating the scope of an invention genus based on the species disclosed within the patent document.

In this transition from embodiment(s) to claimed invention, the drafter is attempting to envision an articulation of the invention as *a genus*, extracting from the embodiment(s) and the inventor's feedback the necessary properties such that the presented embodiment(s) is not *the invention*, rather, *a species of the invention*. Typically, "when one speaks of a 'genus' in the chemical arts, one ordinarily speaks of "a group of compounds closely related both in structure and properties."⁵¹⁴ The claim then attempts to define *the invention*, as an abstraction and generalization from the presented embodiment(s) to a broader genus covering all possible embodiments that are novel, nonobvious and accomplish the invention's intended purpose. As Professor Jeffrey Lefstin summarizes:

...the distinction between "genus" claims - claims covering a class of entities characterized by a common property - and "species" claims - claims covering only a single entity - is

⁵¹⁴ *In re Kalm* (1967) 378 F2d 959 (CCPA) 963.

familiar in chemical and biotechnological practice... less evident is that essentially all patent claims-not just those defining chemical and biotechnological inventions-are genus claims.”⁵¹⁵

(emphasis added)

This modern conception of the relationship between invention and patent claim, at least in the Anglo-American tradition, is the product of classical era thinking, where every discipline, including law, was being reimagined as a science.⁵¹⁶ Patent practice, which from its earliest days styled itself as the leading example of the intersection between science and law, was a natural fit for this sort of scientific reclassification. The earliest professional patent agents were quick to label their practice of claim drafting as a science.⁵¹⁷ From this perspective, we see that rather than ‘territory’ and ‘fence posts’, the most apt analogy for the modern patent claim across all technological arts is a *scientific formula* defining an invention *genus*, the *species* of this genus being all of the embodiments that fall within that class. The drafting of patents is not an exercise in cartography, rather, it is based in large part on the classical scientific logic of taxonomy, each patent application serving the purpose of collecting and documenting species and classifying them according to their invention genus (i.e. claims).⁵¹⁸ As seminal claim drafting treatise writer Emerson Stringham long ago recognized, the classical logic of claiming is based on the

⁵¹⁵ Jeffrey A Lefstin, ‘The Formal Structure of Patent Law and the Limits of Enablement’ (2008) 23 Berkeley Technology Law Journal 1141, 1168–9; See also Dmitry Karshedt, Mark A. Lemley, and Sean B. Seymore, ‘The Death of the Genus Claim’ (2021) 35 Harv J L & Tech 1, 1–2, 16.

⁵¹⁶ Regarding classical influence on formalism in law, see Richard H. Pildes, ‘Forms of Formalism’ (1999) 66 University of Chicago Law Review 607, 608–9.

⁵¹⁷ John G. Ridout, Toronto, 22nd August 1894; as quoted in Gareth E. Maybee, ‘The Patent Profession in Toronto’ (1981) 15 L.S.U.C. Gaz. 257, 257, referring to the elevation of patent drafting ‘to the rank of a science’.

⁵¹⁸ Alain Pottage and Brad Sherman, *Figures of Invention: A History of Modern Patent Law* (Oxford University Press 2010) 17.

Aristotelian metaphysics of essentiality⁵¹⁹, which logic is based on the genus-species distinction and hierarchy.⁵²⁰

Patent drafting treatises have long advised claim drafters to illustrate their claims in the short-hand visualization of a scientific formula. The following example is taken from a seminal Anglo-American patent drafting text:

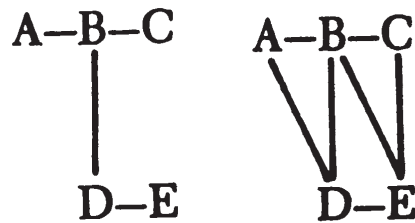


Figure 12: Abstract illustration of a patent claim – from Faber on Mechanics of Patent Claim Drafting⁵²¹

In the above diagram, the letters represent the ‘elements’ of the claimed invention, represented in abstract form, and the lines represent the structural or functional relationships connecting the elements to one another. Much like a chemical formula, the treatise author states that one must “not leave even one element or part hanging in the air with no apparent connection to anything else, and no apparent function in the combination.”⁵²² To construct such a claim ‘formula’, the patent drafter is directed to begin with the embodiment(s) directly before her, dissect the whole of the embodiment(s) into discrete ‘elements’ and name each element, preferably with names which are conventionally associated with such elements in the given technical field (if such conventional labels exist).⁵²³ Where possible, several smaller elements

⁵¹⁹ Emerson Stringham, *Patent Claim Drafting* (self published 1930) 22, 30.

⁵²⁰ *ibid* 16.

⁵²¹ These diagrams are taken from Robert C. Faber, *Faber on Mechanics of Patent Claim Drafting* (Seventh, Practising Law Institute 2018) 3–113, which text is a continuation of the long-standing and highly regarded seminal text, Landis on Mechanics of Patent Claim Drafting.

⁵²² *ibid*.

⁵²³ Jeffrey G. Sheldon, *How to Write a Patent Application* (Third, Practising Law Institute 2015) 8–70.

can be combined into single ‘component elements’, which, much like molecules formed from smaller atoms, these component elements are the sum of the parts of the smaller elements. For example, a ‘transmission system’ in the mechanical context can comprise any number of smaller components, such as motors, shafts and gears, all of which combine to act as a single ‘transmission system element’ that transmits mechanical power.

Much like a scientific formula, each ‘element’ of a claimed invention genus often defines its own genus, with any number of species falling with the genus defined by that ‘element’. For example, a claimed ‘power source’ may be considered its own genus, and the species included within this genus may include batteries, solar power panels, windmills or any other number of species falling within this genus. The logic behind categorizing each ‘element’ of a claimed invention genus as its own genus corresponds with the logic of ‘interchangeability’- the scope of the claimed invention genus should not be easily circumvented by third parties by simply replacing an ‘element’ of an invention with another one that could easily serve the same purpose.⁵²⁴ The patent drafter abstracts each feature of the presented embodiment(s) by attempting to view each feature as a species of a broader genus, and then defining each feature by the label of this broader genus. Through this approach, the scope of the claimed invention genus can be expanded to cover as many interchangeable features as possible.

As the foregoing demonstrates, rather than being ‘fence posts’, the modern form of patent claims are actually modelled upon the logic of taxonomic classification, the transition from species (i.e. embodiment) to genus (i.e. patent claim), and in many ways takes the form of the traditional scientific formula.

c. The Difficulty with ‘Elemental’ Analysis

⁵²⁴ Alain Pottage and Brad Sherman (n 518) 37.

The claim drafting principles set out in the preceding Chapter 7.2.b. can be succinctly summarized as follows:

The proper scope of the main claims can now be deduced by generalizing from the specific forms of the invention, firstly by picking out the minimum number of its essential elements and generalizing them, and secondly by seeing that the claim so derived reflects a principle of operation responsible for the effects when the general way in which the invention works can be elucidated, or alternatively, by seeing that the claim reflects a reasonable prediction as to obtaining the effects when the invention is empirical. The draftsman must in effect extract the general inventive concept and express it in terms of essential elements of the claim that are aligned with the principle of operation that gives rise to the effects; or he must imagine all the equivalents of the specific forms of the invention that at least can be reasonably predicted to achieve a minimum of the desired effects when the invention is empirical.⁵²⁵ (emphasis added)

Despite the fact that drafting patent claims has consistently been referred to as the most challenging of all legal drafting,⁵²⁶ when one elaborates the process of filtering, abstracting and generalizing the invention genus from the embodiment(s) as set out in the foregoing passage, theoretically speaking, the invention claiming process begins to appear “quite straightforward”.⁵²⁷ From a practical perspective, actually putting this into practice no doubt takes training and exercise to master, but from a theoretical perspective, the taxonomic logic of invention claim formula as genus provides far more analytical clarity than the ‘claims as fence

⁵²⁵ Dr. J L Benton and Dr. K J Heimbach, ‘Claim Drafting and Significance - An Anglo-German Industrial View’ in John A Kemp (ed), *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 33–4.

⁵²⁶ *Topliff v Topliff* (1892) 145 US 156 (USSC): ‘The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy’.

⁵²⁷ Alain Pottage and Brad Sherman (n 518) 138.

posts’ analogy in addition to rooting the discourse of inventions and patents in the discourse of scientists and engineers.

However, although the ‘invention as genus formula’ analogy provides considerable clarity compared to the ‘claims as fence posts’ analogy, the analogy still masks the many challenges associated with the transition from world (i.e. embodiment(s)) to word (i.e. claimed invention genus). The challenge lies in the fact that “there is no straightforward epistemic transfer of terminology between science and law.”⁵²⁸ As stated in a seminal US patent law judgement:

An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law. This conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled.⁵²⁹

The following Sections will demonstrate some of these idea gaps.

i. Each Element as a Genus

As discussed above under Chapter 7.2.c., the claimed invention genus is constructed by connecting individualized ‘elements’ to form the invention formula. This formula constitutes a generalization covering all of the species that fall within the set of the claimed invention. When moving from embodiment(s) to claimed genus, each defined ‘element’ selected to form part of this invention formula represents a genus in and of itself. When engaging in the claim construction exercise, judges will set out the properties defining the semantic content of each

⁵²⁸ Siva Thambisetty (n 11) 21.

⁵²⁹ *Autogiro Company of America v United States* (1967) 384 F2d 391 (United States Court of Claims) 397.

element of a claim, with the semantic content of each element defining the class of species included within each generic element.⁵³⁰

Although this elemental approach is based largely on the Aristotelian philosophy of categories and natural kinds, unlike Aristotelian categories which derive their hierarchy from supposedly natural ontological elements, in invention analysis, there are no such natural ‘elements’.⁵³¹ Drafting treatises assume that it is typically straightforward exercise to give each feature in an embodiment its ‘conventional name’ when labelling elements, yet it is rare that such seamless labelling of ‘elements’ can actually take place. There are several frequently cited reasons for this challenge. For example, practically any number of individual objects can be *bracketed* into a single discrete ‘element’, with such element having its own intrinsic properties defining the class of species it covers apart from any intrinsic properties the individual objects would have had if bracketed as its own element.⁵³² To put it simply, the semantic content of a group of elements is rarely, if ever, a simple sum of its parts, given that the interaction between elements gives the ‘element combined from smaller elements’ its own intrinsic properties that are different from the intrinsic properties of each of the individual smaller elements. Furthermore, with inventions sitting on the cutting edge of innovation, the necessary words may not yet exist to capture the innovative aspects of an invention. Species-genus language categories exist in specific technical fields, such as biological and chemical arts, making the transition from

⁵³⁰ See for example the Canadian case *ABB Technology AG v Hyundai Heavy Industries Co* 2013 FC 947 [47], wherein Barnes J. found that the claimed ‘moveable switch contact element’ was a ‘generic term’ that covered an entire class of switches.

⁵³¹ For an interesting application of classical Aristotelian dichotomy of classification, albeit with respect to the invention/patentability dichotomy, see David Vaver, ‘Invention in Patent Law: A Review and a Modest Proposal’ (2003) 11 *International Journal of Law and Information Technology* 286, 287.

⁵³² For an excellent discussion of this topic, see Kevin Emerson Collins, ‘The Reach of Literal Claim Scope into After-Arising Technology: On Thing Construction and the Meaning of Meaning’ [2008] *Connecticut Law Review* 493, 525–6.

a species in an embodiment – for example, potassium – to a genus element in a claim – for example, alkali metal – more natural. However, in other technological areas, such as electro-mechanical fields, such customary species/genus categories may not exist, and as such, the drafter may need to become their own lexicographer to create their own general elemental language.

Yet apart from these oft-cited reasons, even in technical fields where customary species-genus terminology already exists, the transition from species embodiment to invention genus still encounters several other unappreciated challenges. As discussed above under Chapter 7.2.c., the claim drafter must include only the essential number of elements necessary for *both* novelty *and* operability. A claimed invention is *not* simply a list of parts. Although the explicit function of the invention need not be claimed, the chosen claim text must *combine* to form something which is operable. Defining each element as its own genus is often challenging, as novelty requirements and connectivity between elements demand that each element be modified with a number of features or characteristics.⁵³³ For example, Robert Calvert, a pioneering US patent drafting treatise writer, highlights the frequent need to modify each element-genus for the novelty defining purposes:

A “wheel” may be defined as a circular body mounted on a central axis for rotation. The words “circular body”, when taken alone, may “read on” or cover many objects or species besides a wheel. Thus, circular body may cover a rolling log, a coin, a circular picture frame, a dinner plate, a pie pan or a hoop. By reason of the fact that the words “circular body” cover or “read on” a class of objects made up of two or more species, one speaks of such words as the genus of the definition. By adding to the genus qualifying words “mounted on a central

⁵³³ Robert C. Faber (n 521) 10-10-10-11.

axis for rotation”, all the species except the wheel are excluded. The qualifying words form the “difference” which characterizes the wheel from the other species. Accordingly, a definition is evolved by adding the difference to the genus. It is the difference which defines or limits the scope of the extension. In drafting patent claims, this general rule is employed.⁵³⁴

Referring to the above example, one sees that this sort of drafting technique is frequently used to limit a respective genus element and, correspondingly, limit the ultimate scope of the entire claimed invention. However, while certain choices of language may make sense in the mind of the drafter at the time of drafting, if and when the matter comes to litigation, it may not be entirely clear to a judge what precisely is, or should be, *the element(s)*. Using the above-referenced example, one might be inclined to consider each of the ‘circular body’ and ‘central axis’ as separate, distinct elements. Furthermore, are functional terms such as ‘mounted’ and ‘for rotation’ elements? They may certainly require interpretation for the purposes of assessing patent validity or infringement. Does it matter whether one distinguishes labelling between ‘elements’ and functional, connective, or qualifying language for the purposes of claim construction? US patent jurisprudence, which conditions application of the doctrine of equivalents for extended protection upon an element-to-element equivalency test is riddled with wrangling between litigants over what constitutes ‘an element’. Cases have turned on whether functional and

⁵³⁴ Robert Calvert, ‘Chemical Applications’ in Robert Calvert (ed), *The Encyclopedia of Patent Practice and Invention Management* (Reinhold Publishing Corporation 1964) 134.

connective language should be considered ‘elements’⁵³⁵, with one case even debating whether the connective term ‘or’ should be considered an element.⁵³⁶

Courts draw lines of varying degrees to define the ‘element’ in question, frequently parsing these ‘elements’ into further sub-elements. While this sort of parsing may seem natural, this only serves to mask the considerable judicial discretion involved. The reality is that “[t]here are no hard and fast standards in the law by which to make the ‘right’ decision as to either the size of the textual element or the level of abstraction at which the element will be evaluated.”⁵³⁷ A claim can be disaggregated into ‘elements’ formed from entire blocks of text or all the way down to individual words.⁵³⁸ Furthermore, a push towards analysis at a much finer level of elemental granularity is likely driven by the belief that “atomising phrases ... treat[s] the individual particles as elements of precision”, a potentially false assumption “that the message conveyed by the whole is simply the sum of its parts, whereas often the true story is much more complicated.”⁵³⁹ As Professors Lemley and Burk have demonstrated, several US patent infringement decisions could have turned in one direction or the other regarding infringement or non-infringement depending on the level of textual, elemental granularity at which each court in question chose to focus its claim construction efforts.⁵⁴⁰

ii. *The Claimed ‘Invention-as-a-Whole’ as an Element*

⁵³⁵ See for example *Nautilus Group, Inc v Icon Health and Fitness, Inc* (2003) 308 F Supp 2d 1217 (WD Wash) 1222–3 wherein Nautilus unsuccessfully attempted to argue that in the claim term ‘affixed on one end’, “affixed” was the element and “on one end” was simply a component or feature of the element and thus not required to meet equivalency as part of the doctrine of equivalents.

⁵³⁶ *Kustom Signals, Inc v Applied Concepts, Inc* (2001) 264 F3d 1326 (Fed Circ) 1333: ‘The word “or” is not itself an “element” of an apparatus or a step of a method, and its presence to signify alternative elements does not convert “or” into an element.’

⁵³⁷ Dan L. Burk and Mark A. Lemley, ‘Quantum Patent Mechanics’ (2005) 9 Lewis & Clark Law Review 29, 31.

⁵³⁸ Peter Meier-Beck, ‘Patent Claim and Feature Structure’ (2002) 33 IIC 679, 680.

⁵³⁹ Matthew Fisher, ‘A Case-Study in Literalism? Dissecting the English Approach to Patent Claim Construction in Light of *Ooclutech v AGA Medical*’ (2011) 3 IPQ 283, 289.

⁵⁴⁰ Dan L. Burk and Mark A. Lemley, ‘Quantum Patent Mechanics’ (n 537) 41, 43–45.

Returning to the summary of principles set out under Chapter Chapter 7.2.c., a claimed invention genus should include only the minimum number of essential elements necessary for novelty and *operability*. From a drafting perspective, it is quite often the case that the patent drafter, in transitioning from species embodiment(s) to claimed invention genus, must view the invention from a holistic perspective in order to appreciate the operable effect of the *entire invention* and ensure that necessary claim text, both for qualifying individual elements and connecting elements to one other to create an operable whole, is included. For example, Calvert elaborates that the entire claimed invention must combine to form a single operative unity at the genus level:

It is important to remember that a claim must set forth a true combination and an operative structure, as opposed to a mere aggregation. One must be able to figuratively “use” the words of the claim...thus, the words of a claim for defining a device or a machine must be “operably” connected together.⁵⁴¹ [emphasis added]

Thus, Calvert concludes that a good claim drafter must not lose sight of the unifying effect of the claim as-a-whole, and from this holistic perspective, a good claim is one that contains “only the minimum number of elements indispensable for novelty and operability.”⁵⁴² [emphasis added] The reference to ‘operability’ of the entire claim cannot and should not be easily disregarded. As the US Supreme Court long ago recognized, “the principle of the invention is a unit”⁵⁴³ and as such the whole does not always conveniently collapse into individual parts. While so much of the focus of both the claim drafting exercise, and more importantly, the claim

⁵⁴¹ ‘Chemical Applications’ (n 534) 134–5.

⁵⁴² *ibid* 141.

⁵⁴³ *Continental Paper Bag Co v Eastern Paper Bag Co* (1908) 210 US 405 (USSC) 419–20; The U.S Supreme Court cited William Callyhan Robinson, *The Law of Patents for Useful Inventions* (Little, Brown, and Company 1890) s 485 in support of this proposition.

construction exercise, is on individual ‘elements’ of the claim, this approach overlooks the reality that the whole is greater than, or at least *different from*, the sum of the parts. The ‘elements’ are rarely mapped on a one-to-one basis from embodiment(s) to claimed invention genus, but instead are shaped and constructed in view of the whole and *vice-versa*.

As such, there is often no clear dividing line between the individual ‘elements’ and the claimed genus as-a-whole as an ‘element in and of itself’. Emerson Stringham highlighted in his seminal claim drafting text that claim-as-a-whole constitutes, to put it in classical logic terms, its own *genus et differentia*.⁵⁴⁴ The invention in its entirety must operate to achieve certain objectives in addition to defining its own novel class vis-à-vis the prior art, and as such, the challenge for the drafter is that “the invention is to be claimed so broadly as to include all variations of it that are both novel and workable.”⁵⁴⁵ [emphasis added] Capturing the requisite operability of the claimed invention as a whole has a recursive effect on the naming and connecting of individual claim elements, further obfuscating the premise that claimed elements seamlessly map onto elements of real world embodiments. Furthermore, the operative, unifying effect running through each claim also runs through the entire claim set. Independent claims have been analogized to ‘tree trunks’ and dependent claims to ‘branches’, with the entire claim set forming a single tree.⁵⁴⁶ On various levels running throughout a patent, the dichotomy between claimed ‘elements’ and the claimed ‘invention-as-a-whole’ blurs and leaves the distinction far more apparent than real.

⁵⁴⁴ Emerson Stringham (n 519) 16.

⁵⁴⁵ Robert Calvert, *Patent Practice & Management For Inventors and Executives* (Reinhold Publishing Corporation 1950) 89.

⁵⁴⁶ Harry C. Hart, ‘Attorneys and Agents – Regulations, Qualifications and Manner of Working’ in Robert Calvert (ed), *The Encyclopedia of Patent Practice and Invention Management* (Reinhold Publishing Corporation 1964) 101.

This elusive ‘elemental’ versus ‘invention-as-a-whole’ dichotomy inevitably leads to drafting challenges surrounding ‘conventional text’ – claim text defining features outside of the novel aspects of the invention but necessary to accomplish operability of the claimed invention as a whole. Although the claimed invention must be novel (and non-obvious), the drafter must still include conventional text, “such conventional elements must be disclosed, if required, in addition to the novel features, for the operation of the invention.”⁵⁴⁷ As we have seen, patent drafters are told to build their claimed invention genus from the ground up, labelling elements and connecting them one-by-one to build the invention formula. This is in many ways an idealized description of the process. How the drafter conceptualizes the operability of the claimed invention-as-a-whole will necessarily require the drafter to return to the previously defined and ordered claim elements, thereby renaming, revising, re-ordering and reconnecting them. While conceptualizing the claimed invention-as-a-whole at greater levels of abstraction does help to broaden the claimed invention genus, we also see that much of the text of a claim may be directed to features not entirely relevant to the inventive aspects of the claimed invention *per se*. Rather, claim text may be included in an attempt to capture operability at the level of the claimed invention *as a whole*. Structural and functional language may be included to connect components to one another in an attempt to capture a unifying effect apart from the necessities of novelty. From this perspective, it might not be possible to define “one ‘correct’ feature structure” when viewing the claimed invention as-a-whole, and as such, the patent drafter is attempting to “disclose [the invention] as clearly and as understandably as possible in linguistic and technical terms” without “distort[ing] the meaning of the patent claim that it is intended to reproduce in

⁵⁴⁷ Robert Calvert, *Patent Practice & Management For Inventors and Executives* (n 545) 94.

structured form.”⁵⁴⁸ (emphasis added) While the process of claim building set out above is portrayed as a structurally neat and ordered transformation, viewed from this perspective, we see that it is often a rather clumsy process, with “the structure of the claim” often becoming “primarily a question of practicality.”⁵⁴⁹

The Anglo-American tradition of emphasizing the need to discretize the claim into elements overlooks that the claimed invention-as-a-whole is in many ways an element in its own right. This ‘claim-as-a-whole’ approach mimics the traditional Continental two-part claim style, most often associated with German patent practice. The two-part claim format recites a lengthy preamble meant to generally cover the state of the art, followed by a transition ‘characterizing’ phrase, and concluding with a statement by the inventor as to what she believes to be her novel contribution to the art. The entire claim takes the form of the genus-difference discussed under Chapter 7.2.c.i. as a means of defining an invention genus.⁵⁵⁰ It is that distinctive point of novelty, which when viewing the claimed invention *as a whole*, as an element in and of itself, forms the “discontinuity between the claimed invention and the prior art.”⁵⁵¹ In the Continental two-part claim, the inventor herself defines this discontinuity *within the claim*, by claiming the invention *as a whole* as its own genus element, the characterizing portion distinguishing the category of the state of the art by way of the specific differential properties of the novel contribution set out under the characterizing language.

iii. *The Structure/Function Dichotomy*

⁵⁴⁸ Peter Meier-Beck (n 538) 687–8.

⁵⁴⁹ *ibid.*

⁵⁵⁰ J.A. Kemp, ‘Summary: Claim Drafting – Random Notes’, *Claim Drafting and Interpretation- a Major European Conference (27-29 April 1983): Sponsored by the Benescience Foundation* (Oyez Longman Publishing Limited 1983) 4: ‘...the “characterized in that” form of claim ... which sets up a genus or presumed genus and then goes on to set out a new species of alleged inventive merit.’

⁵⁵¹ *Yeda Research and Development Company Limited v Rhone-Poulenc Rorer International Holdings Inc* [2007] UKHL 43 (UKHL) [20].

The element-as-genus approach is based on the logic of interchangeability. The element-as-genus defines the class of all interchangeable species that can serve the same purpose within the overall purpose of the invention. Thus, if a claimed invention includes ‘alkali metal’ as an element of the claim, this element covers all species of alkali metals that would fall within the genus ‘alkali metals’.

However, as discussed in the preceding Chapter 7.2.c.i., recognizing that operability and function connect through the entire claimed invention-as-a-whole creates challenges for operability and function at the elemental level. For example, in inventions relating to machinery, there are often no clean lines distinguishing between structure, function and effect. The drafter, attempting to transition the species-embodiment(s) to a claimed invention genus will often see function as structure, and *vice-versa*. As Professors Pottage and Sherman elaborate, the textual elements of a claim, viewed from differing levels of isolation from one another as well as a connected whole, form “semantic units that [compress] structure into function.”⁵⁵² Thus, from a logical perspective, the definition of the invention genus in the form of a claim blurs the boundaries between structure and function:

The [invention] effect can also be described in terms of the relation between structure and function... from the perspective of the engineer there is an obvious sense in which structure and function are related: the structure of a machine will have evolved or designed with a particular function in mind; an engineer will be able to infer the function of a machine by looking at its structure; ... any description of a machine will be at once structural and functional, even if only one of those aspects is foregrounded or acknowledged...⁵⁵³

⁵⁵² Alain Pottage and Brad Sherman (n 518) 141.

⁵⁵³ *ibid* 140.

Be it the drafter of the claim or the hypothetical skilled reader, an invention is viewed both functionally and structurally, the line between each often blurring within one another. Both drafter and hypothetical skilled reader may not see clear distinctions between structure and function when transitioning from species-embodiment to defining the claimed invention genus, either at a granular, word-by-word level, or at the level of the claimed invention-as-a-whole. Yet, as we have seen thus far, the format of the modern claim demands that embodiments of an invention be dissected and categorized into structural elements and connected to one another in order to define both a novel and operable invention.

Professor Maureen Irish highlights the challenges associated with a formalistic approach to genus classification and interpretation of manufactured items which emphasizes supposedly ‘objective’, structural criteria as the essence of a genus as opposed to actual user perspectives of function. For example, what best defines the essential qualities of a ‘table knife’- the fact that it is ordinarily present at a ‘table’ (however one defines a ‘table’), that it is formed as an elongated solid member with at least one sharpened edge or that it is an instrument which reduces portions of food to bite size?⁵⁵⁴ Is the essence of a ‘wooden table’ that it is made of wood, or that “it fulfils certain functions”?⁵⁵⁵ When one focuses on the fact that manufactured items, unlike Aristotelian natural kinds, are designed for an intended user, we see that interpretation of such categories from the perspective of such user must focus on functional considerations:

For the naming of natural kinds, physical characteristics may be paramount. Manufactured goods, however, reflect human design and can be most reliably identified through

⁵⁵⁴ Maureen Irish, ‘Interpretation and Naming: The Harmonized System in Canadian Customs Tariff Law’ (1993) 31 Can YB Intl Law 89, 117 citing *Beco Imports Reg’d. v. DMNRCE* (1985), 10 T.B.R. 202 at 203, 9 C.E.R. 253 (T.B. App. 2215).

⁵⁵⁵ *ibid* 140.

interpretation that considers that design. A wooden table is more like a metal table than it is like a wooden chair.⁵⁵⁶

Thus, according to Professor Irish, the mapping of word to world in relation to manufactured items is as much, if not more, an interrogation of the purposes and functions that underlie the structural aspects of the genus in question:

... classification criteria come not from the objects themselves but rather from the observers.... Natural kinds such as "bird" may be determined mainly by physical features, but for manufactured goods, function and purpose are central. Part of the idea of "vehicle" is that it is "for transporting goods or people." Part of the idea of "cup" is that it "is used for drinking out of." The emphasis on use will be particularly marked for products of new technology, which may accomplish the same thing as older goods but have different physical characteristics.⁵⁵⁷ [emphasis added]

The foregoing demonstrates that the transition from species-embodiment to claimed invention genus is made that much more difficult by the amorphous dividing line between structure and function- "While words may adequately describe structure, function or advantage of the invention on their own, some inventions merge these attributes generating uncertainty in what exactly has been invented or where the inventive contribution lies."⁵⁵⁸ As Emerson Stringham, states, "[a] patent is not granted for the advantage that the invention yields, but rather for the means of obtaining the advantage. This distinction, however, is often shadowy."⁵⁵⁹ Stringham goes even farther, suggesting that "[i]n the domain of patent law there has probably

⁵⁵⁶ *ibid* 149.

⁵⁵⁷ *ibid* 97.

⁵⁵⁸ Siva Thambisetty (n 11) 16.

⁵⁵⁹ Emerson Stringham (n 519) 48.

been more confusion as to function and functionality than on any other one subject.”⁵⁶⁰ From a historical perspective, some of the earliest patent cases struggled with categorizing inventions within either the ‘machine’ or ‘process’ category, largely due to the fact that many inventions are both simultaneously structural and functional. Stringham highlights the mid-19th Century US Supreme Court decision in *Corning v. Burden*⁵⁶¹, where Justice Grier ‘belittled’ the philological attempts of counsel and witnesses to distinguish between a machine and a process, as one of several examples demonstrating the often blurry line between structure and function.⁵⁶² For Stringham, claiming inventions in terms of functions “is [often] the truest way of defining an invention” despite the fact that “there has grown up against it an appalling massive tradition.”⁵⁶³

A drafter attempting to capture function at the level of the claimed invention-as-a-whole may utilize structural connections between elements, where such structure can easily be circumvented by a third party by capturing the intended function through other means. One can only expect so much from the drafter attempting to navigate the rough waters of structure and function with only the uneasiness of language as their ship. Inventions often lie on the cutting edge of innovation and language, and thus, pre-existing lexicon may not adequately capture the transition of embodiment(s) (i.e. species) to a generalized claim (i.e. genus). However, this challenge may be a symptom of the problem rather than the problem itself, namely, the slippery and difficult dividing line between defining an invention structurally and defining the invention functionally.

3. CLAIMING INVENTIONS – IN PROFESSIONAL PATENT AGENTS’ OWN WORDS

⁵⁶⁰ *ibid* 160–1.

⁵⁶¹ *Corning v Burden* (1853) 56 US 252 (USSC).

⁵⁶² See *ibid* 266, where Justice Grier highlights that this philosophical debate ended up distracting from the main issues surrounding infringement: ‘The introduction of this philological discussion seems at once to have changed the whole course of investigation, to the entire neglect of the allegations of the declaration and of the issues set forth in the pleadings in support of which all the previous testimony had been submitted to the jury.’

⁵⁶³ Emerson Stringham (n 519) 173.

a. What is an ‘Invention’?

It would likely seem trite to those outside the world of patents to state that an invention must first exist before one can legally claim it. However, to those within the field of patent practice, the notion of invention has, more and more, become nothing but the sum of its statutory parts—statutory subject matter that is novel, nonobvious, useful, sufficiently disclosed, enabled and claimed. For the professional patent agent, their stock in trade is claiming, and as such, to this ‘cult of the claim’ it is difficult to speak of an invention outside of claim language.⁵⁶⁴ It may be that the invention is the muddiest of all of the muddy metaphysics that make up modern patent law.⁵⁶⁵ Most Anglo-American interviewees seemed taken aback by questions pertaining to the invention, with one UK interviewee laughing and stating ‘*I didn’t know this interview was going to get philosophical!*’ [#4].

Yet as much as some in the patent community would like to purge all mention of invention from patent practice, it is a concept that continues to appear in patent legislation, case law and commentary. Harmonization of European patent law has long struggled with the fact that “[t]here is clearly a difference between defining an invention and defining the protection to be afforded to the invention” with no consistent approach across European jurisdictions.⁵⁶⁶ In recent years, the distinction between the invention and the claims has become the topic of considerable academic

⁵⁶⁴ Oskar Liivak (n 66) 47.

⁵⁶⁵ This phrase is taken from *Mueller Brass Co v Reading Industries, Inc* (1972) 352 F Supp 1357 (ED Pa) 1372, referring to joint inventorship as ‘one of the muddiest concepts in the muddy metaphysics of patent law.’

⁵⁶⁶ Edward Armitage, ‘Origins of Relevant Provisions of the Munich & Luxembourg Conventions’ in John A Kemp (ed), *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 9–10.

discussion.⁵⁶⁷ From a comparative perspective, legislation around the world continues to reference the ‘invention’, yet with no consistent definitions.⁵⁶⁸

Often when interviewees were asked about what an ‘invention’ means to them, the conversation quickly turned to the professional patent agent’s role in prosecuting patent applications. However, conversations went in many different directions without any clear theme or guidance. For example, one UK interviewee stated that there is an ‘invention’ that exists outside of the work of the professional patent agent. But the conversation then went into how “anyone can file their own patent application with the UK IPO, and they will more than likely get their patent granted. But the scope of protection will be weak.” This again prompted the discussion to refocus on the question of the invention- if the inventor can file to protect *the invention* and will be successful, what is it precisely that the attorney is doing? The response was that the value-added of the professional agent is more commercial- the inventor may understand the core of *the invention*, but inventors often fail to foresee the broad swath of commercial embodiments that may be valuable in the *future*, and as such, fail to appreciate how broadly they should be claiming. This, in this attorney’s opinion, is the value-added that the professional agent brings to *the invention*.⁵⁶⁹ [#28]

Many Anglo-American attorneys seemed to oscillate between acknowledging that an invention exists while still ardent that an invention can never truly be defined. For example, one UK interviewee insisted that an actual invention *exists* and that their role was to trim through the

⁵⁶⁷ For a brief summary of some recent academic debate and discussion on the invention/claims distinction, see Christopher A. Cotropia (n 66) 1859 at FN4.

⁵⁶⁸ For an interesting discussion of the invention/claims dichotomy under US law, see ‘The Unresolved Interpretive Ambiguity of Patent Claims’ (2015) 49 U.C. Davis Law Review 1851, 1855.

⁵⁶⁹ Many drafting treatises and commentaries also suggest that this is one of the core, if not the core, competencies of a professional patent agent, namely, helping the inventor to think broadly of all of the possible permutations of the invention that might otherwise not have been apparent to the inventor. See for example Harry C. Hart (n 546) 98.

weeds to find it, yet was simultaneously firm in his assertion that interpretation and argumentation was a key part of the process and that there can never truly be a core to an invention. He suggested that the invention changes and may shift depending on what happens during patent examination, an opposition proceeding or litigation. There is an inherent and intriguing tension in this perspective- a real inventive core *exists* and it is the patent agent's job to find it and yet it is also the agent's job to continue fighting to redefine an invention forever captured by the forces of interpretation.

At least one US interviewee was far more direct than other interviewees, stating that an invention “*is whatever a jury says it is.*” [#8] Some UK interviewees suggested this view was illustrative of one the main difference between European and US patent law and practice, revolving around the former's recognition that an invention truly exists whereas the latter emphasizes only claiming. According to some interviewees, practitioners in the US draft claims broadly, with many different reformulations of claim text across a large set of claims, rather than attempting to truly uncover and claim the *actual invention*. [#10] Interestingly, some German interviewees suggested that UK practice is now drifting towards this US-style of practice, where practitioners do not attempt to pinpoint a true inventive concept and instead file a large number of claims to ‘*see what works*’. [#33; #25]

Some German interviewees defined an invention by referencing precise definitions cited in German and EPO BOA case law; specifically, one interviewee stated that “an invention within the meaning of patent law is a technical teaching”.⁵⁷⁰ Generally speaking, most European interviewees suggested that the ‘invention’ is the novel contribution to the art, or, as sometimes

⁵⁷⁰ See for example *X ZB 15/67 - Red Dove* (BGH); *X ZB 33/03 - Offer of Interactive Support* (BGH).

referred to by interviewees, the ‘point of novelty’, the ‘inventive core’ or the ‘novel contribution’.

b. How to Claim an Invention

Moving on from the somewhat abstract question of what is an ‘invention’, interviews included an in-depth discussion of how interviewees approached the exercise of claiming an invention. The intention here was to hear, in interviewees’ own words, how they claimed an invention. To accomplish this goal, the topic was approached in open-ended fashion; what are *you* doing when you are *claiming an invention*? How do you draft patent claims? Interviewees were provided a hypothetical scenario to help contextualize the question; assume an inventor walks into your office, places a pen on the desk and says ‘this is my invention’. What do *you do*? How do you approach the exercise of analyzing the invention and drafting claims? When asking these questions, interviewees were permitted to take the discussion in any direction.

These open-ended questions elicited some of the most fascinating responses in the interview data, spanning the spectrum from formulaic to metaphorical, clinical to allegorical. In response to these questions, Anglo-American interviewees referenced analogies to land, territory and ‘staking out fence posts’ more times than can possibly be counted. If there was one dominant, almost all-encompassing theme that emerged from the interview data, it was the frequency with which Anglo-American professional patent agents rely on such analogies when speaking of claiming inventions. For example, one UK interviewee responded as follows:

I always say to clients. I envisage the field of protection literally as a field. If you discover this new land, and when you want to protect the field, seek a bit of a fence. You rightly want to land grab as much as possibly can put up the biggest fence around all of the lands that you can see. But then, if someone has tried encroaching on your land and knock down your fence

you'd want some backup protection. You know within the fence some protection because within that big field, there's one area that you want to protect, just like with land, the land having a stream or oil or coal. And so you set up all these fences that get progressively narrower so that if you do lose, your added perimeter, you still protect the mainland. So you seek a second fence or third fence, and you sort out that protection and you're still protecting the core invention. After you put up your fences, you then find out that someone's already got their stakes to that piece of land over there in the corner of the field. So you have to remove your fences to dodge that person to let them co-exist with you. It's an analogy that you know mostly works, it has a couple of holes in it, but you can visualise it. And then it's all about finding out the order of those fences and which of the features are more important, which are less important. And from that, you can write your claim sets. [#3]

In certain areas of technology, such as the life sciences and chemical arts, ‘word’ and ‘world’ are far more coincident with one another and the language of patent claims demonstrates far greater correspondence with the language of science.⁵⁷¹ Despite this fact, it was common to hear interviewees who practice in these technological areas to reference the territory and fence posts analogies. Based on such feedback, patent law outsiders could be forgiven for thinking that inventions somehow magically transform into plots of land upon entering the patent system.

Many interviewees did not provide a systematic response to the ‘pen invention’ hypothetical posed to them during the interview, instead responding with broad strokes statements about ‘broadening protection’. Many stated that inventors present something specific and the inventor’s

⁵⁷¹ See ‘What Kind of Rights Are Intellectual Property Rights?’ in Rochelle C Dreyfuss and Justine Pila (eds), *The Oxford Handbook of Intellectual Property Law* (Oxford University Press 2018) 65 where, in response to the ‘notice failure’ argument against viewing patents as ‘property’, namely, that property must have clearly defined and distinct boundaries, Merges points out that patent law’s notice failure problem may be largely technology-specific to computer/software inventions compared to other areas of technology.

mind is focused on this specificity, and it was their job was to broaden out the scope beyond just the embodiment presented by the inventor. Yet when pressed with further questions on walking through the exact steps involved in ‘broadening’ the invention during such a meeting with the inventor and thereafter, these interviewees often framed their responses in forms of generalized statements as opposed to a defined process of transforming a presented embodiment into a claimed invention.

Some interviewees provided far more colourful analogies than the ‘fence posts’ theme. One UK interviewee stated that his role in working with an inventor is to ‘curate’ the invention. [#3] According to this interviewee, a curator uncovers, selects, collects and categorizes items under classifications, interprets them into a single unified theme and presents them under the umbrella of this theme. Furthermore, this interviewee stated that there was an inventive core which needed to be located and defined in precise language and a surrounding conventional text that could be generally formulated, and absent a penumbra of potential dispute surrounding this core, the meaning of those words should be relatively attainable with modest effort.

Another UK interviewee suggested that drafting claims is all about filtering the invention down to “*that one point of difference from [the prior art] and build from there*”. [#20] According to this interviewee:

So you're kind of trying to silt it down to the simplest thing that still does whatever the purpose of the invention is, whatever that clever feature or function is. So you distil it down to one point of difference that still fulfils that purpose, and then the bells and whistles get added on in ... and you are also just trying to cover the scope of things that you're not quite sure of yet. [#20]

Another interviewee stated that claiming an invention must always be placed within the necessary business context in order to focus inventors on the reality that a patent is a business asset. As such, he explains to inventors that an independent claim should be “*your most narrow expression of your actual proof of concept*” [#12]. He asks inventors to provide him with this statement, and from there, goes through the exercise of asking inventors “*is this feature necessary? Can we remove it? Are there equivalents for this feature? If so, can we generalize it? What else could you use here that would also work?*” [#12] Another interviewee shared a similar ‘proof of concept’ approach, suggesting that when inventors are taken through this process of questioning, inventors realize “*new things that are equivalent... and all of the changes that could be made while still achieving the same effect.*” [#32]

One US interviewee suggested that while one can formulate methodologies for claim drafting, ultimately, it is more art than science:

...learning [claim drafting] ... I think a lot of it is practicing. You can teach someone to fish, but until you fish yourself, you can't really figure it out. You can't know what it feels like to have a fish on the line. [#9]

Despite such articulate and creative elaborations of invention claiming, most Anglo-American interviewees continued to return to the analogy of fence posts, territory and real property throughout the discussion. It is as if the pull of gravity of the ‘fence posts’ analogy is inescapable for so many in the Anglo-American profession. Even when interviewees could clearly articulate a systematic methodology for invention analysis and claiming, many could not help but return to this analogy despite it having little relation to the true nature of invention claiming.

Perhaps more so than any other issue explored in the interviews, a clear divide appeared between Anglo-American and German interviewees when discussing claiming inventions. German agents were often precise and formulaic in their responses. Few relied on the ‘boundary, territory & fence posts’ metaphors that dominates Anglo-American legal discourse and appeared so often in Anglo-American interview data. This should not be surprising given that German patent experts have long viewed the Anglo-American tendency to characterize inventions and claims in the language of land and fence posts with bewilderment.⁵⁷² Even when interviewees did rely on metaphors or analogies, the language used closely paralleled scientific discourse more than the discourse of land prospecting.

German attorneys spoke of ‘abstracting’ from the presented features of the embodiment towards broader genera. One German interviewee framed her role as examining the presented embodiment and then properly filtering and abstracting out the elements of the invention to a proper level of *general classification*. According to this interviewee, “*an invention is like a raw diamond, and it's our task to make it brilliant and to make it sparkle*”, and to do this, “*we have to find out where to cut it that makes it fabulous*”. [#11] This act of ‘making the cuts’ is all about crystallizing the ‘gist of the invention’:

When you come with this pen, I look at it and say, okay.. It has a body and has a cap, do you need to have the cap? ... Must it be like this? Could it be in another tip? ... Is it a ballpoint? This is not a ballpoint? Yeah, it has something different. The felt tip. So it is the felt tip that's the invention, or the form of it? But that form is very old, so it's not that form? If the pen is felt tip then could it be some other material? Yes, it could be, it should just be able to absorb

⁵⁷² See for example Karl Bruchhausen, ‘The Scope of Patent Protection in Different European Countries - An Outline of Recent Case Law’ (1973) 4 IIC 306, 313.

ink in. So you try to find whatever is the idea about it... So it's the questions, that's what has to be focused. [#11]

Using the hypothetical ‘pen’ invention discussed above, one German interviewee provided a written, detailed, step-by-step framework for analyzing and claiming the invention, including examples of questions that would be asked of the inventor at an initial meeting, search strategy for carrying out a prior art search, process for determining the point of novelty, selecting essential features and generalizing these features [#33]. According to this interviewee, one works with the inventor to name the features of the invention, along with the technical interactions between the features. Then, the agent drafts a claim encompassing the complete technical teaching of the invention, relying on the named features and the interactions between them. From there, the agent continues to work with the inventor, asking probing questions to determine which features are necessary and essential to complete the technical effect and achieve novelty, eliminating from the independent (and possibly reserved for dependent claims) any non-essential features. Part and parcel with this, the agent discusses possible alternatives, both in terms of individual features, the claimed combination as a whole and various functions of each, in order to potentially broaden the scope of claimed features and/or the claimed invention as a whole. Finally, this entire process is re-iterated as many times as necessary until the agent and inventor are satisfied that they have claimed the broadest possible independent claim, in terms of eliminating any unnecessary features while maintaining a definite, novel and operable claimed invention. [#33] This interviewee’s detailed feedback appears like something out of a claim

drafting treatise, and indeed, could easily be modified to be used as a hypothetical for training new agents in the basic principles of claiming inventions.⁵⁷³

Similarly, another German interviewee emphasized that the goal of claim drafting was to locate a definitive inventive principle, which can be characterized as the “novel technical features which are essential to the invention”.⁵⁷⁴ Once recognized, this inventive feature (or features) would be clearly highlighted in the characterization portion of the standard German-style two-step claim, with the other features in the preamble abstracted to proper the generalization. Of all interviewees, only one, a German patent attorney, framed the philosophy of invention claiming in Aristotelian terms, similar to that discussed above under Chapter 7.2.c., referring to the notions of ‘genus proximum’ and ‘differentia specifica’ in relation to the tension between breadth of generalizing terminology and defining a scope of novelty. [#35]

One German interviewee used the analogy of legislation, stating that a patent claim is like “*a statute, it’s like a piece of law or legislation.*”⁵⁷⁵ [#35] This agent stated that the goal of a patent agent in drafting the claim is to “*generalize the means of the solution through abstraction.*” [#35] To do this, one must “*determine what are the essential elements or features needed to solve the problem, and then ask yourself, ‘can I generalize those features to abstract from the embodiments presented to me by the inventor?’*”. [#35] Another German interviewee said that drafting a patent claim is an attempt to explore with the inventor all of the different permutations of the solution that exist, and distilling it down to the essential parts/features and interactions

⁵⁷³ In the art of patent drafting, this is sometimes referred to as drafting a ‘picture claim’, which is a precise statement of all of the exact parts of an embodiment, which can then be used to generalize to a broad claim. See for example Jeffrey G. Sheldon (n 523) 8–70.

⁵⁷⁴ Volker Vossius, ‘Claim Drafting and the Supporting Description Under the EPC and the German Patent Law’ in John A Kemp (ed), *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 73.

⁵⁷⁵ See *Whirlpool Corp v Camco Inc* (2000) 2 SCR 1067 (SCC) [49] where the Supreme Court of Canada states that a granted patent is an enactment within the definition of a ‘regulation’ under the Canadian Federal Interpretation Act.

needed to be included in the claim. From this perspective, this agent stated that a patent claim is “*like a formula*”. [#25] Interestingly, while most Anglo-American interviewees continuously returned to the ‘fence posts’ analogy, many German interviewees continuously referred back to the ‘formula’ analogy as a reference point for all discussion intersecting with the issue of claiming inventions.

4. CONCLUSIONS

The modern form of the claim is, as Emerson Stringham tells us, a statement intended to define the essence of an invention- or, in patent terminology, the invention’s essential elements.⁵⁷⁶ Although patent practice often attempts to define itself as a hard science, Stringham reminds us that patent law, at the very least at the point of the modern patent claim, remains a social science. Regardless, the reality is that defining ‘essential elements’ in the natural sciences may be as elusive as in the social sciences. Writing at the tail end of the era of modernity, Stringham highlights that essence, even in the natural sciences, is an ideal that can never truly escape human agency and intervention:

[I]nventors are induced to confine their descriptions to the essential invention and their necessary settings and their claims to a particular and distinct pointing out of the invention itself as distinguished from the setting.... The trouble is that we have no instrument for separating the essential from the inessential. What you think is essential, I think is inessential and *vice versa*, and there is no common reference frame from which it can be determined which of us is right, or whether one is anymore right then the other... Bridgman [1930] says we used to demand that the ultimate goal of physical theories should be nothing less than the discovery of the underlying realities, but that today our demand for reality is much less

⁵⁷⁶ Emerson Stringham (n 519) 25.

insistent in large part because we are much less confident that the ultimate reality has any meaning. The present author is similarly dubious about inventions having any “essence”.⁵⁷⁷

It is important to recognize that Stringham’s rejection of a natural essence to inventions does not mean that he subscribed to a formalistic approach to claiming and construing inventions, where the invention claim is treated like a formula where must simply identify the variables and apply them like an algorithm in order to determine the essence of an invention. In fact, it was the opposite. Stringham recognizes that a lack of natural essence means that language will always fall short, and imposing stricter formal claiming guidelines will not change this reality. To Stringham, such a mechanical act of adding up elements to form an invention formula is an illusion, regardless of how useful this illusion may be as a legal heuristic and analogy. As a social science, claiming inventions cannot hide from essence in the form of human agency:

The operation of evaluating elements of a claim, so as to place more emphasis upon one than another... is a very elusive operation. At first thought it would seem that each element of a claim should receive equal weight- either it does or does not constitute part of the invention. But the thing is not so simple, and as elsewhere in the social sciences we must work with intangibles. Very little experience with patent claims will convince anyone that the elements of a claim cannot always be given equal weight, even in office practice. In an infringement suit the usual practice of treating claims fluidly finds free play in the evaluating of their elements.⁵⁷⁸

⁵⁷⁷ *ibid* 23.

⁵⁷⁸ *ibid* 27–8.

Thus, for Stringham, it is occasionally necessary to distill the novel contribution of the claimed invention from those aspects that constitute the setting⁵⁷⁹ or surrounding⁵⁸⁰ in which the novel contribution operates. Stringham recognized that a fully claimed invention requires operability, which requires a cooperation and connectivity between components⁵⁸¹, and as such, some claim features may be merely descriptive⁵⁸², or only part of the environment “necessary in order to give the invention its operative field”.⁵⁸³ Stringham highlights a number of early US Supreme Court decisions where judges sought to locate the novel aspect of the claimed invention, and were willing to give conventional features outside of this novel contribution functionally-oriented interpretations.⁵⁸⁴ As we shall see in the next Section, internationally, this approach has gone by the wayside in favour of far more formalistic approaches to claiming and construing inventions.

Returning to the question of epistemic capture, the modern form of invention claiming, which has been sharply refined since the birth of professional patent agency, remains firmly rooted in the epistemic epoch of the classical era from which it emerged. The epistemic foundation of classical era thinking revolves around the following analytical approach:

[E]very phenomenon [is] to be investigated by a method which involve[s] breaking it down into its constituent parts, identifying and naming each part and then examining each of these for its distinctiveness and characteristics based upon a principle of similarity and

⁵⁷⁹ *ibid* 22.

⁵⁸⁰ *ibid* 27.

⁵⁸¹ *ibid* 31.

⁵⁸² *ibid* 28.

⁵⁸³ *ibid*.

⁵⁸⁴ *ibid* 137; Stringham cites, among other early US Supreme Court decisions, *Continental Paper Bag Co. v. Eastern Paper Bag Co.* (n 543) 422 where Justice McKenna ‘recognizes that the distinction between a practically operative mechanism and its function is difficult to define and becomes more so when a definition is attempted of a function or an element of a combination cooperating with other elements.’

difference.... With this scientific basis for comparison it then becomes possible to discriminate and pass judgement in terms of the true and the good.... [this] form[s] the underlying formative rules of organising and sense-making in the Classical epoch. This episteme or system of thought continues to exert its influence in organisational life today.⁵⁸⁵

As we have discussed in detail herein, this statement succinctly describes the modern patent claim and this form of thinking still exerts its influence on today's predominant form of invention claiming and infringement assessment. Recognizing this reality, and critically examining its effects as a legal heuristic, helps us to identify several shortcomings and challenges in modern patent law. Perhaps most importantly, as we shall see in the coming Sections, this recognition is significant to uncovering how professionalization of patent agency over the course of the 20th century has contributed to the disconnects of agency within the patent system from inventive agency.

What these interviews demonstrate is that most Anglo-American interviewees remain firmly committed to the territory and fence posts analogy for invention claiming despite the fact that it is an ill-fitting description for the process of invention analysis and claim drafting. To a large extent, this may be due to the fact that few attorneys have ever actually considered, in terms of a systematic approach, what it is that they are doing when drafting claims for an invention. Most interviewees could elaborate at least a general level systematic approach to claim drafting. Upon our discussing the process in detail, including the process for identifying and generalizing elements filtered from presented embodiments, it was as if interviewees had a sudden 'aha moment'. For many, it was the first time that a systemized approach to claim drafting was presented to them in a succinct, conceptualized fashion. Once the claim drafting process was

⁵⁸⁵ O'Leary and Chia (n 322) 11–12.

elaborated in this methodological way, many interviewees expressed pleasant surprise that the process could be framed in such a formulaic fashion. Existing professional patent agent training programs rarely systematize the process of claim drafting and even recent textbooks often fail to set out a systematic approach.⁵⁸⁶ It should therefore not be surprising that interviewees struggled to articulate their process to claim drafting.

Of course, as discussed in detail herein, claiming inventions is as much, if not more, art than science. Formulaic approaches to filtering and generalizing essential elements is a useful technique and the claim as genus-formula is a helpful heuristic, but they remain just that, abstract ideas that never fully correspond with reality. Yet the art of playing music can be systematically broken down into core concepts such as keys, melody and time signature without taking away from the creative input of the human musician. Thus, most of the agents interviewed could be analogized to a pianist who can sit before a piano and compose what they know is a pleasant song, without truly knowing the theory behind how to read or write music. To paraphrase Susskind, this situation can be characterized as one where professional patent agents have never really stopped to think about *how they think*.⁵⁸⁷ This reality has several implications. Primarily, like previous qualitative studies, the interview data are full of interviewees stating that a large part of their work involves educating inventors, students, prospective clients, and the general public.⁵⁸⁸ Yet these same interviewees could not formulate a clear, systematic explanation for

⁵⁸⁶ See Gwilym Roberts, *A Practical Guide to Drafting Patents* (Sweet & Maxwell Limited 2007) 1 where Roberts highlights this tendency across patent drafting treatises.

⁵⁸⁷ Richard Susskind, *Tomorrow's Lawyers: An Introduction to Your Future* (Oxford University Press 2017) s 1.3 and 1.4. Here, Susskind refers to 'decomposing' or 'disaggregating' legal work into its individual components. He highlights the even the most bespoke of legal services - litigation - can be decomposed into various components, many of which, unbeknownst to most lawyers, can be systematized in various ways. As most lawyers have never stopped to consider the ways in which their work can be decomposed and disaggregated, they operate under the assumption that everything they do must be individualized and bespoke for each matter.

⁵⁸⁸ See generally Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58).

what claiming an invention entails. The process of breaking a disclosed embodiment down to essential features and then abstracting and generalizing these features to create an overall invention genus was rarely described with any clarity or precision. When described in this fashion, one sees that the invention claiming can be framed in a language and discourse that closely aligns with a form of scientific discourse that most inventors and skilled technicians can readily comprehend. Instead, many interviewees relied on ill-fitting analogies such as territory and fence posts. This seems unfortunate not only because it obfuscates the nature of patent protection by drawing inapt analogies to real property, but also because it unnecessarily separates patent discourse from technical discourse, thereby serving to further alienate that patent system from the technical community it is intended to serve.

Furthermore, when one begins to frame the invention claiming exercise in the context of species, genus, and taxonomy, and uses this heuristic to systematize the process, we are confronted with the question of how much of the invention claiming process can be automated and internalized to technological fields and firms (such as engineering and biotechnology) through a combination of knowledge transfer and developments in software. This, of course, poses a threat to the professionalization of patent agency. As we shall see in subsequent Sections, this threat may already be looming on the horizon. Suffice to say that many professional patent agents may subscribe to the territory and fence posts analogy, thinking that this real property metaphor provides clarity and rooting in tradition legal discourse. This is more than simply harmlessly inapt. Many professional patent agents may not care much about philosophizing and the classical era theoretical roots of invention claiming. However, theoretical discussions aside, contemporary patent agents' commitment to this form of thinking may also be blinding them

from the possible disruption that systematization may bring to their doorsteps in the coming years.

CHAPTER 8: THE LEGITIMIZING OF PROFESSIONALIZED ‘AGENCY’ IN INTERNATIONAL PATENT PRACTICE PART 2 – PATENT LAW’S READER

1. INTRODUCTION - PATENT LAW’S ‘READER’: THE HYPOTHETICAL PERSON SKILLED IN THE ART

Further to the previous Chapter, this Chapter will continue the analysis of how the customary practices of patent agents have historically been legitimized through judicial recognition. For example, patent agents and their patent office counterparts develop techniques of practice, including the form and substance of patent documents, which are then assessed by judges in accordance with the general prescriptions of patent legislation on a case-by-case basis. Judicial pronouncements are then assimilated and redeployed by patent agents within their practice, thereby legitimizing these practices as law. The analysis presented in this chapter will include a significant historical component, tracing how judicial impressions of the practices of professional patent agents have changed from the earliest days of international patent systems to modern times.

This chapter will focus on the changes that the hypothetical person skilled in the art has undergone over the course of the 20th century, and how, from both a legal and international comparative perspective, the Anglo-American hypothetical person skilled in the art has come to dominate international patent practice. As Professor David Vaver states, “patent law is part of the general law: patent exceptionalism should therefore be just that, something that applies exceptionally only where a contrary clearly articulated patent policy is discernible.”⁵⁸⁹ Part and

⁵⁸⁹ David Vaver, ‘The Perplexities of Patent Prosecution History: Procedure Over Principle?’ (2021) 33 IPJ 225, 235.

parcel with this is the fact that patent law’s hypothetical reasonable person, often referred to as the hypothetical person skilled in the art (the ‘hypothetical skilled person’), is often said to be “akin to the ‘reasonable person’ used as a reference in negligence determinations”⁵⁹⁰ and one “who takes his or her place in the spectrum of other fictional legal persons.”⁵⁹¹ Accordingly, the principles that animate patent law’s hypothetical reasonable person should find their foundation in the same general principles of law that apply to all of law’s hypothetical reasonable person and should deviate from these principles only to the extent required by prescriptions specific to patent law. Despite being a legal construct, in patent law, as in all areas of law generally, our hypothetical reasonable person should, as much as possible, resemble a *real* person to the extent that the statutory context in question permits.⁵⁹² In patent law, as in all areas of law generally, our hypothetical reasonable person should, as much as possible, resemble a *real* person to the extent that the statutory context in question permits.⁵⁹³ Claim construction, from the perspective of our hypothetical skilled reader, is to some extent also statutory construction, in the sense that the extent that our hypothetical skilled reader deviates from a real reader must be prescribed by statutory context.⁵⁹⁴

Beginning from these key animating principles, what can general legal principles pertaining to the law’s ‘reasonable people’ tell us about patent law’s hypothetical skilled person?

⁵⁹⁰ *In re Rouffet* (1998) 149 F3d 1350 (Fed Circ) 1357.

⁵⁹¹ *Allergan Inc v Canada (Minister of Health)* 2012 FC 767 (FC) [101]; see also *Healthcare at Home Ltd v The Common Services Agency* [2014] UKSC 49 (UKSC) [1].

⁵⁹² *Teva v Leo Pharma A/s* [2015] EWCA Civ 779 [29]; *Dyson Appliances Ltd v Hoover Ltd* [2001] EWCA Civ 1440 [56]: ‘The mantle of the skilled person is that of an actual skilled person.’; *ibid* 87: ‘It is one thing to accept that this technologically skilled but wholly unimaginative person is a lawyer’s construct ... It is another to expel him altogether from the real world, where ideas do not occur to people in (so to speak) a vacuum.’; See also David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (Second, Irwin Law 2011) 352.

⁵⁹³ See David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (n 592) 352.

⁵⁹⁴ Camilla Hrdy and Ben V Picozzi, ‘Claim Construction of Statutory Construction: A Response to Chaing & Solum’ (2014) 124 Yale Law Journal Forum 208, 211.

A short glance through the history of patent law finds no shortage of statements that the hypothetical person skilled in the art is not a lawyer. She does not approach the exercise of patent interpretation with the predispositions of a legal professional and as such does not engage in the meticulous verbal analysis of claim language that one might customarily expect from a patent professional. Patents are technical documents, disclosing and demarcating an inventive contribution to a technical audience with an interest in learning such developments. As we shall see, none of these statements are exceptional amongst Anglo-American law's hypothetical reasonable people. What is exceptional is that the art of patent drafting, and specifically claim drafting, has developed into an esoteric language incomprehensible to anyone outside of patent experts, let alone real skilled technicians.

Despite these platitudes regarding avoiding an overly legalistic approach to interpreting claims, modern Anglo-American patent jurisprudence continues to expand the hypothetical skilled person's legal knowledge, going so far as to expect that she consult with a patent professional, such as a professional patent agent, in order to supplement her expertise and inform herself of the meaning behind customary patent drafting practices. To what extent do principles specific to patent law require that the hypothetical person skilled in the art deviate from the general norms of hypothetical reasonable people across other areas of law? Most importantly, what, if anything does the current state of the hypothetical person skilled in the art tell us about the effect of professional patent agency on shaping patent law doctrine? An analysis and comparison of Anglo-American law's 'other fictional legal persons' to patent law's hypothetical skilled person will help illuminate the extent to which professionalized patent agency has potentially shaped the contours of patent practice.

2. ANGLO-AMERICAN LAW'S 'REASONABLE READERS'

a. Contract Law

Generally speaking, Anglo-American contracts are interpreted from the perspective of a hypothetical reasonable person. Contract law's hypothetical 'reasonable reader' does not interpret words in a "vacuum", as their interpretation is informed by their business common sense and words are understood within the context of all other provisions of the contract.⁵⁹⁵ The "ultimate aim of interpreting a provision in a contract, especially a commercial contract, is to determine what the parties meant by the language used, which involves ascertaining what a reasonable person would have understood the parties to have meant."⁵⁹⁶ The hypothetical reasonable reader reads and understands the words of a contract in context rather than singling individual words and measuring them against isolated, acontextual and objective standards. From a contextual perspective, across the Anglo-American common law world, it has often been stated that in complex commercial transactions, the 'business sense and expertise' ascribed to the hypothetical reasonable reader leads her to presume that the parties have not only been advised by lawyers (and other professionals), but have had their contracts carefully reviewed and drafted by lawyers.⁵⁹⁷ One consequence of this is that the hypothetical reasonable reader often presumes that the language utilized by the contracting parties has been meticulously reviewed and selected under the guidance of lawyers to achieve an intended purpose- every word matters.⁵⁹⁸ Courts will not disregard or ignore terms of a contract "purposefully inserted into an agreement by experienced businessmen" where a reasonable interpretation exists "that gives meaning to every word, clause, and phrase."⁵⁹⁹

Another consequence of the presumption of legal drafting is that those who draft complex legal documents do so with the goal of complying with the law. Terminology and statements taken from case law is redeployed in subsequent contractual language. The recursive nature of law is such that "[t]he habits of those who draft patents", much like other legal instruments such as contracts or wills, "are no doubt conditioned by the law's requirements" thereby justifying a "structured approach" to interpreting terms that have established legal meanings.⁶⁰⁰

⁵⁹⁵ *Pink Floyd Music Limited v EMI Records Limited* [2010] EWCA Civ 1429 [16–7].

⁵⁹⁶ *Rainy Sky SA & Orsd v Kookmin Bank* (2011) 2011 UKSC 50 [14].

⁵⁹⁷ *Wood v Capita Insurance Services Ltd* [2017] UKSC 24 [13]; See also Leonard Hoffmann, 'Language and Lawyers' (2018) 134 L.Q.R. 553, 595–560.

⁵⁹⁸ *Wood v Capita Insurance Services Ltd* (n 597) para 13; in *Wood*, the UKSC frames this as a situation where a contract is being 'interpreted principally by textual analysis'.

⁵⁹⁹ *Crowe v Bolduc* (2004) 365 F3d 86 (Court of Appeals for the First Circuit) 97.

⁶⁰⁰ *Pharmacia Corp v Merck & Co Inc* [2001] EWCA Civ 1610 [830].

However, this presumption of legal drafting in complex contractual relations should not be taken to mean that courts presume the infallibility of legal expertise, and more importantly, that courts reify legal language. Some contracts, such as conveyancing documents, are written by lawyers, for lawyers, and it is reasonable to assume that the hypothetical reader either is a lawyer or is expected to consult with lawyer.⁶⁰¹ Some contracts might be addressed to a particular community of merchants as well as lawyers, such as bills of lading incorporating aspects relating to legal title of assets. In these hybrid-legal contexts, merchants are not expected to keep “a lawyer at [their] elbow” to navigate the commercial nuances of such contracts.⁶⁰² Context and purpose guide the hypothetical reasonable reader, who “can safely be assumed to be unimpressed with technical interpretations and undue emphasis on niceties of language” when a fair interpretation that matches the commercial expectations of the parties is possible.⁶⁰³ Anglo-American courts acknowledge that language is imperfect even when selected and formatted by legal experts, and even the most complex of commercial contracts developed under the guidance of skilled legal experts may occasionally lack clarity or fail to achieve complete consistency.⁶⁰⁴ The language of complex commercial contracts can often be capable of more than one meaning, and accordingly, “parties need not choose phraseology which invariably excludes every possible interpretation other than the one which they intend...it is sufficient if the language employed is such that a reasonable person, reading the document as a whole and in realistic context, clearly points toward a readily ascertainable meaning.”⁶⁰⁵ Even in complex commercial transactions and arrangements, black letter interpretative doctrines, while helpful in many circumstances, must always give way to context.⁶⁰⁶ Terms which, “through usage by legal professionals [have] acquired a distinct legal

⁶⁰¹ *Hunt v Optima (Cambridge) Ltd* [2014] EWCA Civ 714 [71].

⁶⁰² *Starsin*, *Owners of cargo & Ors v 'Starsin', Owners and/or demise charterers of* [2003] UKHL 12 [75].

⁶⁰³ *Society of Lloyd's v Robinson* (1999) 1 All ER 545 (Comm) 551; *Rainy Sky SA & Orsd v Kookmin Bank* (n 596) para 25.

⁶⁰⁴ *Wood v Capita Insurance Services Ltd* (n 597) para 13.

⁶⁰⁵ *Fashion House, Inc v K mart Corp* (1989) 892 F2d 1076 (Court of Appeals for the Fifth Circuit) 1085.

⁶⁰⁶ See for example *National Tax Institute, Inc v Topnotch at Stowe Resort and Spa* (2004) 388 F3d 15 (Court of Appeals for the First Circuit) 18 where district court resolved a contract dispute by applying the ‘last antecedent’ principle of contract interpretation. Regarding this canon of interpretation, the Court of Appeals stated that while “[t]he canon formally applies... it is not conclusive” given that “the opaque sentence in question— inserted seemingly at random between unrelated provisions —was not drafted with any noticeable precision.”; In the employment law context, see *Smart v Gillette Co Long-Term Disability Plan* (1995) 70 F3d 173 (1st Circ) wherein the “expressio unius” maxim of contract interpretation, which instructs that when parties list specific items in document any item not so listed is typically thought to be excluded, while often persuasive, is not always dispositive.

meaning”⁶⁰⁷, may not automatically attract that same customary legal definition when used in a contract, as context and usage will always bear upon any such definitions.⁶⁰⁸ In fact, courts are often critical of “the untidy but prevalent penchant of lawyers to invoke the mystique of the profession's glossary of archaic and anachronistic terms without bothering to identify the precise legal meaning of the terms thus employed.”⁶⁰⁹ Occasionally, legal terms of art will not receive their customary definitions within the legal field if the overall context of the legal document, including ambiguities resulting from conflicting sections of the text or doubt whether the document was actually prepared by legal professionals or a layperson, points to a different meaning that is more in line with the drafter’s intent.⁶¹⁰ Courts often express skepticism towards arguments advocating for the meticulous parsing of language, twisting contract language towards a legalistic interpretation that would run counter to the clear intentions of the parties.⁶¹¹

Contract terminology coinciding with language defined by an overseeing regulatory body is often presumed, in the absence of evidence to the contrary, to receive the same definition as that used by the regulatory body.⁶¹² While these presumptions may seem like an overarching ascription of professional legal knowledge to the hypothetical reasonable reader, in many instances this operates similar to the doctrine of *contra proferentem*. For example, in the insurance context, these principles are applied to balance drafting inequities and power imbalances between insurer and insured.⁶¹³ It is assumed that *the drafter*- the insurance provider – is advised by lawyers who are

⁶⁰⁷ Ruth Sullivan, *Sullivan on the Construction of Statutes* (5th edn, LexisNexis 2008) 57.

⁶⁰⁸ See for example *L Schuler AG v Wickman Machine Tools Ltd* [1973] UKHL 2 where the House of Lords refused to apply the accepted common law definition of ‘condition’ in the clause in question given that context pointed to a contrary meaning [p 9-11]; for a more recent treatment of the term ‘condition’, see *Total Gas Marketing Ltd v Arco British Ltd* [1998] CLC 1275 (UKHL) 1289.

⁶⁰⁹ *Matter of Hill* (1993) 981 F2d 1474 (Court of Appeals for the Fifth Circuit) 1486. The Court of Appeals goes on to state: ‘That tendency, coupled with an equal penchant for invoking solemnity by including several synonyms—usually the Biblical three—for the desired word when that one word alone would suffice, leads to controversies (such as the instant litigation) that could be avoided by a drafting technique that is more precise and less pretentious.’; See also *Estate of Kurz by First Nat Bank of Chicago v CIR* (1995) 68 F3d 1027 (7th Cir) 1029, stating that ‘some legal drafters can give prestidigitators a run for their money.’

⁶¹⁰ *National Foundation for Special Needs Integrity, Inc v Reese* (2018) 881 F3d 1023 (7th Cir) 1030–1.

⁶¹¹ *City of Austin, Tex v Decker Coal Co* (1983) 701 F2d 420 (Court of Appeals, Fifth Circuit) 430 where the Court of Appeals refuses to accept a ‘technical sense’ of the term “regulation” as a legislative enactment, where a holistic reading of the clause lead to a far more generic intention for use of this term.

⁶¹² *Commercial Ins Co, of Newark, NJ v Gonzalez* (1975) 512 F2d 1307 (1st Cir) 1310. Note that the court in this case extends this line of reasoning by permitting inferences to be drawn by deliberate choices to avoid using regulatory terms of the art where it would otherwise seem reasonable to do so.

⁶¹³ *Coleman Co, Inc v California Union Ins Co* (1992) 960 F2d 1529 (10th Cir) 1538 FN 7; however, it appears that in some U.S. Circuits, the *contra proferentem* rule only applies when contract terms are demonstrably ambiguous, see for example *TMW Enterprises, Inc v Federal Ins Co* (2010) 619 F3d 574 (6th Cir) 580.

aware that many readers are unfamiliar with sophisticated legal language, and as such, can and should draft their contracts to clearly convey the insurance provider's intention to such a reader. Thus, the presumption operates to resolve ambiguities against the drafter and in favour of the reader, given that the sophisticated drafter who benefits from comprehensive legal advice could have, and should have, unambiguously stated a position favouring their own interests.

Furthermore, as insurance contracts are interpreted from the perspective of a hypothetical reasonable insured, absent evidence that such a hypothetical person would appreciate that technical terms carry specific industry meaning, courts will accept a counter interpretation where such interpretation is reasonable based on the plain language of the contract.⁶¹⁴ Insurance policies, regardless of their complexity, are deemed to be addressed to ordinary policy holders, and as such, the terms of such policies, including obligations and liabilities, are construed based on the "the plain and ordinary meaning of the policy's words in context... [understood] as would a reasonable person in the position of the insured based on more than a casual reading of the policy as a whole."⁶¹⁵

b. The Hypothetical Reasonable Reader and Statutory Context

Across the spectrum of Anglo-American tort law, the hypothetical reasonable person is in many ways similar to patent law's hypothetical skilled person. For example, the hypothetical reader of UK libel law does not read words with the meticulousness of a lawyer, instead using their general knowledge, fair and reasonable disposition, and unsuspicious mind to arrive at a meaning conveyed by the words in question.⁶¹⁶ Unlike many common law torts, patent law is governed by a complex statutory system that shapes both the characteristics of the patent document and the hypothetical reader, calling into question whether analogies can or should be drawn between these respective fields. For example, patent law's statutory provisions may counteract the hypothetical skilled person's realism prescribing the underlying background

⁶¹⁴ *Meyer v CUNA Mut Ins Soc* (2011) 648 F3d 154 (3rd Circ) 167.

⁶¹⁵ *Littlefield v Acadia Ins Co* (2004) 392 F3d 1 (1st Circ) 7.

⁶¹⁶ *Trumm v Norman* [2008] EWHC 116 (QB) [17]; Similarly, in the context of UK defamation law, see *Jeynes v News Magazines Ltd & Anor* (2008) 130 EWCA Civ [14].

knowledge attributable to her.⁶¹⁷ However, the realism of hypothetical reasonable people in other areas of law is often modified by statutory requirements.⁶¹⁸ The law of negligence and its associated statutory benefits are often governed by insurance legislation involving layers of definitions and guidelines pursuant to which complex insurance contracts are implemented. Accordingly, “[t]he background knowledge that the neutral, reasonable person employs when understanding a commercial document”, such as an insurance contract, “can include knowledge of the relevant law.”⁶¹⁹ Despite this understanding of underlying law, the hypothetical reasonable person of insurance law is not a lawyer, and her knowledge and efforts to understand are prudent, but not perfect.⁶²⁰

While we may presume that the common general knowledge of the hypothetical reasonable reader includes some knowledge of applicable laws, this knowledge has never extended to great depths. Lay people may be expected to read and understand the text of a standard legal document, such as standard consent documents, in light of some understanding of the underlying law, but the scope of this principle has frequently been constrained to only clear language capable of the most straightforward interpretation.⁶²¹ Individuals receiving a cease and

⁶¹⁷ *Asia File Products Sdn Bhd v Brilliant Achievement Marketing* (2012) 1 LNS 1470 (HC) [64]; see also Daralyn J Durie and Mark A Lemley, ‘A Realistic Approach to the Obviousness of Inventions’ [2008] William and Mary Law Review 989, 991 for a discussion of the “counterfactual assumption that the [hypothetical skilled person], while ordinarily skilled, is perfectly informed about the prior art.”

⁶¹⁸ See for example *Ferguson v British Gas Trading Ltd* [2009] EWCA Civ 46 [49] where the characteristics of the reasonable person subject to UK harassment law is structured by the Protection from Harassment Act; It is also the case that under legislation effecting limitation periods, statutes often impart certain knowledge to the hypothetical reasonable person. See for example *Cole v Scion, Ltd* [2020] EWHC 1022 [16].

⁶¹⁹ *Oxonica Energy Ltd v Neuftec Ltd* [2008] EWHC (Pat) 2127 [11].

⁶²⁰ Benjamin C. Zipursky, ‘Reasonableness In and Out of Negligence Law’ (2015) 163 University of Pennsylvania Law Review 2131, 2156.

⁶²¹ See for example *Reedy v Evanson* (2010) 615 F3d 197 (3rd Cir) 227 where the plaintiff alleged an unlawful search and seizure on the part of local police officers and township public safety director. As part of a sexual assault assessment, the plaintiff signed a consent form agreeing to permit an “examination to collect evidence concerning an alleged sexual assault.” The court stated that an objective, reasonable person, would understand that this phrase ‘limit[ed] her consent to the collection of evidence regarding the prosecution of her sexual assailant’, but that ‘[i]t cannot fairly be said, then, that an objectively reasonable person would understand that drug use “concern[ed]” the sexual assault when [the Plaintiff] made the decision to consent.’

desist letter alleging legal violations are not expected to understand complex legal principles such as joint tortfeasance.⁶²² In insurance law, the “focus [of interpretation] must be upon the objective expectations the language of the policy would create in the mind of a hypothetical reasonable insured who, we assume, will have limited knowledge of insurance law.”⁶²³ Although “[a] lay person [may have] a clear if inarticulate understanding” of the differences between statutory categories of fault and benefits, “that understanding will not be altered or improved by head-spinning judicial efforts” to allocate greater precision to the understanding of the hypothetical person.⁶²⁴

Employees’ workplace rights and obligations are often set out in employment contracts enmeshed in a complex legislative matrix. In the employment law context, a hypothetical reasonable employee reading relevant employer workplace rules is aware of their legal rights in a general sense but only interprets work rules as they apply to the “everydayness of their job”.⁶²⁵ While this hypothetical person is aware of relevant labour relations legislation, they “d[o] not view every employer policy through the prism of [labour relations statutes].”⁶²⁶

c. The Hypothetical Reasonable Person’s Inherent Expertise and Legal Knowledge

There are circumstances where Anglo-American courts have raised the bar on the level of professional knowledge, understanding, and prudence forming part of the common general knowledge of the hypothetical reasonable person, as well as circumstances where it is expected that such a person would seek out expert assistance to supplement their own inherent knowledge.

⁶²² *Global Flood Defence Systems Ltd & Anor v Johann Van Den Noort Beheer BV & Ors* [2016] EWHC (IPEC) 99 [26].

⁶²³ *Bhasker v Kemper Casualty Insurance Company* (2019) 361 F Supp 3d 1045 (D New Mexico) 1153.

⁶²⁴ *LaAsmar v Phelps Dodge Corp Life, Accidental Death & Dismemberment and Dependent Life Insurance Plan* (2010) 605 F3d 789 (10th Circ) 806.

⁶²⁵ *T-Mobile USA, Incorporated v National Labor Relations Board* (2017) 865 F3d 265 (5th Circ) 271.

⁶²⁶ *ibid.*

Where medical symptoms present themselves, it is expected that a reasonable person would seek the assistance and guidance of a medical professional within a reasonable timeframe.⁶²⁷ Where an act of tortious negligence may have taken place, it is expected that a reasonable person would take reasonable precautionary steps to inform themselves of their legal rights and obligations, including seeking the advice of a legal professional where necessary.⁶²⁸

The knowledge and conduct of some professional experts are deemed to be of a higher standard than that of the consumers of professional expertise and products.⁶²⁹ Reasonable police officers and law enforcement officials are expected to understand the basic premises and principles of law that are tangential to their day-to-day work activities, such as the basic principles of privacy law.⁶³⁰ Outside of professional knowledge, it has been accepted that in some areas, such as negligent driving, practically all reasonable individuals understand at least the basic legal concepts surrounding such negligence.⁶³¹ Practically all reasonable individuals appreciate that an accused is presumed innocent until proven guilty.⁶³² However, courts are reluctant to presume extensive professional knowledge on the part of those hypothetical reasonable people having only limited experience within a given professional field.⁶³³

It is important to note that in almost all of the foregoing circumstances where the hypothetical reasonable person is expected to seek out professional legal assistance to

⁶²⁷ See for example *Collins v Secretary of State for Business, Innovation and Skills* [2013] EWHC 1117 (QB) [2].

⁶²⁸ *BJG v Society of the Holy Child Jesus* (2008) 2008 WL 896061 (D Or) 3.

⁶²⁹ *Wilborn v Dun & Bradstreet Corp* (1998) 180 FRD 347 (ND Ill) 353: ‘A warning about a drug’s side effects, perfectly adequate for the reasonable physician, may be woefully deficient for the reasonable consumer.’

⁶³⁰ *Trulock v Freeh* (2001) 275 F3d 391 (4th Cir) 409.

⁶³¹ In the Canadian context, see for example *R v Hundal* (1993) 1 SCR 867 (SCC) 106: ‘There can be no doubt that the concept of negligence is well understood and readily recognized by most Canadians.’

⁶³² See for example *Miguna v Toronto Police Services Board* [2004] OJ No 2455 (Ont SCJ) [6].

⁶³³ See for example *Williams v US* (2007) 2007 WL 951382 (SDNY) 7: ‘The fact that plaintiff had some experience in the medical field does not inevitably lead to the conclusion that she would know that colon cancer could develop over a period of several years, or that it would manifest itself with evolving symptoms during that time.’

supplement their knowledge, the legal issue at play relates to the hypothetical reasonable person's *conduct*, rather than *interpretation* of a legal document. In all of the aforementioned circumstances where hypothetical reasonable people are presumed to seek out professional knowledge or assistance, including legal assistance, they are not acting as a reasonable *reader*, but instead, act as a benchmark for potentially negligent or illegal *conduct*. In these circumstances, it is the reasonable person's own individual rights, liabilities or other legal obligations that are at stake as a result of her individual conduct, and as such, given that her common general knowledge includes some basic knowledge of applicable laws, including recognition of the potential legal implications of her actions, the reasonable person is presumed to seek out expert advice to help guide her conduct.

d. Summary

Hypothetical reasonable people bear considerable similarity to one another across the spectrum of Anglo-American law. The characteristics of a hypothetical reasonable person should only deviate from those of a real person to the extent that legal context requires. She is prudent and intelligent but not overly cautious or unnecessarily meticulous in parsing language. She understands basic, general premises of the law affecting the context within which she is called upon to operate. She understands the meaning of legal text in the context within which it is used. In certain contexts, such as complex commercial transactions, the hypothetical reasonable reader presumes that one or more parties have structured their contractual relations under the guidance and direction of professional advisors, including legal professionals. One implication of this presumption of professional agency is that each and every word of legal text is presumed essential, chosen for a specific purpose, and reasonable interpretations which recognize that each and every word individually contributes to the overall meaning of the document should be

favoured. However, the presumption of professional agency does not mean that the hypothetical reasonable person's inherent knowledge is presumed to include a heightened knowledge of the law, or that she, rather than the parties to the contract she has been called upon to interpret, is presumed to seek to supplement her knowledge of the law with third-party legal assistance.

In some instances, the inherent knowledge of the hypothetical reasonable person can include legal knowledge. However, this knowledge rarely exceeds generally stated basic foundational premises, such as the presumption of innocence, the reasonable expectation of privacy or that negligent conduct may incur tortious liability. The legal knowledge of the hypothetical reasonable person only exceeds these basic foundational premises in circumstances where, by virtue of her professional training, she is endowed with greater legal knowledge (for example, a police officer). However, the law presumes that the reasonable person's inherent knowledge of the potential legal implications of her *conduct* may lead her to supplement her knowledge and guide her conduct with third-party professional expertise. In practically all instances where the hypothetical reasonable person is presumed to seek out third-party expert assistance, and their inherent knowledge is supplemented by this presumption of received expertise, it is in circumstances where the individual rights and liabilities of the party in question for whom the reasonable person acts as a stand-in are at stake. A reasonable person experiencing symptoms possibly indicative of an adverse medical condition resulting from potentially negligent conduct is expected to take prudent steps to seek the advice of a medical professional and act accordingly lest they should forfeit their right to claim damages. An individual who has reasonable grounds to believe that they might be violating the law or incurring legal liability is expected to seek out the assistance of a legal professional and take reasonable steps to modify their behaviour according to such advice. The law presumes that in these instances, the knowledge of the

hypothetical reasonable person is supplemented by such expert knowledge and that the hypothetical reasonable person will *act* accordingly. This presumed *conduct* on the part of the reasonable person sets a standard for which the parties to an action are measured, and failure to meet this standard may result in a party incurring legal liability or forfeiting their legal rights.

There are a number of important caveats regarding the foregoing presumption of received expert knowledge. It is only in circumstances where significant legal rights, interests and liabilities of an individual are in issue that courts might presume that the hypothetical reasonable person, acting as a stand-in for such an individual, would have prudently sought the assistance of an expert and as such, the received expert knowledge would guide her actions. Perhaps most importantly, it is in questions of individual *conduct*, rather than *interpretation* of a legal document, that the presumption of received legal knowledge comes into play. In circumstances involving allegations of tortious liability, and whether a party may or may not have engaged in negligent *conduct*, Anglo-American courts will, in appropriate circumstances, presume that the hypothetical reasonable person should, based on their inherent legal knowledge, recognize the possibility of legal ramifications of their *conduct* and accordingly supplement their knowledge and corresponding conduct with the necessary external legal expertise.

However, in questions of *interpretation*, the presumption of professional agency in most instances operates as a presumption of essentiality, whereby given the contextual significance of the circumstances, the hypothetical reasonable reader, who acts as an interpretive lens rather than as a stand-in for one of the parties, presumes that one or more of the drafting parties was advised by a legal professional and as such, practically each and every word of the legal document in question was carefully and purposefully chosen to individually contribute to the overall semantic content of the document. In the case of the hypothetical reasonable reader, this presumption of

legal advice pertains to the *drafter(s)*, not the *reader herself*. Correspondingly, this does not necessarily correspond to an epistemic transfer of legal knowledge to the mind of the reader, whereby the knowledge that the reasonable reader brings to the interpretive exercise consists both of their inherent legal knowledge and the legal knowledge received from third-party legal experts. In fact, courts are often hesitant to presume any such expert legal knowledge on the part of hypothetical reasonable readers. Terms of the legal art receive their accepted meaning in the field when it appears such an interpretation aligns with the intentions of the drafter(s), but courts will not stretch and strain the knowledge and apprehension of the hypothetical skilled reader to give effect to the philological dispositions of legal professionals. To the contrary, Anglo-American courts across various areas of law have consistently rejected efforts to impart the knowledge or tendencies of legal professionals to the hypothetical skilled reader.

3. ANGLO-AMERICAN PATENT LAW'S 'REASONABLE PERSON' – THE HYPOTHETICAL PERSON SKILLED IN THE ART

a. The Hypothetical Skilled Reader in the Art

In *Kirin-Amgen*, Lord Hoffmann provided what is one of the most succinct summaries of patent law's hypothetical skilled person and her perspective when reading a patent specification:

In the case of a patent specification, the notional addressee is the person skilled in the art. He (or, I say once and for all, she) comes to a reading of the specification with common general knowledge of the art. And he reads the specification on the assumption that its purpose is to both to describe and to demarcate an invention - a practical idea which the patentee has had for a new product or process - and not to be a textbook in mathematics or chemistry or a shopping list of chemicals or hardware.⁶³⁴

⁶³⁴ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* [2004] UKHL 46 [33].

This statement, while easily comprehensible and conveying a lucid legal concept, leaves much to be unpacked. Much like many of Anglo-American law's other hypothetical reasonable people, we see that patent law's hypothetical skilled person is presumed to have some foundational knowledge of the core principles of patent law; to paraphrase Lord Hoffman, she reads the specification knowing that its purpose is to describe and demarcate an invention. Like other hypothetical reasonable readers, she brings with her to the interpretive exercise an inherent knowledge of her field- her common general knowledge of the technical art in question.⁶³⁵ Furthermore, like Anglo-American law's other reasonable people, the legal knowledge ascribed to patent law's hypothetical reasonable reader should be framed as general concepts, tempered only when necessary by relevant statutory prescriptions.

What, then, are the core principles of patent law that form part of the hypothetical skilled person's inherent knowledge? Patent legislation in practically every jurisdiction requires that an inventor must distinctly set out their claims with careful specificity. The hypothetical person skilled in the art should be taken to know this, and accordingly, understands that the inventor is legally obligated to precisely define their invention through language:

The question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean. And for this purpose, the language he has chosen is usually of critical importance. The conventions of word meaning and syntax enable

⁶³⁵ This general principle is subject to some outlier judgements- see for example *Fabio Perini Spa v LPC Group Plc & Ors* [2010] EWCA Civ 525 [24]. Here, the Court of Appeal ruled that interpretation of a claim term by 'begin[ning] with its ordinary meaning before one turns to its documentary context and other relevant factors' was appropriate. However, this ruling is likely unique to the case in question- the disputed term, "slit", had a common and well-known ordinary meaning.

us to express our meanings with great accuracy and subtlety and the skilled man will ordinarily assume that the patentee has chosen his language accordingly.⁶³⁶ [emphasis added]

Furthermore, the hypothetical skilled person knows that claim text is chosen carefully in order to meet statutory requirements. It is also reasonable to assume that the hypothetical skilled person understands that a patented invention is a powerful, incorporeal legal right, and without these strict statutory claiming obligations, this right could trample over the public's vital interest in the free flow of knowledge. Accordingly, the hypothetical skilled person reads claim language with this important backdrop in mind, presuming that the inventor has chosen each and every word of her claims carefully:

...it must be recognised that the patentee is trying to describe something which, at any rate in his opinion, is new; which has not existed before and of which there may be no generally accepted definition. There will be occasions upon which it will be obvious to the skilled man that the patentee must in some respect have departed from conventional use of language or included in his description of the invention some element which he did not mean to be essential. But one would not expect that to happen very often.⁶³⁷ [emphasis added]

⁶³⁶ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634) para 34; On the question of interpretation, there are subtle but important distinctions between the US and UK in relation to claim construction. In the UK, "[t]he task for the court is to determine what the person skilled in the art would have understood the patentee to have been using the language of the claim to mean." *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* [2009] EWCA Civ 1062 [5]; Under UK patent jurisprudence, the inventor is speaking, and the hypothetical skilled reader is attempting to understand what the inventor means by the language she has chosen. This stands in contrast to the US position, where claim construction "is effected by giving the words in a claim their ordinary and accustomed meaning in view of the disclosure in the specification and the prosecution history." *Vitrionics Corp v Conception, Inc* (1996) 415 F3d 1303 (Fed Cir) 1582; [emphasis added] As Professor Fisher suggests, "[t]he US approach to literal interpretation focuses on what the words in the claims mean to a skilled addressee, rather than what the skilled person would have understood the patentee to mean by their choice of words, as is the test in the UK." Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 174. As such, US claim construction takes a somewhat more objectified approach to language than the UK purposive approach.

⁶³⁷ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634) para 43.

The foregoing resembles the general presumption of professional agency discussed under Chapter 8.2, wherein the hypothetical reasonable person presumes that the drafter, seeking to comply with the law and secure important legal rights, has carefully selected each and every word of text for a specific purpose. Each word individually contributes to the overall semantic content of the entire claimed invention, and as such, each word should be presumed an essential building block for the overall meaning of the patent claim. Framed in this fashion, the hypothetical person skilled in the art takes a similar form to Anglo-American law's other reasonable people.

However, returning to the discussion of Chapter 8.2, we see that the presumption of essentiality in other areas of law has never been taken so far as to transform the hypothetical reasonable person into a hypothetical reasonable lawyer. Rather, as discussed, Anglo-American courts have consistently pushed back against attempts to ascribe substantial legal knowledge and tendencies to hypothetical reasonable readers. For many years, one could see a similar trend in Anglo-American patent law jurisprudence. The earliest Anglo-American patent law cases recognized that drafting patent claims was a challenging endeavour, and as such, courts, donning the mantle of the hypothetical person skilled in the art, felt it necessary to sympathize with inventors to some degree when trying to interpret claim language.⁶³⁸ As Judge Learned Hand once stated, “[A] court should, on the one hand, try sympathetically and intelligently to understand what the inventor meant by the words he used, and, on the other, should hold him to that meaning, or candidly avow that his patent is not the measure of his rights.”⁶³⁹

⁶³⁸ Even in recent times, courts still uphold this view- see for example *LG Philips LCD Co Ltd v Tatung (UK) Ltd & Ors* [2006] EWCA 1774 [20].

⁶³⁹ *Motion Picture Patents Co v Indep Moving Pictures Co of Am* (1912) 200 F 411 (Court of Appeals, Second Circuit) 415.

Furthermore, similar to other areas of law, courts deciding patent law cases remained skeptical of attempts to bring professional patent agent expertise into the mind of the hypothetical skilled person. Despite the challenges associated with drafting patent claims, Anglo-American courts long demonstrated what was, at best, an ambivalence towards the expert profession tasked with mastering the art of claiming inventions. Even in recent times, many a judge has expressed a sense of disbelief towards the professional art of patent acquisition: “There can hardly be a patent agent who, privately, will not readily admit that he or she has got lots of things “past the office” on flimsy grounds.”⁶⁴⁰ Anglo-American law has long admonished patent professionals for engaging in the type of meticulous textual analysis typical of legal professionals rather than real skilled artisans.⁶⁴¹ As we shall see below, in contemporary patent law and practice, the customary terminology employed by professional patent agents is accepted and given the specialized meaning used within their own epistemic community. This judicial recognition of “patent jargon” horrified some early 20th century Anglo-American judges, viewing it as an “excuse [t]hat the words have no meaning at all or have a meaning which only those versed in patent law understand.”⁶⁴² To those outside of the professional patent agent community the “possible confusion is obvious, and not only is the confusion obvious but the remedy for it is obvious. All the draftsman had to do was to say in clear language, which any schoolboy... could have framed... was the ambit of his Claim.”⁶⁴³ Similarly, the solution to this unsatisfactory situation was equally obvious- “The public are not to be supposed to be familiar with patent jargon, and the sooner it is disused the better.”⁶⁴⁴

⁶⁴⁰ *Nokia Corporation v Interdigital Technology Corporation* [2005] EWCA Civ 614 (EWCA) [13].

⁶⁴¹ *Catnic Components Ltd v Hill & Smith Ltd* [1982] RPC 183 (HL) [65].

⁶⁴² *Martin v H Millwood Ltd* (1956) 73 RPC 125 (HL) 133.

⁶⁴³ *Pathé Cinema SA v Coronel Camera Co* (1939) 57 RPC 48, 58–9.

⁶⁴⁴ *Martin v H Millwood Ltd* (n 642) 133.

For many years, the guiding principle was simple- claiming an invention involved an inventor speaking to a person skilled in the art to which the invention pertained, and the appropriate and necessary presumptions stemming from this relationship were taken into consideration by courts when construing claim language. For example, in the oft-cited *Autogiro Company of America v. United States*⁶⁴⁵ decision, the US Court of Claims placed the act of claiming and claim construction within the perspective of the inventor herself. The court rejected formalistic approaches to claiming and claim construction, given that “the lucidity of a claim is determined in light of what ideas it is trying to convey. Only by knowing the idea, can one decide how much shadow encumbers the reality.”⁶⁴⁶ From this perspective, the court reasoned that clarity in the claiming of inventions is an oxymoron, for “claims cannot be clear and unambiguous on their face.”⁶⁴⁷ If those skilled in the art of legal drafting – legislators, lawyers, and judges – struggle to convey meaning through language, then how can one expect inventors, unskilled in the nuances of language and operating on the horizon of the present and the future, to realistically achieve precision when claiming an invention. Accordingly, the court favoured a less formalistic approach to claim construction, allowing the inventor to be their own lexicographer, rejecting formalistic approaches to claim construction and endorsing the flexibility of the doctrine of equivalents. The court summarized:

The inability of words to achieve precision is none the less extant with patent claims than it is with statutes. The problem is likely more acute with claims. Statutes by definition are the reduction of ideas to print. Since the ability to verbalize is crucial in statutory enactment, legislators develop a facility with words not equally developed in inventors.

⁶⁴⁵ *Autogiro Company of America v. United States* (n 529).

⁶⁴⁶ *ibid* 396.

⁶⁴⁷ *ibid*.

An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law. This conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled. Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things.⁶⁴⁸ [emphasis added]

As we see in this statement, it is inventors themselves who are speaking, a reality appreciated by the hypothetical skilled person when seeking to understand the language of the claim. The court does not ascribe to the hypothetical skilled person a presumption that the inventor is speaking through a professional agent, and in fact, US patent jurisprudence long has long been critical of the intervention of professional draftsmen. With respect to patentable subject matter, it has been a longstanding principle in US Supreme Court jurisprudence that what is or is not patentable eligible subject matter should not “depend simply on the draftsman's art.”⁶⁴⁹

Returning to the general patent law knowledge that can be ascribed to the hypothetical skilled person, it is reasonable to assume that she knows that an invention is a novel technical contribution to the state of the art, and that the claim is meant to cover this novel contribution. The hypothetical skilled reader is thus attempting to determine what the novel contribution of the claimed invention may be and will pick up on indications provided by the inventor as to what she

⁶⁴⁸ *ibid* 396–7; This passage was cited by the U.S. Supreme Court in *Festo Corp v Shoketsu Kinzoku Kogyo kabushiki Co* (2002) 535 US 722 (USSC) 731.

⁶⁴⁹ *Parker v Flook* (1978) 437 US 584 (USSC) 593; In the context of patent eligibility, the United States Supreme Court has restated this principle numerous times; see for example *Mayo Collaborative Services v Prometheus Laboratories, Inc* (2012) 566 US 66 (USSC) 1297; *Alice Corp Pty Ltd v CLS Bank Intern* (2014) 573 US 208 (USSC); See also *Cogent Med, Inc v Elsevier Inc* (2014) 70 F Supp 3d 1058 (ND Cal) 1065.

believes is background art and what she believes to be the novel contribution.⁶⁵⁰ As we have seen, some of the earliest US Supreme Court patent law judgements implicitly rejected the idea that a claim is akin to a plot of land, instead choosing to distinguish novel from conventional features and weighting these features accordingly during claim construction and infringement.⁶⁵¹ What this implicitly suggests is that the hypothetical person skilled in the art was not expected to read claims in a mechanical, formalistic fashion, meticulously individualizing text and ascribing a definition to each and every word on an individual basis. Rather, the process was more holistic, reflecting the hypothetical skilled person's implicit understanding that inventors must balance the strict statutory obligation to precisely claim their invention with the reality that inventions are dynamic advancements of the art that do not lend themselves to neat, textual encapsulation. The hypothetical person skilled in the art is intelligent and diligent in her reading, but not overly meticulous and suspicious. Perhaps most importantly, the foregoing again aligns with the general principles applied to all of Anglo-American law's hypothetical reasonable readers, and as such, this historical line of patent jurisprudence places Anglo-American patent law's hypothetical skilled reader within the ambit of all other hypothetical reasonable people.

b. The Hypothetical Person Skilled in the Art of Modern Anglo-American Patent Jurisprudence – The Synthesis of Common General Knowledge and Professional Patent Agency?

In the seminal UK *Improver* decision, Hoffmann J. (as he then was) picked up on the line of House of Lords jurisprudence cautioning against analyzing patent claims with the kind of

⁶⁵⁰ *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* (n 636) para 21; Under European practice, the two-part claim format provides a useful guide to what the hypothetical skilled reader would perceive as the inventors' contribution to the state of the art, but this is not applied as a hard and fast rule and is subject to context; see for example *T 0006/81 (Electrode slide)* (EPO BOA) [2.2].

⁶⁵¹ See for example *Halliburton Oil Well Cementing Co v Walker* (1946) 329 US 1 (USSC) where the US Supreme Court stated that functional language cannot be used at the point of novelty of a claim, implicitly suggesting that a claim is not simply a combination of elements, but that a claim can be assessed as a whole to determine what aspect is the novel contribution to the art.

“meticulous verbal analysis in which lawyers are too often tempted by their training to indulge”⁶⁵², stating that the hypothetical skilled person should *not* be assumed to be skilled in patent law.⁶⁵³ Across European jurisdictions, one can frequently find passages in case law stating that the patent specification, including the claims, should be understood not in a philological fashion customary of legal practitioners but as one skilled in the art would understand the meaning of the words chosen by the inventor.⁶⁵⁴

However, referring back to the above-referenced *Kirin-Amgen*, Lord Hoffmann presents what appears to be a subtle shift in the hypothetical skilled person in the transition from his judgement in *Improver* to his judgement in *Kirin-Amgen*, such that now, she is “assumed to know the basic principles of patentability”.⁶⁵⁵ As discussed in detail under Chapter 8.2, this statement, in and of itself, is not objectionable from either a patent law perspective, or from the perspective of Anglo-American law’s hypothetical reasonable people generally. However, in *Kirin-Amgen*, we see that the hypothetical skilled person’s knowledge of basic principles of patentability means that she is taken to understand more than simply ‘basics’, as the term is understood in the context of Anglo-American law’s other hypothetical reasonable people, in that she understands the intricacies of patent prosecution and UK law of sufficiency of disclosure.⁶⁵⁶ Since *Kirin-Amgen*, the ‘basic principles’ of patent law known by the UK hypothetical skilled person have morphed such that she not only knows generalized concepts, but also the complexities of professional patent agency. When the hypothetical skilled person lacks certain knowledge relating to patent practice,

⁶⁵² *Catnic Components Ltd v Hill & Smith Ltd* (n 641).

⁶⁵³ *Improver Corporation v Remington Consumer Product Limited* [1990] FSR 181.

⁶⁵⁴ This includes the EPO’s Board of Appeals; see for example *T 2619/11* (EPO BOA) [2.6] where the Board of Appeals ruled that the specification ‘is directed to a technical audience rather than to a philologist or logician’.

⁶⁵⁵ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634) para 78.

⁶⁵⁶ *ibid.*

it is expected that she will “go on to ask a man who knows, probably a patent agent”.⁶⁵⁷ Thanks to this supplemented assistance from a hypothetical professional patent agent, the hypothetical skilled person under UK law now understands more than simply basic patent drafting principles, but also more complex concepts such as the effect of divisional applications and two-part claim format.⁶⁵⁸

The slow expansion of the Anglo-American hypothetical skilled person’s knowledge to include expertise in professional patent agency under Anglo-American patent law has continued expanding despite repeated cautions against this approach. Significantly, over the last two decades, US patent jurisprudence has continued moving in this direction, seemingly giving up on the idea that patent claims are written in a language that inventors themselves can, or more importantly, should understand based solely on their technical knowledge. What is perhaps most interesting is the epistemic tug-of-war that the hypothetical skilled person continues to endure between the US Supreme Court and lower, expert decision-makers such as the USPTO and the CAFC. The seminal US *Markman v. Westview Instruments, Inc* decision provides an excellent example of this tension. Generally stated, *Markman* involved questions surrounding the proper canons of claim construction, and particularly, whether claim construction should be treated as a question of law or question of fact, and exploring questions surrounding the effect of prosecution history on claim interpretation. In *Markman v. Westview Instruments, Inc.*, the CAFC stated that the subjective intent of the inventor has no bearing on the objective interpretation of patent claims. In support of this proposition, the CAFC suggested that even if access to subjective intent was permitted, in many instances, inventors *themselves* may not recognize their own inventions

⁶⁵⁷ *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* (n 636) para 15.

⁶⁵⁸ *ibid.*

in the words written by their chosen patent professionals, thereby separating the agency of inventors from the agency of the patent system:

No inquiry as to the subjective intent of the applicant or PTO is appropriate or even possible in the context of a patent infringement suit. The subjective intent of the inventor when he used a particular term is of little or no probative weight in determining the scope of a claim (except as documented in the prosecution history)... In fact, commonly the claims are drafted by the inventor's patent solicitor and they may even be drafted by the patent examiner in an examiner's amendment (subject to the approval of the inventor's solicitor)... While presumably the inventor has approved any changes to the claim scope that have occurred via amendment during the prosecution process, it is not unusual for there to be a significant difference between what an inventor thinks his patented invention is and what the ultimate scope of the claims is after allowance by the PTO.⁶⁵⁹
[emphasis added]

Furthermore, the CAFC emphasized the significance that professional patent agency plays in the overall defining, acquisition and interpretation of patent rights:

The statute under which the Commissioner acted represents congressional policy in an important field. It relates to the character and conduct of 'persons, agents, or attorneys' who participate in proceedings to obtain patents. We agree with the following statement made by the Patent Office Committee on Enrollment and Disbarment that considered this case: 'By reason of the nature of an application for patent, the relationship of attorneys to the Patent Office requires the highest degree of candor and good faith. In its relation to applicants, the Office must rely upon their integrity and deal with them in a spirit of trust

⁶⁵⁹ *Markman v Westview Instruments, Inc* (1995) 52 F3d 967 (Fed Cir) 985.

and confidence.’ It was the Commissioner, not the courts, that Congress made primarily responsible for protecting the public from the evil consequences that might result if practitioners should betray their high trust.⁶⁶⁰ [emphasis added]

When *Markman* made its way to the United States Supreme Court⁶⁶¹, the Supreme Court had to decide who, between judge and jury, was best positioned to decide the question of claim construction. The Supreme Court stated that the art of claim drafting and interpretation had evolved into a complex set of doctrines and technicalities through years of court and Patent Office interaction⁶⁶², and referring to the seminal *Parker v. Hulme*⁶⁶³ decision, stated that:

[P]atent construction in particular ‘is a special occupation, requiring, like all others, special training and practice. The judge, from his training and discipline, is more likely to give a proper interpretation to such instruments than a jury’.”⁶⁶⁴

Thus, the US Supreme Court in *Markman* confirmed that claim construction is a question of law, decided by a judge rather than jury.⁶⁶⁵ However, reference to the ‘special occupation’ left open the question of how much special legal expertise should form part of the hypothetical skilled reader’s knowledge, from whose vantage point the trial judge must assess questions of claim construction.⁶⁶⁶

⁶⁶⁰ *Kingsland, Comr Pats, v Dorsey* (1949) 338 US 318 (USSC) 319–20.

⁶⁶¹ *Markman v Westview Instruments, Inc* (1996) 517 US 370 (USSC).

⁶⁶² *ibid* 389; specifically, the Supreme Court cited Woodward (n 162) 765, stating ‘the claims of patents have become highly technical in many respects as the result of special doctrines relating to the proper form and scope of claims that have been developed by the courts and the Patent Office.’

⁶⁶³ *Parker v Hulme* (1849) 1 Fish Pat Cas 44 (E D Pennsylvania).

⁶⁶⁴ *Markman v. Westview Instruments, Inc.* (n 661) 388–9.

⁶⁶⁵ See *Cybor Corp v FAS Techs, Inc* (1998) 138 F3d 1448 (Fed Circ) wherein the Federal Circuit follows *Markman* and reaffirms that claim construction is a question of law, subject to de novo judicial review on appeal.

⁶⁶⁶ Looking closely at the judgement in *Parker v. Hulme* (n 663) 1140 one does not see reference to the special technical nature of patent claiming per se and a specialized patent agent profession. Rather, the patent specification is included in the class of ‘complicated instruments of writing’ and the ‘special occupation’ referred to therein is clearly the judiciary, who, by way of training and the nature of the judicial role vis-a-vis a jury (i.e. training in the interpretation of legal texts, transparent deliberation of interpretative issues and subjection to appellate review) are better placed to resolve such questions.

It was not long after *Markman* that the CAFC seized upon this opening and began to reshape the hypothetical skilled reader's knowledge to include the customs and practices of professional patent agency. For example, in *Sage Prods. v. Devon Indus.*, the patented invention related to disposal of used syringes claimed a disposal container having "an elongated slot at the top of the container body" with "a first constriction extending over said slot" and a "complementary second constriction extending beneath said slot". The first and second constrictions restricted access to the chamber containing used syringes. The defendant's device shifted the slot into the body, rather than positioning it atop the container. Accordingly, the District Court found no infringement, either literally or by equivalents.⁶⁶⁷

On appeal, the CAFC upheld the District Court judgement. Writing for the Court, Rader J. highlighted that this apparently simple error in claim drafting, namely, explicitly stating that the slot must be at the top of the container, should have been easily foreseeable by a professional patent agent and as such, foreclosed possibility of infringement either literally or equivalently. On this point, Rader J. emphasized the premium that must be placed on 'skilled patent drafting' and the corresponding relationship with the USPTO, and the effect this premium has on claim construction and infringement:

The claim at issue defines a relatively simple structural device. A skilled patent drafter would foresee the limiting potential of the 'over said slot' limitation. No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim. If Sage desired broad patent protection for any container that performed a function similar to its claimed container, it could have

⁶⁶⁷ *Sage Prods v Devon Indus* (1997) 126 F 3d 1420 (Fed Circ) 1424.

sought claims with fewer structural encumbrances. Had Sage done so, then the Patent and Trademark Office (PTO) could have fulfilled its statutory role in helping to ensure that exclusive rights issue only to those who have, in fact, contributed something new, useful, and unobvious. Instead, Sage left the PTO with manifestly limited claims that it now seeks to expand through the doctrine of equivalents. However, as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.⁶⁶⁸

Furthermore, Rader J. justified the importance of professional patent drafting on utilitarian grounds:

This court recognizes that such reasoning places a premium on forethought in patent drafting. Indeed this premium may lead to higher costs of patent prosecution. However, the alternative rule -- allowing broad play for the doctrine of equivalents to encompass foreseeable variations, not just of a claim element, but of a patent claim -- also leads to higher costs. Society at large would bear these latter costs in the form of virtual foreclosure of competitive activity within the penumbra of each issued patent claim.

Because the doctrine of equivalents blurs the line of demarcation between infringing and non-infringing activity, it creates a zone of uncertainty, into which competitors tread only at their peril. Cf. *Markman v. Westview Instruments, Inc.*, [517 US 370, 390-91], 116 S. Ct. 1384, 1396 ... Given a choice of imposing the higher costs of careful prosecution on patentees, or imposing the costs of foreclosed business activity on the public at large, this court believes the costs are properly imposed on the group best positioned to determine

⁶⁶⁸ *ibid* 1425.

whether or not a particular invention warrants investment at a higher level, that is, the patentees.⁶⁶⁹ [emphasis added]

Shortly thereafter, Rader J.’s again took the opportunity to double down on the significance of professional patent agency, extending the reasoning in *Sage Products* even further, in his concurring opinion in *Vehicular Technologies Corp. v. Titan Wheel Intern. Inc.*. The patent in issue, relating to a differential locking mechanism used predominantly in automotive applications, claimed “a spring assembly consisting of two concentric springs bearing against one end of [a] pin.” The defendant’s device “substituted a single spring and a plug fitting into the spring for this [two concentric spring] limitation.”⁶⁷⁰

Upholding the District Court’s summary judgement ruling that no reasonable jury could find infringement by equivalents, the CAFC reasoned that “[t]he claim language expressly requires two springs” given that the “the patent drafter underscored this limitation with the introductory phrase ‘consisting of’.”⁶⁷¹ The court’s reasoning implicitly suggests a patent-saavy reader, who would understand that:

[t]he phrase ‘consisting of’ is a term of art in patent law signifying restriction and exclusion, while, in contrast, the term ‘comprising’ indicates an open-ended construction. ... In simple terms, a drafter uses the phrase ‘consisting of’ to mean ‘I claim what follows and nothing else.’ A drafter uses the term ‘comprising’ to mean ‘I claim at least what follows and potentially more.’⁶⁷²

⁶⁶⁹ *ibid.*

⁶⁷⁰ *Vehicular Techs Corp v Titan Wheel Int’l, Inc* (2000) 212 F3d 1377 (Fed Circ) 1379.

⁶⁷¹ *ibid* 1382.

⁶⁷² *ibid* 1382–3.

Rader J., in his concurring opinion, referenced his own judgement in *Sage* as support for adopting an interpretation in line with the professional patent agent practices:

In this case as in *Sage*, a skilled patent drafter would readily foresee the limiting potential of the "consisting of two concentric springs" limitation. Again, the drafter would not confront the need for particularly subtle or ambiguous language to describe inventive features that are complex, or were never described before in scientific discourse.

Moreover, this limitation does not call into question issues of after-arising technology which, by definition, cannot be foreseen at the time of claim drafting. Here, a skilled patent drafter could have reasonably foreseen potential substitutes for two concentric springs, such as the accused spring and plug structure, but nonetheless chose limited claim terms. In such a case as this, this court does not employ the doctrine of equivalents to alter the limitations the drafter chose to prosecute in the Patent and Trademark Office.⁶⁷³

Only a few years after *Sage* and *Vehicular Technologies Corp.*, the US Supreme Court's next foray into patent law following *Markman* came in *Festo Corp. v. Shoketsu Kinzoku Kogyo kabushiki Co.* In *Festo*, the Court considered the doctrine of equivalents and its relationship to prosecution history estoppel. The Supreme Court sought to establish a doctrine of prosecution history estoppel "consistent with our precedents and respectful of the real practice before the PTO."⁶⁷⁴ [emphasis added] The doctrine set out that a claim amendment made during prosecution presumptively foreclosed the application of the doctrine of equivalents. This presumption could be rebutted if the proposed equivalent in question was unforeseeable at the

⁶⁷³ *ibid* 1384.

⁶⁷⁴ *Festo Corp. v. Shoketsu Kinzoku Kogyo kabushiki Co.* (n 648) 738.

time of amendment. Reference to ‘practice before the PTO’ suggests that the that US Supreme Court, much like the aforementioned CAFC decisions that came before it, intended to place a premium on professional patent agency and its relationship to claim construction and infringement. However, much like *Markman*, the US Supreme Court was again ambiguous on this point. For example, the Court stated that “[t]he patentee, as the author of the claim language, may be expected to draft claims encompassing readily known equivalents. A patentee's decision to narrow his claims through amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim.”⁶⁷⁵ [emphasis added] Regarding rebutting the presumption of foreseeability and drafting, the Court stated that “[t]he patentee must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.”⁶⁷⁶ [emphasis added] Yet the Court does not explicitly state who this ‘skilled artisan’ is, or should be, in relation to ‘drafting a claim’. Furthermore, in justifying the need for a rebuttable presumption, the Court stated:

After amendment, as before, language remains an imperfect fit for invention. The narrowing amendment may demonstrate what the claim is not; but it may still fail to capture precisely what the claim is. There is no reason why a narrowing amendment should be deemed to relinquish equivalents unforeseeable at the time of the amendment and beyond a fair interpretation of what was surrendered. Nor is there any call to foreclose claims of equivalence for aspects of the invention that have only a peripheral relation to the reason the amendment was submitted. The amendment does not show that

⁶⁷⁵ *ibid* 740.

⁶⁷⁶ *ibid* 741.

the inventor suddenly had more foresight in the drafting of claims than an inventor whose application was granted without amendments having been submitted. It shows only that he was familiar with the broader text and with the difference between the two. As a result, there is no more reason for holding the patentee to the literal terms of an amended claim than there is for abolishing the doctrine of equivalents altogether and holding every patentee to the literal terms of the patent⁶⁷⁷ [emphasis added]

The above-referenced passages appear to suggest that neither the drafter, nor the hypothetical reader, should be viewed as experts in the art of professional patent agency. However, much like *Markman* before it, the inherent ambiguity in *Festo* again left the door open for the CAFC to justify *Sage*'s continued expansion of professional patent agent expertise deeper into claim construction considerations.

When *Festo* was remanded to the CAFC, Rader J., in his concurring opinion, once again took the opportunity to interpret Supreme Court jurisprudence as supporting a presumption of professional patent agency:

Ultimately, as this court has noted in the past, *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997), foreseeability is the overarching principle that reconciles the notice function of claims with the protective function of the doctrine of equivalents... I wish to emphasize that the principle of foreseeability, adopted by the Supreme Court, promises to bring the enforcement of the doctrine of equivalents together with the expectations of the claim drafting process.⁶⁷⁸ [emphasis added]

⁶⁷⁷ *ibid.*

⁶⁷⁸ *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co, Ltd* (2003) 344 F3d 1359 (Fed Circ) 1366.

Regarding the claim drafting process, Rader J. seized upon the ambiguity in *Festo* to again reinforce the prominent role that professional patent agency must play in claim construction and infringement analyses, implicitly transforming the drafter into a professional patent agent:

Under the foreseeability principle, the doctrine of equivalents will not encompass any accessible prior art because this subject matter could have been included in the claims.

On the other hand, any after-arising technology or later developments or advances would not fall within the scope of what the drafter should have foreseen and claimed. After all, a skilled patent drafter is a legal technician, not an inventor... This principle in operation promises to preserve drafting expectations while honoring the notice function of claims.”⁶⁷⁹

These cases have created a line of CAFC precedent supporting the proposition that courts should adopt the customary terminology and practices of professional patent agents during claim construction.⁶⁸⁰ Transitional terms such ‘comprising’ or ‘consisting’ are construed to give them their established meanings in professional patent agent practice, regardless of whether context might dictate otherwise.⁶⁸¹ The CAFC now expects claims to follow customary professional patent agent claim format of preamble, transition, and body, and draws inferences during claim

⁶⁷⁹ *ibid* 1377.

⁶⁸⁰ See for example *Monster Cable Products, Inc v Quest Group* (2005) 2005 WL 1875466 (aff’d (ND Cal) 12: “Federal Circuit precedent emphasizes that patent drafters know the significance of transitional phrases they employ, using them carefully to limit or expand the scope of the material coming thereafter”.

⁶⁸¹ See for example *Gillette Co v Energizer Holdings, Inc* (2005) 405 F3d 1367 (Fed Circ). In *Gillette*, the dispute surrounding a claimed razor blade ‘comprising’ first, second and third parallel razor blades. The allegedly infringing product utilized four, rather than three, parallel razor blades. The majority, in finding infringement, emphasized the significance of the customary ‘comprising’ open-ended transitional phrase, in comparison to other transitions such as “consisting of” which customarily signal a patentee’s intention that the claimed group is closed. In a strong dissent, Archer J. reasoned that all teachings in the patent specification indicated that the true invention was a three-bladed razor. See also *PPG Indus v Guardian Indus Corp* (1998) 156 F3d 1351 (CAFC) 1355, which, although decided pre-Sage, is also illustrative of this same tendency.

construction based on such customs.⁶⁸² Furthermore, claims are now reviewed in a formulaic, element-by-element fashion, rejecting assertions that claims might have a novel or essential core.⁶⁸³ Even the US doctrine of equivalents, which was designed to remedy the cold logic of textualism which often conflicts with the linguistic challenges in claiming an invention, is now applied using a highly formalistic ‘all elements’ rule.⁶⁸⁴

c. The Synthesis of the Hypothetical Skilled Person and Professional Patent Agency – The Hypothetical Skilled Infringer?

The foregoing Chapter 8.3.b. demonstrates that in recent decades, the Anglo-American hypothetical skilled person has taken on many of the attributes of a professional patent agent. As she reads claims with the knowledge of a professional patent agent, there seems to be little impetus for claim drafters to write claims in any form that is comprehensible to anyone other than those within their epistemic community. Claim format, style and substance is largely incomprehensible to anyone but patent professionals, and although while courts often acknowledge this reality, they accommodate for this epistemic shortfall by either implicitly or explicitly presuming that the hypothetical skilled reader has somehow acquired knowledge of professional patent agency.⁶⁸⁵ In the UK, the hypothetical skilled person is presumed to seek the assistance of a professional patent agent when reading claims, having her knowledge

⁶⁸² See for example *Acceleration Bay, LLC v Activision Blizzard INC* (2018) 908 F3d 765 (Fed Circ) 770–1.

⁶⁸³ The prohibition against an essence or core to a claimed invention seems to have been cemented by the US Supreme Court in *Aro Mfg Co v Convertible Top Replacement Co* (1961) 365 US 336 (USSC); since that time, the Federal Circuit has rejected an essential core in assessing obvious in *Loctite Corp v Ultraseal Ltd* (1985) 781 F2d 861 (Fed Circ) 874–75; and has also expressed a critical view regarding any form of an essential elements test under the written description requirement - see *Reiffin v Microsoft Corp* (2000) 214 F3d 1342 (Fed Circ). Interestingly, Baldwin J., in *Loctite Corp. v. Ultraseal Ltd.* 875 suggests that consideration of an ‘essential core’ may be relevant when assessing infringement by equivalents, but beyond simply stating this, does not elaborate any further.

⁶⁸⁴ Professor Donald Chisum provides an excellent example of the slippery line between substance and form in claim drafting, within the specific context of the operation of U.S. doctrine of equivalents and prosecution history estoppel, and the counter-intuitive it can lead to. See Donald S. Chisum, *Chisum on Patents* (Matthew Bender & Company, Inc) s 18.04.

⁶⁸⁵ John M. Golden (n 505) 339.

supplemented by the knowledge of this expert. This begs an important question- does this not make the perspective of UK claim construction circular in nature? In litigation, claim construction is a question of law and expert evidence is intended to provide the trial judge with the necessary technical competency to understand claims from the perspective of a hypothetical skilled person. However, now, both the hypothetical skilled person and the inventor are presumed to be advised by a professional patent agent.

In the US, there seems to be no explicit acknowledgement as to how the hypothetical skilled person understands the meaning of professional patent agent customs and conventions, leaving one to wonder whether she is presumed to have consulted with a third-party expert, she is deemed to have such knowledge by way of legislative prescription or such expertise simply forms part of her common general knowledge. It does not appear that CAFC jurisprudence has ever directly tackled this question, and instead, as most cases have simply accepted professional patent agent customs and practices as given, it appears that the hypothetical skilled person is simply invisible when courts have made such decisions. Despite the US Supreme Court's efforts to recharge and reaffirm the importance of the role of the hypothetical skilled person in US patent law, it seems that she is slowly taking a back seat to the hypothetical professional patent agent when it comes to claim construction.⁶⁸⁶

Returning to the premise first set out under Chapter 8.1, that patent law's hypothetical skilled person should take her place among general law's hypothetical reasonable people, what, then does the analysis of Anglo-American law's reasonable people tell us about the hypothetical skilled person's transformation into a hybrid professional patent agent? As the analysis of

⁶⁸⁶ See generally *KSR Int'l Co v Teleflex Inc* (2007) 550 US 398 (USSC) wherein the USSC rejected the Federal Circuit's previous 'teaching-suggestion-motivation' test for assessing obviousness given its overly formalistic approach and emphasis on prior art documentation, which, disregarded the true reality of how knowledge is retained and transferred amongst real skilled artisans.

Chapter 8.2 demonstrates, it is only when the hypothetical reasonable person's legal rights and liabilities are at stake that she consults with third party legal experts in order to guide her conduct. Accordingly, by adopting these principles into the construct of the hypothetical skilled person, Anglo-American courts have implicitly transformed the hypothetical skilled person from *a skilled reader* into *a potential infringer*. For this transformation to take place, the hypothetical skilled person's common general knowledge must include an inherent knowledge that technical activities might incur liability, and as such, before engaging in any such technical activities, they must consult with professional patent agents to conduct prior art searches and meticulously analyze patent claims under this expert guidance to ensure that they are free to operate. If the hypothetical skilled person is a stand-in for a real skilled artisan, this means that technological activity now takes place under the shadow of restriction rather than the free and open exchange of knowledge and a spirit of problem-solving innovation. Now, all hypothetical skilled persons no longer read patents to learn and instead are always in the position of a potential infringer and must conduct themselves accordingly lest they should face legal liability. This is the implicit effect of supplementing the hypothetical skilled person's knowledge with that of a professional patent agent.

4. LOOKING BOTH WAYS ACROSS THE CHANNEL? – COMPARING THE ANGLO-AMERICAN AND GERMAN 'HYPOTHETICAL PERSON SKILLED IN THE ART' IN THE PRE AND POST EPC ERAS

“When Dr Peter Meier-Beck very kindly sent me comments on a draft of the Amgen decision a couple of years ago and explained the German approach to equivalence, I told him that the only difference there seemed to be between us was that I was brought up on the 1960s Oxford philosophy of language and he was brought up on Hegel.”⁶⁸⁷

⁶⁸⁷ Leonard Hoffmann, 'Patent Construction' (2006) 35 *The CIPA Journal* 727, 727.

The above-referenced passage was stated by Lord Hoffmann in 2006 at a presentation given to an audience of German patent practitioners, scholars and jurists on the topic of comparative patent claim construction. In this talk, Lord Hoffmann expounded on the purposive interpretation philosophy underlying the House of Lords decision in *Kirin Amgen Inc v Hoechst Marion Roussel Ltd* judgement⁶⁸⁸, his understanding of the Protocol and its harmonizing objectives. The underlying thread in much of Lord Hoffmann's judicial and extra-judicial writing is that purposive interpretation treats legal text – whether statute, contract, will or patent – as one would treat any form of written communication, which ultimately constitutes a search for meaning.⁶⁸⁹ From this perspective, purposive patent interpretation is a straightforward question- what would a hypothetical reader of a patent understand the inventor to have been using her words to *mean* when claiming an invention?⁶⁹⁰ This *meaning*, being the semantic content of the claimed invention, defines the scope of patent protection. To Lord Hoffmann, semantic content is the be-all and end-all of written communication; a quest to understand comparative approaches to patent claim construction is in reality a quest to understand one's underlying philosophical predispositions and presumptions regarding how meaning is conveyed through language.

What, then, does a Hegelian approach to the interpretation of patents look like and what does it tell us about comparative UK-German patent scope? To some, a Hegelian approach speaks to the underlying normative rationales for granting patents. According to Professor Fisher, the German 'Hegelian' approach to patents is rooted in a German teleological view of the patent

⁶⁸⁸ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634).

⁶⁸⁹ See for example Leonard Hoffmann (n 597); see also Justine Pila, 'Lord Hoffmann and Purposive Interpretation in Intellectual Property Law' in Justine Pila and Paul S. Davies (eds), *The Jurisprudence of Lord Hoffmann* (Hart Publishing 2015) 11; Lord Hodge shares a similar perspective towards purposive interpretation- see for example *Trump International Golf Club Scotland Ltd & Anor v The Scottish Ministers (Scotland)* [2015] UKSC 74 (UKSC) [34].

⁶⁹⁰ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634) para 33.

grant, which, in opposition to the UK utilitarian view of incentives, focuses on rewarding inventors as an end in and of itself rather than a means to the end of promoting innovative activities.⁶⁹¹ However, focusing entirely on the normative rationales for granting patents overlooks the comparative semantic aspects to which Lord Hoffmann may have been referring in the above-referenced passage. The analytic tradition of modern common law, along with its tradition of legal forms customary across all areas of law, requires a *transformation*, whereby the lived experience of those coming to the law becomes disconnected in favour of the lived experience of ‘expert knowers’.⁶⁹² Thus, the law becomes *scientized*,⁶⁹³ thereby ceasing to belong to the individual subjects of the law and instead becoming the domain of legal experts- “[i]t so happens that the expert ‘knowers’ ... are lawyers, rather than doctors or engineers or bankers.”⁶⁹⁴ The ‘law’ becomes the scientized language of ‘expert knowers’, and the phenomenological lived experience of individuals is transformed into concepts and words which “[o]nly the expert ‘knowers’ can claim to ‘know’ authoritatively.”⁶⁹⁵

In contrast to the Anglo-American, analytic tradition of interpretation, a ‘Hegelian’ approach to interpretation attempts to ensure that the language of the law remains the language of the law’s individual subjects. Accordingly, German claim construction has historically attempted to ensure that patent drafting and interpretation remains firmly within the phenomenological experience of patent law’s intended audience of skilled artisans. While UK patent jurisprudence has paid lip

⁶⁹¹ Matthew Fisher, ‘New Protocol, Same Old Story? Patent Claim Construction in 2007; Looking Back With a View to the Future’ (2008) 2 IPQ 148, 146; for an excellent discussion of Hegelian theories of property generally, see Margaret Jane Radin, ‘Property and Personhood’ (1981) 34 Stanford Law Review 957.

⁶⁹² William E. Conklin, ‘Human Rights, Language and Law: A Survey of Semiotics and Phenomenology’ (1995) 27 Ottawa Law Review 129, 138; although Professor Conklin is speaking within the context of human rights law, he notes that ‘[t]his [transformation] is the paradox of the legal language of a modern state, not just of human rights law.’

⁶⁹³ *ibid* 133.

⁶⁹⁴ *ibid* 137.

⁶⁹⁵ *ibid*.

service to this ideal⁶⁹⁶, German patent jurisprudence, and its emphasis on ensuring legibility of patent documents by and for its intended epistemic community, embodied it: “[l]egibility... saves the patent from the unjustified allegation that it is an instrument used by medicine men and the expression of a secret science and language. This allegation hinders the patent’s function of being an understandable instruction to the general public.”⁶⁹⁷ Thus, all aspects of patent practice, including the formation and interpretation of patent specifications, was intended to ensure that patents remained rooted within the scientific community as opposed to becoming *a science* in and of themselves.⁶⁹⁸

a. The German Hypothetical Skilled Person and the *Real* Skilled Person

If German patent doctrine intended to recognize and enable the interpretive practices of its true intended community of readers, how, then, do *real* skilled artisans understand what inventions are and how they are claimed? How would real skilled artisans claim inventions and interpret claim language? Furthermore, how have these interpretive practices been incorporated into German claim construction doctrine?

Theoretical and empirical studies suggest that real skilled technicians place heavy emphasis on the disclosure, as opposed to isolating and reifying claims, when interpreting claim text, thereby drawing extensional definitions of the scope of patent protection from the disclosed

⁶⁹⁶ The history of UK patent jurisprudence has often suggested, as Lord Diplock did in *Catnic Components Ltd v Hill & Smith Ltd* (n 641) para 65 that a patent specification should not be interpreted by ‘applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge.’; however, over time, the hypothetical skilled reader has transformed, and now, is is “assumed to know the basic principles of patentability”- see *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors* (n 634) para 78; Now, under UK law, the skilled person understands more than simply basic patent drafting principles, but also more complex concepts such as the effect of divisional applications and two-part claim format, given that if the skilled person does not understand this on their own it is expected that they will “go on to ask a man who knows, probably a patent agent” - *Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd* (n 636) para 15.

⁶⁹⁷ Peter Meier-Beck (n 538) FN 8, citing Windisch (1978 GRUR 385 at 387).

⁶⁹⁸ See Dr. J L Benton and Dr. K J Heimbach (n 525) 48 where authors take this line of reasoning so far as to suggest that a jury of actual skilled artisans may be a better approach to determining infringement than either legally-trained judges or a U.S. style ‘jury of peers’.

embodiments of the invention.⁶⁹⁹ This approach may characterize a general tendency on the part of skilled technicians to identify an invention as actual embodiment(s), rather than a definition of a broader genus that patent professionals are accustomed to formulate as a claim. Thereafter, the skilled reader abstracts extensionally from these embodiments when considering whether a new embodiment falls within the scope of the invention.

Studies suggest that in many circumstances, an *actual* skilled technician reading claim text might disregard the significance of certain words or ignore them entirely rather than parsing each word of a claim into discrete and individualized elements of semantic content.⁷⁰⁰ Perhaps more important is that real skilled readers often perceive a slippery line between function and structure when encountering claim language. As discussed under Chapter 7.2.b.iii., to a real skilled reader, an invention is viewed both functionally and structurally, the line between each blurring within the other.

b. The German Hypothetical Skilled Person – Reading to Learn

So much confusion, uncertainty and misunderstanding between Anglo-American and German patent practice can be pinpointed to fundamental assumptions each patent system makes about its hypothetical skilled person, and specifically, the motivations each hypothetical person brings to the exercise of reading a patent. Specifically, the German patent document is treated as a teaching document which is meant to instruct skilled artisans how to implement useful knowledge. In distinction to the Anglo-American approach to claim construction, the skilled reader under German patent practice focuses her attention squarely on the technical teaching of

⁶⁹⁹ For an excellent discussion, see Jeanne C. Fromer, ‘Claiming Intellectual Property’ [2009] University of Chicago Law Review 719, 763–5.

⁷⁰⁰ See Jeremy W Bock, ‘Behavioral Claim Construction’ (2017) 102 Minnesota Law Review 1273, 1300; 1316; 1322.

the claim.⁷⁰¹ To put it simply, the entire patent document, including the claims, teaches skilled artisans *how to do things*. The hypothetical skilled reader of German patent practice reads the patent document to learn, and the key goal of claim construction is to determine the claimed *technical teaching*.

Anglo-American patent practice tends to draw clear distinctions between the claims, which define the legal protection sought by the patentee, and the detailed description, which serves to enable the invention and fulfill the teaching function.⁷⁰² However, German patent practice views the entire patent document from a far more holistic perspective. This is not to downplay the role of the claims in defining the scope of protection. Rather, under German patent practice, enablement, and what the patent document teaches the hypothetical skilled reader, are intimately intertwined with the claims and claim construction. This approach may seem at odds with the Anglo-American emphasis of claim construction as providing definitions to the claim elements—“[u]nlike German claim construction, which focuses more on invention or technical teaching of the claim, the focus in the United States is on clarifying the meaning of the wording used in claims by making reference to claim interpretation aids and applying canons of claim construction.”⁷⁰³ Under German patent practice, claim construction does not seek to *define* the words of the claim per se, rather, the focus is on what the words of the claim *enable* the hypothetical skilled reader *to do*. The scope of patent protection of the claimed invention covers the claimed technical teaching, and as such, extends to cover what the claim has enabled the

⁷⁰¹ Matthew Fisher, ‘New Protocol, Same Old Story? Patent Claim Construction in 2007; Looking Back With a View to the Future’ (n 691) 155.

⁷⁰² See for example *Glaverbel SA v British Coal Corp (No4)* [1995] RPC 255 (EWCA) [280].

⁷⁰³ Toshiko Takenaka and Christof Karl, ‘Claim Construction Under US and German Patent Acts: Wording Used in the Claims and the Invention Disclosed in the Specification’ in Toshiko Takenaka (ed), *Research Handbook on Patent Law and Theory* (Second, Edward Elgar 2019) 218.

hypothetical skilled reader to do beyond what she already *knew* prior to reading the patent document.

Emphasizing that the hypothetical skilled reader should be as close to a real skilled reader as possible, combined with the fact that the hypothetical skilled reader is reading to learn, are the sources from which many other German claim construction doctrines, including those discussed in the following Sections, derive.

c. ‘Functionally-Oriented’ Claim Construction

Building on the understanding that the German patent is a teaching document and the hypothetical skilled reader as reading to learn how *to do* something, the idea behind the claimed invention as protection for a technical teaching is that the claim circumscribes some practical knowledge that is being epistemically transferred through the patent document to the skilled reader. The intimate intertwining of enablement and claim construction discussed above under Chapter 8.4.b. means that to the German hypothetical skilled reader the words of patent claims are *alive*. It is this perspective that animates the German ‘functionally-oriented’ interpretation of claim language. Functionally-oriented claim construction is the cause of much misunderstanding on the part of the Anglo-American patent community, and specifically, the notion that German claim construction is meant to operate as a more beneficial approach to construction based on the German reward-theory for patent protection.⁷⁰⁴ A ‘functionally-oriented’ interpretation is not intended to be generous form of claim construction, even if in most circumstances it would lead

⁷⁰⁴ C. Sijp, ‘Scope of Protection Afforded by a European Patent’ (1979) 10 IIC 433, 435–7; see also Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 236: ‘Justification for this layer of protection [the general inventive concept] derived from the premise that the inventor should be able to reap reward to the extent that their invention enriched the art.’; ; It is important to note that much like under UK practice, German purposive interpretation, including the ‘functionally-oriented’ approach, is not meant to be a beneficial method of interpretation in favour of patentees. Purposive interpretation can lead to different, broader or narrower meaning for words from their general technical use, depending on context; see generally *Spannschraube* [1999] GRUR 909 (BGR); see also Toshiko Takenaka and Christof Karl (n 703) 215, 220.

to broader protection compared to Anglo-American approaches. Rather, it reflects the reality that the German hypothetical skilled reader is reading to *learn*, and the question at the heart of this learning exercise and claim construction generally is what do the words of the claim *enable* the skilled reader to do.

Accordingly, the animating force behind functionally-oriented claim construction is that “the perspective of a PHOSITA is used to conceptualize and expand the meaning of the disputed claim wording, focusing on the function by taking accounts of the general knowledge of a PHOSITA.”⁷⁰⁵ What this means is that “technical terms are interpreted functionally to comprise everything having the same function based on the same inventive idea as it appears to the ‘normal expert’”.⁷⁰⁶ As Professor Takenaka points out, many embodiments which would, at best, be captured under the Anglo-American doctrine of equivalents, are frequently captured under German literal infringement due to its functionally-oriented approach to claim construction.⁷⁰⁷ Accordingly, the functionally-oriented nature of German claim construction tends to lead to claims of greater breadth than under Anglo-American law. In both Anglo-American and German patent practice, doctrines of equivalency comes into play when a claim term’s *meaning* is being stretched beyond what it can no longer reasonably bear.⁷⁰⁸ The difference between German and Anglo-American practice is that to the German skilled reader, a functionally-oriented view of claim language resulting from a reading focused on learning how to do something means that a

⁷⁰⁵ Toshiko Takenaka and Christof Karl (n 703) 220.

⁷⁰⁶ Dr. J L Benton and Dr. K J Heimbach (n 525) 47.

⁷⁰⁷ Toshiko Takenaka and Christof Karl (n 703) 215.

⁷⁰⁸ See *Royal Typewriter Co v Remington Rand, Inc* (1948) 168 F2d 691 (2d Circ), paraphrasing Judge Learned Hand, who specifically stated that the doctrine of equivalency under U.S. law was specifically intended to address situations where interpretation was being stretched beyond what claim language could bear.

much broader scope of embodiments will typically fall within the semantic content of the claimed technical teaching.⁷⁰⁹

d. The 'Claim-as-a-Whole'

As discussed under Chapter 7.2.c.ii., an invention is more than the sum of its parts, with purpose, function, operability and unity across all components connecting with one another at the level of the claimed invention-as-a-whole. Historically, the German hypothetical skilled person, who reads the claimed invention not as an exercise in philology but as part of her technical learning exercise, strives to understand the claimed technical teaching through a holistic perspective. The claimed invention-as-a-whole is a conceptual construct, the semantic content of which constitutes the epistemic transfer of the inventive technical teaching to the hypothetical skilled reader. In this sense, unlike Anglo-American patent practice, historically, German practice has not adhered to a strict notion of breaking the claim down to 'elements'. As Dr. Meier-Beck states:

The sum of the features of a patent claim are nothing more than the content of the claim itself. The realization of all features by a known device or the contested embodiment as found in the examination of patentability or infringement, as the case may be, means nothing more than the realization of the totality of the claimed technical teaching.⁷¹⁰ [emphasis added]

⁷⁰⁹ See Leonard Hoffmann (n 687) 730. Referring back to Lord Hoffmann's comment, quoted at the beginning of this Section, relating to Oxford, Hegel and comparative UK and German doctrines of equivalency, Lord Hoffmann points out that in US doctrine of equivalency, compared to that of Germany (as well as his approach set out in the House of Lords decision in *Kirin-Amgen*), 'equivalents' fall outside the scope of the claimed invention: "it is possible to have infringement by equivalence [in the US] even though the reasonable skilled man would not have understood that the claim, even in the most non-literal sense, covered the infringement or derived his understanding of equivalence from the terms of the claim."

⁷¹⁰ Peter Meier-Beck (n 538) 684.

This hypothetical skilled reader perceives the significance of the claimed invention in its entirety as a combined technical teaching. Whether parsing claim language into discrete elements or viewing the claimed invention-as-a-whole, she does not lose sight of the objective, which is ascertaining the semantic content of the technical teaching that the claimed invention-as-a-whole conveys. In many ways, an unyielding devotion to breaking an invention down into elements, characteristic of contemporary Anglo-American practice, misses the forest for the trees:

An isolated consideration of individual features that loses sight of this context of the totality of the features runs the risk of coming to faulty results, and this risk is all the greater, the more this context is buried by an exaggerated division of the claim in the presentation of the subject matter of the invention.⁷¹¹

In light of this realization, this hypothetical skilled reader, much like a real skilled reader, is not accustomed to parsing claim language into the smallest possible discretized elements:

The more that division is pursued, the greater the risk that on the one hand the individual features observed for themselves will no longer show any identifiable meaning and on the other hand, and above all, sight is lost of the function that the divided features in their totality and in their interaction have for the technical teaching of the invention.⁷¹² (emphasis added)

Historically, German patent law has viewed the dissecting of the claim into discrete elements not as an end in and of itself, rather, only as a means to an end-“the examination of individual features is only an aid in the sole relevant examination.”⁷¹³ The end goal is determining the semantic content of the claimed technical teaching that is epistemically transferred from the

⁷¹¹ *ibid* 687.

⁷¹² *ibid* 686.

⁷¹³ *ibid* 687.

inventor to the skilled reader through the patent document. Claims are discretized into elements only to the extent that it furthers this objective:

[A] breakdown of features should as a rule only divide up the patent claim to an extent that it serves to improve the understandability of the technical teaching presented and leads to ‘convenient’ sub-units.⁷¹⁴

Rather than focusing on the ‘elements’ of the claims, the German hypothetical skilled reader focuses on the ‘content’ of the claims.⁷¹⁵ This perspective might seem foreign to the Anglo-American patent practitioner who is accustomed to the elemental approach when interpreting patent claims. Historically, the claimed *invention-as-a-whole* acted like a keyhole through which a skilled person viewed the teaching of the specification in light of her common general knowledge, her perception of what the invention is, how it works and the problem(s) it remedies. The claimed technical teaching is essentially what the hypothetical skilled reader sees and understands when she views the patent document through this keyhole. The language of the claim either broadens or narrows the opening of this keyhole, and as such, filters the scope of the technical teaching which the hypothetical skilled reader receives from the patent document and tailors the scope of the technical teaching captured by the scope of the claim.

e. Common General Knowledge and Evident Omissions and Equivalents

⁷¹⁴ *ibid* 686.

⁷¹⁵ Heinz Winkler, ‘The Scope of Patent Protection: Past, Present and Future’ (1979) 10 IIC 296, 311; From a statutory perspective, we see that Article 69 of the EPC, much like its predecessor Art. 8(3) of the Strasbourg Convention, references ‘terms’ of the claims in English or ‘inhalt’ in German-Convention on the Unification of Certain Points of Substantive Law on Patents for Invention 1963 (European Treaty Series - No 47). The drafters of the original Article 69 of EPC opted for “terms” of the claim in the final draft of Article 69, as opposed to other debated options such “words” or “elements” of the claims, as “terms” was believed to be broader than these other options. In the context of the EPC and the predecessor Strasbourg Convention, “terms” of the claims was deliberately selected, as opposed to “words” or “elements” of the claims, in order to express an intention to depart from a protection restricted to the literal text of claim wording; see also Edward Armitage (n 566) 10–11; 13; Matthew Fisher, ‘New Protocol, Same Old Story? Patent Claim Construction in 2007; Looking Back With a View to the Future’ (n 691) 136.

Anglo-American patent practitioners' characterization of German patent practice as a 'central claiming' system has largely been inspired by the fact the hypothetical skilled reader of German claim construction can, in certain instances, ignore specific claim text or recognize that the specific embodiments covered by such text can be substituted with an equivalent. To the Anglo-American 'peripheral claiming' practitioner, this turns the text of the claim into a springboard for launching towards embodiments that would not fall within the periphery of the words chosen by the inventor. However, referring back to Chapter 8.4.a., we see that real skilled readers, whom the German hypothetical skilled reader is meant to mimic as closely as possible, could occasionally come to such determinations when reading claim text.

The misunderstanding is exacerbated by the perception on the part of Anglo-American practitioners that German patent claims were elastic and could in any circumstance be pulled and stretched in any direction whatsoever. The reality is far more nuanced. Historically, the question of whether claim text was non-essential and could be omitted in its entirety in an infringing embodiment or whether the infringing embodiment substituted an equivalent variant for a specifically claimed feature, revolved around evidency.⁷¹⁶ Evidency means that the hypothetical skilled reader, reading the claim in light of her general common knowledge, would perceive that it was evident from reading the claims in light of the specification that the modification in question (whether omission or equivalency) was intended to fall within the semantic content of the claimed technical teaching. Accordingly, "where an element of the claim has either been omitted, or has been replaced, as or by an evident equivalent" ... the key to a finding of infringement under this doctrine is that it:

⁷¹⁶ Dr. J L Benton and Dr. K J Heimbach (n 525) 50: '[W]hile one can speak of essential elements, the criteria for their essentiality... should be aligned with those for evident equivalents in such a way that it does not matter which approach is used.'

[is] in such a plain and clear way there is no uncertainty about it ... and it is clear to any skilled person at the priority date of the claim that this taking of an evident equivalent by omission or substitution has neither a material effect on the way the invention works nor on the results... if [evident equivalence] was well-known and the teaching of the description made its possible use immediately obvious to the skilled person, this is probably infringement. If it was generally recognized in the relevant art as an equivalent, particularly where it was so well known and a matter of common general knowledge that its exclusion from the claim can only be regarded as a mistake, there seems to be a clear case for infringement.⁷¹⁷ (emphasis added)

Professor Fisher, in his comparative analysis of pre and post-EPC German and UK patent practice, highlights that this German approach was in many ways equivalent of the UK doctrine of essentiality:

The subject matter of the invention was found by adopting a problem and solution analysis; examining the problem that the patented invention set out to solve and the solution that it provided. Such an examination was designed to expose the technical teaching, which lay in a combination of elements... Once the subject matter of the invention had been determined, the alleged infringement underwent a similar elemental analysis. The two were then compared, and the obviousness of any substitutions, omissions or additions to the patent formula were considered. It is important to note that the German practice under this head of protection did not require one-to-one substitutability of elements. Therefore infringement could not be avoided if an element was omitted provided that its omission did not change the manner in which the accused embodiment solved the technical problem. The technical teaching of the

⁷¹⁷ *ibid* 49.

invention can thus be seen as similar to the essential elements of the invention under an equivalents analysis.⁷¹⁸ [emphasis added]

Fisher goes on to summarize several of the key aspects of this German doctrine, stating:

The focus here was on what the specification taught the skilled addressee, and only modifications, variants, substitutions, additions or omissions that were immediately evident to the average person skilled in the art were included within the scope of protection.

Therefore, this level of abstraction from the specification of the patent was relatively uncontentious, as the requirement that any variation be immediately apparent arguably placed no undue burden on the patentee's competitors as it closely paralleled the practice that the Patent Office would undertake when considering patentability.⁷¹⁹ [emphasis added]

Similarly, with reference to situations where the claim contains a non-essential element, Dr. Dr. Meier-Beck, referring to situations where omission of claim text is permitted as a case of 'over-specification', states that:

[O]ver-specification consist[s] of details in the patent claim that, when reasonably examined by a person skilled in the art, cannot in fact be part of the claimed technical teaching because they are obviously of no significance to such person, the patent claim is realized overall according to its literal meaning even if the contested embodiment lacks the over-specified detail.⁷²⁰ [emphasis added]

Dr. Meier-Beck goes on to clarify a few key points regarding the distinction between an over-specified sub-combination, which still falls within the claimed technical teaching, and a partial combination, which is an acceptable, non-infringing embodiment. The distinction

⁷¹⁸ Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 235.

⁷¹⁹ *ibid.*

⁷²⁰ Peter Meier-Beck (n 538) 684.

between the two, and ultimately, what does or does not constitute infringement, turns on an apparent lack of technical function of the omitted claim feature within the context of the claimed invention-as-a-whole:

"Without significance" may on no account be seen as the equivalent of "without substantial significance." The decisive factor is the (apparent) lack of technical function of the detail within the context of the patent claim, which must be strictly separated from a less important function. Otherwise, the border to the sub-combination or partial combination would be unlawfully surpassed. The latter, however, are a similar but different technical teaching as compared with the patent claim.⁷²¹ [emphasis added]

Reference to overspecification constituting ‘literal’ infringement does not mean a form of strict ‘acontextual’ interpretation as opposed to a purposive interpretation. Rather, literal means that the determination is made as a matter of textual infringement as opposed to some form extended protection such as a doctrine of equivalency. The point here is that omissions and equivalents may still fall within the scope of the semantic content of the claimed technical teaching, given that the hypothetical skilled reader may perceive that it was evident from reading the specification in light of her common general knowledge that the claimed technical teaching was not meant to exclude embodiments that omit certain claim text or substitute an equivalent.

Two important conclusions can be drawn from the foregoing. Primarily, rather than the claims operating as nose of wax that could be reshaped in any given form at any time, omissions and substitutions were only permitted when it was immediately apparent to the hypothetical skilled reader that such modifications would not detract from the claimed technical teaching.

⁷²¹ *ibid*; see also Heinz Winkler (n 715) 299 where Winkler also confirms that partial combinations could only be addressed under the ‘general inventive idea’, which was the category of extended protection, as opposed to overspecified subcombinations, which were covered under the subject matter of the claim (i.e. literal infringement).

Omissions were only permitted when it was immediately apparent that such omission would have no significance to the function of the claimed technical teaching. Most importantly, these conclusions were not reached through forms of special doctrines of ‘non-literal’ infringement, such as a doctrine of equivalents which extends protection outside of the semantic content of the claimed invention. Rather, these conclusions were arrived at through the hypothetical skilled reader’s understanding of the meaning of the language of the claim, resulting from the various attributes of the German hypothetical skilled reader which more closely align this construct with a real skilled reader than its Anglo-American counterpart.⁷²² It is this lack of apprehension, on the part of so many Anglo-American practitioners, that fueled the ‘central’ versus ‘peripheral’ claiming labels that have long characterized respective German and Anglo-American patent practice.

5. THE INTERNATIONAL HARMONIZATION OF PATENT LAW’S HYPOTHETICAL SKILLED PERSON – FROM CURIOUS READER TO POTENTIAL INFRINGER?

Chapter 8.4 demonstrates that much of the confusion between Anglo-American and German claim construction can trace its roots to a failure on the part of the former to appreciate that the hypothetical skilled person of the latter is designed, as much as possible, to resemble a real skilled reader. This failure is perhaps the essential distinction between German and Anglo-American patent practice, and the source of much of the confusion and misunderstanding. Anglo-American patent practitioners, scholars and judiciary have characterized the issues as ‘peripheral’ versus ‘central’ claiming, or that German claim construction subverts claim text in search of some vague and amorphous ‘spirit of the invention’. The reality is far simpler. As

⁷²² It is important to note that a proposed interpretation relating to a claimed technical teaching which omitted claim language or substituted equivalents could only be accepted if the proposed claimed technical teaching remained independently patentable. See Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 235; *X ZR 24/70 (Molliped)* (1974) 1974 GRUR 460 (Bundesgerichtshof); *X ZR 37/90 (Heated Breathing Air Hose)* (Bundesgerichtshof) [28].

Professor Takenaka succinctly states that “[t]he PHOSITA’s general knowledge, which makes some modifications obvious, plays no or a very limited role in US claim construction, in stark contrast to German claim construction.”⁷²³ This statement summarizes what in essence is a simple reality that has caused much confusion on the part of Anglo-American patent practitioners and judiciary in relation to German patent practice, namely, that the German hypothetical person skilled in the art was meant to mimic, as closely as possible, a *real* skilled reader who is reading the entire patent document to *learn*.⁷²⁴ The German patent system is meant to belong to the technical community rather than the legal community, and one of the key principles animating the system and its legal doctrines is that the patent document is truly meant to disseminate inventive knowledge. While so much has been made of German patent law’s ‘inventor’s reward’ objectives, as opposed to the utilitarian underpinnings of Anglo-American patent law, this obfuscates the fact that the reward was granted for the inventor’s disclosed teaching of a technical contribution to the art. This claimed *technical teaching*, which is the extent to which the inventor has enriched the state of the art, is the standard and measure by which German patent protection is granted.⁷²⁵

The goal of German claim construction is to uncover what the skilled reader would understand to be the claimed technical teaching of the invention, and German patent claim construction has historically accepted and applied the maxim that the meticulous verbal analysis customary of legal professionals is not the interpretive practice of a patent’s target epistemic community of skilled readers. As such, dissecting claims into ‘elements’ or ‘integers’ under

⁷²³ Toshiko Takenaka and Christof Karl (n 703) 218.

⁷²⁴ On this point, it is interesting to note that Judges of the German Federal patent court are considered to have sufficient technical expertise gained through their professional expertise to permit them to decide patent cases without needing to obtain external expert opinions- see *X ZB 19/20* (BGH).

⁷²⁵ Dr. Dietrich Reimer, ‘The Scope of Protection Provided by a Patent Under German Patent Law’ in John A Kemp (ed), *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 145.

German claim construction has historically been viewed not as an end in and of itself, rather, applied only when it serves as a beneficial means towards understanding the overall technical teaching of the claimed invention *as a whole*.⁷²⁶ From this perspective, the German hypothetical skilled reader, much like a real skilled reader, could ignore or ‘omit’ certain words of the claim if she appreciated that these words were insignificant to the overall technical teaching of the claimed invention. Similarly, German claim construction, rooted in the functionally-oriented interpretive experience of real skilled artisans, had historically accepted that a broad class of equivalent features would fall within the semantic content of a far narrower, specifically-claimed feature, if these equivalents would be evident to the skilled person upon reading and understanding claimed technical teaching within the context of the entire specification. It is semantically incomprehensible to professionals from the Anglo-American common law tradition that a skilled artisan could read the term ‘helical spring’ and understand its meaning to include a ‘slotted rubber rod’.⁷²⁷ However, based on the foregoing discussion, we see that the principles of pre-Protocol German claim construction, grounded as they were in the phenomenological experience of true skilled readers, had no problem coming to such a conclusion.⁷²⁸ Furthermore, “[a]rguing that judges should ignore clear [claim] text is considered taboo in our [Anglo-American] culture”⁷²⁹, with the omission of clear claim text being reserved for only the most

⁷²⁶ There seems to be support for this approach in recent theories of semantic philosophy- see Charles Taylor, ‘Introduction’, *Philosophical Papers 1: Human Agency and Language* (Cambridge University Press 1999) 9. According to Professor Taylor, the move from the modernist view of the meaning of language as ‘designation’, where words correspond with objective ‘things’ in the world, is marked by movement towards “[t]he crucial unit” now being “the sentence and not the word”.

⁷²⁷ *Eli Lilly v Actavis UK Ltd* [2017] UKSC 48 [53, 55].

⁷²⁸ There is perhaps no better example than the seminal *Improver* decision - see *Improver Corporation and Sicommerce AG v Remington Products Inc* (1993) 23 IIC 838 (Oberlandesgericht). The significance placed by the Oberlandesgericht on the evidence of the independent, court-appointed expert was central to the Court’s judgement of infringement. .

⁷²⁹ Tun-Jen Chiang and Lawrence B. Solum (n 66) 607- Chiang and Solum go so far as to suggest that ‘[a] scholar who made the argument explicitly would damage his own credibility.’

exceptional of cases. However, pre-Protocol German claim construction could readily disregard claim text if it would be immediately evident to a skilled reader that such text was extraneous to the technical teaching of the claim. A functionally-oriented interpretation, free from a philological disposition towards language and searching for what the claimed invention actually *teaches*, and what the hypothetical skilled reader actually *learns*, could see past specific forms of text through to the inventor's technical contribution.⁷³⁰

What is perhaps most disappointing about this confusion is that Anglo-American practitioners labelling German claim construction as a 'central claiming' system or as subverting claim text to a 'general inventive concept' overlook the fact that many of these German practices have, and still do, have counterparts in Anglo-American practice. The US approach to claim construction of functional language as well as the US doctrine of equivalents are in many ways synonymous with what is frequently believed to be a 'central claiming' approach.⁷³¹ German comparative patent law scholars long ago recognized that both German and UK infringement doctrines can be categorized along lines of 'pith and marrow', equivalency and colourable evasion.⁷³² For example, Sijp specifically identifies certain seminal UK patent decisions as a key examples of the broad category of 'colourable evasion', distinguishable from cases of 'pith and marrow' and equivalency.⁷³³ As Sijp points out "the 'German' protection of the general inventive idea has its counterpart in the 'British' protection of colourable imitations."⁷³⁴ The irony is that

⁷³⁰ See Toshiko Takenaka and Christof Karl (n 703) 213 wherein the authors point out that from a comparative perspective, the semantic content of German claims often appears to be defined in an abstract manner to practitioners from common law jurisdictions such as the US, given the effect of a 'functionally-oriented' interpretation.

⁷³¹ Jeanne C. Fromer, 'Claiming Intellectual Property' (n 699) 735.

⁷³² See Dr. J L Benton and Dr. K J Heimbach (n 525) 46 highlighting that in the UK, as well as other European countries, essentiality, equivalency and 'inventive concept/idea' doctrines have historically been used interchangeably and in conjunction.

⁷³³ C. Sijp (n 704) 444.

⁷³⁴ *ibid* 448.

German scholars long lamented that their UK counterparts heaped criticisms upon the ‘general inventive concept’ without ever truly understanding it, and the fact that it historically has had a comparative counterpart in UK patent jurisprudence.⁷³⁵ The German ‘general inventive concept’ was often presented as the far end of the patent protection spectrum opposite literalism, which the Protocol was intended to balance towards a mid-point.⁷³⁶ However, much like UK cases involving ‘colourable evasion’, the German ‘general inventive concept’ operated as a doctrine of somewhat exceptional application, and seldom played a decisive role in deciding infringement.⁷³⁷ Furthermore, as we have seen above, the notion that these German situations were somehow disconnected from claim text and claim construction, in favour of some sort of abstract search for a spirit of the invention, is misguided and largely based on misunderstandings relating to the nature of the German hypothetical skilled reader and the predispositions she brings with her to her exercise of understanding the meaning of claim language.⁷³⁸ German claim construction has historically attempted to remain rooted in the true phenomenological experience of real skilled artisans, which, in some instances, leads the hypothetical skilled reader to disregard certain claim text in favour of more functional understandings of the claimed invention. Accordingly, it would be a mistake to suggest that the German doctrines such as the

⁷³⁵ See for example Heinz Winkler (n 715) 299 wherein Winkler explains that the general inventive idea under pre-EPC German patent practice was not a ‘spirit of the invention’ untethered from the claims, rather, it was derived directly from the subject matter of the claims, i.e. the construction of the claim language; see also Dr Franz Lederer, ‘Problems in Litigation of Claims and Supporting Description: The View of a German Patentanwalt’, *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 164–5.

⁷³⁶ See Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 241; however, Fisher, at FN 86, points out that these criticisms were largely misguided given that the Protocol was not intended to eliminate ‘central claiming’ per se, rather, “merely that claims could not be passed over in consideration of the scope of protection.”; see also Karen Walsh, ‘Promoting Harmonisation Across the European Patent System Through Judicial Dialogue and Cooperation’ (2019) 50 IIC 408, 9: ‘Germany was at the other end of the interpretative spectrum’ from the historical, UK, literal interpretation approach.

⁷³⁷ Dr Franz Lederer (n 735) 164–5.

⁷³⁸ See for example Heinz Winkler (n 715) 299 wherein Winkler explains that the general inventive idea under pre-EPC German patent practice was not a ‘spirit of the invention’ untethered from the claims, rather, it was derived directly from the subject matter of the claims, i.e. the construction of the claim language.

‘general inventive concept’ were not claim construction doctrines, as they remained deeply connected to and derived from the German hypothetical skilled reader’s understanding of the semantic content of the claimed technical teaching.⁷³⁹

This is not to say that it was only Anglo-American patent professionals who took issue with the German approach to claim construction. Many German commentators were also critical of doctrines such as the ‘general inventive concept’. However, it is important to point out that for many German scholars, their concerns regarding both the ‘general inventive concept’ and similar UK doctrines such as ‘colourable evasion’ doctrine were much the same. Specifically, German scholars pointed out that application of these doctrines often ended up relying heavily on the subjective interpretation of judges,⁷⁴⁰ and in many instances, other more structured, fact-based doctrines, such as equivalency doctrines which consider whether one element is an obvious substitute for another, could address the issue at hand.⁷⁴¹ Furthermore, as German scholars have highlighted, this dividing line between ‘inside’ and ‘outside’ of the semantic content the claim was the subject of much confusion. As discussed above, evident omissions and evident equivalents were considered to fall within the semantic content of the claimed technical teaching, given that they were derived from the hypothetical skilled reader’s understanding of what the claim language was intended to cover (i.e. the claimed technical teaching). Other doctrines, such as the general inventive concept, were meant to capture non-evident ‘equivalents’ that fell outside of the semantic content of the claim, but given that the ‘general inventive concept’ itself

⁷³⁹ See *ibid* 299–300.

⁷⁴⁰ Dr. J L Benton and Dr. K J Heimbach (n 525) 48.

⁷⁴¹ *ibid* 48, 50; see also Heinz Winkler (n 715) 301 where Winkler highlights that determining the ‘inventive concept’ is not only challenging given the imprecision associated with setting out its limits, but also that the broader its generality, the more questions of the inventive concept’s independent patentability arise. see also Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 238 citing Winkler, suggesting that ‘adopting an objective standard for assessment of the general inventive idea does not actually provide any real degree of certainty.’

was derived from the claimed invention, this dividing line between ‘inside’ and ‘outside’ the semantic content was often illusory.⁷⁴²

Aware of these underlying concerns and the discussions leading to the EPC’s harmonizing compromise objectives, post-Protocol, German courts decided to move closer towards UK practice. In the name of harmonization, numerous doctrines have been jettisoned from German patent law doctrines, which, implicitly, have, slowly transformed the German hypothetical skilled person. First, was the death of the German ‘general inventive concept’.⁷⁴³ Functionally-oriented interpretation, while still applied by German courts, has been substantially tempered. In contemporary German practice, a claim term with precise spatio-structural definitions will not likely be interpreted broadly to cover its function: for example, a claimed ‘screw’ cannot be interpreted to include all connection means.⁷⁴⁴ Slowly, protection for subcombinations has faded away from German patent law. In the early days following the enactment of the EPC, debate existed amongst the German legal community as to whether subcombinations remained protectable under the new, post-EPC German patent legislation.

⁷⁴² See Heinz Winkler (n 715) 309; furthermore, Fisher highlights that post-Protocol, the German Supreme Court decision in *Formstein*, which proclaimed to have ended the pre-Protocol ‘general inventive concept’, still maintain remnants of the ‘general inventive concept’s’ confusion surrounding the boundary between ‘inside’ and ‘outside’ of the semantic content of the claims Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 244. As Fisher states, similar to the era of the ‘general inventive concept’: “The [German] Supreme Court’s comments [in *Formstein*] clearly demonstrate that infringement by equivalence was considered to be as much within the scope of the claim as those elements literally covered by the wording.” Fisher goes on to discuss how post-*Formstein* decisions had attempted to temper this position.

⁷⁴³ It was in *Formstein* [1986] GRUR 803 (BGH) where the Bundesgerichtshof finally put the ‘general inventive concept’ to rest, stating that post-Protocol, “patent claims are now not merely the starting point but rather the essential basis for determination of scope.”; Furthermore, over the course of the last two decades, German patent jurisprudence has also started to limit the scope of extension of ‘functionally-oriented’ interpretation, indicating that purely ‘functional’ interpretations of claim terms carrying conventionally recognized spatio-structural meanings cannot be adopted because it would collapse extended protection infringement doctrines entirely into semantic content. See for example Alexander Harguth and Steven Carlson, *Patents in Germany and Europe: Procurement, Enforcement and Defense- An International Handbook* (Second, Wolters Kluwer 2017) 205; See also Thomas Kuhnen, *Patent Litigation Proceedings in Germany: A Handbook for Practitioners* (7th edn, Wolters Kluwer Deutschland GmbH 2015) 22.

⁷⁴⁴ See Alexander Harguth and Steven Carlson (n 743) 205; Thomas Kuhnen (n 743) 22.

German courts began to question whether ‘equivalents’ under Article 69 of the EPC could cover subcombinations.⁷⁴⁵ Some German post-EPC decisions entertained the possibility of protection for subcombinations.⁷⁴⁶ Early post-EPC decisions of the German Federal Supreme Court encountered this issue, but decidedly left it open for future resolution.⁷⁴⁷ German cases⁷⁴⁸ and commentary⁷⁴⁹ suggested that door to subcombination protection might be closing post-EPC, including protection for subcombinations through a form of doctrine of equivalency.⁷⁵⁰ Recent cases appear to have firmly slammed the door shut.⁷⁵¹

The loss of protection for subcombinations is indicative of German patent practice moving towards application of a strict ‘elemental’ analysis that is customary of Anglo-American patent practice, including the application of an ‘all elements’ rule that is used in Anglo-American patent law for assessing validity, infringement and doctrines of equivalency.⁷⁵² In the seminal *Schneidmesser I* judgement, the Bundesgerichtshof set out what would become the roadmap for an element-by-element style of doctrine of equivalency similar to that applied under the US law.⁷⁵³ Dr. Peter Meier-Beck, who, as set out under Chapter 8.4.d., had previously suggested that pre-EPC German claim construction did not subscribe to a strict form of elemental analysis, has

⁷⁴⁵ Ray D Jr Weston, ‘A Comparative Analysis of the Doctrine of Equivalents: Can European Approaches Solve an American Dilemma’ (1998) 39 IDEA: The Journal of Law and Technology 35, 61.

⁷⁴⁶ See for example *X ZR 55/89 (Autowaschvorrichtung)* [1991] GRUR 444 (Federal Supreme Court) [51].

⁷⁴⁷ *X ZR 37/90 (Heated Breathing Air Hose)* (n 722) para 28.

⁷⁴⁸ See *X ZR 172/04 (Zerfallszeitmessgerät)* (Bundesgerichtshof) [26–7, 33, 36, 56–7].

⁷⁴⁹ Alexander Harguth and Steven Carlson (n 743) 210 However, at 141, the authors state that non-essentiality may be applied in “exceptional circumstances... if the means in question does not contribute to the outcome according to the invention.”

⁷⁵⁰ Rüdiger Rogge, ‘Equivalents and Importance of Prior Limiting Statements’ in David Vaver (ed), *Intellectual Property Rights: Critical Concepts in Law*, vol III (Routledge 2006) 239; see also Thomas Kuhn (n 743) 79–80, 98.

⁷⁵¹ *Okklusionsvorrichtung* [2011] *X ZR 16/09* (Bundesgerichtshof) [22–6]; see also *X ZR 37/90 (Heated Breathing Air Hose)* (n 722) para 28.

⁷⁵² Toshiko Takenaka and others, *Patent Enforcement in the US, Germany and Japan* (Oxford University Press 2015) s 5.107.

⁷⁵³ *X ZR 168/00 (Cutting Blade - Schneidmesser I)* (2002) 33 IIC 873 (Bundesgerichtshof) 875.

since stated that under the contemporary German doctrine of equivalents, an infringing device must not only include “every single feature” of the claim, it must also include “the mutual connection of all features of the claim.”⁷⁵⁴

With the objective of harmonization in mind, German courts have continuously moved closer toward UK practice, and with it, adopted many of the features customary of Anglo-American patent practice. The irony is that this sentiment has not been reciprocated. Post-EPC, the feeling amongst UK courts and practitioners has been an overriding sense of “it is not we who must change but everyone else who is out of step with us”, thereby justifying maintaining the status quo.⁷⁵⁵ Following the UK HOL decision in *Kirin*, the UK abandoned its *Improver* test just as Germany adopted its own version of the doctrine, much to the chagrin of some German commentators.⁷⁵⁶ Furthermore, in the name of harmonization, the UKSC in *Actavis* has formally endorsed a doctrine of equivalents closely resembling the now defunct German ‘general inventive concept’, which, for so long was the scorn of so many UK patent experts. Aware of these concerns, German courts sought to move away from this doctrine in pursuit of the goal of harmonization. From this perspective, *Actavis*’ movement towards a doctrine so closely resembling the German ‘general inventive concept’ is disappointing in and of itself. German scholars and jurists fought hard to purge the ‘general inventive concept’ from German patent practice, in pursuit of the Protocol’s harmonizing goal, only now to see it emerge in the UK post-*Actavis*. We now find ourselves in the position where history repeats itself. Germany abandoned

⁷⁵⁴ Aaron Bowling, ‘Just About Equivalent: A Comparative Analysis Of The Doctrines Of Equivalents In The United States And International Jurisdictions Shows That The Varying Doctrines Are Strikingly Similar’ (2013) 41 AIPLA Quarterly Journal 553, 585, fn 181; citing Peter Meier-Beck, ‘The Scope of Protection Conferred by the European Patent: A German Perspective on the Doctrine of Equivalence’ (Presentation at the AIPLA Annual Meeting, Washington, D.C., 14 October 2004).

⁷⁵⁵ Hugh Laddie, ‘Kirin Amgen - The End of Equivalents in England?’ (2009) 40 IIC 3, 3.

⁷⁵⁶ For a discussion, see Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 255.

its highly criticized ‘general inventive concept’ only to have UK adopt its own version of the doctrine.

Although rarely explicitly stated, what this shift in German patent law towards principles more in line with Anglo-American practice truly represents is a dramatic change in the nature of the hypothetical skilled person. As we have seen, many of the aspects of historical German patent practice that have most diverged from Anglo-American practice can be traced back to differences between respective hypothetical skilled readers, and specifically, the fact that the former was designed to closely replicate a real skilled artisan reading the patent document to learn. In essence, what these changes in German claim construction doctrine mean is that the German hypothetical skilled reader has slowly transformed into a construct resembling the Anglo-American hypothetical skilled person. What is perhaps most unsettling about this transformation is that now, it appears that as the world adopts this Anglo-American construct, internationally, the hypothetical skilled reader no longer reads to learn and instead, the hypothetical skilled person across both sides of the Channel has transformed into a potential infringer. Patent law’s audience the world over is now placed in the position of a potential infringer, reading the patent document not as a learning exercise, but instead as an exercise in ensuring freedom to operate. The hypothetical skilled reader is no longer a curious soul, searching to learn new solutions to practical problems. Instead, our hypothetical skilled reader is now an anxious operator, meticulously parsing each and every word of a patent claim for fear that one wrong move might lead to catastrophe.

6. CONCLUSIONS

To Many Anglo-American practitioners, pre-EPC German ‘central’ claim construction was simply an invitation for uncertainty and confusion, subverting language in favour of judicial

whim. Harmonization was the only way to bring order to claim construction chaos. However, as Professor Fisher highlights, harmonization under this pretense is misguided:

Within the context of a national patent system, the flexibility provided by this kind of protection was no bad thing. The system itself was able to react to normalise the courts' interpretative freedom and to secure a balance between the legitimate expectations of the parties in any dispute. Thus the other actors, including the Patent Office and Patent Attorneys, played decisive roles in ensuring the overall breadth of the patent was not too unruly. For example, the German Patent Office had, for many years, only accepted claims drafted in prescribed [two-part] form, and by controlling the issuance of patents in this manner, the repercussive, societal, effects of broad construction were lessened. Parties expected broad interpretation from the courts and therefore the system provisioned for this at other stages in the process. Indeed, it can even be argued that such broad interpretation was in fact required to secure due reward for the patentee under such a system. Häusser, for example, expresses significant disquiet at the prospect of losing protection for the "general inventive idea" with adoption of the EPC, arguing that any perceived narrowing of the scope of interpretation may lead to a corresponding broadening of the drafting of the claims. This, he alleged, would lead to uncertainty.⁷⁵⁷

Others have expressed similar concerns. Some have suggested that application of the strict formalism customary of Anglo-American claiming, with its emphasis on the elemental structure and analysis as the exclusive measure of scope of protection, has contributed to claim

⁷⁵⁷ Matthew Fisher, 'New Protocol, Same Old Story? Patent Claim Construction in 2007; Looking Back With a View to the Future' (n 691) 148.

language becoming far more abstract and incomprehensible.⁷⁵⁸ Now, patentees simply “fill out the specification with discussion of embodiments, with an equal weight on each feature of the invention in piecemeal.”⁷⁵⁹ The pre-EPC German approach to claim language, while informal by Anglo-American standards, made sense within the context of German practice. By some accounts, in pre-EPC Germany, only one of every three patent applications ever made it to grant, given the rigor of German examination and heightened inventiveness standards that were eliminated post-EPC.⁷⁶⁰ German courts, recognizing that granted patents had already survived a rigorous Patent Office review with the point of novelty precisely delineated within the claim, could interpret claims holistically to ensure that protection aligned with the clear technical contribution which the claimed invention made to the state of the art.

Ironically, while harmonization has led to German patent practice adopting much of Anglo-American practice, a plethora of recent commentaries suggest patent law reforms which would bring Anglo-American practice in line with that of pre-EPC German practice. For example, it has been suggested that patent claims should be required distinctively to highlight the point of novelty.⁷⁶¹ Some suggest rejecting the artificial claim construction doctrines that have aligned with the customary claim formatting practices of professional patent agents.⁷⁶² A number of US commentators have lamented US patent law’s failure to provide adequate substance to the

⁷⁵⁸ See Jeanne C. Fromer, ‘Claiming Intellectual Property’ (n 699) 774, 776; Eugene C. Lim, ‘Opening the “Pandora’s Box” of Patent Claim Construction: Purposive Interpretation, Central Claiming and the Doctrine of Equivalents in Comparative Perspective’ (2016) 16 *Asper Rev Int’l Bus & Trade L* 155, 167.

⁷⁵⁹ Toshiko Takenaka and Christof Karl (n 703) 221.

⁷⁶⁰ Dr Erich Hausser, ‘Claim Wording, Inventiveness and Scope of Protection Under German Patent Law’ in John A Kemp (ed), *Patent Claim Drafting and Interpretation* (Oyez Longman Publishing Limited 1983) 90.

⁷⁶¹ Lemley, ‘Point of Novelty’ (n 507).

⁷⁶² See Mark A. Lemley, ‘Without Preamble’ (2020) 100 *Boston University Law Review* 101, 103–4 wherein Lemley summarizes the Federal Circuit’s arcane, and often conflicting, set of judicially created rules surrounding when and how the preamble of a claim can or should limit the scope of patent protection.

hypothetical skilled person.⁷⁶³ Recent empirical studies have rebuffed suggestions that additional patent examination time will not improve patent quality by demonstrating that investing additional resources into more rigorous patent examination will generate public benefits.⁷⁶⁴

Furthermore, we have seen in recent years a resurgence in the significance of the disclosure apart from the claims, which, to some extent, pushes back against the claim-centered tendency of contemporary patent practitioners. Of course, to professional patent agents, any suggestion that claims, which form the substantial part of their stock-in-trade, are not the be-all and end-all of patent practice would typically be met with the response that the notice function of patents would decay into chaos. Few commentators suggest abandoning claims altogether. Rather, the suggestion is that the disclosure has an underappreciated role to play in conjunction with claims: “The permissible scope of the claims is closely tied to the amount of information that the patentee discloses in the patent. Put simply, the patentee must give more (information about the invention through disclosure) to get more (claim scope).”⁷⁶⁵ Some suggest that disclosure of evidence of technical contribution, in the European context, should play a greater role in various patent law doctrines, such as inventive step and plausibility, which in turn would provide clarity on claim scope.⁷⁶⁶

Many of these suggested reforms are not entirely foreign to Anglo-American patent law, as these practices existed before the formalization of professional claim drafting practices. The

⁷⁶³ See for example Dan L. Burk and Mark A. Lemley, ‘Policy Levers in Patent Law’ (n 61) 1648–1651 wherein the authors point out the significance of the level of skill of the hypothetical skilled person to various areas of patent doctrine, stating that the ‘the PHOSITA [is] a potentially significant macro policy lever’ [p 1650] for constraining patent scope and for assessing patentability.

⁷⁶⁴ Michael Frakes and Melissa F. Wasserman, ‘Irrational Ignorance at the Patent Office’ (2019) 72 *Vanderbilt Law Review* 975.

⁷⁶⁵ Dmitry Karshtedt, Mark A. Lemley, and Sean B. Seymore (n 515) 6.

⁷⁶⁶ Andrew J K Wells, ‘Technical Contribution and Plausibility: The Approach of the European Patent Office and the Courts of England and Wales’ (2019) 14 *Journal of Intellectual Property Law & Practice* 784, 794–5.

earliest patent claims were designed specifically to highlight the point of novelty.⁷⁶⁷

Furthermore, in the era prior to formalized claim drafting requirements, patent applicants used to provide comprehensive disclosures which, contrary to popular belief, could provide adequate notice function as do modern patent claims. As Professor Liivak demonstrates, some of the earliest US patent law decisions emanating from the era before formalized claiming practices resulted in broad protection for inventors not due to lack of precise claim structure, but because inventors of that era had provided far more robust disclosures than are typical in contemporary patent drafting practices.⁷⁶⁸ Moreover, Professor Liivak suggests that the ‘invention’, defined as the set of disclosed embodiments and the essential principles and features tying those embodiments together, disclosed in a way which actually teaches real inventors how and why an invention works, often provides more clarity and certainty to third parties than does the modern abstract, generalized claim.⁷⁶⁹

Patent practitioners have sold, and Anglo-American courts have bought, the sales pitch that excessive emphasis on formality in Anglo-American invention claiming is necessary to promote public notice and certainty. Accordingly, as Professor Vaver states:

Both [patent offices] and the courts, sympathetic towards technologies that are sometimes difficult to describe and to understand, have abdicated the field to the neurotic drafting practices of patent agents and lawyers... Patent drafting has drifted internationally into the sort of practices that in the past caused Charles Dickens to take up his pen. The result is that only another patent agent or lawyer can possibly parse, let alone interpret, a colleague’s handiwork. Assertions that a skilled scientist would read a claim in this way

⁷⁶⁷ Julia Powles, ‘The Inventive Concept in Patent Law’ (*Max Planck Institute for Innovation and Competition*) 12 <<https://www.ip.mpg.de/en/projects/details/the-inventive-concept-in-patent-law.html>> accessed 26 December 2019.

⁷⁶⁸ Oskar Liivak, ‘Finding Invention’ (2012) 40 *Florida State University Law Review* 57.

⁷⁶⁹ *ibid* 80.

collapse under a heap of rules that no real-life scientist would know or care about—especially those in Britain who must now add an intimate acquaintance with the minutiae of patent law and practice to their scientific skills.⁷⁷⁰

As we have seen, many, if not most, of these differences between Anglo-American and historical German patent practice come down to differences in the hypothetical skilled person's attributes, and specifically, the latter's commitment to ensuring that the hypothetical skilled person remain as firmly rooted in the real technical community as possible. Despite a long history of Anglo-American patent jurisprudence stating that the hypothetical skilled person should not approach claim construction with the same interpretive methodology as a legal expert, over the last two decades, the line between two have completely blurred. Professor Vaver has cautioned against this approach:

The idea that POSITAs know almost as much as patent agents should be rejected [...] Many actual skilled readers would be excluded, a patent's value as a source of knowledge would be reduced, the idea that a patent — like a statute or other public document affecting third parties — must be read commonsensically in its own context without the baggage of extraneous materials such as treatises on claim drafting would be undermined. Context should be everything... even statutory definitions give way where “a contrary interpretation appears.”⁷⁷¹

Professor Takenaka suggests that this international transformation of the hypothetical skilled person is moving from West to East, and is largely being driven by the influence of US drafting practices. She characterizes the line of CAFC jurisprudence following the *Sage* decision,

⁷⁷⁰ David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (n 592) 352.

⁷⁷¹ Draft Manuscript (Subject to Change) for David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (3rd edn, Irwin Law 2022) (forthcoming, shared with me on July 25, 2019).

discussed in detail under Chapter 8.3.b., as “alarming from a patent owners’ point of view”.⁷⁷²

Apart from the private rights of patentees, the effect of transforming the hypothetical skilled person into a professional patent agent, along with the strict claim formalism that comes with it, may be affecting the broader public interest in dissemination of knowledge through quality patent disclosures:

When a specification is prepared for German practice and includes a discussion of the invention, US courts may use the same discussion as a reason to limit the broadly drafted wording to the embodiments. To avoid narrow claim construction, patentees may refrain from discussing the details of the invention in the specification, which would make it difficult for German courts to engage in claim construction based on the invention. As a result, the US patent community’s obsession with claim wording and overemphasis on legal certainty effectively depreciate the quality of patent disclosure worldwide.⁷⁷³

[emphasis added]

Apart from diminishing the value of patents as mechanisms of knowledge dissemination, the tendency to transform the hypothetical skilled person into a professional patent agent disguises something far more insidious. As discussed under Chapter 8.3.c., now, internationally, the hypothetical skilled person has become a potential infringer rather than a reader searching for practical solutions to technical problems. The idea that patents might be tools for empowering the inventive agency of the technical community is distorted within this reality. The only mention of agency in Anglo-American patent law scholarship is in relation to patent

⁷⁷² Toshiko Takenaka, ‘Harmonizing the Japanese Patent System with Its U.S. Counterpart Through Judge-Made Law: Interaction Between Japanese and U.S. Case Law Developments’ (1998) 7 Washington International Law Journal 249, 264.

⁷⁷³ Toshiko Takenaka and Christof Karl (n 703) 205.

infringement and the actions of alleged defendants, viewed through the lens of tort liability.⁷⁷⁴

There is no consideration of agency through enabling inventive activity, as the patent document has transformed from a technical document entirely into a legal document.⁷⁷⁵

The realism of both the hypothetical skilled person has disappeared and in her place has emerged the artificial hypothetical reasonable patent agent. The extent to which patent law's reasonable person, the hypothetical person skilled in the art, adopts the technical language of professional patent agent as her own is exceptional among law's 'reasonable people', further reinforcing patent law's legal exceptionalism. In turn, this exceptionalism continues to separate the patent system from the technical community. The answer is surprisingly straightforward in theory, yet seeming less and less likely to happen as this phenomenon continues to spread across this globe under the guise of harmonization- "Nothing will change until patent offices and courts everywhere start insisting that claims be readily comprehensible by actual (rather than notional) skilled persons..."⁷⁷⁶

⁷⁷⁴ See generally Saurabh Vishnubhakat, 'An Intentional Tort Theory of Patents' (2016) 68 Florida Law Review 571.

⁷⁷⁵ Timothy R Holbrook, 'Patents, Presumptions, and Public Notice' (2011) 86 Indiana Law Journal 779, 782.

⁷⁷⁶ David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (n 592) 352.

CHAPTER 9: THE DISCOURSE OF PATENT PROSECUTION

1. INTRODUCTION

It is debatable whether the theoretical presumptions justifying patent protection, and specifically, the supposed incentives that motivate rational inventors, have ever empirically been proven. The assertion that social processes have embedded the norms of the patent system into the norms of the broader community (as has been the case with other areas of law) has been referred to as “pure fantasy”.⁷⁷⁷ The public rarely understands the norms of the patent world, even in its most basic forms, in the same way that they would understand other legal normative assumptions such as the presumption of innocence or freedom of expression.

There is perhaps no aspect of patent practice more befuddling to the public than patent prosecution, with its complex web of rules and archaic procedures for communicating with patent offices. The esoteric language of invention claiming is inherently confusing, but combined with stringent formalistic rules for responding to patent examiner rejections and amending patent specifications, the entire process can become dizzying for even experienced inventors. It is predominantly the field of patent prosecution that is the central domain of the contemporary professional patent agent. They exist within the precariously conflicted position that “straddle[s] the fence of expert review”, in that they “want patents to carry the prestige of having passed examination while retaining as much of their own strategy space as possible.”⁷⁷⁸ A world

⁷⁷⁷ Mark D Janis & Timothy R Holbrook, “Patent Law’s Audience” (2012) 97 Minn L Rev 72 at 122–3; See also Lisa Larrimore Ouellette, “Cultural Cognition of Patents” (2014) 4 IP Theory [i] arguing that the cultural cognition phenomenon effects the public’s ability to fully grasp evidence on the welfare promoting and harming effects of the patent system. Furthermore, see Jeanne C Fromer, “Expressive Incentives in Intellectual Property” (2012) 98 Va L Rev 1745 which provides an elaborate discussion of the disconnect between patent law incentive theories and the actual incentives driving innovative activities in the inventive community.

⁷⁷⁸ David McGowan (n 140) 1954.

consisting of entirely bespoke patent applications, without conventional invention claiming or patent prosecution formalities, such as registration-only patent systems, would leave professional patent agents with little role to play in the patent system. However, at the opposite end of the spectrum, a highly-formalized system as is customary in other areas of public administration (such as tax filings and social benefits) leaves open the possibility that rigorous ex ante applicant obligations might become standardized. Such obligations could include application and claim drafting formats, search and disclosure and automated pre-filing formality checks. Much of the work of professional patent agents could thus be eliminated.

This Chapter examines the discourse of patent prosecution, specifically, the views of professional patent agents, and how those views may have changed over time, to question how much this discourse may reinforce certain assumptions about the necessity of contemporary forms of patent prosecution practices. This Chapter will also interrogate how far this discourse forecloses the possibility of reform efforts directed towards grounding the patent prosecution processes more directly within the discourse of inventive agency.

2. PATENT AGENCY AND INVENTIVE AGENCY – A GROWING DIVIDE

Patents have always been torn between being technical, commercial, and legal documents. The patent document itself is meant to facilitate disclosure of technical knowledge to technical audiences, yet the protection it provides is meant to achieve commercial objectives through market protection. Patent law's various doctrines reflect the conflict between the technical and the commercial. The law of obviousness has always suffered from an identity crisis: is it a technical doctrine or an economic doctrine?⁷⁷⁹ The European inventive step

⁷⁷⁹ For an excellent discussion of this enduring tension, see Lisa Larrimore Ouellette, 'Written Description: We Robot Comments on Ryan Abbot's Everything Is Obvious' (*Written Description*, 27 April 2018) <<https://writtendescription.blogspot.com/2018/04/we-robot-comments-on-ryan-abbots.html>> accessed 29 May

analysis, as applied by the EPO, has over time transformed from a doctrine rooted in the experience of actual skilled artisans to an artificial construct mechanically applied by patent examiners.⁷⁸⁰ As Professor Timothy Holbrook states, a more “technologically rooted explanation” of obviousness may facilitate “develop[ment of] patent law norms that are more accessible to the law's intended audience-scientists, engineers, and other innovators.”⁷⁸¹

Evidence of patent law’s growing divergence from scientific norms continues to accumulate. Patent law’s enablement and utility doctrines diverge from, and possibly exacerbate, scientific irreproducibility problems plaguing clinical research.⁷⁸² Manufacturing’s resurgence, albeit in the form of 3-D printing and additive manufacturing technologies, has generated friction with patent law’s disclosure and infringement doctrines.⁷⁸³ Patent law’s disclosure requirements were developed during an era of much simpler one-to-one correspondence between invention and product, and some suggest revising disclosure doctrines to require a continuous, ongoing obligation on patentees to disclose actual products embodying patented inventions.⁷⁸⁴

Some have argued that patent law’s remoteness problem and its disconnect from the broader public threatens the public legitimacy of the patent system.⁷⁸⁵ On university campuses,

2019; see also Michael Abramowicz and John F Duffy, ‘The Inducement Standard of Patentability’ (2010) 120 Yale Law Journal 1590 discussion of ‘incentive’-based approaches to the obviousness inquiry.

⁷⁸⁰ See *Sisvel vs Oppo* [2020] C / 09/578930 (District Court, the Hague) [4.25] wherein the District Court of the Hague ruled that problem-solution approach’s selection of the ‘closest prior art’ was largely a construct created “purely [as] a consideration of procedural economy”.

⁷⁸¹ Timothy R. Holbrook (n 273) 996.

⁷⁸² For a detailed discussion, see Jacob S. Sherkow, ‘Patent Law’s Reproducibility Paradox’ (2016) 66 Duke Law Journal 845.

⁷⁸³ See generally Timothy R. Holbrook and Lucas S. Osborn, ‘Digital Patent Infringement in an Era of 3D Printing’ (2014) 48 U.C. Davis Law Review 1319.

⁷⁸⁴ See Jeanne C. Fromer, ‘Dynamic Patent Disclosure’ (2016) 69 Vanderbilt Law Review 1715; In this regard, an interesting initiative has recently been launched- a web hosted database that aims to publish a list of granted patents with the actual products to which they are connected. See ‘IPRoduct’ <<https://iproduct.io/app/#/public/page/home>> accessed 3 December 2020.

⁷⁸⁵ See generally David Vaver, ‘Does the Public Understand Intellectual Property Law? Do Lawyers?’ (2006) Working Paper No 23/2006 University of Oxford Faculty of Law Legal Studies Research Paper Series <https://digitalcommons.osgoode.yorku.ca/all_papers/37> accessed 2 October 2018.

where students' formative years of inventive education and training first begin, signs of this crisis of legitimacy may already be manifesting themselves.⁷⁸⁶ With respect to this disconnect, the role of intermediaries cannot be overlooked, given that in many ways, intermediaries have become essential to public comprehension of the patent system.⁷⁸⁷ As Professors Mark Janis and Timothy Holbrook state, "[t]he roles played by these intermediaries, and their place in the design calculus for patent law rules, have not been articulated sufficiently. Intermediaries might impede communication or foster it. They might represent actual persons or institutions, or they might constitute convenient fabrications..."⁷⁸⁸ Thus, Janis and Holbrook conclude that focusing entirely on addressing the complexity of patent law, without providing adequate consideration for both the function of intermediaries and their proximity to the audience of interest, "is not likely to be productive."⁷⁸⁹

3. PROFESSIONAL PATENT AGENCY AND THE DISCOURSE OF PATENT PROSECUTION – BRIDGING THE GAP?

As stated above, the format of patent prosecution may be the most confusing and foreign aspect of patent practice to those outside the patent system. Many interviewees acknowledged that the patent examination discourse was completely foreign to the inventive community, and that in many ways, the two could not be aligned.⁷⁹⁰ This begs a simple, but perhaps overlooked

⁷⁸⁶ See for example 'University of Waterloo in Battle with On-Campus Startup over Clean Energy Invention' <https://www.theglobeandmail.com/business/article-university-of-waterloo-in-battle-with-on-campus-startup-over-clean/?utm_medium=Referrer:+Social+Network++Media&utm_campaign=Shared+Web+Article+Links> accessed 2 October 2018 which highlights the details of an IP battle taking place between the University of Waterloo and several students.

⁷⁸⁷ Mark D. Janis and Timothy R. Holbrook, 'Patent Law's Audience' (2012) 97 Minnesota Law Review 72, 75.

⁷⁸⁸ *ibid* 131.

⁷⁸⁹ *ibid*.

⁷⁹⁰ For a fascinating discussion of the role of patents in the technical field of cartographic inventions, see Mark Monmonier, *Patents and Cartographic Inventions: A New Perspective for Map History* (Palgrave Macmillan 2017). At p 6, Monmonier describes patent documents in the field of cartography as a 'parallel literature' to academic discourse. While both are peer-reviewed and require incremental standards of progress, in Monmonier's opinion, it is the standard of 'utility' which sets the patent discourse apart from other forms of technical discourse: "the

question: is patent prosecution, in the form of making submissions to examiners and responding by way of patent claim amendments, necessary? Many interviewees seemed perplexed when asked whether changes could be made to the patent prosecution process to better align patent agency and inventive agency, as if few, if any, alternatives to the current system were imaginable. However, “it is important that we remind ourselves that the existing model of patent protection is not inevitable and that for many decades other understandings of the basis on which the state should intervene in favour of inventors found a place within the law.”⁷⁹¹ This statement might be truer for patent prosecution than any other area of patent law. As Professor Greg Reilly states, “given their historical pedigree, examination claim amendments are normally assumed to be necessary or inherent to the process of patent examination”, but “examination claim amendments rest on weaker foundations than their long-standing and widespread acceptance would suggest.”⁷⁹²

As the process of patent prosecution has existed, more or less in its same form, for over one hundred years, “claim amendments may seem like a necessary or inherent feature of the patent system or patent examination” even if “the patent system certainly *could* operate without, or with limited, claim amendments.”⁷⁹³ Moreover, as the interview data suggest, most patent agents seem to view the matter entirely as one extreme or the other, “either maintaining the liberal status quo towards examination amendments or suddenly abolishing them after nearly two hundred years”; in reality, however, a mind desirous of exploring creative options would see that “a variety of middle ground possibilities exist, such as altering fee structures, changing

standards of usefulness are fundamentally different—a scholarly article respected for its philosophical or rhetorical impact need not improve the way we make or use maps...”

⁷⁹¹ Robert Burrell and Catherine Kelly (n 232) 449.

⁷⁹² Gregory Reilly, ‘Amending Patent Claims’ (2018) 32 Harv J L & Tech 1, 4–5.

⁷⁹³ *ibid* 17.

presumptions of the permissibility of amendments, or requiring greater showings that amendments are warranted.”⁷⁹⁴ As our historical analysis of Chapter 3 demonstrated, the early patent agent profession was at best lukewarm about the prospect of patent examination and the corresponding complexity in patent prosecution. Early patent agents felt that it was their duty, not that of a government agency, to carefully prepare a patent specification which precisely circumscribed the inventive contribution. The late 19th Century patent agents practised predominantly as patent brokers rather than solicitors of patents. Despite this historical reality, the contemporary professional patent agent sees prosecution as central to their professional identity.

One striking example of the potential conflict between professionalization of patent agency and modernizing reforms is the patent document itself. Patent documents are meant to serve as much as a means of disseminating inventive knowledge, as technical contributions to the state of the art, as they do instruments of legal rights in inventions. Recent empirical studies suggest that individual inventors and SMEs do use, or at least would like to use, patent documents as a source of useful technical knowledge.⁷⁹⁵ However, these individuals struggle to do so due to the patent document’s opaque discourse and a lack of technical expertise in navigating the patent system.⁷⁹⁶

While a patent is a technical document, its format and style of writing follow few of the conventions of standard technical writing.⁷⁹⁷ Technical discourse has moved on to computer

⁷⁹⁴ *ibid* 6.

⁷⁹⁵ Lisa Larrimore Ouellette, ‘Do Patents Disclose Useful Information?’ (2011) 25 *Harvard Journal of Law & Technology* 545.

⁷⁹⁶ Nefissa Chakroun, *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (Edward Elgar 2016) 21–3.

⁷⁹⁷ See for example ‘Make Your Disclosure Meaningful: A Plea for Clarity in Patent Drafting’ (*IPWatchdog.com* | *Patents & Patent Law*, 4 October 2020) <<https://www.ipwatchdog.com/2020/10/04/make-disclosure-meaningful-plea-clarity-patent-drafting/id=125740/>> accessed 5 October 2020 where the author highlights the example of the

aided design (CAD), file sharing and 3-D printed prototypes; yet the patent application remains a stagnant reminder of a Victorian-era document, relying on black-and-white line drawings and page after page of convoluted descriptive text.

One interviewee stated the following with respect to the substance and form of the modern patent application:

The patent document is no longer fit for purpose. It's black and white drawings, it's basically paper-based. It requires line drawings with no colour. It's just insane... I had a 16-year-old doing an internship [at our office] just for a few days. And he said 'this is seriously how they still define technical inventions? Do you know they've got that thing called C-A-D? [Computer-Aided Design] ... The patent examination process is the most protracted, detailed conversation I think a human being can possibly have! Submissions are legally and technically intelligent, and six months later, somebody comes back with a comment. What did I say? What did you say?' And it was a really beautiful moment of absolute clarity from somebody who's not versed in the system saying 'what on earth are you doing?'

Similarly, a recent study by Professor Colleen Chien documents how small-to-medium enterprise (SME) US patent applications are far less likely to proceed to grant than those filed by large entities.⁷⁹⁸ This is because SME applicants receive far more rejections based on formalities relating to esoteric patent drafting practices and requirements. These include not following proper antecedent basis in claim language,⁷⁹⁹ formalities regarding support for claims in the

disconnect between patents and other forms of technical documentation when it comes to use of headings for effective layout and overall readability.

⁷⁹⁸ Colleen V. Chien, 'Rigorous Policy Pilots the USPTO Could Try' (2019) 104 Iowa Law Review Online 1, 19.

⁷⁹⁹ See for example USPTO Manual of Patent Examining Procedure (MPEP) Section 2173.05(e): proper antecedent basis formatting for patent claims requires that no two claimed features can use the same name, and that when a claim feature is first introduced, it must be referenced using an indefinite article and each time it is referenced thereafter it must be referred to using a definite article.

description, and specific formalities of responding to office actions.⁸⁰⁰ These results are supported by anecdotal evidence from US patent examiners.⁸⁰¹

The irony of this excessive formalism issues is that automation has been successfully implemented across the whole spectrum of government administration to alert applicants of formality issues prior to filing an application.⁸⁰² One cannot apply for a new driver's licence without encountering a fillable application, replete with detailed filing instructions and an automated process which reviews the application and alerts the applicant of any formality errors requiring correction prior to the system permitting submission of the application. If these esoteric patent formalities do serve a necessary purpose (which is debatable), what is perhaps far more surprising than the high rate of SME formality rejections is that patent offices have yet to incorporate the automated formality checking systems that are customary in other areas of government administration.

4. APPROVAL WITHOUT OFFICE ACTION?

Stringham's seminal treatise on patent claim drafting recommends that "claims should not be unduly multiplied" and the drafter should "[a]im to prepare such a complete set of claims that an action on the merits of the whole invention may be had on the first official consideration, thus expediting the prosecution of the case and also formulating the claims when the subject matter is most clearly in mind."⁸⁰³ Contemporary treatises also suggest that professional patent agents should prepare a patent application with the intention that it should be acceptable on filing.⁸⁰⁴

⁸⁰⁰ Colleen V. Chien, 'Rigorous Policy Pilots the USPTO Could Try' (n 798) 21.

⁸⁰¹ *ibid.*

⁸⁰² *ibid* 23.

⁸⁰³ Emerson Stringham (n 519) 286.

⁸⁰⁴ David Hricik and Mercedes Meyer (n 477) s 7.08: 'if practicable and in the client's interests, practitioners generally should seek to avoid submitting claims that knowingly will result in an amendment to obtain claim allowance.'; see also *ibid* 7.14: 'Seeking unnecessary, and costly, extensions of time solely for the practitioner's benefit is inappropriate.'

From this perspective, prosecution can be an opportunity, rather than a challenge to be avoided.⁸⁰⁵ It can be viewed as a dialogue with an examiner to clarify the details of the scope of the invention, rather than providing the examiner with a lump of clay for them to shape entirely through their examination.

Yet the question whether patent prosecution, at least in its current form, is needed at all remains one that cuts to the heart of professional patent agency. In an attempt to chart a path towards the essence of this issue, interviewees were posed a question:

Assume you prepare and file a patent application and it is approved by the patent office without any objections (i.e. Office Actions), would you be okay with this? How would this make you feel?

One interviewee summarized the conundrum central to this question- “*It’s what you always want to hear from an examiner and never want to hear from an examiner!*” [#21] Most interviewees quickly and briefly responded that they would not be happy with this: they felt it was an indication that they had drafted too narrowly and could have claimed more protection for their client. For some interviewees, it was not always about trying to get as much scope of protection as possible, but rather largely a structural problem in the examination process. During prosecution, it is easier to amend claims to remove matter and narrow their scope than to add matter if one realized that they claimed the invention too narrowly. The combination of the process and professional obligations inherently favours drafting as broadly as possible and whittling away as necessary during prosecution.

⁸⁰⁵ David Hricik and Mercedes Meyer (n 477) s 7.07 at FN 28: ‘[T]he fear of estoppel is greater than the reality.’

Other interviewees felt that patent prosecution should be about peer review: as in the scientific space, inventors should seek rigorous peer review to fully test the veracity of their claims. Interviewees in Europe felt that the EPO does a better job in this regard:

Interviewee: I never had that experience [having a patent application approved without any examiner objections]. But yes, I think I would be okay with. I mean the purpose of requesting a patent right is to get it granted. But, it would be bad if it would mean that I also don't have the opportunity to make certain corrections or to amend the claims. I like as the EPO does, sending me a letter saying, 'ok it looks good, can you bring this description into conformity with that'. And in response to this office action, I can either do that or I still have the opportunity to amend the claim. And I need to have that one opportunity... Normally you get a search report and opinion on the patentability, so you get that one before the official prosecution starts. I really like that part of the European patent system. It allows you to see, ok this is getting a good reaction and it also tells you why examiner thinks something is an invention....So, the thing I want to stress upon here is that I need that opinion from the patent office. [#27]

Other interviewees shared this same view but emphasized that they would be concerned not that their drafting was poor, but that the examiner might have carried out a poor quality search. To these interviewees, the purpose of examination is not to try 'to grab as much as you can', but to provide a good test of the strength of claims so that they come out the other side with confidence in their validity. The purpose is not necessarily to draft broad claims but to draft claims which are arguably novel, in the hope that the examiner does their job of testing the strength of the claims.

A US interviewee expressed similar views: their goal is not to draft the broadest claims possible, but to come out of the prosecution process with claims which they are confident are valid. To this interviewee, this is, or at least should be, the purpose of patent prosecution:

I think, to me when I'm drafting an application, if I'm aware of better prior art than the examiner deciding against me and sometimes I've even cited it in the Information Disclosure Statement, and it doesn't wind up being used in an office action. And so I've called examiners and requested interviews, explained why their rejection is poor and gotten them to say, OK, I can concur that the rejection isn't good. And then I've actually said, here's the piece of art. If I were you I would be using this rejection and pointing out why I think it's the best piece of prior. And then explaining to them why I believe I distinguish over it because I want them to put that on the record, because if I'm a competitor and I come along and this piece of prior art might be cited in the Information Disclosure Statement, but not discussed in an office action, then I might be willing to try and, you know, use it for a reexamination or an Inter Partes Review or something in order to try and invalidate the patent. But if the examiner has expressly taken a position on the record as to why the claim distinguishes it and why they don't believe [it invalidates the claim], then I think it makes it much more challenging for someone to use that piece of pressure because it's already been considered, even though the examiner doesn't really get a lot of deference on the review, you just want to make a good clean record. But at least the examiner is putting in that it distinguishes and here's the reason why. So at least they're pointing to something.

This interviewee stated that he takes an active position in patent examination, which in turn creates the best quality patent for his client:

What good is an independent claim that claims something that everybody knows is not a novel? Is anyone going to give that weight? Are you creating risk for your competitors? Why? Why would you want to go forward with that claim and get it? Why wouldn't you want to add some feature that plausibly and plainly makes the claim non-obvious or at least distinguishable from the best prior art? ... If you have consistent competitors and they see when this guy gets a patent, it really means something versus 'hey, when this guy gets a patent, we can laugh at it because they're not enforceable'. Are you really doing your client justice?... My point in pointing out the best prior art is that it makes the examiner take a reasonable interpretation of that art... An examiner is a theoretical person skilled in the art and this [competitor] is now taking a conflicting position. Why should their position be given more weight than an examiner?⁸⁰⁶ [#9]

Many interviewees felt conflicted on this issue, giving the impression of a sense of guilt or impropriety if they suggested that they would be okay with acceptance without objections.

The following excerpt is an excellent example of that conflict:

You know, it's funny. I've had a few like that recently. And it it's an interesting question. I don't know what to say on that. You know, I literally had a client recently, called me up and said, 'this [invention] is a stone cold loser. Find me prior art to kill it. Do a search but don't spend too much time on it because I don't want to spend too much on this.' So I said, 'alright, let me do what I can.' And I couldn't find anything that's similar to this technology. ... I had met with [the client]. We talked about it. What they had is pretty cool. .. So I wrote the [patent application], we filed it this year. Three months ago, we got

⁸⁰⁶ Under US law, prior art that has been considered by an examiner in assessing validity of a claim will be reviewed with a certain level of deference compared to new art that was not considered by an examiner during litigation. See *Microsoft Corp v i4i Ltd Partnership* 564 US ____ (2011) 16–18.

a notice of allowance, so literally within less or almost a six month period, I got a notice of allowance... And I was actually proud of that case! ...And the one thing that it gave me, the view was, you know, sometimes things do go as expected. And that's what happened in this case. These inventors had a really cool concept. We captured it. We filed it in the patent office, acknowledged it, and got a patent for it. So the only question it leaves is, did I go too narrow?... You can look at it two ways. You could say, OK, you didn't draft broad enough from the get go. But, you know, it's really difficult to forecast what an examiner is going to do and what kind of prior art is out there. Is this an admission that perhaps I went too narrow? Perhaps.... So it's one of those things where you just don't know it... I came up with some references I thought were relevant, disclosed those references to the examiner and drafted the claims around those references. But it was one of those things where we could probably still go broader? And the fact that we got that first action allowance justifies that? So, yeah, I mean, I'll be honest with you, I don't like to get them, but I do like to get them [laughing] [#21]

Of the small number of interviewees that did not see acceptance without examiner objections as a concern, these interviewees were predominantly in-house practitioners and German professional patent agents. One German interviewee responded to the question with an emphatic, “sure, no problem!” [#25]. He suggested that if a professional patent agent has done their job well, then why should they feel apprehensive about receiving an approval without objections? Another German interviewee suggested that the majority of the patent applications he files are typically approved after only one round of correspondence with an examiner. He stated that in most cases, the examiner’s feedback consists of points of clarification for the claims, which he often finds helpful in revising for better precision. However, he stated it is rare

that examiners locate prior art he was unaware of that would significantly affect patentability, with examination acting more like a helpful peer-review process for him.

Several in-house interviewees suggested that they did not feel receiving an acceptance without an objection is undesirable. In fact, many criticized the fact that external patent agent counsel they worked with often encountered several rounds of examiner objections due to the fact that they did not put the up-front effort into understanding the true scope of the invention. This involves poor searching and analysis of the prior art as well as lack of dedicated effort in drafting claims, instead relying on examiners to do the work. It is important to note that several of these interviewees pointed out that the patent agency business model contributes to this phenomenon: there is an inherent cost-revenue structure which favours drafting and filing as cheaply as possible, which in turn increases the amount of effort – and expense – required during prosecution to address prior art objections and revise claims.

5. CONCLUSIONS

As stated above, much of the form and process of patent application and prosecution operates in an arcane language far removed from that of the technical community. The extent to which the epistemic enclosure of the patent practitioner community may or may not have contributed making patent application format and prosecution formalities look outdated is certainly debatable. However, the fact that only one interviewee openly acknowledged, without any prompting, how truly outdated and bizarre a patent document would seem to someone from outside the patent community is telling. This is particularly surprising, given that alleged deficiencies in the current form of the patent application and prosecution system, and potential options for remedying them, would likely appear as obvious to those operating outside the system as it did to the student intern who had been speaking to this interviewee. When asked

about the current form of patent application and prosecution processes, most interviewees readily acknowledged that the system operates based on a language and process that is almost completely separate from the discourse of the innovation community, one that is esoteric to most applicants. Most interviewees stated that their clients often stare at patent claims with utter bewilderment as to the meaning of their language. Furthermore, the majority of interviewees stated that the obviousness/inventive step doctrine (as applied by patent offices) is a legal construct with little connection to the lived experience of their clients. Most interviewees suggested that while certain portions of a patent application may make sense to some inventors in certain fields (such as chemical and biochemical arts), patent filing and prosecution in general was completely foreign to most inventors. Nevertheless, when asked if and how changes make the system more ‘user-friendly’, most patent agents simply jumped to the conclusion that a registration system, with few application formalities and no substantive patent office examination of patent applications, was the only other possible alternative to the current system.

For example, one recently qualified UK patent attorney stated the following:

There are other ways that [patent prosecution] works in different countries. There's no examination. It's just up to third parties right, [that's how] challenge is done. So I don't think it has to work like [the UK system]. I think we save ourselves a lot of the litigation burden by being upfront. Hopefully, claims are granted which are valid... It's just a registration system. We'd essentially be doing the same jobs. Just as patents are granted. We would just be acting as patent attorneys, to argue, what's valid in the courtroom, [in the UK system] it would be the Patent Office making objections, and you just respond.

The fact that so few interviewees acknowledged that the current form of patent document and prosecution process is so seriously outdated, or could only imagine a system with no examination at all as opposed to even modest reforms to the current system, touches on key

issues that are central to the main research question of this work. When and why do patent systems rely on customary practices and traditions of professional patent agents, such as utilizing outdated forms of illustrations and descriptions? When and why do they evolve, e.g. by no longer requiring working models or allowing gene patent applications to list actual gene sequences? What does this tell us about broader patent institution dynamics? Perhaps most importantly, what role do professional patent agents play in maintaining or evolving institutional structures, not only from an interest group and regulatory capture perspective, but also through the effects of epistemic enclosure that captures the imagination of the profession and forecloses the possibility of modernization, change or reform? When asked questions about patent prosecution reform, the fact that many interviewees' minds immediately jumped to complete elimination of the examination system as opposed to even modest suggestions for reform undoubtedly provides some insight into these questions.

CHAPTER 10: THE PROFESSIONAL PATENT AGENT AND PATENT QUALITY

1. INTRODUCTION

As discussed under Chapter 1, this project proposes a normative orientation towards the question of patent quality, and specifically, the extent to which an overarching patent agent discourse may be helping or hindering the pursuit of improving overall patent quality. Over the last two decades, patent quality has become an important topic of discussion for academics, policy-makers, patent applicants and holders, and the general public. The difficulty with defining a ‘quality’ patent is how to avoid the aesthetic perspective of ‘quality is in the eye of the beholder’ and instead find objective indicia. One can avoid this problem altogether by taking a formalist approach: a quality patent is simply a patent granted by a patent office that meets all of the legal requirements for patentability. A quality patent is thus synonymous with a legally valid patent. As one interviewee stated, “*to me, quality means valid.*”

The ‘quality is synonymous with legally valid’ perspective has generated an abundance of academic and policy commentary emphasizing that the responsibility of ensuring patent quality falls squarely on patent offices. Patent Offices represent the public interest: they are the institution tasked with ensuring that patent applications meet all necessary requirements for patentability. The obvious conclusion then is that responsibility for ensuring patent quality is a patent administration matter: patent applicants and their professional agents have no responsibility for promoting patent quality, except to draft applications in accordance with the minimum legal requirements as administered by respective patent offices.

Most recent empirical studies have focused on the relationship between patent office examination processes and the potential for erroneous granting of patents as the key indicator of

patent quality. Several such recent studies go on to suggest that patent quality at the EPO is of a higher standard than that of the USPTO.⁸⁰⁷ This is because of the EPO's more rigorous examination process, resulting from low examiner turnover rate and greater examination time allotted to highly-experienced examiners. For example, a recent study by Professors Wasserman and Frakes suggests that increased time investments by the USPTO in patent examination could lead to significant improvements in patent quality and overall social welfare resulting from the reduction in erroneously granted patents.⁸⁰⁸

This Chapter explores an important and perhaps overlooked question- what is the relationship, if any, between patent agency and patent quality? Is ensuring 'patent quality', however defined, entirely the job of the patent office, or can it be argued that applicants, and perhaps their professional patent agents, have a role to play in ensuring patent quality? Most importantly, how does professional patent agency constrain the possibility of reimagined forms of patent quality which might exist outside the horizon of the contemporary discourse of professional patent agency? This Chapter will include interview data about professional patent agents' views of patent quality in order to shed light on how professional patent agency can, and possibly should, promote patent quality.

2. PATENT AGENCY AND PATENT QUALITY

While most academic commentary has focused on the patent office as the key player in patent quality, only recently have patent experts turned their minds to the question is what, if any, role *should* applicants and their patent agents play in enhancing patent quality? The lack of

⁸⁰⁷ See for example Colleen Chien (n 23).

⁸⁰⁸ Michael Frakes and Melissa F. Wasserman (n 764).

academic inquiry has contributed to overlooking a key factor in the patent quality equation. As Professor Wagner states:

The basic problem with viewing patent quality as an administrative issue is that, given the incentives, there is relatively little that the USPTO (or any patent office) can do to change them... in a great many cases, the die is cast with respect to a patent's quality by the time that the application is filed: either the application has been drafted carefully and with a scope commensurate with the disclosed idea, or it has not; either a robust prior art search was conducted, and the patent was drafted with this knowledge, or it was not. To be sure, the USPTO will (and is required to) conduct its own search and make its own evaluation of the application, but the USPTO is inherently under-informed, severely resource constrained, and typically ignorant of important features of the application (such as its definition of the claims). There are real limits to how much quality the USPTO can "add" to a filed application: it can reject claims or request revisions, but the power of language remains in the patentee's hands. In patent prosecution, it will often be a case of "garbage-in, garbage-out": if the filed application is low quality, the chances are that any granted patent will be low quality as well.⁸⁰⁹

Wagner concludes that "the basic strategy is clear: focus on reforms that increase the incentives to file high-quality patent applications, decrease the incentives to file low-quality applications, or both."⁸¹⁰ Academics have recently shifted focus to various possible applicant incentive options to improve quality.⁸¹¹ Rewards could be offered to applicants who willingly

⁸⁰⁹ R Polk Wagner, 'Understanding Patent-Quality Mechanisms' (2008) 157 University of Pennsylvania Law Review 2135, 2164–5.

⁸¹⁰ *ibid* 2165.

⁸¹¹ Stephen Yelderman (n 67) 79: As Professor Stephen Yelderman states, "[t]he possibility that applicants might have a more direct role to play in improving patent quality has gone largely unexplored." Also, at 84-5: 'the patent literature contains hardly any analyses of how patent rules affect applicant incentives in drafting and filing patent

exceed current filing requirements - for example, by providing search results along with detailed characterization of the point of novelty - with these ‘gold-plated’ patents afforded greater presumptions of validity than standard track patents.⁸¹² New applicant incentive programs provide applicants expedited prosecution in return for incorporating a detailed ‘applicant disclosure statement’ as part of their patent application.⁸¹³ All of these enhanced applicant obligations go far beyond what is currently legally required of patent applicants in any jurisdiction. While applicants, and their agents, are legally responsible for disclosing to the patent office any prior art which of which they are aware that is relevant to patentability of the claimed invention, there is no duty to characterize the novelty or non-obviousness/inventiveness of the claimed invention or any positive duty to carry out any searches.⁸¹⁴

In considering reforms focusing on applicant behaviour on patent quality, few comprehensive studies seem to have examined the role of patent agent quality (however defined) in contributing to greater patent quality.⁸¹⁵ There have been anecdotal suggestions that the EPO’s

applications.... In light of the widely recognized importance of patent quality, current understandings of applicant incentives appear seriously underdeveloped.’

⁸¹² See for example Doug Lichtman and Mark A. Lemley, ‘Rethinking Patent Law’s Presumption of Validity’ (2007) 60 Stanford Law Review 45, 61–3. Professors Lemley and Lichtman suggest eliminating the current U.S. standard of ‘clear and convincing’ evidence required to invalidate a patent, which standard is currently afforded to all granted patents. In its place, only ‘gold-plated’ patents, namely those which have survived a voluntary and exceptionally rigorous patent examination process, would be entitled to a deferential standard of validity during court proceedings; see also Mark A. Lemley, ‘Ignoring Patents’ [2008] Michigan State Law Review 19, 32–3.

⁸¹³ More recent initiatives include the USPTO’s accelerated examination program- see Office of Patent Legal Administration, ‘Accelerated Examination’ </node/159268/draft> accessed 16 January 2019.

⁸¹⁴ For a discussion on the pros/cons of an applicant duty to search, see Federal Trade Commission, ‘To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy’ ch 5, pg 11 <<https://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf>> accessed 16 December 2019; See also Thomas F. Cotter (n 478) 754 where Cotter questions the social value of an applicant ‘duty to search’ in light of US inequitable conduct doctrine’s duty on the applicant to disclose all information the applicant is aware of which is material to patentability.

⁸¹⁵ See for example Ronald J Mann & Marian Underweiser, “A New Look at Patent Quality: Relating Patent Prosecution to Validity” (2012) 9 J Empirical Legal Stud 1 which discusses some aspects of patent attorney practice, including drafting, on prosecution outcomes and quality. See also Gaétan de Rassenfosse et al, *Getting Patents: Does the Quality of Patent Attorney Matter?*, SSRN Scholarly Paper ID 3254958 (Rochester, NY: Social Science Research Network, 2018)- however, this study does not directly address the issue of “patent quality”, as defined in other studies, rather, this study correlates its definition of “patent attorney quality” to the substantiveness of patent

rigorous approach to patent attorney training and regulation, which requires passing the demanding European Qualifying Examination [“EQE”] for entry to practice, positively contributes to improved patent quality in Europe compared to the US. These accounts suggest that “the EQE was instituted... with a view to providing high-quality input to the EPO over the long term”, and that “the EPO played a key role in the exam *inter alia* by promoting the use of the problem-and-solution approach for assessing inventive step.”⁸¹⁶ While the EQE tests candidates’ ability to draft patent specifications and knowledge of the rules of opposition proceedings, it is the EPO’s “systematic approach” to inventiveness, engrained into candidates through the EQE’s emphasis on the problem-solution approach, that “has led to a relatively homogeneous input for the EPO” compared to “the diversity of US practices on obviousness which, together with the decision-taking structure, contributes to a lack of uniformity in its output, the perceived patent quality.”⁸¹⁷ Similarly, some also suggest that the EPO’s emphasizing of the ‘two-step’ or Jepson style of claim formatting contributes to homogenization of claim drafting input and in turn improves patent quality.⁸¹⁸

With respect to the two-step claim drafting approach, EPC Rule 43(1), similar to 37 C.F.R. 1.75(e) in the US, suggests that the two-step approach should be used “whenever

claim amendments during prosecution (in terms of number of words added to claims during prosecution amendments) and patent grant rates.

⁸¹⁶ ‘The Quest for Patent Quality: European Inventive Step and US Obviousness’ (*IPWatchdog.com* | *Patents & Patent Law*, 21 December 2016) <<https://www.ipwatchdog.com/2016/12/21/patent-quality-european-inventive-step-us-obviousness/id=75860/>> accessed 17 December 2018: the author states that the EPO’s long-term goal to improve high-quality input through patent attorney qualification ‘has doubtlessly succeeded’.

⁸¹⁷ *Ibid*; See also “Heightened Written Description Standard for Reissue Patents”, online: *Patently-O* <<https://patentlyo.com/patent/2019/06/heightened-description-standard.html>>, at comment 4.1.1.3.: “Here in Europe, it is thought that the pinnacle of the patent attorney’s skills lies in drafting patent applications, not litigating issued patents. And the system of examination to qualify as a patent attorney focusses on aptitude, talent, competence, in drafting such that clients get the full scope of protection they deserve. A lot of people fail that exam, for want of ability to distinguish the wood from the trees.”

⁸¹⁸ For a summary discussion on this EPO approach to claiming, see ‘Comparing and Contrasting European 2-Part Claims with US Jepson Claims’ (n 70).

appropriate”. Although Anglo-American jurisprudence long-ago rejected the legal obligation that novelty must be demonstrated *within* the claim (as per the prominent European two-step claim format) rather than *by* the claim (as per the standard Anglo-American peripheral format)⁸¹⁹, Anglo-American patent drafters still regularly used this format throughout the twentieth century to highlight novel features within the claim itself.⁸²⁰ However, while the two-step claim format is still regularly used by European patent practitioners before the EPO, use of the Jepson format before the USPTO has dwindled to below 0.1% of all applications filed.⁸²¹ European practitioners celebrate the two-part format’s effect on improving patent quality, while American practitioners have come to disregard it as bad practice.⁸²² A highly-experienced in-house US patent attorney stated that “*ideally, all [US] patent claims would be drafted in Jepson format, but that’s not realistically going to happen.*” When asked why that is not realistic, he simply stated that “*it’s just not.*”

3. PATENT QUALITY IN PATENT AGENTS’ OWN WORDS

As seen in Chapter 6, the question of ethics often dovetailed into issues of patent quality: some professional agents expressed concerns about what they perceived as unethical gaming of the system through inclusion of irrelevant or misleading information in patent specifications. Patent quality can thus be seen as an ethical issue. However, as discussed under Chapter 6, these were largely minority views amongst interviewees.

⁸¹⁹ *British United Shoe Machinery Company Ltd v A Fussell & Sons Ltd* (1908) 25 RPC 631, 651–2.

⁸²⁰ American patent drafting treatises also supported use of the two-part claim format when appropriate. For example, see Stephen Shear, *Preparing and Prosecuting a U.S. Patent Application – A Treatise From Experience - Book 1* (Silicon Valley Seminars, Inc 2007) 131; 134–5.

⁸²¹ ‘Jepson Claims (Part II)’ (n 70).

⁸²² See ‘Heightened Written Description Standard for Reissue Patents’ (n 817) at comment 5.2.1, the commenter suggests that the EPO ‘Jepson’ format significantly contributes to patent quality by clearly delineating what the applicant believes to be the technical advance contributed by the invention;. For a discussion regarding Jepson style claiming’s lack of U.S. prominence, see ‘Jepson Claims (Part II)’ (n 70): ‘Prof. Kayton, who trained generations of patent attorneys in his PRG classes was particularly adamant about avoiding Jepson claims.’

One German interviewee succinctly framed patent quality as:

Patent quality means that a patent should claim what has been invented, and should be strong enough to withstand an opposition and should describe the invention in a way that it can be understood. [#11]

Most European patent agents were complimentary of the EPO's commitment to patent quality, which, in their view, was the result of thorough prior art searching, detailed search reporting and quality examination that was collaborative in nature. Some European interviewees suggested that the EPO's artificial approach to assessing inventiveness may allow some unmeritorious patents to get past examination, but generally speaking, as one interviewee put it, *"they produce a good quality patent generally; if something gets through to grant, I think it probably deserves to."* [#20]

Many interviewees forthrightly thought that patent quality was strictly a patent office issue. To the extent that professional agents had any responsibility to contribute to patent quality, it was in carefully ensuring that they follow relevant patent office rules. As one interviewee stated:

"I think [patent quality] is more the responsibility of the patent office. But if you make the job of the patent office easier by trying to stick to their rules closely, that's better for your client." [#18]

Similarly, another interviewee stated:

"that's [the patent office's] responsibility, not mine ...my job is to provide the best scope of protection while drafting in compliance with patent office requirements" [#2]

Many European interviewees framed poor patent quality squarely as a US problem. As one UK interviewee stated:

[Patent quality] is at its worst in the US... Sometimes it's playing games or sometimes its inexperienced judges. In the US, because of the ways courts have decided things and the ways [patent professionals] interpreted what courts have said, US patents, in particular, are written in a slightly covert way because people don't want to tell you what their invention is, because they are worried that anything they say will be held against them. Because of the US influence, people try to write things that aren't really trying to explain the invention to other people. [#14]

As another interviewee stated:

[American attorneys] will send applications to us that are drafted for the US market, and you read it and think 'this is just not going to work in Europe' and we have problems because of that. Sometimes it's a difference in approach other times you just think this just isn't fully supported. They've done a good claim but they haven't expanded on that at all. Basically the claim is written in broad terms and you have your best mode in there, and then there's no expansion over all the different points of view. If it's a process, you have your process conditions, and you should have a range of temperatures and a range of pressure and a range of times, etcetera. And if it's a product that is claimed as a composition, then you should have the different components, the range of different classes of compounds you might want to use, and particularly percentages and particular pH levels, etcetera... So they're claiming it is as broad as possible, and they're not quite sure what they're entitled to and what's been done before and haven't fully worked the invention out. [#20]

Despite the relative diversity of opinion, most circles around the same core: patent quality is predominantly a patent office, rather than patent agency, issue.

4. THE FORGOTTEN HISTORY OF QUALITY PATENT AGENCY?

Although the majority of interviewees responded that patent quality is a patent office issue, some felt that patent agency did have an important role to play. For example, in-house practitioners tended to place some emphasis on patent agency in the patent quality equation. For example, one in-house interviewee suggested that quality would not be an issue if professional agents would make a legitimate personal commitment to drafting patent applications that were clearly commensurate with the scope of the inventor's true technical contribution to the art. [#19] Other in-house interviewees suggested that agents in private practice often did not complete comprehensive searches nor take the time truly to understand what actually constituted the inventive contribution to the art. The result is protracted patent prosecution and oppositions which only drive up the cost of patenting and increase uncertainty within the patent system.

One European interviewee highlighted the interesting distinction between broad patents and strong patents, the latter being a 'quality' patent. From this perspective, quality is both an agent and patent office concern:

Interviewee: We ask the EPO to continue to grant patents of high quality. For me, patent of high-quality means, the scope of the claim is in adequation with technical contribution that inventor has made. We are not asking them to grant too wide patents, because these, in my opinion, are weak patents. We are asking them to grant strong patents and for that, we have to draft them as strong patents.

Me: So, you think as part of patent quality, you have an obligation as a patent agent?

Interviewee: Yes. The quality has to start with how we are drafting, then it has to go on to how EPO is examining. [#7]

While most contemporary professional patent agents may not view patent quality as a key professional concern, as evidenced by the many interviewees who proclaimed this belief, this

may not have always been the case. The view of the minority interviewees who felt that patent agency did hold an important connection to patent quality may once have been more prominent amongst the profession than it is today. In the pre-EPC era and shortly thereafter, European patent drafting treatises and commentaries emphasized the significance of robust applicant disclosure in defining both the invention and the scope of its protection, despite that this was not explicitly required by the EPC. These commentators espoused the importance of characterizing the nature of the invention, including emphasizing the technical contribution and advantages of the invention vis-à-vis the prior art within the specification, for the purposes of both patentability and favourable claim construction (including extended protection).⁸²³

US practitioners might be tempted to dismiss the significance of these drafting recommendations as being relevant only to Continental European or EPO practices. For example, the European ‘inventive step’ requirement for patentability, and particularly the EPO’s emphasis on the ‘problem-solution’ approach to assessing inventive step, create certain disclosure obligations with no comparable counter part under the Anglo-American ‘non-obviousness’ requirement.⁸²⁴ Some might suggest that pre-EPC German central claiming practice, which used the claims as a jumping-off point for extended protection, as opposed to the entire scope of protection under peripheral claiming, contributed to the necessity of more fulsome disclosure compared to Anglo-American practice. Furthermore, the Continental European two-part claim format, which, although not strictly obligated post-EPC yet still frequently used, requires

⁸²³ See for example Dr. J. L. Benton, ‘Drafting a European Description and Claims: Paper to Be Delivered at the Annual General Meeting of the Chartered Institute of Patent Agents to Be Held on 24th May, 1978’ 1–2, 11; See also Dr Franz Lederer (n 735) 166–7 wherein the author suggests that while the two-step format should not form the basis of a strict rule regarding equivalents, the distinction between the ‘conventional text’ and the novel features should lead to a judicial reluctance towards applying equivalency to the novel features and a more liberal application of equivalency towards the conventional text.

⁸²⁴ See European Patent Convention; EPO Examination Guidelines; European Patent Convention.

applicants to have a better understanding and disclosure of the state of the art than the Anglo-American style peripheral claim. While there may be some truth to all of this, it is not the entire picture. Beyond simply meeting the requirements of patentability standards and claim formatting, European commentators have long recognized that an accurate and complete portrayal of all aspects of the invention aids in proper/better claim construction, especially in cases involving extended protection through doctrines of equivalence/essentiality.⁸²⁵

Perhaps most telling is that these best practices were not limited to European commentary. Early-to-mid 20th Century US patent drafting treatises frequently promoted the same best practices, suggesting that “a well-written application for patent is more than a document that is legally and technically sufficient.”⁸²⁶ The view on both sides of the Atlantic was the same- it is one thing to draft an application that meets the bare requirements of applicable patent legislation, but a good patent application, namely, one that receives the most favourable treatment for the patentee in terms of claim scope, requires a disclosure which goes above and beyond what is merely required by law. American treatise writers, much like their European counterparts, recognized that to be “convincing as to the merits of the invention”, the patent drafter “should produce a more lucid and effective document than if he attempts merely to meet the statutory requirements.”⁸²⁷ Thus, over the course of the 20th Century, patent drafters the world over appreciated that patent legislation sets the minimum requirements for a valid grant of

⁸²⁵ Dr. J L Benton and Dr. K J Heimbach (n 525) 32–3.

⁸²⁶ Elmer J. Gorn, ‘Application Writing – Illustrated by Electrical and Electronic Cases’, *The Encyclopedia of Patent Practice and Invention Management* (Reinhold Publishing Corporation 1964) 65- Gorn states that the patent application ‘is a work of art in a form to convince the Examiner of patentability, win court support in case of litigation, and interest capital in development of the invention. These requirements rest so heavily on the attorney’s ability as an application writer, as to make him the most important single factor in the entire patent system after the inventor himself.’

⁸²⁷ *ibid* 66–7.

patent, but that going beyond the bare minimum with the “last coats of polish” are what “distinguish the invention and the attorney from the usual or the ordinary.”⁸²⁸

For treatise writer Calvert, who wrote as much (if not more) for inventors as he did for professional patent agents/attorneys, the idea that “a patent should not be a mysterious document” was paramount.⁸²⁹ While the claims were certainly of key significance, for Calvert the description was equally as important:

Let the inventor bear in mind, above all, this necessity for a straight-forward description which may be accompanied by an honest statement of the values and uses of his invention... These are the primary points to emphasize. Enough legal complication will creep into the document in any event without the inventor making a particular effort to bring them in.⁸³⁰

Accordingly, Calvert abhorred an “overly lengthy specification” which “serves chiefly to divert attention from the real invention”: such specifications “indicat[ed] a failure of the inventor or attorney or both to comprehend what is actually the invention.”⁸³¹ [emphasis added] He was critical of those who drafted “conspicuous” patent applications, filled with “high-sounding, or cleverly vague almost to the point of self-contradict[ing]” language.⁸³² For Calvert, the most important step of drafting a patent application was determining the novel aspect(s) of the invention and emphasizing them in the patent application. He promoted the importance of searching, as “the search facilitates the selection for emphasis of those particular features which

⁸²⁸ *ibid* 72.

⁸²⁹ Robert Calvert, *Patent Practice & Management For Inventors and Executives* (n 545) vii; this was of such significance to Calvert that it was included in the opening preface to this book.

⁸³⁰ *ibid*.

⁸³¹ *ibid* 89.

⁸³² *ibid* 90.

are most clearly new over the prior publications.”⁸³³ Furthermore, “[a]s to those novel features to which the claims are directed, the disclosure should be full and clear”⁸³⁴, and “[o]n the novel feature or features, even though they may be of secondary importance commercially, should be placed the emphasis.”⁸³⁵ The drafter should also acquire a fulsome understanding of the surprising results of the invention and make clear statements or explanations of those results within the specification.⁸³⁶ To prevent “the invention [from being] concealed in a multitude of conventional parts”, the inventor must ensure that “the attorney understands the exact point that is the invention.”⁸³⁷

One of Calvert’s most fascinating pronouncements was that patent drafters should consider the important public interests at play in their craft as much as their clients’ private interests:

The drafting of a patent claim involves something more than mere compliance with certain rules of logical definition. A claim must also be molded in consideration of public policy which may restrict the protection the inventor will receive for the disclosure of his invention through his patent to the public. A patent is a contract between the public and the inventor, and care must be exercised to see that both of the contracting parties are treated fairly. If public policy is so interpreted as to limit needlessly the scope of the inventor’s claim, he is not receiving protection commensurate with his contribution to the art. On the contrary, if his claims are made too broad, they tend to monopolize the art unfairly, discourage further experimentation by others, and thereby violate the general

⁸³³ *ibid* 103.

⁸³⁴ *ibid* 94.

⁸³⁵ *ibid* 89.

⁸³⁶ *ibid* 91.

⁸³⁷ *ibid* 98.

purpose of the patent laws which are designed primarily to promote the progress of science rather than to reward the inventor.⁸³⁸

Calvert held this patent agent's public interest ethical obligation in such high regard, that in his summary of rules for effective claim drafting, the maxim that "A claim must be molded in consideration of public policy" appeared in the top five rules.⁸³⁹

Calvert's key principles of patent drafting are succinctly encapsulated in the following statement:

If the information needed for the proper specifications has been supplied, the information necessary for writing the claims will be at hand. There will be known the closest prior art, the surprising or unobvious result or results, the minimum number of elements or parts necessary for a workable and novel combination, the function of each element or part, and any critical conditions or proportions. It will be possible to draw claims of graded breadth, from those covering the broadest combination that is both workable and new down to the most specific embodiment including all the elements of the actual, best commercial structure. Above all, the writer of the application will understand the invention. He will not have to shoot in the dark, with a score of claims, in the hope that the broadside will hit the unseen target of the invention. Neither will he include such a multiplicity of claims as to endanger the validity of the patent. On the contrary, he will be able, with the proper information before him, to direct a few well-chosen claims at the clearly understood points of invention. Thus he will avoid the admission, usually indicated by an excessively large number of claims, that he is having difficulty himself in

⁸³⁸ Robert Calvert, 'Chemical Applications' (n 534) 136.

⁸³⁹ *ibid* 141.

locating the actual invention. Understanding the invention, he will be able also to make the invention evident more readily to the Patent Office or later to a Court.⁸⁴⁰ [emphasis added]

There was a time when American patent drafters followed Calvert's guidance for drafting a few well-chosen claims at the clearly understood points of invention, but between 1970 and 1990 the average number of claims per patent application increased by fifty percent.⁸⁴¹ Recently, entire patent drafting treatises have been dedicated to the topic of drafting bare-bones enabling patent applications, advising drafters to avoid any and all language that might characterize the invention, supposedly in response to jurisprudence that has punished prior patentees for including such information.⁸⁴²

While conventional wisdom suggests that a competent patent agent's job is to file the broadest claims as possible and then whittle them down as necessary to respond to examiners' objections, this practice may have its historical roots in an era when patentability searching was difficult and patent examiners were best situated to carry out an comprehensive search. Historically, patent agents, lacking an effective ability to ascertain the scope of novelty of their client's invention, had to hedge their bets by drafting broad independent claims and relying on

⁸⁴⁰ Robert Calvert, *Patent Practice & Management For Inventors and Executives* (n 545) 102.

⁸⁴¹ John R Allison and Mark A Lemley, 'The Growing Complexity of the United States Patent System' (2002) 82 Boston University Law Review 77, 103; Although this trend seems to have levelled off somewhat in recent years, see for example 'Standard Patent Size' (*Patently-O*) <<https://patentlyo.com/patent/2017/10/standard-patent-size.html>> accessed 7 December 2020; it appears that claims themselves have become much longer, verbose and riddled with language that apparently has little to do with the inventive core of the invention, see generally Janet Freilich, 'Patent Clutter' (2018) 103 Iowa Law Review 925.

⁸⁴² See generally Joseph E. Root, *Rules of Patent Drafting: Guidelines From Federal Circuit Case Law* (2020 Edition, Matthew Bender & Company, Inc 2020) wherein the author sets out a number of rules for patent drafting derived from U.S. Federal Circuit case law, including a set of rules and subrules advising patent drafters against using the term 'invention' in a patent application. See also patent litigation | February 28 and 2011 at 4:07 pm | Reply, 'Book Review: "Rules of Patent Drafting" by Joseph E. Root' (*IP Spotlight*, 21 February 2011) <<https://ipspotlight.com/2011/02/21/book-review-rules-of-patent-drafting-by-joseph-e-root/>> accessed 16 February 2021.

examiners' responses to assist in narrowing in on the true scope of the invention.⁸⁴³ However, with new technical resources available to conduct prior art searches efficiently and effectively, the threat of invalidation through *inter partes* review ("IPR") processes and new applicant programs to incentivize greater disclosure of information at filing, practitioners are beginning to turn away from the practice of filing 'obnoxiously broad patents.'⁸⁴⁴ Contrary to traditional thinking, recent patent drafting manuals challenge this conventional wisdom. The suggestion that a competent patent agent must always be seeking to secure the broadest possible claim has been called a 'myth', and while "there are times when a broad claim is important... the majority of situations do not require such broad protection" and seeking such protection may be counterproductive.⁸⁴⁵ Empirical studies appear to reinforce this conclusion. Recent empirical research suggests that patent applications filed with narrower claims are more likely to be granted and those filed with broader claims are more likely to be abandoned.⁸⁴⁶

5. CONCLUSIONS

From beginning to end, the modern conception of invention is intimately connected with human agency. Agency, much like invention, is at heart a metaphysical concept. The law creates formalized doctrines to structure the way we understand and analyze both agency and invention in an attempt to promote legal certainty. Invention is a creation born from an act of human

⁸⁴³ W. H. Baraclough, *Every Inventor His Own Patent Agent: A Handy Book of the Principles of the Patent Law* (Effingham Wilson 1928) 73: According to Baraclough, given the challenges associated with locating relevant prior art given lack of relevant prior art resources, 'It is perfectly safe and quite the best course to draw the claims at the onset as broad as possible, having due regard, of course, to your own knowledge of what has been done before. When you get the examiner's report before you at some future date, you can then amend these claims so as to get the broadest possible patent you can under the circumstances.'

⁸⁴⁴ See Russ Krajec, 'Patent Myths #3- "Broad Claims Are a Good Thing."' <<https://blog.blueironip.com/patent-myth-3-broad-claims-are-a-good-thing>> accessed 20 November 2019.

⁸⁴⁵ Harold C. Wegner, *First to File Patent Drafting: A Practitioner's Guide* (2016) 32 <<http://www.laipla.net/wp-content/uploads/2016/05/StateOfTheArtMay27.pdf>>.

⁸⁴⁶ Alan C. Marco, Joshua D. Sarnoff, and Charles A. W. deGrazia, 'Patent Claims and Patent Scope' [2019] Res. Pol'y 9 <<https://doi.org/10.1016/j.respol.2019.04.014>>.

agency, and subsequently, to the extent that the invention is adequately disclosed to others, it enables them as free agents to implement this technical advance in the art.

Much like agency and invention, quality is also a metaphysical concept. It may be that the challenge with patent quality, much like matters of aesthetics, is in the eye of the beholder, and largely depends on who the relevant audience might be.⁸⁴⁷ If we begin from the assumption that patents are written by and for a technical audience, this undoubtedly effects how we approach the question of patent quality.

Writing at the turn of 20th Century, Stringham laments the fact that an area of law so steeped in metaphysics as patent law could somehow remain isolated from the legal realism movement of his time, and specifically, the sense that in some instances, justice must take precedence over the logic and formalism of textualism.⁸⁴⁸ To Stringham, an invention is a technical teaching which advances the states of the art: teaching and learning, both being acts of human agency, cannot therefore always neatly fit within the logical strictures of language and rules. Accordingly, it is imperative that courts avoid the temptation, discussed in previous Chapters, of the artificial exercise of slavishly fragmenting a claimed invention into discrete ‘elements’, thereby missing the forest for the trees.

It is important to note that Stringham was speaking to both patentees and the judiciary. His recommendation was that patentees should draft clear specifications, and accordingly, the judiciary should encourage this practice by ensuring that such specifications received fair treatment. For example, patents with a small number of carefully worded claims should at least

⁸⁴⁷ See generally Naina Khanna, ‘Patent Quality: Does One Size Fit All?’ [2019] 4iP Council <<https://ssrn.com/abstract=3328123>>.

⁸⁴⁸ Emerson Stringham (n 519) 76- Stringham particularly laments the fact that the realism of Justice Oliver Wendell Holmes, which was so influential in other areas of law, failed to take hold in the patent law context.

create an impression of a broader invention deserving of liberal treatment by courts.⁸⁴⁹ To the extent that the patentee clearly discloses their meritorious advance to the technical community, courts should correspondingly be prepared to ensure that the extent of such advance is protected. The practice of allowing a “bewildering multiplicity of claims” is in many ways the antithesis of this sort of practice and should be discouraged as much as possible.⁸⁵⁰ Stringham’s suggestion to both professional patent agents and the judiciary is the agent’s “impulse” to obtain the broadest claims possible should be tempered by “the fact that very wide claims sometimes create bad atmosphere” in the courtroom.⁸⁵¹ However, as Stringham points out, overt discouragement of such practices was rare in both the early 20th century and in modern times. On the contrary, Anglo-American courts’ unyielding commitment to excessive textualism in patent practice has largely fueled the practice of drafting a multiplicity of vague, broadly worded claims.⁸⁵²

At one time, patent agency seemed to recognize that quality is more than just what is statutorily required for a valid patent, and strived for quality. The ideal of a greater public interest in the clear dissemination of knowledge was no doubt a driving factor. However, this was more than simply idealism. The drafting of clear patents was driven by client interests: a lucid patent document which clearly taught and demarcated the inventive contribution to the art was expected to receive more favourable consideration by judges than documents which served only to obfuscate and conceal as much as they reveal.

It is perhaps overlooked that courts have an important role to play in ensuring patent quality, specifically, by fostering an important nexus between patent quality and patent agency. Courts

⁸⁴⁹ *ibid* 276.

⁸⁵⁰ *ibid*.

⁸⁵¹ *ibid* 76.

⁸⁵² *ibid* 276.

have abandoned the ideal that patents should be written by and for a technical audience in pursuit of legal certainty. As previous Chapters have demonstrated, the irony is that efforts to bolster legal certainty may in fact end up undermining it. Professor Pedraza-Farina demonstrates that the law, including patent law, must strive to accomplish and balance other objectives beyond simply legal certainty, such as promoting accessibility, flexibility, and adaptability.⁸⁵³ In fact, it is the patent community's unyielding commitment to what it perceives as legal certainty that may be the defining feature of patent law's exceptionalism and may be the main contributor to the creation of professional patent agency as a distinct epistemic community.⁸⁵⁴

There are some signs that the courts' tolerance of practices that hide the invention under a multiplicity of claims and vague descriptions might be changing.⁸⁵⁵ The focus on professional patent agents and patent offices with respect to patent quality tends to overlook how important a role the judiciary also play in this respect of patent quality. An invention is a technical contribution to the state of the art, and a patent document enables others to understand and implement the extent of that contribution. This feature, rather than the reified language of patent

⁸⁵³ Laura G. Pedraza-Fariña, 'Online Symposium: To Adapt Patent Law to Modern Innovation Realities, End Administrative Patent Law Exceptionalism' (*Fed Circuit Blog*, 23 February 2022) <<https://fedcircuitblog.com/2022/02/23/online-symposium-to-adapt-patent-law-to-modern-innovation-realities-end-administrative-patent-law-exceptionalism/>> accessed 1 July 2022.

⁸⁵⁴ *ibid.*

⁸⁵⁵ See for example *Teva Canada Ltd v Pfizer Canada Inc* (2012) 3 SCR 625 (SCC) where the Supreme Court of Canada invalidated the patent for sildenafil (sold under the trade name Viagra). The main independent claim covered 260 quintillion possible compounds, and each successive claim narrow this class of compounds down until claim 7 which claimed only the active compound, sildenafil. The detailed description remained vague about which of the 260 quintillion possible compounds was the 'especially preferred compounds induces penile erection in impotent males', even though evidence demonstrated that the researchers were aware that it was sildenafil. The Supreme Court of Canada invalidated this patent for 'playing hide and seek' with the actual, true invention; see also the recent US Federal Circuit decision *Indivior UK v Dr Reddy's Labs* (2021) 18 F 4th 1323 (Fed Circ). The Court invalidated the claimed range of activity on the grounds of written description, as the original patent disclosure upon which this continuation was based claimed and disclosed a much broader range and provided no clear indication why the narrower range would have any particularly desirable effect. The Court does note that the patent in question was granted as a fifth round of continuations from the same initial, and apparently broad and vaguely worded originating disclosure. While this, from a strictly legal perspective, should not matter, it is hard to deny that this type of patent gamesmanship left a certain impression on the Court.

claims, is the alpha and omega of agency in the patent system. Contemporary professional patent agents may think that this downplays the significance of the claims in favour of a disclosure that can be used as a nose of wax. Anglo-American practitioners made the same mistake regarding historical German patent practice, which, as discussed in detail under Chapter 8, represents a substantial misunderstanding. The reality is much simpler: the claims and disclosure work together, united by the synergistic effect of enablement. Patentees who work towards this goal should expect to be treated fairly by judges who legitimately strive to give protection to the extent of the claimed technical contribution to the art as would be understood by and would enable a real skilled technician. This also exposes the false dichotomy that one must choose legal certainty, manifested through the formalized language and processes of professional patent agency, and quality as measured from the perspective of a patent document that truly enables an audience of real skilled artisans. The principle should be simple- scope of claim protection corresponds with the extent to which the patent document enables its intended audience. A lucid patent document that precisely circumscribes and enables the technical contribution to the state of the art should receive fair protection from judges donning the mantel of a hypothetical skilled reader meant to closely mimic a real skilled reader. Similarly, a patent document shrouded in obfuscation and obscurity should receive an interpretation commensurate with its clarity (or lack thereof). By upholding this principle, the judiciary can better promote the connection between agency and quality within the patent system.

CHAPTER 11: MAPPING THE DISCOURSE OF PROFESSIONAL PATENT AGENCY

1. INTRODUCTION - REINFORCING THE BOUNDARY OF INTERNATIONAL PROFESSIONAL PATENT AGENCY

This study began by asking what effects the practices of the patent agent profession of the world's major patenting nations are having in exerting a global patent narrative, and whether that narrative may undermine the objectives of the patent social contract. As set out in the methodology and theoretical framework discussions of Chapters 2 and 4, an epistemic capture analysis can, at best, tell a story. This story is linked together by all available theoretical and empirical sources to build a plausible ideological narrative of the boundary of professionalized patent agency, constituting a "consistent se[t] of normative statements as to best or preferred states of the world."⁸⁵⁶ An epistemic capture analysis does not end at mapping this ideological narrative. It also explores how this discourse forecloses consideration of other competing narratives that can plausibly be viewed as serving the public interest. It is important to reiterate the characteristics of this foreclosure. It is not bias in the traditional sense of consistently favouring one perspective over another; in the case of professional patent agency, favouring the material interests of professional patent agents or their clients over the general public interest.⁸⁵⁷ This may equally favour certain material interests that may support the public interest.⁸⁵⁸ Rather, foreclosure is the result of this ideological disposition's effect of precluding competing perspectives regarding the public interest from consideration. In a sense, there is no deliberate

⁸⁵⁶ Karthik Ramanna, 'The Metaphysics of Regulatory Capture' (*ProMarket*, 2 August 2021) <<https://www.promarket.org/2021/08/02/regulatory-cultural-capture-stigler-karthik-ramanna/>> accessed 17 October 2022, citing Joseph P. Kalt and Mark A. Zupan, 'Capture and Ideology in the Economic Theory of Politics' (1984) 74 *The American Economic Review* 279, 281.

⁸⁵⁷ Shobita Parthasarathy (n 16) 192.

⁸⁵⁸ Ramanna (n 856).

choice per se, as these competing perspectives, and their potential institutional instantiations, rarely enter the realm of consideration.

The following Sections of this Chapter 11 will attempt to pull together the preceding Chapters to tell a story of the discourse of professional patent agency. As we shall see, this story revolves around one central ideological fulcrum- enablement. As the previous chapters have demonstrated, for many years, the animating principle of the social institution of the patent system was enablement, and specifically, democratized enablement. Democratized enablement manifested itself in various forms:

- In the administration of the patent system, namely, in the forms of patent prosecution;
- In the way courts approached the exercise of claim construction; and
- In the way both regulators, and the profession, viewed patent quality.

This Chapter will demonstrate how following the regulation of patent agency, with the invention agent being replaced by the professional patent agent, so too did democratized enablement become backgrounded in favour of the professional patent agent and invention as ‘thing’. The ascendance of the ‘invention as thing’ is in many ways intertwined with the professionalization of agency’s effect in backgrounding democratized enablement, which, has manifested itself in three overarching ways:

- Rather than acting as a guiding principle of the patent system as a social institution, enablement now exists solely as a standalone legal doctrine;
- Claim construction has become divided from the question of how the invention enables the technical community, whereas at one point the two were intrinsically connected; and

- Patent quality has largely become disconnected from the question of enabling the individual agency of the technical community.

The following will summarize how this discourse of professional patent agency has emerged, elaborate on how it currently maintains itself, and examine the ways in which it continues to develop in today's contemporary society.

2. THE DISCOURSE OF INTERNATIONAL PROFESSIONAL PATENT AGENCY

a. The 'Thingness' of Invention - Professionalization of Patent Agency and the Transformation of Invention

Anglo-American patent practitioners' fascination with analogizing patents to real property, "where the 'metes and bounds' trope is relentlessly used to explain patent claims"⁸⁵⁹, at times appears never-ending. As a result, "the notion that patents are a type of property has taken on something of a life of its own."⁸⁶⁰

In exploring the relationship between patent agency, the fascination with real property analogies, and the corresponding implications, Professor Inkster poses some intriguing questions. In the early days of the first Industrial Revolution and the birth of patent agency, where artisanal culture and circulation of useful knowledge mixed freely with inventive activity and production, where did patent agency begin and where did it end?⁸⁶¹ Should all professional groups and service providers within this inventive environment be considered as part of patent agency, or only those who directly sold their patent application preparation and prosecution services for gain?⁸⁶² To reformulate the question: How do we differentiate knowledge from technique and, to paraphrase Professor Inkster, 'urban savvy', when examining inventorship, entrepreneurship and

⁸⁵⁹ (n 571) 65; See also Dan L Burk, 'Patents and the First Amendment' (2018) 96 Washington University Law Review 197, 230: 'The comparison of patent to land is a perennial favorite of patent law commentators, even though the dangers inherent in drawing any analogy between tangible and intellectual property are well known and fully vetted.'

⁸⁶⁰ Jonathan S Masur, 'Institutional Design and the Nature of Patents' [2018] Iowa Law Review 2535, 2544. As Masur states, "there was nothing inevitable about the phrase 'intellectual property.'... Patents could just as easily have been described as 'intellectual licenses' or 'inventive monopolies' or any number of other formulations, none of which would invoke the language of property... Its influence over doctrine and scholarship is undeniable."

⁸⁶¹ (n 78) 129.

⁸⁶² *ibid.*

patent agency in the pre-formalized patent landscape of the Industrial Revolution era?⁸⁶³ In the democratized world of invention during this era, within the industrial hubs where technical information flowed freely “amid patent agency widely defined but closely proximate”, many of these inventors “could command [their] own agency as well as receive it from others” when engaging in inventive and commercialization activity.⁸⁶⁴ If during this era, “agency [lay] beyond the patentees and patent agents of formal institutions”, then how have external factors affected the development of formal patent institutions and what lessons might this teach us for the future?⁸⁶⁵

As discussed under Chapter 3, Professor Smit suggests that there are key features distinguishing patent agent professionalization from other professions. These differences provide insight to the inquiries posed by Professor Inkster. In other professional disciplines, a profession is often defined by “a segment of social reality”, as an agent of certain social classes to achieve certain political and economic goals.⁸⁶⁶ While to some extent this was the case during the professionalization of patent agency the profession itself actively shaped the domain of their social participation- the patent system itself- and with it their role as professionals within that system. This shaping took place on an ideological level, by actively participating in the defining of a discourse of technology, as well as through various institutional engagements. Patent office rules and court decisions did not simply define the identity of the early patent agent profession; rather, these decisions were assimilated and redeployed by patent agents to further influence the gradual transformation of these institutions.⁸⁶⁷

In the early 19th century US patent landscape, patent practitioners fought their ideological battles within US courts. Here, much like in the UK, judges across the US remained torn between on the one hand respect for the middle class ideal and the empowering effect the patent system could have on the lives and fortunes of individual inventors and small enterprises, and, on the other hand, apprehensions about growing corporatization and abusive monopolies.⁸⁶⁸ Slowly, over the course of the early 19th century, the patent bar not only gained judicial recognition for

⁸⁶³ *ibid* 140.

⁸⁶⁴ *ibid* 137.

⁸⁶⁵ *ibid* 140.

⁸⁶⁶ (n 102) 102.

⁸⁶⁷ (n 4) 145–6.

⁸⁶⁸ Andrew P. Morriss and Craig Allen Nard (n 74) 147, 227–8.

its practical innovations (such as the patent claim) but also a growing body of judicial precedent favouring stronger patent rights and enhanced scope of patent protection. This judicial recognition symbolized an ideological shift, one that the growing patent profession helped to create and was eager to capture. The formalization of patent administration, for example, with the passage of the 1836 Patent Act creating a formal examination system, was more than simply the statutory recognition of previous customary patent practices. It was also the securing of an ideological foundation, one which enhanced the efficiency of the patent system for an emerging class of corporate patentees and secured the livelihood of patent agents.⁸⁶⁹

Many suggest that it was the practice of patent claiming which served as the ideological foundation that secured a stable place for professional patent agents within the patent system. But the patent claim and its elevation to the central role in international patent practice represents a more fundamental underlying ideological grounding. According to Professor Smit, the conceptual core of a patent agent's esoteric knowledge was founded on the ability to define 'units of technology' following the growth of technological innovation in the Industrial Revolution.⁸⁷⁰ From the early 19th century, patent agents "contrived to profit" from the development of patent law and practice, and undertook an active role in "the preservation of a strong legal element [which] ensured that the 'professional' skill of patent experts would remain important in the delineation and defense of units of new technology."⁸⁷¹ By transforming technology into 'units', patent agents contributed to the transformation of invention from an incorporeal force permeating throughout a technical community into a *thing*. It is important to remember that the earliest patent claims helped point judges towards the novel inventive contribution to the state of the art, but hardly served the reified position in patent practice that they do today. Claims slowly ascended to their reified position, as players in the patent system adopted a narrow view of invention as a thing. Thus, it was the ideology of the *thingness* of invention which elevated claims to their prominent position, rather than the other way around.

No ideology perhaps so strongly controls so much of patent law and practice as the ideology of the *thingness* of invention, and its counterpart the 'patents as property' rhetoric. The interview data demonstrate that Anglo-American patent agents use real property analogies

⁸⁶⁹ *ibid* 237.

⁸⁷⁰ (*n* 102) 92.

⁸⁷¹ *ibid* 101.

repeatedly, especially where they struggle to articulate a clear conceptualization of some aspect of patent law and practice. For example, as we saw in Chapter 7, claiming an invention was frequently framed in the language of ‘fences’ and ‘territory’ despite the fact that these terms were so ill-fitting for a process far more rooted in the Classical-era exercise of scientific taxonomy.

This raises an important question- why is the narrative of the thingness of invention such a concern? One might argue that its analogical and epistemic inaccuracy is sufficient response to this question. Despite patent law’s many forms of legal exceptionalism, its confusion in erroneously treating intangible concepts as real things and real things as intangible concepts might be one thing it has in common with legal theory and doctrine across the board.⁸⁷² Others have comprehensively set out many of the reasons why the ideology of the ‘thingness’ of invention is a concern for both patent law doctrine and policy.⁸⁷³ Yet some would highlight the classifying patent rights as property rights is justified, apart from any philosophical debates as to whether inventions are actually things. For example, in response to those who argue that intellectual property is best characterized as public regulation rather than property⁸⁷⁴, Professor Rob Merges argues that intellectual property rights are undoubtedly ‘property’ rights.⁸⁷⁵ According to Merges, intellectual property, such as copyrights and patents, bear the traditional “essence of property”, namely, “to permit individual owners to decide how to use or deploy an asset.”⁸⁷⁶ This extends beyond private rights of exclusion to include discretionary rights to transfer intellectual assets, as well as the discretion to choose to waive enforcement of one’s rights.⁸⁷⁷ While patents rights require a government grant of approval in order to come into existence, Merges highlights that this is no different than other forms property which depend on forms of government approval before coming into existence. Subjecting private utilization of

⁸⁷² Michael J. Madison, ‘Law as Design: Objects, Concepts and Digital Things’ (2005) 56 Case Western Reserve Law Review 381, 384: ‘real’ things and ‘legal’ things are increasingly blended. The authority of the real thing and the authority of the legal thing overlap to the point of being indistinguishable.”

⁸⁷³ See for example David Vaver, ‘Intellectual Property: The State of the Art’ (2001) 32 Victoria U Wellington L Rev 1, 13.

⁸⁷⁴ See for example Mark A Lemley, ‘Taking the Regulatory Nature of IP Seriously Response’ (2013) 92 Texas Law Review See Also 107; Mark A Lemley, ‘The Regulatory Turn in IP Bureaucracy Unbound: Can Limited Government and the Administrative State Co-Exist’ (2013) 36 Harvard Journal of Law & Public Policy 109.

⁸⁷⁵ Robert P Merges (n 571).

⁸⁷⁶ *ibid* 61.

⁸⁷⁷ *ibid* 62.

assets to certain government processes is far different from “requiring government permission to do things that might affect the general public welfare” which is a key distinction between property and regulation.⁸⁷⁸

Professor Merges only briefly glances at one of the major concerns of those arguing for a ‘regulatory’ view of patents, namely, the fear that the ‘property’ label will generate an absolutist view of rights over information and knowledge.⁸⁷⁹ Merges states that “these worriers are generally concerned that the image of fee simple absolute in land will blind people to the subtle requirements and limitations of property rights in other kinds of assets”, a concern he dismisses as “a baseless fear”.⁸⁸⁰ Merges views this concern through the lens of the potential ‘chilling effect’ that fear of intellectual property trespass resulting from ‘absolutism’ might cause, which he dismisses by highlighting the abundance of “implied norms and limitations concerning permitted activit[ies]” in contexts involving real, personal and intellectual property.⁸⁸¹

However, highlighting that ‘property absolutism’ might be an overblown fear does not address why it is *necessary* to label patents for inventions as ‘property’ at all and to draw comparisons to other forms of property rights. To reframe this question, what public benefit does the property narrative serve? As Professor David Vaver states, intellectual property debates involve a weighing and balancing of public and private interests in furtherance of a greater public good, and “throwing property onto the scales contributes nothing to this balancing exercise” given that “it unfairly tends to bias the process in favour of protection, at the expense

⁸⁷⁸ *ibid* 81.

⁸⁷⁹ See for example *Is Intellectual Property, Property: A Debate Between Mark Lemley & Richard Epstein* s 34:20 <https://www.youtube.com/watch?v=H-fjKcN6_9M&feature=youtu.be> accessed 14 February 2020 wherein Mark Lemley states that ‘calling [IP] property makes everyone’s mindset go to land. It makes everyone’s mindset go to the despotic dominion. It makes us think injunctions should be mandatory and these rights should be quite broad.’

⁸⁸⁰ (n 571) 81.

⁸⁸¹ *ibid*. Merges uses the analogy of personal property rights, suggesting that labelling something as ‘property’ does not automatically carry over ‘fee simple’ concepts of trespass: “Do we worry that the fee simple concept carries over to ownership of personal property like a car? Not really. An ambitious would-be pet sitter who puts a business card on a car windshield while the owner is in a store does not worry about the strict law of trespass that follows from the label of property. The would-be pet sitter knows that this type of asset, a car, in this location, a parking lot, comes with implied norms and limitations concerning permitted activity. The same with a backpack that someone is about to leave behind as they exit a subway car. The helpful stranger who picks it up and hands it to its owner does not worry about licenses and permissions. The property rights in respect of the backpack in that situation are recognized to have implied features that make them different from fee simple absolute in land.”; However, see David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (n 592) 13: ‘To compare the rights someone has in a manuscript or a trade-mark with those he has in an automobile or a piece of land is an exercise in contrast more than anything else.’

of other values.”⁸⁸² Furthermore, Merges’ ‘trespass’ view of intellectual property absolutism may underestimate law’s meaning making effect.⁸⁸³ Even for legal scholars, traditional conceptions overlook the social dimension of property, perceiving property entirely through the lens of a bundle of legal rights “rather than the social and relational dimensions of communicative participation” in property systems.⁸⁸⁴ Apart from the customs and norms of innovation communities themselves, this “conversation and circulation” within the patent system as an institution is central to the technological ‘progress’, however defined, that is the objective of patent rights.⁸⁸⁵ It may be the case that the ‘thingness’ of invention narrative has managed to persist because of the fact that most members of the public use thingness generally as a “convenient referen[t]... for much more complex relationships” in order “to fulfill their duties of avoidance.”⁸⁸⁶ Thus, thingness, and its counterpart property narratives, may only serve to collapse a complex network of social relationships, technological goals and innovation outcomes into a simple ‘go’ or ‘no-go’ trespass perspective of the patent system.

With respect to the relationship of thingness of invention and patent agency, as the historical analysis of Chapter 3 demonstrated, the early days of the modern patent system was an era where ideological justifications and narratives were largely created and deployed by professional patent agents and lawyers to justify and legitimate a system and institutions in which they were prominent commercial actors. In short order, these narratives became self-fulfilling, even though they were originally highly contested and rested on weak empirical foundations. Even today, the predominant rationale for patent protection – the economic incentive theory – remains hotly debated. Some studies suggest that few of the players within the patent system “really believ[e] the incentive story in its pure form”, rather, much like the ‘patents

⁸⁸² David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-Marks* (n 592) 14. Thus, Vaver concludes that ‘Where a particular line should be drawn can certainly not be answered by circularities like “intellectual property is property” or “ownership is ownership is ownership.”’; See also David Vaver, ‘Intervention in Patent Law’ (n 531) 300 wherein Vaver highlights the EPO’s increasing tendency to expand patentable subject matter into previously prohibited grounds as a result of crafty patent drafting skills. Here, Vaver states that property rights rhetoric, which patents offices (such as the EPO) use to justify their mission of ‘granting patents’ only muddies the waters and allows patent offices to be duped by the elevation of claim form over substance: “The use of property language here stultifies rather than advances clear thinking”.

⁸⁸³ For a discussion of law, narratives and meaning creation, see Robert M. Cover, ‘Nomos and Narrative’ (1983) 97 Harv L Rev 4.

⁸⁸⁴ Jessica Reyman (n 35) 23.

⁸⁸⁵ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58) 147–8.

⁸⁸⁶ Clarisa Long, ‘Information Costs in Patent and Copyright’ (2004) 90 Virginia Law Review 465, 540.

as land’ analogy it serves as a “useful heuristic” for legal purposes.⁸⁸⁷ Accordingly, these ideologies and the institutions upon which they are founded often become social self-fulfilling prophecies- “[n]ot only do institutional acts depend on individual choices; those choices are rendered meaningful and available because of the institutions themselves.”⁸⁸⁸ At one time, professional patent agency was a key player in deploying and subsequently reinforcing ideologies that animated many aspects of patent administration going forward. As we shall see under Chapter 12, as professional patent agency moves into new institutional spaces within the changing landscape of our modern innovation economy, it carries with it a property narrative that creates significant risks that certain meanings attributed to real property discourse will begin to shape how future generations of technologists and innovators view innovation and invention.

b. The Thingness of Invention, The Thingness of Professionalized Patent Agency and the Thingness of Enablement - Enablement as the Lodestone for Agency in the Patent System

i. *The Thingness of Invention and the Transition from Democratized Enablement to Thingness of Agency*

From the perspective of legal doctrine, the thingness of invention did not always have such a tight grip on the imagination of the judiciary. Seminal early 20th Century Anglo-American patent judgments strongly emphasized the metaphysical nature of invention.⁸⁸⁹ The judges fully appreciated that an invention is intangible useful knowledge, and the patent is disclosure of said knowledge.⁸⁹⁰ An invention is an enabling of a skilled artisan to implement practical knowledge. To put it simply, an invention is “information as to what to make or do”.⁸⁹¹ These statements, put forth with such elegant simplicity, are the alpha and omega of invention and patent law. Yet

⁸⁸⁷ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58) 15.

⁸⁸⁸ *ibid* 13–4.

⁸⁸⁹ *Barret v Hall* (1818) 2 F Cas 914 (United States Circuit Court for the District of Massachusetts); For a more recent comment on the metaphysics of invention, see *Mueller Brass Co. v. Reading Industries, Inc.* (n 565) 1372, wherein the court refers to resolution of joint inventorship disputes as ‘one of the muddiest concepts in the muddy metaphysics of the patent law.’

⁸⁹⁰ *Smith v Nicholls* (1874) 21 Wall 118 (US Sup Ct): ‘A patentable invention is a mental result... The machine, process or product is but its material reflex and embodiment.’

⁸⁹¹ *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2006] EWCA Civ 1371 [32].

somehow, such simplicity continues to obfuscate as much as it clarifies. The resulting confusion cuts to the heart of patent agency and its effect on shaping patent practice.

As we have seen, for much of the 20th Century, the intention of German patent law and practice was fully to embody the principle that an invention is a technical teaching and that a patent is a teaching document written and read by those with a practical interest in such knowledge. German patent doctrine was designed to ensure that patent agency remained true to these principles, and that agency itself remained, as much as practically possible, embedded within the technical community. Patent examination was rigorously conducted by highly-skilled patent examiners and patent doctrines were designed to reflect the principle that a patent which survived such a demanding examination was entitled to a considerable level of deference. Even court processes largely attempted to embody this ideal. Expert evidence, when relevant and needed, is acquired from an independent third-party expert whose opinion is highly regarded and often influential on the outcome of interpretive questions.⁸⁹² This expert opinion is accepted as evidencing how a real skilled artisan would read and understand the meaning of a claimed technical teaching. Litigation is undertaken by a lawyer and a patent agent together, the former an expert in court procedure and the latter an expert in patent law. Although the agent is trained in law, the interview data largely confirm what German patent experts have long recognized, that the German patent agent “in his basic way of thinking and way of speech, [remains] a scientist or technologist, even if his knowledge of, and ability to apply, the relevant legal norms of civil law, the code of civil procedure or other sections of the law should be no less than that of [a German lawyer].”⁸⁹³ This system, requiring both a lawyer and a professional patent agent to conduct a

⁸⁹² Dr Franz Lederer (n 735) 159, discussing the fact that often, German patent courts need not appoint experts as the judges and their staff have considerable technical expertise.

⁸⁹³ *ibid* 157.

trial together, before technically-trained judges who rely on independent expert evidence when needed, attempts to ensure that the entire process does not become captured by an overly legalistic approach.⁸⁹⁴

Anglo-American patent experts throughout the 20th Century have consistently failed to grasp this simple underlying principle that German patent doctrine, practice and procedure has historically strived to achieve the ideal of grounding agency within the technical community. The various forms of German equivalency doctrines of the pre-EPC era were all rooted in a simple premise: claim construction should strive to give effect to what a real skilled artisan would understand to be the meaning of a claimed technical teaching. The question was what does this claimed technical teaching *enable* a skilled person *to do*? This question is the essence of German functionally-oriented claim construction and its corresponding doctrines – interpretation, essentiality, equivalency and the inventive concept – flowed therefrom. An invention is *not a thing*: it is a practical teaching, and the language of claims should correspondingly be understood in a dynamic fashion. Anglo-American patent experts’ attempts to characterize German pre-EPC patent law as a ‘central claiming’ system, or German claim construction as prioritizing the ‘spirit of the invention’ over the claim text, are examples of how truly misunderstood this premise has been.

These misunderstandings tie into some general observations one can make about agency within our modern patent system. To return to Professor Inkster’s observations set out under Chapter 3 regarding the nature of patent agency in the early 19th Century, what we see is that the transformation of the thingness of invention is in many ways inextricably linked to the transformation of *the thingness of agency*. As invention began to take on definite shape as a

⁸⁹⁴ *ibid.*

thing, so too did *agency* transform, from a broad and distributed enabling ability amongst the technical community to utilize the resources of the patent system to command and communicate technological knowledge and put it into practical action, to the professional *agent*. Agency within the early patent system was a dynamic, democratized, enabling force which permeated the inventive community; democratization was itself enabled by the social institution that was the patent system. The professional patent *agent* on the other hand is *a thing*, its boundary defined by a concrete set of rules of competent and ethical practice.

ii. *Backgrounding Structure, Foregrounding Function – Enablement as the Lodestone for Agency in the Patent System*

The transition towards thingness of both invention and agency reflects a general trend in the contemporary patent system, namely, the epistemic tendency to background function in favour of foregrounding structure when viewing technology through the patent system. This tendency manifests itself in various ways including how agency is distributed throughout the patent system. Over the course of the 20th Century, and especially the last three decades, this tendency has intensified through various forms of doctrinal legitimization of professional patent agency including, for example, the downgrading of the realness of the hypothetical skilled person in favour of a hypothetical hybrid-patent agent construct. Long gone are the days where patent treatises aspired to make invention analysis and claiming a comprehensible art to the technical community; so too where judges cast a critical eye on efforts to formalize the nature of inventions into a rigid legal logic instead of a dynamic force more reflective of the context within which inventive knowledge is created and disseminated. As we have seen, judges deciding some of the earliest, seminal patent decisions struggled to grasp the conceptual difference between a machine and a process, viewing such characterizations as abstract, artificial distinctions.

Contemporary patent law now struggles with this same distinction, with both metaphysical and doctrinal consequences hanging in the balance.⁸⁹⁵

These debates revolve around the same theoretical question of whether one should background function and foreground structure, or vice versa. Often what can be meaningfully expressed through nouns can just as meaningfully be expressed through verbs, the only difference being one's disposition towards the world. As Professors Pottage and Sherman have suggested, modern patent practice's imposition of the necessity of characterizing an invention as a machine or a process is often illusory; in many instances a machine is simply an automated process where intangible human agency has been converted and conscribed by and into material agency.⁸⁹⁶ The repercussions of this phenomenon reverberate across patent law doctrine and administration. If one views an invention *not as a thing*, but instead *as a practical technical teaching*, this affects how one views all aspects of the patent system including patent construction, the required content and legal effect of patent disclosure, the nature of patent prosecution and patent administration generally.

If an invention is a practical technical teaching, then a disposition towards a functionally-oriented view of invention is a disposition towards the significance of enablement, for enablement is the empowerment of another individual to undertake a practical action. Furthermore, as we have seen in Chapter 8, a functional orientation is in many ways a technical orientation, as this reflects how real skilled artisans would read and understand a patent specification, and thus, adopting such a perspective grounds the patent system within the

⁸⁹⁵ See Dmitry Karshedt, Mark A. Lemley, and Sean B. Seymore (n 515) 20–21 for a discussion on the challenges of patenting inventions relating to monoclonal antibodies. The nature of these inventions are such that they cannot be claimed other than in highly functional, results oriented language, which poses many unique challenges for questions of interpretation and enablement.

⁸⁹⁶ Alain Pottage and Brad Sherman (n 518) 30–37.

technical community. The more one is predisposed towards functional orientation, the is greater the significance of enablement to one's understanding of patent agency. All aspects of patent doctrine and administration then become infused with the impact of enablement as the driving force behind the patent system. Similarly, the more the patent system moves towards a structural, 'thingness' view of invention – as has been one of the major effects of the professionalization of patent agency – the more the value of enablement diminishes across all aspects of patent doctrine and administration.

Recently, some academics have sought to re-establish patent law's grounding as a technical art by reconceptualizing various patent doctrines within technical, rather than utilitarian, frameworks. For example, Professor Holbrook has proposed a set of patent law doctrines rooted in the practices of the technical community, reimagining the concept of 'possession' of real property in epistemic terms more suitable for the intangible nature of inventions. For example, questions of novelty and obviousness ask whether the public was already in 'possession' of the invention, which, according to Holbrook should be understood as whether the relevant technical community already had cognitive 'possession' of what inventors propose as their inventive teaching. From this perspective, 'possession' revolves around enablement: the question of whether the technical community was already in possession of the invention should be assessed in relation to what the technical community is, or is not, already enabled *to do*. Thus, Professor Holbrook recognizes the significance of enablement as the "lodestone for possession in patent law".⁸⁹⁷

However, although Professor Holbrook emphasizes contemporary theories of possession, in real property contexts or otherwise, as a *communicative* rather than strictly physical act, reliance

⁸⁹⁷ Timothy R. Holbrook (n 273) 1025.

on the notion of possession treads dangerously close to the real property analogies that have long plagued patent law doctrine and practice.⁸⁹⁸ Furthermore, possession risks reinforcing the structural notion of the *thingness* of invention. If one de-emphasizes structure in favour of function, one can reformulate Professor Holbrook's insights in terms of agency rather than possession. By backgrounding structure and foregrounding function, Professor Holbrook's statement can be reframed from 'enablement is the lodestone for possession in patent law' to 'enablement is the lodestone for *agency* in patent law'. This restatement recognizes that enablement and agency are inextricably linked. The more the patent system emphasizes the significance of enabling the technical capacity of the inventive community in the broadest possible sense, the more agency becomes diversified amongst the technical community. As our analysis has demonstrated, the more professionalized patent agency, as a discrete system constituted by individuals, rules and practices separated from the technical community, is legitimized through various institutional mechanisms, the more enablement suffers. Similarly, the more that agency has become professionalized within the patent system, and professionalization has caused agency to take on a quality of thingness in the form of the professional agent as opposed to being diffuse and ubiquitous throughout the technical community, the more too that invention has taken on a quality of thingness. The result is that enablement has also become static.

Most importantly, reframing this statement as 'enablement is the lodestone for agency in patent law' recognizes enablement's significance in the broadest sense possible, beyond just enablement doctrines that are a requirement of a valid grant of patent in jurisdictions around the world. Viewing enablement solely as an isolated doctrine, a single *thing* rather than an animating

⁸⁹⁸ *ibid* 999.

force across the entire patent system as a social institution, is simply a reflection of the influence of the thingness of invention on patent discourse. Instead, enablement should be viewed as the cornerstone of every aspect of patent law and practice. What this means is that the animating force of the patent system, as a social institution comprised not only of rules but also individuals engaged in inter-subjective semantic communication, should be enablement. Rules, in the form of legal doctrines and regulations surrounding patent office administration, should be animated by the guiding principle of enablement. Individuals operating within the patent system, including professional patent agents and patent examiners, should also remain dedicated to enablement as their guiding principle. Furthermore, accepting that enablement is the lodestone of agency in patent law counters the prevailing tendency towards the thingness of invention. As we have seen, enablement was long-infused into all aspects of the German patent system as a social institution. The functionally-oriented approach of German claim construction, which was designed to reflect how real skilled artisans communicate and learn what the claimed technical teaching means, is but one example of enablement as an animating principle.

Enablement as the animating principle of the patent system as a social institution manifests itself in various ways. The standard of patent quality can be reconfigured and reconceived as the extent to which patents actually enable real skilled artisans to interact with the patent system to achieve their technological objectives. This means being able to read and interpret claim text as well as being able to truly utilize patent disclosure for understanding and implementing the technological advance that is the invention. As we shall see in the forthcoming Chapters, placing enablement as the centerpiece of patent law and practice means that patent administration, and specifically, patent prosecution, can and should be aligned with the principles of procedural justice that have taken hold in so many other areas of administration. Contemporary conceptions

of procedural justice focus on the extent to which government administration enables the agency of individual end users to interact directly with the institution in question. All these facts demonstrate that making enablement the cornerstone of agency within the patent system, and accordingly, seeking to *democratize enablement*, also re-grounds the patent system within the technical community it is intended to serve.

When placed within this context, we see that Anglo-American misunderstandings of German patent practice are indicative of a broader phenomenon, namely, patent professionals' failure to appreciate the ramifications of the accelerating separation of professional patent agency from inventive agency, and along with it the diminishing value of democratized enablement throughout the patent system. We have seen many examples of this growing divergence across the preceding Chapters. Across the three examined jurisdictions, during the early-to-mid 20th Century, most patent agents worked in-house. It was not until the relatively recent late 20th Century that a shift occurred, whereby the majority of practicing professional patent agents now work in private firm practice. The profession has grown increasingly insular, and, in many jurisdictions, the training and licensing of professional patent agents have completely failed to remain abreast of professional licensing standards and best practices utilized in other professional fields. Most interviewees viewed patent quality entirely in terms of patent office processes relating to effective prior art searching and administrative expediency. They paid little to no regard as to whether patent quality has any relation to the technical community's ability to interact with the patent system and patent documentation for their own technical activities. Anglo-American patent doctrine has allowed the hypothetical skilled person to transform into a hybrid-patent even though this transformation substantially diverges from developments in other areas of law. We are witnessing an increasing separation of professional patent agency from its

roots within the technical community, and along with it, the decreasing significance of enablement as the core of agency within the patent system.

The foregoing largely summarizes much of the historical, doctrinal, and qualitative analyses set out thus far. In the 19th Century when invention was democratized, so too enablement was democratized across the patent system. The combined forces of professionalization of patent agency and the rise of corporate inventorship have led to the diminishment of democratization of enablement, and with it, all the resulting doctrinal, practical and epistemic repercussions. Thus, the antidote to many of the challenges associated with the professionalization of agency, especially as we move towards the forthcoming era of re-invigorated democratized invention, is to seek once again to democratize enablement within the patent system. What is perhaps most interesting is that the analyses of the previous Chapters demonstrate that this neglect of democratized enablement was not always the case. The ideal of democratized enablement was once the norm. Patent treatises used to associate patent quality with enablement, in the broad sense of both a robust enabling disclosure and a specification which lucidly enabled all skilled artisans, whether the workshop technician or a patent examiner, easily to determine the inventor's precise inventive contribution to the art. The earliest patent agents often embedded themselves within the innovation community as agents of knowledge transfer, whose role was to facilitate and enable technological development within that community. Patent doctrine strived to embody the ideal that patent specifications should not be interpreted from an unnecessarily legalistic perspective unreflective of the way true skilled artisans would understand the communication of inventions. As the analyses of the preceding Chapters have demonstrated, the more courts have abandoned this ideal, the more enablement has suffered.

These instances of divergence all evidence a growing disconnect between patent agency and the agency of the technical community: the more patent agency is professionalized, the more democratizing enablement as a guiding principle of the patent system as a social institution is sacrificed. This divergence may have initially been instigated by the shifting landscape of the invention market in the early 20th Century, when the independent inventor was largely replaced by corporatization of R&D, but many years of disconnect have since created epistemic barriers within the profession and the patent system. The analyses of the preceding Chapters demonstrate that, by and large, professional patent agency is largely oblivious to the existence and ramifications of this epistemic capture of their professional ideals and practice. At best, it seems that most patent professionals take as a given that promoting the perceived ideal of legal certainty, which most presume is achieved through formalized and legitimized practices of professional patent agency, automatically leads to greater enablement within the technological community. At worst, it is an issue that few ever truly turn their mind to. Interviewees rarely identified these concerns when questioned about patent drafting, patent prosecution, patent claim construction, or patent quality.

iii. The Normative Dimensions of Democratized Enablement

The normative question nevertheless remains as to why this shift is a cause for concern. Most patent professionals would suggest that the formalism of professionalized patent agency enhances legal certainty. Patent law has long had to balance public and private interests, drawing a dividing line between the description and the claims. It has even suggested that the description is for technical readers wishing to learn how to make and use the invention after expiry of the patent term, and the claims are for technical rivals and competitors of the patentee while the

patent remains in force.⁸⁹⁹ Many would argue that equating the thingness of invention with a reified view of invention claiming, and equating the thingness of agency with the esoteric practices of professionalized patent agency strikes the appropriate balance of promoting legal certainty for inventors and the public.

However, the discussion set forth in Chapter 8 calls the foregoing assumptions into question. Those who subscribe to the disclosure theory of patents would be apprehensive of formalistic approaches to claim construction, which over-emphasize the importance of claims and de-emphasize the significance of disclosure. However, even those who have abandoned the normative value of robust disclosure in favour of a view of patents as strictly legal documents, and accordingly, emphasize the importance of the formalism professional patent agency as a means of promoting legal certainty, might be misguided in their confidence. It is trite to state that claims, as part of the specification, are interpreted in light of the entire specification including the detailed description and illustrations. As such, drawing a clear line of distinction between description and claims is illusory: it obfuscates the reality of the supposed teaching/notice distinction between the two. Patent doctrine and practice in various jurisdictions now permit patentees to load the description with unnecessary (and sometimes practically useless) information beyond what supports the claimed invention after prosecution.⁹⁰⁰ In many instances, the only useful disclosure is that which relates to and supports the claimed invention: to learn this

⁸⁹⁹ *Ludlow Jute Coy Ltd v James Low and Coy Ltd* (1953) 70:5 RPC 69, 76.

⁹⁰⁰ In the US context, US patent law and practice permit applicants to include prophetic examples which may not have any connection to real examples of the working invention; see for example Janet Freilich, 'Prophetic Patents' (n 484); Janet Freilich and Lisa Larrimore Ouellette (n 484); Janet Freilich, 'The Replicability Crisis in Patent Law' (n 484); Recently, the Canadian Supreme Court struck down the Canadian 'promise doctrine', and in turn, for the time being, permits applicants to disclose any number of unfounded promises pertaining to the supposed utility of the invention- see *AstraZeneca Canada Inc v Apotex Inc* (2017) 1 SCR 943; In the EPO context, the EPO recently instituted a practice requirement which obligated patentees to amend their descriptions to put them in line with the final claims as granted, thereby removing information that is extraneous and irrelevant to the claimed invention. This practice guideline has been struck down due to lack of support in the EPC- see *T 1444/20* (EPO BOA).

new solution, a real skilled person must look through the keyhole of the claims to separate the inventive wheat from the non-inventive chaff. Accordingly, the claims are intrinsically connected to, and cannot be separated from, the disclosure when it comes to the teaching function of patents. If consultation with a professional patent agent is needed for the one, then it is needed for both- which contradicts suggestions that the disclosure (apart from the claims) can provide uninhibited access to the inventive teaching post-patent expiration. The symbiotic relationship between claims and disclosure is such that overemphasizing the formalism of the former comes at the expense of the latter.

Accordingly, there are sound normative reasons based on both disclosure theory and the desire to promote legal certainty why one should be concerned about professional patent agency's effect on enablement. As we shall see in the following Sections, the epistemic capture caused by professional patent agency manifests itself in various forms which derive from the impact on enablement, and correspondingly, touch on other normative concerns.

c. Patent Prosecution and Utilitarian Conceptions of Administrative Justice

As Professor Parthasarathy has pointed out, one of the key indicia of the modern discourse of professional patent agency is the reification of procedural objectivity and fairness in patent administration.⁹⁰¹ Strict rules regarding the administration of patent rights were developed over the course of the late 19th and early 20th Century and applied to patent law's new narrow and carefully crafted domain of certifying inventions.⁹⁰² This rests within a broader epoch of the history of legal formalism and the view of 'law as science', where the domain of law took the form of scientific inquiry and procedure was viewed as a means to the end of good, scientific-

⁹⁰¹ Shobita Parthasarathy (n 16) 16–7.

⁹⁰² *ibid* 78.

based decision-making. Administrative justice was distributional and utilitarian in nature: the overall goal of administration was a body of administrative decisions which in their totality contributed to the overall greater public good. As Chapter 9 demonstrates, the overwhelming majority of interviewees espoused this view of patent prosecution, and ultimately, on a utilitarian calculus, felt comfortable with the fact that patent prosecution was largely incomprehensible to anyone but patent agents: the distributive ends – efficient administration of patent rights– justified the means i.e. creation of a distinct epistemic community of professional patent agents.⁹⁰³

Again, the normative question arises; what should be the guiding principle for the design of patent prosecution processes? Turning again to our historical analysis, we see that there is nothing inevitable about the relationship between professional patent agency and the complexity of patent prosecution. The earliest patent agents were openly hostile towards patent examination generally, and many believed that the inventor should play an intimate part in the patent application process alongside agent and examiner. Long gone are the days where examiner, inventor, and agent are one big happy family. The inventor has now been removed from the family portrait and today's judges and professional patent agents alike are none too keen to see this prodigal child return to the family fold.

If this issue is examined through the normative lens of enablement set out under the preceding Chapter 11.2.b.iii., it aligns with the growing field of legal design, which, as discussed in the forthcoming Chapter 12.6.c., explores questions of how our current legal institutions can and should be (re)designed for the 21st century. Many of our current legal systems developed during long past decades, or even centuries, and we are left with administrative systems that are

⁹⁰³ *ibid* 61: as Professor Parthasarathy states, 'if the system made decisions objectively, than the public would benefit.'

legacies of a by-gone era. Legal design theory explores how new technology and changing perceptions of public administration can spur evolution of these systems to better democratize access to the legal system. When one thinks of professionalization and ‘democratizing’ legal services, the discussion almost inevitably turns to the costs of legal services for individuals of modest means. While efficiency – i.e. making access to public administrative systems easier and more cost-effective for individuals- is a motivating factor behind legal design thinking, it is not the fundamental rationale. Rather, legal design principles are firmly rooted in principles of justice. Administrative justice requires that public administrative systems be designed to *enable* the self-determination and agency of the *individuals* accessing the system, and accordingly, be designed with the end-user, rather than professional intermediaries, firmly in mind.

Patent agency is in many ways a perfect example of a legacy system passed down from a now long gone era. Professional patent agency was born at the turn of the 20th century, with professional patent agents working to streamline patent office practices and helping to usher in an efficient system for the administration of international patent rights. However, through many years of disconnect from the innovation community itself, professional patent agents, as a distinct professional identity, have formed their own epistemic community. This community operates based upon its own customs, conventions and, importantly, its own language- the language of patent specification drafting and prosecution. As professionalization of patent agency became more discrete, the language of patent agency, once grounded within the innovation community itself, has now become disconnected from its roots. The language and administration of the patent system, and specifically, patent prosecution, has become incomprehensible to anyone outside of this epistemic community, and the more this language of patent agency becomes self-legitimizing, the more the epistemic boundary layer that separates

the patent system from the innovation community threatens to generate a crisis of legitimacy between the public and the patent system.

The fact that legal design thinking has swept across most areas of legal administration, and yet, has left the patent system largely untouched, is a testament to patent law's continued exceptionalism and evidence of the epistemic capture at play within the field of patent agency. Once again, we see that the professional patent agency has caused an epistemic rift from enablement, as patent prosecution remains firmly averse to a legal design movement rooted in the guiding principle of enabling individual agency. Most interviewees gave little thought to any possible reforms to make patent prosecution more 'user-friendly', instead presuming that the complexity of patent prosecution is an inevitable result of the necessary workings of the patent system. As we have seen, this is hardly the case. The early days of patent agency ebbed-and-flowed around patent prosecution, with the original patent agents being lukewarm about its necessity and with many agents abandoning prosecution as the core business offering. Patent prosecution established itself as a core practice when the technological environment was such that patent documentation was difficult to acquire and examiners were truly in the best position to assess the state of the art. Patent prosecution, where the onus for searching and chiseling claims down to an adequate scope lay upon examiners, evolved within this context. Patentees required an agent trained in the rules of give-and-take with examiners to navigate this system. However, in today's technological environment, where technological advances are making patent documentation easily accessible, it is certainly questionable whether legacy prosecution practices left over from a bygone era are needed, and whether much of the onus for searching and crafting claims should not be shifted to the applicant. If so, should processes not also develop to make patent prosecution more congruent with modern principles of legal design?

The patent office remains the only public administrative body that has created its own exclusive profession and continues to demand that users *must* pass through the boundary of professional agency in order to access the system. While other legal systems attempt to shift their thinking and development towards being public-facing, rather than ‘lawyer-facing’, the patent system continues to view public engagement exclusively through the lens of professional, rather than individual, patent agency. The same reform movements that are sweeping through other areas of legal administration continue to elude the patent system.

d. The Professional Patent Agent as ‘Teacher’

We are entering a new period of democratized invention, which, in many ways, resembles the period of democratized invention of the late 19th Century. For the first time in almost one hundred years, we are seeing a shift in inventorship and ownership of patents, reversing the decades-old trend of ever-increasing domination of patent filings by large corporate entities in favour of an increasing share of patents filed by small-to-medium enterprises.⁹⁰⁴ University campuses have developed large innovation and entrepreneurship hubs equipped with state of the art manufacturing technologies, software development tools, and the necessary service resources to help students learn and launch innovative endeavours.

Similar to previous studies, the interview data demonstrate that an increasing number of professional patent agents across the world are responding to this shift by focusing on becoming ‘teachers’, engaging with university communities such as on-campus incubators and technology students to teach these groups about patent law and foster new business opportunities.⁹⁰⁵ From the perspective of shifting ideologies and narratives, patent law’s first substantial movement into

⁹⁰⁴ Robert P Merges, *Justifying Intellectual Property* (Harvard University Press 2011).

⁹⁰⁵ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58) 198.

the university space during the early 1980s included a subtle yet significant change in the underlying rationale for patent protection. As the patent system began its march into the university system, it pushed a largely market-incentive based system into areas of basic research, causing two historically separate worlds to converge.⁹⁰⁶ This convergence was made possible by bolstering the rationale that patent protection would lead to more efficient technology transfer from the university and non-profit space to the market. Initiatives such as the US *Bayh-Dole Act* marked a shift from the long-standing ‘incentive to invent’ rationale of patent rights to an ‘incentive to commercialize’ rationale.⁹⁰⁷ Accordingly, not only did norms of the scientific community begin to change, but so too did patent law norms begin to transform in light of these new ideological drivers. The changing norms of the scientific community were not brought about by market forces *per se*, but rather by these changes in patent law norms.⁹⁰⁸

To accommodate these new innovation models, professional patent agency has sought to develop new organizational forms which seek to be embedded within these innovation communities. For example, some jurisdictions have developed ‘patent collectives’ which purport to offer a dizzying array of functions designed to support the startup community. These services include “the provision of IP expertise to high-potential companies at a reduced cost”, “provid[ing] a degree of protection to start-ups and scale-ups and help[ing] them secure freedom to operate”, and assisting “[public research bodies] realize the full value of the IP assets they hold”.⁹⁰⁹ Some members of the professional patent agent community have expressed cautious

⁹⁰⁶ Rebecca S Eisenberg, ‘Proprietary Rights and the Norms of Science in Biotechnology Research’ (1987) 97 Yale Law Journal 177, 231.

⁹⁰⁷ Arti Kaur Rai, ‘Regulating Scientific Research: Intellectual Property Rights and the Norms of Science’ (1999) 94 Northwestern University Law Review 77, 95–7.

⁹⁰⁸ *ibid* 94.

⁹⁰⁹ ‘A Worthwhile Intervention? The Potential Role for a Sovereign Patent Fund in Canada’ (*Centre for International Governance Innovation*) <<https://www.cigionline.org/articles/worthwhile-intervention-potential-role-sovereign-patent-fund-canada>> accessed 14 March 2019.

optimism at the prospect of such initiatives,⁹¹⁰ while others have signalled their outright excitement.⁹¹¹ With no clear vision, direction, purpose, or leadership, it seems that these sorts of initiatives will likely fall back on the default position of contemporary professional patent agency, namely, assisting individuals in prosecuting patent applications.⁹¹² While professional patent agents celebrate these initiatives as innovative efforts to support a changing technology entrepreneurship landscape, the few true academic studies to assess the viability of such ‘patent collectives’ comprehensively have expressed far less enthusiasm, oscillating between confusion as to their necessity⁹¹³, skepticism as to their value⁹¹⁴ and horror at the possibility of transformation into patent assertion entities.⁹¹⁵

Unlike earlier movements to integrate patent law and practice into the university context, which focused on faculty research and inventorship, now, professional patent agency is moving deeper into the university space than ever before. Many aspects of the discourse of professional patent agency have now not only entered the transformative years of student education and training, but with the creation of state-supported programs such as ‘patent collectives’ and

⁹¹⁰ Oonagh Fitzgerald, ‘Understanding the Promise and Peril of Sovereign Patent Funds’ <<https://www.cigionline.org/publications/understanding-promise-and-peril-sovereign-patent-funds>> accessed 14 March 2019.

⁹¹¹ See for example ‘Canada Needs an Innovative Intellectual Property Strategy’ <https://www.theglobeandmail.com/report-on-business/rob-commentary/canada-needs-an-innovative-intellectual-property-strategy/article35065156/?utm_medium=Referrer:+Social+Network++Media&utm_campaign=Shared+Web+Article+Links> accessed 14 March 2019.

⁹¹² See Innovation Government of Canada, ‘Patent Collective Pilot Program - Home’ <<https://www.ic.gc.ca/eic/site/135.nsf/eng/home>> accessed 14 March 2019.

⁹¹³ Jorge Contreras, ‘Considerations Regarding a Canadian Patent Collective’ 2–3 <<https://www.cigionline.org/publications/considerations-regarding-canadian-patent-collective>> accessed 14 March 2019. According to Professor Contreras, acquiring patent portfolios to support commercialization “is not likely to be a practical way forward for the Canadian patent collective”.

⁹¹⁴ *ibid* 4, 6–7.

⁹¹⁵ *ibid* 8: Nowhere is Professor Contreras as dismissive as he is with respect to the possibility of the proposed patent collective becoming an ‘unpleasant’ patent assertion entity, asking whether “this [is] a direction in which Canada wishes to go? ... as a policy matter, it would be a mistake for Canada to facilitate the creation of yet another PAE in a world that is already rife with unproductive patent litigation.”

similar initiatives, have also moved professional patent agency from predominantly private sector endeavours to becoming highly socialized.⁹¹⁶ The concern is that professional patent agency is moving into these uncharted territories and bringing with a significant possibility of conflicting social norms. Few members of the public, including young students, understand the reality of how patents work. As Professor Fisher states, it has always been the case that “the patent grant simply *exists* within the societal mind; like the notion of invention itself, society takes it for granted.”⁹¹⁷ Despite the fact that contemporary standards of patentability ensure that most filed patents applications filed will be granted, many still hold the view that the grant of a patent signifies a level of significant achievement:

“[P]ublic perception of the patent system is not based on an in-depth understanding of its inner-workings...The problems that this lack of understanding causes are magnified when one considers the symbolic power of a patent. For example, it is irrelevant to the majority of the consuming public whether or not a patent will stand up in court. Validity is not their concern. For the general populace, the power of a patent is linked to their misunderstanding of the system and the suggestion of official endorsement that the word ‘patented’ carries with it. In short, the grant adopts totemic value as a *symbol* of power and protection.”⁹¹⁸

⁹¹⁶ Government of Canada (n 912). The guidelines for applicants wishing to form and operate the proposed patent collective requires applicants to explain ‘the advantages of accessing these services through the [patent collective] rather than via private sector service providers.’ ; See also Contreras (n 913) 3, 5 questioning whether a public entity can, could, and should do the work of private sector entities in commercializing university innovation; In Turkey, the government has set up patent office owned corporations to assist individuals with commercialization of technology- see ‘News & Updates | Mete Mercan Patent | Turkish Patent & Trademark Attorneys’ <<http://www.metemercan.com/en/news.html>> accessed 20 September 2021.

⁹¹⁷ Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 61.

⁹¹⁸ *ibid* 92.

Professional patent agency carries this ‘property’ discourse with it into this uncharted territory. The danger with this scenario is what Professor Silbey calls “disruption through instruction”.⁹¹⁹ Here, professional patent agents instruct creators as a way of reshaping their norms in order to ‘channel’ them into the patent system, in an attempt to eliminate any mismatch between these norms.⁹²⁰ Rather than acting as conduit of their clients’ goals and needs, these agents develop and impose their own interpretation of their clients’ needs, which, of course, maintains centrality for the need for patent protection and their own professional services.⁹²¹

Furthermore, critical legal theorists have recognized the dangers associated with the role of ‘lawyer as public educator’, cautioning that “[l]awyers in particular need to be careful of how [they] wield [their] expertise.”⁹²² This is especially the case for those seeking to inspire systemic change within a given social context. According to Professor Dean Spade, “[l]egal training can often make people less rather than more adept at strategizing change because we get overly invested in how systems purport to work”, resulting in situations where legal experts “stop thinking outside of legal solutions to problems, which often means we can only think of ways to slightly tinker with harmful systems, thereby strengthening, stabilizing, and legitimizing them.”⁹²³ This is the hazard in relying on disseminating legal knowledge as a means of empowering end users: dissemination may disempower the public by foreclosing opportunities for change by expanding the status quo. In this sense, teaching disguises as much as it discloses: it normalizes implicit ideologies and value systems and correspondingly making them seem invisible. Given that modern legal systems are adept at “anointing only certain privileged people

⁹¹⁹ Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (n 58) 203–4.

⁹²⁰ *ibid* 203–4, 186.

⁹²¹ *ibid* 203–4.

⁹²² Dean Spade, *Normal Life: Administrative Violence, Critical Trans Politics, & the Limits of Law* (Duke University Press 2015) 105.

⁹²³ *ibid* 106.

to operate as recognized actors within them”, those truly desirous of empowering law’s end users must often seek to “[r]edistribut[e] legal ‘expertise’” rather than simply promote dissemination of legal knowledge.⁹²⁴

In the contemporary university environment, disseminating legal knowledge to promote the benefits of IP protection “could [be] detrimental, to the extent it turns an artist's or inventor's internally motivated activity into one conducted for the copyright or patent prize.”⁹²⁵ This is not to say that patent protection might not be important from a variety of technological, social and commercial perspectives. Rather, in today’s modern university ‘metrics culture’, simple statistics of number of patents filed are used as a proxy for quality of innovation, research and development on university campuses.⁹²⁶ If one were to ask professional patent agents how best to approach on-campus innovation in our modern technological environment, the responses would not likely be surprising: to a hammer, the entire world looks like a nail. If the question to be answered is how universities should adapt education and research to account for emerging forms of “inventive things and behaviour” in an era of rapidly democratizing innovation, then “measuring only patents will necessarily overstate the significance of patents in the answer to the question.”⁹²⁷

This situation is not limited to the major industrial nations. It has taken on an international dimension. As developing countries seek to chart their own path through the new

⁹²⁴ *ibid* 105.

⁹²⁵ Gregory N Mandel, ‘To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity’ (2011) 86 Notre Dame Law Review 1999, 2000. At 2001, Professor Mandel cites a number of empirical studies which suggest that younger people possess a natural perception of intellectual property that tend towards weaker intellectual property, including more of a ‘sharing-culture’ with respect to information technologies.

⁹²⁶ Eva Hemmungs Wirtén, ‘The Patent and the Paper: A Few Thoughts on Late Modern Science and Intellectual Property’ (2015) 7 Culture Unbound 607: ‘It is undeniable that the acceleration in university patenting, the metrics culture in general and the corporatization of higher education is deeply problematic. Patenting is one part of the problem, no doubt.’

⁹²⁷ Jessica Silbey, ‘IP and Ethnography: A Qualitative Research Approach’ (n 72) 4.

21st Century landscape of democratized innovation, they also seek to test how the patent law principles of major industrial nations might be reshaped to serve their own domestic purposes. This new era is also marked by the transition from the emphasis on global IP harmonization through WTO lawmaking through international IP treaties - the predominant approach of the late 20th Century - to a more endogenous, institution building role undertaken by WIPO and international NGOs. This new approach not only opens a space for developing countries to chart their own patent law path consistent with their own needs, it may also help develop new norms which will shape the international patent landscape of the future.⁹²⁸ As Professors Dinwoodie and Dreyfuss suggest, this shift from WTO to WIPO is promising “for it suggests an institutional design that could make the international intellectual property system more responsive to changing needs.”⁹²⁹

Many developing countries are now examining new modalities of patent service offerings, largely housed within institutional settings, and specifically, on university campuses. Several developing countries have, with the assistance of WIPO, established innovative and progressive programs for the delivery of intellectual property services and education. WIPO has assisted in the establishment and development of Technology and Innovation Support Centres (TISCs) on university campuses and research institutes throughout the developing world. These TISCs provide many important and diverse intellectual property related services to both the

⁹²⁸ Graeme B Dinwoodie and Rochelle C Dreyfuss, ‘Designing a Global Intellectual Property System Responsive to Change: The WTO, WIPO, and beyond Intellectual Property in International Perspective: Institute for Intellectual Property & Information Law Symposium’ (2009) 46 *Houston Law Review* 1187, 1190; On constructivism, norm creation and shaping international law generally, see Wissam Aoun, ‘Constructivism, Embedded Liberalism and Anti-Dumping - Canadian Public Interest Inquiry as Case Study of Embedded Liberalism’ (2017) 41 *Canada-United States Law Journal* 18.

⁹²⁹ (n 928) 1193–4.

research community and public at large.⁹³⁰ This has led to suggestions for creating novel, international, university-based technology transfer networks between developed and developing countries.⁹³¹

Although WIPO might support endogenous norm development, and correspondingly, reshaping various aspect of the international intellectual property regime, professional patent agency has the potential to foreclose the possibilities of any such initiatives. For example, WIPO recently launched its Inventor Assistance Program (IAP), which was initially developed to support independent inventors in developing countries through the provision of pro bono patent services.⁹³² However, this program has now shifted to a model focused on having professional patent agents from the major industrial nations train patent agents within these countries to build a network of domestic professional patent agents.⁹³³ In some countries looking to join the global patent community, it appears that the first step towards building a domestic patent system is the development of a regulated patent agent profession trained by professional patent agents from major industrialized nations.⁹³⁴ Accordingly, professionalization of patent agency has already begun to constrain the possibility of experimentation within these jurisdictions.⁹³⁵

⁹³⁰ ‘Technology and Innovation Support Centers’ <<https://www.wipo.int/tisc/en/index.html>> accessed 20 September 2021. Services provided by TISCs include patent information reports, advanced intellectual property education and general intellectual property services. Furthermore, TISCs assist universities with technology/knowledge transfer activities through the provision of patent services and support, and several commentators have highlighted the key role that TISCs may play in supporting knowledge diffusion. See Patent Landscape Reports”, online: (2018) World Intellectual Property Organization, <<http://www.wipo.int/publications/en/series/index.jsp?id=137>>.

⁹³¹ Nefissa Chakroun, ‘Using Technology Transfer Offices to Foster Technological Development: A Proposal Based on a Combination of Articles 66.2 and 67 of the TRIPS Agreement’ 20 J World Intellect Prop 103, 107.

⁹³² ‘Inventor Assistance Program (IAP)’ <<https://www.wipo.int/iap/en/index.html>> accessed 2 February 2019; ‘First Inventor Selected for IAP Support in Ecuador’ <https://www.wipo.int/iap/en/news/2019/news_0001.html> accessed 11 March 2019.

⁹³³ ‘International Seminar on the Role of Pro-Bono in Facilitating Access to the Patent System’ <https://www.wipo.int/meetings/en/details.jsp?meeting_id=41264> accessed 11 March 2019.

⁹³⁴ ‘Morocco: More Professionals Eligible to Offer Pro Bono Services’ <https://www.wipo.int/iap/en/news/2018/news_0005.html> accessed 2 February 2019.

⁹³⁵ Morocco, for example, has recently entered into a validation agreement with the EPO, thereby implementing a number of legislative requirement to bring Moroccan IP law in alignment with EPO standards- see European Patent

While international treaties- mainly the TRIPS Agreement- have harmonized much of the international patent system, patent office examination and administration processes remain areas of considerable domestic flexibility that are the most amenable to experimentation.⁹³⁶ Accordingly, it is in the patent agency space where one might expect to see developing countries experimenting, creating new norms, and working to reshape international patent practice. Furthermore, returning to the normative grounding of enablement, Nefissa Chakroun has demonstrated that many in developing countries do use, or at least seek to use, patent information for incremental innovation purposes.⁹³⁷ Thus, these countries are already grounded in an environment where enablement of the technical community remains one of the major forces animating their use of the patent system. The fact that a form of professional patent agency from the developed world is already quietly taking hold in these countries and potentially stifling promising new initiatives demonstrates that international patent agency under the guise of ‘education’ is in many ways the embodiment of Professor Drahos’ invisible harmonization of the global patent system.

Nothing indicates that the professional patent agents participating in these training programs are anything but well-intentioned. Rather, a lack of knowledge and education within the ranks of

Office, ‘Validation Agreement with Morocco Enters into Force’ <<https://www.epo.org/news-events/news/2015/20150302.html>> accessed 20 September 2021. Despite Morocco being a new-comer to the world of IP and innovation, Morocco has already imposed registrations requirements for practitioners to become registered Moroccan patent attorneys and offer patent services to the public.

⁹³⁶ Peter Drahos, ‘Rethinking the Role of the Patent Office From the Perspective of Responsive Regulation’ in Frederick M. Abbott, Carlos M. Correa, and Peter Drahos (eds), *Emerging Markets and the World Patent Order* (Edward Elgar Publishing Limited 2013) 85; See also John R. Thomas, ‘The Responsibility of the Rulemaker: Comparative Approaches to Patent Administration Reform Symposium - Patent System Reform’ (2002) 17 Berkeley Technology Law Journal 727, 746 wherein Thomas argues that TRIPS permits distinguishing and treating patent applicants unequally for patent quality purposes. Furthermore, Thomas points out that patent offices have flexibility to require specific claim formats for different types of inventions (at 756) and require applicants to characterize the invention based on prior art search results prior to formal examination (at 757).

⁹³⁷ See for example Nefissa Chakroun, *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (n 796); see also Lisa Larrimore Ouellette, ‘Do Patents Disclose Useful Information?’ (n 795) wherein Professor Ouellette suggests that many independent inventors and small-to-medium enterprises also utilize knowledge disclosed through patents for innovation purposes.

the profession seems to be a major contributor to these epistemic blind-spots. For example, there is a robust body of scholarship warning against the dangers of ‘legal clinical colonialism’: i.e. well-intentioned legal trainers, wishing to empower domestic lawyers through education and legal capacity building, inadvertently cause more harm than good by presuming that legal norms and institutions developed in the Western world and replicated in the developing world will automatically achieve beneficial social outcomes.⁹³⁸ The potential dangers associated with such practices have become common in training and education in most areas of legal practice and are reinforced in the clinical training of students and legal educators. The fact that these concerns have failed to register within international patent agency is testament to the epistemic capture that has become engrained within the profession.

e. Training & Education

Frequently, legal service providers “undeniably” believe that law is a far better tool than other social norms and institutions to promote all social goals, and their ‘products’ should therefore be front and centre in the equation.⁹³⁹ To many practitioners, law is certainty, and certainty is the antidote to most of society’s ailments. As legal practitioners purport to sell certainty, then they become key players in the betterment of various social problems. However, critical legal theorists have long decried that such proclamations of legal certainty frequently amount to nothing more than “legal fantasy”.⁹⁴⁰ Much like economic arguments justifying the

⁹³⁸ It appears that the term ‘clinical colonialism’ was first used in Richard W. Voss and others, ‘Tribal and Shamanic-Based Social Work Practice: A Lakota Perspective.’ (1999) 44 228, 233 wherein the authors discussed the potential dangers in assuming that certain practices held as being virtuous within the field of Western social work practices might actually be considered disrespectful in certain Indigenous cultures. Accordingly, a lack of cultural competency on the part of clinical workers may undermine their own intentions by inadvertently reinforcing colonial sentiments. The cultural awareness associated with clinical colonialism has since been implemented in other clinical fields, including medicine and law.

⁹³⁹ Gordon (n 26) 78–9.

⁹⁴⁰ *ibid.*

necessity of a patent system, arguments in favour of the necessity of ‘legal products’ to ensure favourable social outcomes often suffer from a plethora of unresolvable indeterminacy issues.⁹⁴¹

Accordingly, material self-interest is not necessarily always the dominant driving force behind legal service providers’ promotion of their own services. Legal training often reinforces beliefs regarding the primacy of legal solutions to social issues and the corresponding necessity of specific forms of legal services. As the interview data demonstrate, professional patent agent training in all the examined jurisdictions seems to lack opportunities for critical engagement and reflection regarding the role of law in society generally, and the patent system as a sociolegal construct specifically. The US and Germany may be changing in this regard- for the better in the case of the former, and for the worse in the case of the latter. In the US, most practitioners complete education at an accredited US law school, where legal theory and progressive ideas about the future of legal practice often form a substantial part of the curriculum. The German system, while still incorporating a significant legal education aspect, has over the last several decades consistently reduced the duration and scope of the training program. As the interview data have revealed, many German practitioners are disappointed about the reduction in time spent learning about foundational legal principles, such as Constitutional Law and Jurisprudence, and the dwindling lack of perspective amongst the young in the profession that it has caused.

The UK patent agent training and qualification process has created challenges that are unique to the UK profession. Training has created a situation where conflicted moral views regarding the patent system’s social role are collapsed into devotion to contemporary patent procedure. Members of the UK profession are deeply ethical individuals who struggle with questions about

⁹⁴¹ *ibid* 80.

the role that the law, particularly, patent law, plays in society but have few opportunities to engage with these discussions.

As several jurisdictions, most notably the UK, are currently exploring possibilities for professional patent agent licensing reform, it is important that any such reviews keep these ethical issues in mind in order to create a form of patent agency that resists stagnation in all its forms- theoretical, ethical, and practical. However, it is also important to keep in mind Professor Guagnini's insight set out in Chapter 1, namely, that patent agent regulation is about far more than simply regulating patent professionals: it serves as the gate-keeper to the patent system. The creation of 'professional' patent agents through official licensing standards not only *professionalizes* patent agents but extends and impacts patterns of patent acquisition procedures, patent specification formats, and patent practice regulations generally. Maintaining pre-existing training and examination structures both regulates professional patent agency and also serves to maintain existing patent processes and procedures: this correspondingly minimizes the possibility of broader reforms aimed at modernizing the patent system. Professional patent agent regulators should consider implementing regulatory forms which create open institutional frameworks and generate opportunities for reform of not only the patent agent profession, but also the general administration of the patent system.

Licensing reform must also embrace opportunities for reform of patent system administration in line with the emerging principles of legal design and administrative justice discussed under forthcoming Chapter 12. Questions surrounding licensing examination format and content as a regulatory intervention cannot, and should not, be separated from broader questions surrounding how the patent system should be (re)designed to modernize patent office processes and procedures in light of developments in emerging legal technologies and the principles of

administrative justice. The interview data from UK patent agents cast considerable light on these points. More than any other interviewees, UK patent agents without any additional legal training were the most likely to respond to questions pertaining to patent prosecution by what can best be described as an aloof disconnect from any consideration of reform. Given that many of these individuals enter the profession directly from technical fields, often directly from university programs, and are inculcated into the current system of patent agent training, they appear to take things as given and are afforded little opportunity to reflect critically on other possible options.

3. CONCLUSIONS

If we return to the question posed earlier, loosely framed in the terminology used by Professor Drahos, we must ask ourselves what does professional patent agency make ‘invisible’ within the discourse of patent practice? This Chapter has argued that the short answer to this is enablement.

Agency and enablement in the patent system are two sides of the same coin. The history of patent agency has in many ways been the story of a coin flip: when the coin hits the table with one side facing up, the other side is facing down and away from sight. With professionalized patent agency, the more agency is professionalized with the patent system, the more that enablement as an ideology and organizing principle becomes hidden. The more that enablement as an ideology and organizing principle is enhanced and democratized, the professionalized patent agent, as a discrete entity formed by rules of patent drafting and prosecution practice, fades into the background.

Today, patent agency has become more professionalized than ever in the history of the patent system. The customary practices of professional patent agents have been judicially legitimized. Invention claiming is a language that only professional patent agents speak. Patent prosecution

processes have become so arcane and convoluted that no one other than professional patent agents can possibly hope to navigate them. We have seen the effect that the hyper-professionalization of patent agency has had on many aspects of patent law and practice, including claim construction, patent quality, and patent prosecution. Most importantly, professionalized patent agency diminishes the significance of enablement as an ideology, as a legal principle, and as a key indicator of quality in patent disclosure and administrative processes.

However, as the following Chapter 12 will demonstrate, the coming storm of technological, economic, and administrative disruption ushered in by the Fourth Industrial Revolution is beginning to tear down the walls of professionalization across various professional fields. Patent law's exceptionalism has thus far allowed patent agency to remain relatively insulated from this storm. As the winds gather strength, it remains to be seen whether the coin will flip again, and whether professionalized patent agency may once again give way to democratized enablement and agency, along with its potential to provide the reform and evolution our current patent system sorely needs.

CHAPTER 12: THE FUTURE OF PATENT AGENCY

1. INTRODUCTION

[I]n the year 2091 there will be no patent agents. The term will be outdated and misdescriptive. Practitioners will instead be styled Registered Innovation Practitioners. There will be no sole practitioners, or hardly any. Private practice will centre upon two or three large firms offering specialist services in the fields of specification drafting, patent filing, search and translation services. There will be another two or three big firms offering innovation marketing services, including patent filing, marketing consultancy, legal and financial services..... In-house practitioners will virtually cease to exist... By 2091 the only in-house patent personnel will be those persons designated to liaise between their company and the mega-firm(s) with which the company deals... So the message from the crystal ball is clear. Patent agents will have to adapt, to respond flexibly to the challenges of the future, if they are not to become, along with the Deputy Chaff-Wax and the Clerk of the Hanaper, curiosities in the side-show of Patent history.⁹⁴²

The foregoing is Professor Jeremy Phillips' prediction, stated in 1991, at the centennial anniversary celebration of the Chartered Institute of Patent Agents. Phillips predicted that private patent agency practice would eventually revolve around just a handful of very large firms specializing in specification drafting, patent filing, searching and translation and most other firms would need to transition more towards 'innovation' consulting (including marketing, general legal guidance and financing) to survive.⁹⁴³ Patent offices would consolidate into larger, regional institutions. In-house IP departments would continue to get smaller and across in-house practice, private practice and the patent office, technology would revolutionize patent prosecution- "Searches will become vastly quicker and easier as both software and hardware continue to

⁹⁴² Jeremy Phillips, 'The Patent System - A Patent Lawyer's View', *Public Lecture Series in Honour of the Centenary of the Chartered Institute of Patent Agents (Autumn Term 1991)* (Queen Mary and Westfield College, Intellectual Property Law Unit 1992) 16–17.

⁹⁴³ *ibid* 16–7.

improve and as better and more consistent and accurate use is made of the international classification system. Patent specifications and claims will be translated by computer: indeed, they may even be drafted by computer.”⁹⁴⁴ We are nowhere near 2091, but much of Phillips’ predictions have become, or are becoming, reality.

For almost 200 years, individuals have been proclaiming the eminent downfall of the patent agent profession, and yet still, after all this time, the profession remains a crucial part of the patent system. Phillips’ prediction, however, is different; it predicts not an outright extinction, but rather a *transformation*. The nature of the profession’s work will change, and with it will come a new form of intermediary, what he calls the ‘innovation’ consultant. In many ways, as Phillips looks forward, he is actually looking to the past. The ‘innovation consultant’ of the future is the ‘invention agent’ of the early era of democratized invention. As Professors Sokoloff and Lamoreaux have demonstrated, patent agency during the late 19th and early 20th Century era of democratized invention was largely regional. It operated much like today’s technology transfer offices, where tight-knit and trusted networks formed to support inventors in creating and marketing their technologies.⁹⁴⁵ After one hundred years of large corporate dominance of the invention market, the tide is now slowly turning back towards independent and small-to-medium enterprise contributing a significant share of inventorship.⁹⁴⁶ Much like Professor Phillips, Professors Sokoloff and Lamoreaux predicted that patent agency will respond by returning to the past, with trusted ‘innovation agent’ advisors helping independent inventors market their technology:

⁹⁴⁴ *ibid.*

⁹⁴⁵ Kenneth L. Sokoloff and Naomi R. Lamoreaux (n 133) 33.

⁹⁴⁶ *ibid* 34.

Inventors looking for buyers or licensees for their intellectual property or for venture capital for new enterprises face many of the same information problems in the early twenty-first century as their predecessors did a hundred years before, and they are solving them in much the same way—by forming bonds with well-connected professionals whose judgment they trust. The resulting networks are still remarkably local in character.⁹⁴⁷

This form of patent agency is susceptible to considerable abuse by those ‘agents’ looking to prey on naïve and unsuspecting inventors for their own personal gain, and we should therefore be apprehensive about diving headfirst into these forms of market activity. However, the stakes may be higher in today’s era of professionalized patent agency than they were a century ago. Professional patent agents the world over have dedicated a century of successful effort to extinguishing their predecessor ‘invention agents’ who operated within a landscape of democratized enablement. As we have seen in the preceding Chapters, the discourse of professional patent agency has influenced all aspects of patent law, most notably manifesting itself in extinguishing the significance of enablement across the patent system. If, as has been argued in the preceding chapters and will be elaborated in further detail in this Chapter, reclaiming enablement as a guiding principle of the patent system is a desirable normative goal, may be manifested in the following ways:

- Regulation: the principle objective of regulation of patent agency should be democratized enablement i.e. to what extent does the patent system enable the actual technical community to use the patent system for technical ends
- Claim construction: claim construction should revolve around the question of what does a claimed invention enable skilled artisans to do; and

⁹⁴⁷ *ibid* 35.

- Patent quality: the question of patent quality should be refocused towards democratized enablement; a quality patent system, and correspondingly, patent document, is one which enables real skilled artisans to use the patent system for technical purposes (interpreting scope of protection, using patents for technical activities, and understanding patent prosecution).

To the extent that professionalized patent agents remain both a significant material interest group and epistemic community within the patent system, attempts to transform models of patent agency towards enhancing enablement may become distorted through the lens of professionalized patent agency. Thus, as this Chapter will demonstrate, if the objective is to promote democratized enablement in line with the above-referenced goals, when keeping an eye on the future of patent agency, we must consider implementing initiatives to gradually dismantle the boundary of professionalized agency. This boundary surrounds the patent system and reinforces the discourse of professionalized patent agency which has served to background democratized enablement. The following will detail recommendations on how this goal might be achieved.

2. THE PROFESSIONAL PATENT AGENT – THE OLDEST YOUNG PROFESSION IN THE WORLD....

Professor Rochelle Dreyfuss questions the ways in which we may go about changing “the culture of the Federal Circuit”, the appeals court responsible for much of the recent development of US patent law.⁹⁴⁸ According to Dreyfuss, much of the CAFC’s emphasis on unyielding formalism is due to two inter-related phenomena- the youth and insularity of both the CAFC as a

⁹⁴⁸ Rochelle Cooper Dreyfuss, ‘In Search of Institutional Identity: The Federal Circuit Comes of Age’ (2008) 23 Berkeley Technology Law Journal 787, 824.

judicial institution and its cadre of judges and practitioners. Professor Dreyfuss suggests that patience and diversity are remedies for these maladies:

After all, the court is very young-in its entire history, it has had only one complete turnover of judges [at the time of writing]. The first-generation jurists were right to establish the bona fides of the court and avoid attention.... It may be particularly difficult for subsequent appointees to internalize the change in the court's status. Because their mentors were all imbued with the need to build public support, new judges are inculcated with the same role orientation. Thus, just as it is said to take three generations to assimilate to a new country, it could take a third generation of jurists to assimilate the Federal Circuit to the general norms of the federal judiciary... But exogenous forces can be brought to bear to help the maturation process along. Patent law is now a popular course and the interest has spread to upscale law schools. With an increasingly sophisticated bar, briefing should change, with or without the court's approval, and reinforce inclinations of the newer judges to push the court towards more accurate and higher quality decision-making. Of course, some practitioners will try to protect the status quo: after all, they have already put in the time to learn the current rules and have found success operating under them. But as newcomers enter the profession and others see the pitfalls in trying to change patent law legislatively, the bar may find the courage to ignore the court's admonitions and write the kind of briefs that lead to well-crafted legal doctrine.⁹⁴⁹

The above-referenced passage, with some minor modifications, could apply with equal force to the field of patent agency. Some might be bewildered by such a suggestion- how can this

⁹⁴⁹ *ibid* 823-4.

statement pertaining to a relatively young appeal court apply to a profession with roots extending back almost two-hundred years? In this regard, the patent agent profession is a paradox. It is one of the oldest professions and yet simultaneously one of the youngest. It has only been a generation since the profession has really started to take shape and move forward from being looked down upon by trial lawyers, solicitors and the judiciary to stand at the forefront of legal service providers. Although patents themselves have existed in social consciousness for hundreds of years, they have simply ‘been there’, with empirical analyses of patenting’s economic effects has taken off only in recent years.⁹⁵⁰ It should come as no surprise then that the patent agent profession has managed to evade any serious social, economic, political or academic scrutiny.

The professional patent agent emerged from a confluence of historical circumstances. The rise of documentary agency, dedicated to neoclassical scientific formalism, as well as a growing professional interest by early patent agents and their patent examiner counterparts to carve out an exclusive space of professional activity, led to the paramountcy of patent claims and the ‘thingness’ of invention. Over the course of the early-to-mid 20th century, economic efficiency secured the place of professional patent agents within the innovation distribution channel. Technology for the creation and navigation of patent documents was still in its infancy and so ensured a unique professional role for the patent agent. The patent system had not yet reached the late 20th century biotechnology boom, and the professional patent agent, much like the patent system itself, remained on the fringes of legal practice. Professional patent agents could engage in the work necessary to shape the domain of international patent practice, thereby securing their own professional space within it. Absent any serious political attention, the customary practices of patent agents remained subject only to adjustment forced by judicial

⁹⁵⁰ Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (n 120) 61.

intervention. These interventions were nevertheless few and far between and touched on more fundamental legal questions such as patentable subject matter.

Things began to change in the late 20th century. The biotechnology boom put patent law front and center in international trade, along with greater international harmonization through treaties. New specialized patent institutions, such as the CAFC and the EPO Board of Appeals, began to play a greater judicial role in adjudicating patent disputes and creating substantive patent jurisprudence. For almost a century, professional patent agency toiled in obscurity compared to other legal professions and was able to leverage that obscurity into a protective form of professional insularity. Somewhat like Professor Dreyfuss' views with respect to the CAFC, early professional patent agents had to build public support for their craft, which they did through carefully creating a strict set of rules for practice. Slowly, as new agents replaced the old, the new accepted the prior practices as received wisdom. They rarely questioned the rationales for invocation of those practices and had little appreciation for the history that gave rise to them. Over the last three decades, the profession has found itself on the leading edge of legal practice and has found itself having to adjust to new developments in technology, professional service delivery, and education/training models.⁹⁵¹

The “practices and rules” constructed by patent agents and patent offices have “been designed to advance fundamental goals of claim construction law- namely, efficiency, the public notice function of claims, and the certainty that comes from clarity.”⁹⁵² Although this work has created epistemic barriers, one cannot deny that it has also succeeded in furthering these objectives. The challenge for the professional patent agent is that these successes may also be

⁹⁵¹ For an interesting discussion surrounding the relatively recent ascendancy of the professional patent agent from the obscure edges of legal practice to one of most high-demand fields, see Lynn Mather (n 63).

⁹⁵² John M. Golden (n 505) 381.

their undoing. As we shall see in the following Sections, with advances in technology and new ideas regarding the delivery of professional services generally, these ‘practices and rules’ might soon become systematized and standardized, leaving the future role of professionalized patent agency up in the air. Thus, Professor Dreyfuss’ recommendation that patience and diversity are the means to break down epistemic barriers in the patent profession might already be underway for professional patent agency. It may be only a matter of time before changes in technology, economic environment, and new legal ideologies begin pressuring this epistemic barrier. However, the question of diversity remains; how can the barrier itself be chipped away in order to allow a diversity of viewpoints and perspectives to enter into and potentially transform the nature of agency within the patent system?

3. DEMOCRATIZATION OF INVENTION, DEMOCRATIZATION OF PATENT AGENCY AND THE PATENT DISCOURSE

The patent system has served many objectives- “systems of intellectual property right, mechanisms of technology transfer and blockage and information systems, and at different times and places succeeded or failed on each of these levels.”⁹⁵³ In its earliest days, broad dissemination of enabling knowledge was a central feature of the patent system and practice, yet in recent years, it is doubtful whether this is a key objective (if it is achieving this objective at all).⁹⁵⁴ These changes are the result of fluctuating socioeconomic conditions and technological advance. But socioeconomic changes and technological advance also have a profound impact on patent agency, which in turn impacts the patent system itself.

⁹⁵³ Ian Inkster, ‘Patent Agency: Problems and Perspectives’ in Ian Inkster (ed), *History of Technology*, vol 31 (Bloomsbury Publishing PLC 2012) 93.

⁹⁵⁴ See for example Alan Devlin, ‘The Misunderstood Function of Disclosure in Patent Law’ (2009) 23 *Harvard Journal of Law & Technology* 401, 403; See also Mark A Lemley, ‘The Myth of the Sole Inventor’ (2011) 110 *Michigan Law Review* 709, 745.

We are now entering a new Industrial Revolution, sometimes referred to as the Fourth Industrial Revolution. Its driving forces are democratization in access to information, access to means of production (such as 3D printing), access to source material (such as file sharing) and ease of automation through AI. The on-campus hackathons and maker-spaces of the current industrial revolution resemble the artisanal yards and engineering shops of the first industrial revolution. Here, education, experimentation, ‘tinkering’, and invention intermingle, each equally important to creating a new atmosphere in this revolution. We are seeing a return to the democratization of invention.

During the first industrial revolution, patent agency and the patent narrative organized themselves around the culture of democratized invention. The seeds of the patent narrative grew from the inventive spirit and liberty of the individual inventor, and patent agency served this humble master. As Professor Inkster states, “patent agency owed little obligation to elites, whether political or cultural.”⁹⁵⁵ However, the rise of corporate domination over invention and patenting, internationalization of the patent system, professionalization as a mechanism of organizing labour in the delivery of many services, and the emergence of patent agents as a distinct interest group have all contributed to the disconnect between the patent system and the individual inventor. Patent agency’s growing elitism caused the slow demise of the democratization of enablement within the patent system.

The centuries-old stability in our patent system may lead us to believe that the core elements upon which it currently rests are somehow mandatory and permanent. However, as demonstrated herein, much of the current system was developed during an era of “significant change, experimentation, and development in the nature of patent rights, the patent system’s

⁹⁵⁵ Ian Inkster (n 953) 91.

institutional structure, and the basic doctrines of patent law.”⁹⁵⁶ Thus, according to Professor Gregory Reilly, “recognizing that the roots of our patent system lie in the 19th century can provide useful insights into on-going debates about whether, and to what extent, long-standing foundational aspects of the patent system should be altered.”⁹⁵⁷ The technological challenges likely to result from the new industrial revolution will pose new challenges to our patent system, and the question of what foundational aspects require altering will also likely follow.

Some have begun to question whether essential aspects of substantive patent law, such as term and scope of protection and standard of obviousness, require substantial revision in light of disruptive technologies such as 3D printing and AI driven invention.⁹⁵⁸ While we should exercise caution in making significant changes that might “disrupt the settled expectations of the inventing community”⁹⁵⁹, if the nature of the inventive community itself is being disrupted, change may be necessary.

In recent years, the effect of patent law administration on the development of substantive patent law has attracted academic inquiry. As Professor Clarisa Long states, the USPTO’s considerable discretion “to establish regulations that ‘govern the conduct of proceedings in the office,’ that ‘facilitate and expedite the processing of patent applications,’ and that ‘govern the recognition and conduct of agents, attorneys, or other persons representing applicants or other parties’” and the “seemingly mundane procedural changes” flowing therefrom may “have

⁹⁵⁶ Gregory Reilly (n 99) 3.

⁹⁵⁷ *ibid* 18.

⁹⁵⁸ See for example David Hricik, ‘Will Patenting Make as Much Sense in the New Regime of Weakened Patent Rights and Shorter Product Life Cycles’ (2017) 20 Vanderbilt Journal of Entertainment & Technology Law 457 arguing that the combination of recent changes in patent law, administrative procedures and new technologies – such as 3D printing – significantly call into question the value of patent protection for a variety of products. See also Ryan Abbott, ‘Everything Is Obvious’ [2017] UCLA Law Rev, Forthcoming <<https://ssrn.com/abstract=3056915>> arguing that developments in AI-driven inventing may lead to a substantial number of inventions being considered obvious absent a significant rethinking of the doctrine.

⁹⁵⁹ *Festo Corp. v. Shoketsu Kinzoku Kogyo kabushiki Co.* (n 648).

resulted in the most profound changes in US patent policy and practice since 1836.”⁹⁶⁰ Several recent studies have raised the possibility that biases inherent in patent office administration processes, such as patent office funding, patent examiner hiring, and routine patent examination frameworks may have significant impacts on the development of substantive law.⁹⁶¹ Yet few to date have comprehensively examined the effect of patent agent practice, and the regulation patent agent practice, on the development of substantive patent law.

Many scholars are also beginning to propose changes that mimic many aspects of early 19th century patent law and practice. Some propose that standards of patentability should be increased through the examination of patent applications by individuals of exceptional technical expertise⁹⁶² or by incorporating aspects of scientific peer review⁹⁶³- elements that the scientific community lobbied for in the early 19th century. Along with a renewed interest in the use of patent information have come suggestions on how to improve access to and use of patent disclosures.⁹⁶⁴ It has also been suggested that we begin engaging in forms of patent experimentation, changing various patent law variables and assess their impacts on promoting or hindering innovation.⁹⁶⁵

The question of patent agency nevertheless remains overlooked. This is surprising in light of the substantial impact of patent agency on the development of patent law throughout the 19th

⁹⁶⁰ (n 353) 1980–1981.

⁹⁶¹ See for example Michael D Frakes and Melissa F Wasserman, ‘Does Agency Funding Affect Decisionmaking: An Empirical Assessment of the PTO’s Granting Patterns’ (2013) 66 *Vanderbilt Law Review* 65; Michael D Frakes and Melissa F Wasserman, ‘Patent Office Cohorts’ (2015) 65 *Duke Law Journal* 1601.

⁹⁶² Lisa Larrimore Ouellette, ‘Pierson, Peer Review, and Patent Law Symposium: The Disclosure Function of the Patent System’ (2016) 69 *Vanderbilt Law Review* 1825.

⁹⁶³ See ‘Peer to Patent’ (*Peer to Patent*) <<https://www.peertopatent.org/>> accessed 20 September 2021.

⁹⁶⁴ See for example Nefissa Chakroun, *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (n 796); Lisa Larrimore Ouellette, ‘Do Patents Disclose Useful Information?’ (n 795).

⁹⁶⁵ See generally Lisa Larrimore Ouellette, ‘Patent Experimentalism’ (2015) 101 *Virginia Law Review* 65.

century. Much of substantive patent law evolved through the “learning by doing” of the patent practitioners.⁹⁶⁶ Indeed, what patent law currently looks like was largely discovered through the interaction of stakeholders; inventors, investors, manufacturers, agents and intermediaries.⁹⁶⁷ As Professors Morriss and Nard state:

Why did these principles and procedures evolve through practice rather than through legislation (between the 1793 and 1836 Acts)?... [H]ow to change patent law was something patentees, patent lawyers, and patent agents had to first figure out. Indeed, lawyers and others had to first discover that they were patent lawyers and patent agents – the discovery of a specialized role for these intermediaries was itself the result of entrepreneurial activity.⁹⁶⁸ (emphasis added)

As we enter this new industrial revolution, along with the return of democratized invention we are also beginning to see the slow erosion of the discrete boundaries of professionalization in many fields, including patent agency. It seems that democratized forms of patent agency may be emerging. Questions surrounding professionalized patent agency and its regulation can therefore no longer be avoided. Considering new forms of patent agency, including rethinking the form and scope of regulation, may help to promote the necessary changes without requiring much in the way of *a priori* variation to substantive law. The disruptive results may be more political than legal, in affecting the power of one very influential interest group – professional patent agents – and facilitating the coalescing of new groups surrounding independent inventors, users of inventive information and SMEs.

⁹⁶⁶ Andrew P. Morriss and Craig Allen Nard (n 74) 231.

⁹⁶⁷ David Pretel (n 104) 22.

⁹⁶⁸ Andrew P. Morriss and Craig Allen Nard (n 74) 229.

The significance of this shift cannot be overstated. The democratization of patent agency requires more than providing access to services for traditionally under-served market segments. New patent practice processes and institutions, serving an emerging class of historically under-represented clientele, could lead to substantive developments that benefit these emerging interest groups. The main substantive aspects of what patent law looks like today were co-developed early on through practice between patent practitioners and the patent office. These practices were recognized by other institutional decision makers, such as courts and legislators, and went on to influence the development of international patent law treaties, networks, and institutions. Thus, like Escher's famous painting of one hand drawing the other, patent agency has shaped the major patent institutions and those institutions have defined patent agency; together, historically they have co-evolved the patent system.⁹⁶⁹

4. TECHNOLOGICAL DISRUPTION, PROFESSIONAL SERVICES, AND PATENT AGENCY

a. Technological Disruption and the Future of Professionalism

The reality facing the future of the patent agent profession is much the same reality confronting all legal service providers in upcoming years. Technological advances in service delivery are challenging how we conceive of both professional competence and the way professional services are delivered. These advances have empowered the 'unbundling' movement, where delivery of professional services is viewed not as a holistic continuum leading to one output, but rather as a fragmented collection of numerous inputs and outputs possibly delivered by various services providers.⁹⁷⁰

Technological advance has also slowly started to chip away at the professional knowledge/service gap between patent agents and their clients, and between patent agents and

⁹⁶⁹ Peter Drahos (n 70) 80.

⁹⁷⁰ Richard Susskind (n 587) 32–3.

other service providers. For example, for many years, one of the main professional activities of patent agents was dissemination of patent knowledge. Searching and disseminating such knowledge was one of the first casualties of technological advance. Patent office records are now freely published and accessible through a plethora of free and subscription databases. Search companies now offer comprehensive searching at affordable rates. Law firms also hire full time searchers, who may or may not be patent agents.

The potentially disruptive effect of technological advance to patent agent practice was not entirely unforeseen. One of the EPO's earliest Directors, Lise Dybdahl Osterborg, long ago recognized the link between patent agents, regulation, and the 'chain' of patent agent services. Specifically, Osterborg foresaw that the coming storm of technological advances and specialization of services could have a disruptive effect on patent agent professionalization:

It is certain that action has to be taken here and now. If not, we are likely to experience other professions' arrogating the patent work for themselves. Solicitors, accountants, technical consultants, computer-based payment firms and private novelty search agencies immediately come to mind. It is also possible that industry, which in the past years has increasingly merged into bigger units, will find out that employees in their patent departments, after having received some education, are by and large able to handle the task themselves without assistance from a patent attorney's office.⁹⁷¹

Furthermore, Osterborg recognized the potential effect that this delicate tension between regulation and provision of services, if not properly balanced, could have on individual inventors' and small-to-medium enterprises' access to services:

⁹⁷¹ (n 365) 329.

It stands to reason that to some extent patent attorneys' fees may be detrimental to the patent system as a whole. This is the case if the fees charged are on a level which by social standards are too high and can remain so only owing to measure from the profession restricting competition...If in the future European patents are still largely applied for and obtained by small-to-medium enterprises, one of the links in the price-raising chain has to be broken... (emphasis added)⁹⁷²

Professor Bruce Doern also foresaw the oncoming 'unbundling' movement and its potential disruptive effect on patent agent regulation and practice:

if one thinks literally of the potential unbundling of activities in the patent and trademark application process... then some activities potentially come to mind. One already exists in that some firms, which otherwise do not do patent and trade-mark work, do patent and trademark 'search' work. In other words, they carry out a specialized form of initial research at the front end of the application cycle. To the extent that some of the front end work in the regulatory cycle is a kind of 'form filing' activity, there is potential for some other suppliers to do perhaps routine aspects of this kind of activity. But almost immediately comes the rub! There may well be no obvious or practical discrete cut off points between routine form-filing activities and those closely connected activities that involve mixes of procedural knowledge, extremely real science and technology, and detailed knowledge of the law. Hence the notion of a seamless web of activities quickly emerges and hence...the notion of numerous unique outputs of service must be confronted. (emphasis added) ⁹⁷³

⁹⁷² *ibid* 332.

⁹⁷³ 'Regulation of Patent and Trade-Mark Agent Qualifications: Institutional Issues and Options' (1995) Study Prepared for the Canadian Intellectual Property Office 99.

The ‘rub’, as Professor Doern has eloquently characterized it, with respect to patent agent regulation, unbundling, technological disruption and access to services is the dilemma at the heart of an emerging challenge to patent agent regulation. It is a dilemma facing all professions generally.⁹⁷⁴ Technology splintered searching from patent agency and it has now taken on a life and identity of its own. Are other patent services far behind? Will new automated and AI-driven technologies for patent drafting create new ‘patent drafting’ service providers?

New automated patent drafting software can, in minutes, automatically prepare an entire patent application specification based off one or more draft patent claims⁹⁷⁵ and automate various specification drafting processes.⁹⁷⁶ These programs also automate the process for responding to patent office communications, by connecting with patent office databases, scanning communications, and preparing template responses.⁹⁷⁷ New programs also automate patent office strategy and analysis.⁹⁷⁸ AI-driven software now provides comprehensive searching services based on rudimentary invention disclosures⁹⁷⁹ and automates the entire patent file management

⁹⁷⁴ Richard Susskind, *The Future of Professions: How Technology Will Transform the Work of Human Experts* (Oxford University Press 2016) 157: “Readers may call us radical, but if we can foresee a day when the average laptop has more processing power than all of humanity combined, then it might be time for professionals to revisit some of their current working practices...Our main claim is that we are on the brink of a period of fundamental and irreversible change in the way that the expertise of these specialists is made available in society. Technology will be the main driver of this change.”

⁹⁷⁵ See for example Specifio: ‘Specifio :: Auto-Generated Software-Patent Applications’ (n 42); See also David Hricik, ‘Machine Aided Patent Drafting: A Second Look’ (*Patently-O*) <<https://patentlyo.com/hricik/2017/08/machine-patent-drafting.html>> accessed 26 October 2018 for a discussion on use, benefits and challenges of using automated drafting software such as Specifio.

⁹⁷⁶ See for example TurboPatent: ‘TurboPatent – Inventing a Better Way’ (n 42).

⁹⁷⁷ See for example RoboReview and RapidResponse: ‘TurboPatent Launches AI-Powered RoboReview to Improve Patent Drafting – TurboPatent’ (n 42).

⁹⁷⁸ *ibid.*

⁹⁷⁹ See for example AI Patents: ‘AIPatents’ (n 42).

process.⁹⁸⁰ International patent offices are also exploring the use of AI for automating searching and administration.⁹⁸¹

The standardization of more formal aspects of patent application and prosecution, the discretization and disaggregation of ex ante components of the process, and the possibility more rigorous ex ante obligations placed on applicants may have dramatic effects on the future of the patent agent as a discrete professional identity. As discussed below, professionalization, in terms of regulated activity, may shift to other service groups such as search firms and software providers. The nature of professional patent agent expertise will become more focused on the most important aspects of patent prosecution of, such as defining the novel contribution of the invention and defending patentability during prosecution. This expertise will no doubt be both a technical and strategic in nature, and thus, could likely be internalized to a far greater extent within firms.

b. ‘Can a Computer Do Your Job?’ – Patent Agency in the Age of AI

The foregoing raises a challenging question: how long will it be before AI driven software can interact with inventors and automate the entire patent drafting process? In a recent debate hosted by the UK Chartered Institute of Patent Attorneys (CIPA), most attendees seemed to believe that such technology may be operable within the next twenty years.⁹⁸² New providers

⁹⁸⁰ See for example AppColl: ‘AppColl | Cloud-Based Patent and Trademark Management Software’ (n 42).

⁹⁸¹ See for example ‘Meeting of Intellectual Property Offices (IPOS) on ICT Strategies and Artificial Intelligence (AI) for IP Administration’ (n 42); Baker McKenzie-Kensaku Takase and Tsuyoshi Kawasaki, ‘Application of AI Technologies to IP Processes - Japan Patent Office | Lexology’ <<https://www.lexology.com/library/detail.aspx?g=ae8d79a4-540f-4eb9-84ab-d98d8385b00d>> accessed 26 October 2018. North Carolina based AI Patents (online: www.aipatents.com) had secured USPTO contracts to test its AI-driven patent search software for patent examination pre-screening; see online: <<https://www.aipatents.com/TrustedByGovernment.pdf>>.

⁹⁸² ‘Could a Computer Do Your Job?’ (n 42). The question posed for the debate was whether or not, within the next 25 years, a patent will be filed and granted without human intervention, with the audience voting “roughly 80-60 in favour of the motion ‘This House believes it is inevitable that, within 25 years, a patent will be filed and granted without human intervention’”.

are already lining up to develop this technology.⁹⁸³ To embrace these challenges along with the needs of traditionally underserved markets, several leading academics are calling for the creation of new breeds of patent practitioner, including ‘patent information specialists’⁹⁸⁴ and a new ‘patent drafting profession’.⁹⁸⁵ Along with this comes the inevitable debate about entitlement to practice. Border skirmishes have already begun between the licensed profession and new forms of mass-market intellectual property service providers.⁹⁸⁶ When one begins to think deeply about the nature of claim drafting in the context of genus, species and taxonomy, we see that many aspects of the exercise- in terms of naming elements, generalizing and abstracting – can likely become internalized to technical fields (such as engineering and biotechnology) through a combination of education, systemization and automation. As the patent agent profession begins to feel the disruption caused by these new technologies, the issue of regulation will inevitably move to the forefront.

The most experienced interviewees questioned for this study were far more likely than younger interviewees to accept that new technological developments would likely disrupt the practice of patent agency. Some felt that searching and examining were easy targets for

⁹⁸³ See for example Legit IP: ‘Legit’ <<https://legit.ai/>> accessed 26 October 2018. Legit IP has developed a platform that uses natural language processing to interact with inventors and take an invention disclosure. From there, the platform conducts a search and provides preliminary feedback on potential points of patentability. Although this platform does not yet draft claims, one can see that such technology, using natural language processing and machine intelligence, are inching closer towards developing, at least preliminarily, claim language based on a disclosure.

⁹⁸⁴ *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (n 796) 196–9.

⁹⁸⁵ Port, Hjelle and Littman (n 394) 135.

⁹⁸⁶ The high-profile battles between online legal service provider, LegalZoom, and the U.S. legal profession are well-documented. See for example *Medlock v. Legalzoom.com, Inc.*, 2013 S.C. LEXIS 362 (Oct. 25, 2013). Recently, LegalZoom has faced unauthorized practice of law issues in the intellectual property space; see ‘LegalZoom Allegedly Engages in the Unauthorized Practice of Trademark Law’ (*The IP Law Blog*, 28 March 2018) <<https://www.theiplawblog.com/2018/03/articles/ip-law-blog-lawyers-in-the-news/legalzoom-allegedly-engages-in-the-unauthorized-practice-of-trademark-law/>> accessed 26 October 2018; See also ‘May The LegalForce Be With You: California IP Firm Sues To Stop LegalZoom’s Unauthorized Practice Of Trademark Law’ (*McCabe IP Ethics Law*, 20 December 2017) <<https://www.ipethicslaw.com/may-the-legalforce-be-with-you-california-ip-firm-sues-to-stop-legalzooms-unauthorized-practice-of-trademark-law/>> accessed 26 October 2018.

automation. As one interviewee frankly stated, constructing an iterative search string for the purposes of conducting a patentability search is, in essence, a thesaurus-like act that could easily be automated and undertaken by computer with only minimal human input [#26]. One simply takes the labelled claim elements and compiles a list of structural and functional synonym-like key words, and continues to re-iterate the list of keywords as the search progresses.⁹⁸⁷ Some interviewees doubted that AI-driven technologies would patent agents altogether. Rather, they saw the potential for emerging technologies to support, rather than radically transform, professional patent agent work: “searching, interpreting search results, this is where AI systems will do this sort of work within a few years.” [#2]

Some interviewees remained skeptical that a computer might ever be able to capture the core of their work:

Me: Are you concerned a computer could do your job at some point?

Interviewee: I don't think it can do it. Anything that can be automated is going to be automated, [office] systems for example.... So that side of things I think will be automated. But this idea that we've been talking about analysing an invention, and the best way of protecting a broad example. That all can't be quantified.

Me: Could the computer draft a patent?

Interviewee: In theory, it can be done. I guess the machine could look at every part of another machine and pick out all the different features and make claims out of them. But they can't get the machine to give a value to each of the individual components. That must be done by human. You hear all these stories about computers, but I don't see that happening. [#10]

⁹⁸⁷ David Hunt, Long Nguyen, and Matthew Rodgers, *Patent Searching: Tools & Techniques* (John Wiley & Sons, Inc 2007) 38–41.

Other interviewees believed that greater advances in computer technology might one day allow AI-driven software to take on the tasks of a professional patent agent:

Me: Could a computer do your job?

Interviewee: Now? No. Could it in the future? Possibly. I don't think you can get a computer to do it on a machine-learning basis, you couldn't feed it all of the existing patents and then give it an embodiment and say 'write me some claims'. If AI is developed, so it's prepared to go outside the training, outside the sandbox that it was taught in, is it possible? Yes. ... you could conceptually write an interactive computer program, that could interact with an inventor and produce an acceptable claim or an acceptable set of claims...it's about language, and about understanding of language in a way that at the moment computers are not good at....[#31]

Models are already being developed to convert terminology systematically into semantic metadata to map and search information back-and-forth between patent and non-patent literature.⁹⁸⁸ With respect to timeline, those interviewees who expressed skepticism about what software can do may be severely underestimating the current state of AI and natural language processing [NLP] driven technologies. New AI-driven search platforms assert that they can do in hours what would normally take a patent examiner/searcher days to complete.⁹⁸⁹ Even basic

⁹⁸⁸ 'Utilization of Bio-Ontologies for Enhancing Patent Information Retrieval by Siddharth Taduri, Kincho Law, Jay P. Kesan, Ram Sriram :: SSRN' <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3580353&download=yes> accessed 20 April 2020; As the authors note, the advantage of their proposed system is its ability to use a single framework to span across scientific literature, which literature often uses disparate language to refer to the same or similar technologies. .

⁹⁸⁹ See 'Similari' (*Similari*) <<https://www.similari.com>> accessed 26 November 2019; See also 'Artificial Intelligence Will Help to Solve the USPTO's Patent Quality Problem' (*IPWatchdog.com | Patents & Patent Law*, 23 November 2019) <<https://www.ipwatchdog.com/2019/11/23/artificial-intelligence-will-help-solve-usptos-patent-quality-problem/id=116302/>> accessed 26 November 2019 where the CEO of Similari suggests that the AI-driven solution may be able to do in hours what would take a human expert days to complete.

NLP technology, such as latent semantic analysis [LSA], has surpassed standard text/Boolean search processes by constructing conceptual maps from text and searching based on conceptual-vector-space models.⁹⁹⁰

Many experienced interviewees were upfront in their belief that “legal tech will create big changes and will require patent agents to focus on the core of what they do”. [#35] When one interviewee was asked ‘can a computer do your job?’, her immediate response was “Yes. Absolutely. Without a doubt. In the near future, advances in AI and machine learning will permit a computer to draft a patent application, including claims, requiring only minimal oversight and input from a professional patent agent.” [#16] Another interviewee responded:

I think a computer could do a huge part of my job. At some point, computers are going to be providing the first draft of an application. Then at some point, we would be mostly tweaking with what computer couldn't do. Many cases will be handled by computers, but in some complex cases, the role of human element will stay. So, computers may do a lot of heavy lifting and rest would be done by humans. Of course, computers in the future would be able to do a lot of what we do today... there are a lot of things that computers are going to do and going to do well. [#7]

Several interviewees suggested the very real possibility that, one day, the patent office might become ‘one big computer’. [#33; #30; #31] One interviewee went so far as to suggest that, at some point in the near future, claims might even start to lose their place atop the pinnacle of patent law:

“Maybe you won't need the claim, you won't need claims, because what you'll do is put your information into the computer, and the computer has this sort of multi-dimensional

⁹⁹⁰ See Arti K. Rai, ‘Machine Learning at the Patent Office: Lessons for Patents and Administrative Law’ [2018] Iowa Law Review 2617, 2624.

map that essentially says ‘okay, you get protection and it covers these things’ without giving it that definition, having to use language to define. Where computers could draw those lines without needing to give it a definition where you currently need a language to define.” [#31]

As in other issues covered in this work, those interviewees with legal training in addition to their patent agent training provided unique perspectives. To many of these interviewees, the fact that a computer might be able to complete a search or construct patent claims with greater efficiency than a human did not mean that computers could provide the value that humans provided to their clients. For example, as one interviewee stated:

Certainly computers will be able to draft some applications. When I grew up, I didn’t even have a desk computer and nowadays my smart phone is killing me at chess! That’s some development! But the creative thinking behind the claim must come from somewhere, meaning that you need some experience, not only in drafting patent claims but also in knowing what these claims can do afterwards to you and to your competitors. [#5]

This competitive perspective, tied to the litigation aspects of patent protection, was what most legally-trained agents emphasized. As one interviewee stated:

That discussion you have with inventors and clients, I can’t necessarily see a way in my mind how that could be handled by computer because very often they might mention something, and you’re looking several years down the line on how this is going to play out in an infringement situation. Whereas computers are very, very so binary in that aspect... I do think that’s probably not going to work. [#32]

A UK legally-trained interviewee suggested that “it is unlikely that AI could do the creative thinking.” [#14] He suggested that while AI may provide tremendous practice benefits, it will also create many problems. The ‘problems’, to this interviewee, are not AI or technological disruption *per se*. Rather, the problems the profession currently face revolve around ensuring delivery of quality, strategic services in the face of diminishing profit margins, regardless of how much automation may or may not be involved. Commodification is driving down prices in a profession full of young practitioners who do not fully understand what it means to provide quality services apart from simply drafting applications and responding to patent office correspondence:

IP has become more valuable and equally has become more commoditized. I see this all as an issue with the profession. We recruit more and more people, but clients are not going to pay that much for a good work if what we do is ‘black ops’. A lot of my clients are inhouse attorneys in the US and elsewhere. They are smart people and they like what I do because they get it. But to a lot of clients, it’s just gibberish and they don’t know a good job from a bad one. Because so often things will not get litigated and you can get through things which are valueless and there is a good chance that no one will ever find out. So people want it commoditized a little bit, understandably, because there are financial pressures, but I do see competing pressures. [#14]

As one interviewee put it, the profession used to be a license to print money [#30], largely driven by the fact that revenue could be generated by administrative matters such as paying maintenance fees and other routine filings. Twenty-five years ago, clients did not fully understand what professional patent agent work entailed. As much of this knowledge has become internalized and clients are much more patent-savvy, they are demanding more value for money.

This has led, and will continue to lead, to the profession becoming less profitable for many firms. [#7]

What legal-tech is really causing is uncovering a business model that has long been built on an unstable foundation:

I think we're going to have to change our business, to move away from making money on administrative work. And we're going to have to focus on clever and better people writing better and better patents. I think for some this is a very, very strong area. I think some firms may get left behind. And some businesses may get refined processes and can become increasingly important... I think traditionally this was a very old fashioned, almost Victorian, incredibly lucrative profession because it was so small. It was a pretty powerful monopoly. I think, as the [qualifying exams] get fairer and deregulation in hiring increases, and more people get into the profession, I think it's going to normalize it... Like any business, there comes the point where the days where one can make vast amounts of money comes to an end, and that's happening now, which is a good thing because it's unrealistic. The profession remains strong, but the need for organization and a whole bunch of realistic clarity are key to that. If not, [patent agent work] will go somewhere else. All professions are very conscious of that. [#12]

5. THE FUTURE OF PATENT AGENT REGULATION

a. Regulation and Access to Services

A critical examination of any professional licensing regime typically begins with the question of the effect of regulation on access to services. With respect to patent agent regulation, the lack of rational correlation between entry-standards and patent quality may have serious negative economic effects, in that “reified standards are driving people away from the job of

patenting.”⁹⁹¹ In the US context, statistical analysis demonstrates that as Patent Bar eligibility remains stringent and pass rates continue to drop, the aggregate size of the patent agent applicant pool will likely shrink drastically.⁹⁹² This may lead to excessive specialization of services, with current patent agents focusing greater and greater effort on high value services such as drafting and prosecution as opposed to general IP strategic services, and with large corporate clients capturing the available market for services at the expense of small-to-medium sized inventors.⁹⁹³ The impact on small-to-medium sized inventors may be significant:

As the number of patent attorneys shrinks, the cost per patent is likely to increase to pay for the salaries of existing patent attorneys that will ultimately be in higher demand. As the cost per patent increases, it will discourage inventors from filing patents. This is precisely the opposite incentive provided by the *American Invents Act*, the United States Patent and Trademark Office itself, all law schools with any interest in intellectual property, and inventor-support groups across the country.⁹⁹⁴

Viewed in light of these statistics, it is difficult to understand how and why so many recent initiatives to further include small-to-medium inventors in the patent system have seemingly neglected a regulatory framework with impacts that appear to undermine the objectives of those initiatives. It appears that, at least in the US context, much of the regulations surrounding entry-qualifications to the patent agent profession have been “established through the unfettered discretion of the Director [of the USPTO] in years past and this has only been continued out of disinterest or the fallacy that the reified standards somehow contributes to the

⁹⁹¹ (n 394) 136.

⁹⁹² *ibid* 81.

⁹⁹³ *ibid* 81–2.

⁹⁹⁴ See *ibid* 82, 121–2 wherein Port et. al. demonstrate that current entry standards may contribute to the significant underrepresentation of women and minorities within the patent bar and that there has been little effort to date to remedy this situation.

quality of [patents].”⁹⁹⁵ While much of the recent patent law reform discourse revolves around improving access to the patent system for individual inventors and small-to-medium enterprises, there has been surprisingly little effort to connect with these groups and only minimal effort to connect with academia.⁹⁹⁶

In Europe, there has been some debate about whether regulation of European patent agents has contributed to poor inventive output, at least compared to the US (where patent practice is not as strictly regulated).⁹⁹⁷ However, there is very little written about the topic of regulation of European patent practice and less still regarding economic impacts of regulation. The EPO has acknowledged a shortage of practitioners in new EPC member states, such as Albania and Bulgaria, and has launched a Candidate Support Project to encourage and support the training of new practitioners within these states.⁹⁹⁸ However, the EPO provides very little information regarding this program or its outcomes.

b. Regulation and an Emerging Patent Discourse

Along with technological advances and changing societal attitudes regarding professional services, the public’s expectation regarding delivery of patent services has drastically changed in recent years. As discussed above, although patent agency has existed for almost two centuries, it is only in the last three decades that the practice of professional patent agency has increased in prominence along with the biotechnology boom of the 1990s. The early 1990s also saw a shift in patent offices’ passive ‘examination and patent publication’ role when an active ‘customer

⁹⁹⁵ *ibid* 91.

⁹⁹⁶ *ibid* 99.

⁹⁹⁷ For an interesting discussion, see Joff Wild, ‘There Are 40,000 Patent Attorneys in the US and under 10,000 in the EU. That Can’t Be Right.’ (*iam-media (blog)*, 10 January 2010) <<http://www.iam-media.com/blog/detail.aspx?g=e32cb875-ccc2-45ed-836a-9297a74be4de>> accessed 8 July 2018.

⁹⁹⁸ The EPO’s ‘Candidate Support Project’ is not well publicized, see for example: ‘Candidate Support Project for EQE Application Form’ <https://www.indprop.gov.sk/swift_data/source/images/novinky/2017/03/4%20CSP-2017-Application_Form-v2017.02.13.pdf> accessed 17 September 2021.

service model’ began to emerge.⁹⁹⁹ According to Professor Doern, this new climate emerged due to intellectual property issues having “moved from the sidelines to the front lines of what used to be a narrow part of industrial policy and framework law.”¹⁰⁰⁰ But as Doern highlights, as intellectual property practice “moves into the limelight, it does not move into a realm with totally clear ideas.”¹⁰⁰¹

As Doern pointed out in the late 1990s, the natural outgrowth of the different roles of the profession, the patent office, and public expectations could lead to serious future misunderstandings if these emerging realities are left unaddressed. Confusion has arisen between the profession and patent offices about the objectives of the patent system and each group’s role in furthering those objectives:

[T]here are some differences between [patent offices] and [the profession] as to just what the key features of the regime are in the late 1990s. [The patent office] is giving far greater priority to those clients who are users of intellectual property or who are potential or unreached inventors than in the past. The [profession], in my view, sees the regulatory regime much more exclusively in terms of the protection of the creators of intellectual property.¹⁰⁰²

Fast-forward twenty years, and the public’s expectation regarding the objectives of the patent system and delivery of patent services has drastically changed. Again, Doern effectively foreshadows the nature of these forthcoming changes:

⁹⁹⁹ Long (n 353) 1973.

¹⁰⁰⁰ G. Bruce Doern (n 973) 118.

¹⁰⁰¹ *ibid.*

¹⁰⁰² *ibid.*

Consider the issue of a [patent office's] desire to offer services to the two clients it often feels it has ignored by, in the past, thinking of itself only or primarily as a regulator. The desire to serve inventors who are "out there" is one such client. They are persons who are not aware of what they need to do protect inventions. The other client is the more diffuse and more numerous users of patent information and hence those most interested in the circulation of such information rather than only in the protection of inventions per se.

Can or should [a patent office] carry out such roles vis-à-vis these clients?¹⁰⁰³ (emphasis added)

Today, as predicted, the respective roles and lines between educators, agents, and the patent office have begun to blur. This raises some important questions. What is a patent office's public interest mandate and what activities fall within it? Should patent offices be engaging in a campaign to encourage individuals to protect intellectual property? Does this pose a conflict of interest? Some question how much a patent office, tasked with being the protector of the public interest while also being largely self-funded through user fees, should be actively appealing to 'customers'?¹⁰⁰⁴ These issues are indicative of the realities of an emerging discourse in which the nature of patent agency is a central consideration.

The era of the Fourth Industrial Revolution may require a re-orientating of patent agency to refocus on the needs of individual inventors and small-to-medium enterprises, broadly framed as enabling the innovative capabilities of these individuals. Several leading academics are calling for the creation of a new breed of patent practitioner. Nefissa Chakroun has called for more

¹⁰⁰³ *ibid* 99.

¹⁰⁰⁴ Long (n 353) 1973, 1992: "The PTO's attempts to woo the inventive community present the obvious danger of the PTO being captured by the very group that it is supposed to regulate. The PTO's legal and budgetary gains, coupled with its desire to stay in the inventive community's good graces, make it an attractive target for capture. From the perspective of patent applicants, even a small amount of influence over the process by which patents are granted could be quite valuable."

emphasis on creating a ‘patent information specialist profession’, to provide small-to-medium inventors with assistance in locating and using patent invention information for incremental innovation purposes.¹⁰⁰⁵ Port et. al. have raised concerns about an upcoming serious shortage of patent practitioners that will disproportionately impact small-to-medium enterprises and have suggested the creation of a new ‘patent drafting’ profession to service market needs.¹⁰⁰⁶

Professors Abramowicz and Duffy have gone so far as to recommend that patent offices should no longer maintain a monopoly over patent examination; they should become a body responsible for certifying third-party search and examination companies that would provide such services.¹⁰⁰⁷ This move would not only improve the quality of search and examination; it could also lead to the development of new patent administration models including rigorous ex ante applicant obligations to complete up-front searches, better characterize the novelty of the invention, and receive an independent, favourable patentability opinion from a certified third-party prior to filing an application.¹⁰⁰⁸ As they suggest, the closed-off, insular nature of patent offices and their ‘narrow group of constituents’ may be a leading cause of informal regulatory capture. Breaking this patent examination monopoly may be the first step in unravelling the boundaries of this capture.¹⁰⁰⁹ These suggestions would likely seem radical to professional patent agents, and as the interview data demonstrate, few interviewees turned their minds to such options when asked about the possibility of modernizing the patent process. However, since similar reforms have been successfully applied across numerous other government administrative

¹⁰⁰⁵ Nefissa Chakroun, *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (n 796) 196–9.

¹⁰⁰⁶ Port, Hjelle and Littman (n 394) 135.

¹⁰⁰⁷ Michael Abramowicz and John F Duffy, ‘Ending the Patenting Monopoly’ (2008) 157 *University of Pennsylvania Law Review* 1541, 1576; 1579–1581.

¹⁰⁰⁸ *ibid* 1556–7; 1576.

¹⁰⁰⁹ *ibid* 1561–2.

bodies, the perceived radical nature of such suggestions seem unfounded.¹⁰¹⁰ The irony of the real property analogies so often used by professional patent agents is that it is applied as useful to confirm their own predispositions, yet is completely overlooked when it tends to undermine those same biases. For example, the way real property administration has been transformed illuminates how much patent administration remains “wildly outdated”.¹⁰¹¹ Gone are the days when real property solicitors would engage in a painstaking search and registration processes involving interactions with archaic land registry processes. In many jurisdictions, real property registration has taken a form similar to that suggested by Professors Abramowicz and Duffy, where third-party service providers are certified by government bodies to support all aspects of search, registration, and transfer, thereby automating and modernizing the administration of real property rights.¹⁰¹² The fact that so many professional patent agents’ minds so often turn to real property analogies, yet overlook the apparent dichotomies between modern real property administration and patent administration is surprising to say the least.

Each of above suggestions circle around the same unspoken issue: that regulatory exclusivity surrounding patent office practice remains an impediment in the chain of patent service delivery, that continues to stifle access to services and innovation in service delivery, and reinforces the traditional discourse of professional patent agency. Technological development is set to disrupt and unbundle many patent services, including searching, preliminary patentability assessment and patent drafting. Yet inventors must ultimately still engage with a registered patent agent to have their application filed and prosecuted in a patent office. Hence the seamless

¹⁰¹⁰ *ibid* 1546 where the authors highlight both the US Postal Service and Social Security Administration as close comparators for their argument.

¹⁰¹¹ *ibid* 1609.

¹⁰¹² See for example ‘About Us’ (*Teranet*) <<https://www.teranet.ca/about-teranet/>> accessed 11 October 2022, which, in the Canadian context, is a government certified provider of real property search and transfer services.

web of activities is broken for this part of a much larger comprehensive set of service offerings. The question thus becomes ‘why is this regulatory intervention required’? When services are unbundled, the anomaly puts the necessity of the regulatory intervention into question. This is not to say that we should whole-heartedly adopt all these technological advances, or that they do not pose many technical, regulatory and ethical challenges that must be addressed. They nevertheless give rise to inevitable debates regarding entitlement-to-practice.

The professional patent agent is wedged between the market on one side, and both the patent office and courts on the other. The tension between market forces and courts has started to pull professional patent agency apart at the seams. The market entry of new service providers and continuous assault of downward pricing pressure imposed by large corporate actors have seriously challenged the professional patent agent business model. Various aspects of patent agent services are increasingly becoming commodified. In many jurisdictions, the licensing of professional patent agents has not kept pace with developments in professional education and training in other fields, and may be causing a crisis of professional legitimacy. Furthermore, much of the work that has historically fallen within the field of professional patent agency is becoming internalized due to new technological factors, including both corporate and institutional actors. As in the early days of professionalized patent agency, the patent office and its examining corps continue to play a large part in keeping the professional patent agent alive. Patent examiner labour unions vigorously contest modernization efforts, such as AI-driven automation and shifting search obligations to applicants, which might reduce the need for patent examiners and, correspondingly, professional patent agents.¹⁰¹³

¹⁰¹³ Arti K. Rai (n 990) 2637; See also Michael Abramowicz and John F. Duffy, ‘Ending the Patenting Monopoly’ (2008) 157 *University of Pennsylvania Law Review* 1541, 1573 (fn 110) wherein the authors suggest that a promising USPTO initiative, launched in the early 2000’s, to extend privatization of patent examination was met by political opposition ‘voiced most fiercely by the examiners’ union’. Furthermore, at 1574, the authors highlight

One interviewee admitted that “*there are aspects that really need modernizing, the black and white pictures, for example, they need to change*” and candidly admitted that the business model of patent agent practice is largely the reason why many practitioners “*haven't gotten hung up on these sorts of things*”. To him, the business model of professional patent agency has hinged on developing processes that were reproducible, and thus amenable to making money off efficient administration of patent rights. Young practitioners coming into this field are trained in these processes and know nothing else, and accordingly, are not accustomed to thinking outside the box. [32] In this regard, as new technologies begin to allow for efficient and effective reproduction of new forms of patent documents and processes, so too might these technologies open the door to new thinking about the patent system generally.

It remains to be seen to what extent a broader, latent patent market can act as an agent for change within the patent system.¹⁰¹⁴ As one interviewee suggested, the current patent system is all about human communication: an inventor communicates with a patent agent, who communicates with a search professional, and then communicates with an examiner and vice versa. In a system so deeply animated by language and human interaction, meaning is created,

comments made by the president of the Patent Office Professional Association (the examiners' union) against patent quality initiatives involving the outsourcing of search functions and placing greater obligation on the applicant to conduct pre-filing searches and submit applicant pre-filing examination support documents. See also Prithwiraj Choudhury and Tarun Khanna (n 346): the authors detail how for many years prior to concerted efforts undertaken in 2009 to connect with the USPTO's examiner union, the relationship between USPTO management and the examiners union was strained. The authors also detail how implementing new technologies, such as AI and NLP, will require significant buy-in from the examiners union. In the European context, EPO management and the EPO Examiner's Union have been in consistent conflict over the last several years; see for example 'EPO President Campinos Still Has to Show He Is Serious about Restoring Social Peace - Kluwer Patent Blog' <<http://patentblog.kluweriplaw.com/2019/10/04/epo-president-campinos-still-has-to-show-he-is-serious-about-restoring-social-peace/>> accessed 8 October 2019; 'ILOAT: Former EPO President Battistelli Violated Staff's Right of Free Association' (*Kluwer Patent Blog*, 3 February 2022) <<http://patentblog.kluweriplaw.com/2022/02/03/iloat-former-epo-president-battistelli-violated-staffs-right-of-free-association/>> accessed 4 February 2022; Kluwer Patent blogger, 'Industrial Action at the EPO to Demand Restoration of Fundamental Rights' (*Kluwer Patent Blog*, 22 February 2022) <<http://patentblog.kluweriplaw.com/2022/02/23/industrial-action-at-the-epo-to-demand-restoration-of-fundamental-rights/>> accessed 23 February 2022.

¹⁰¹⁴ Liza Vertinsky, 'Comparing Alternative Institutional Paths to Patent Reform' (2009) 61 *Alabama Law Review* 501, 525.

whether intentionally or unintentionally, through every step of human interaction. Accordingly, as more of the patent system is transformed through the disruptive forces of AI, automation and new business models, new forms of human interaction will appear and new forms of meaning will emerge. These new meanings may shape new ideas about the patent system and patent doctrine. [#31]

6. DECONSTRUCTING THE BOUNDARY – RETHINKING AGENCY WITHIN THE PATENT SYSTEM

a. Enablement Across the Patent System – Reclaiming the Foundation of Patent Agency

Referring to enabling disclosure as the ideological core of the early patent system, Burrell and Kelly state that “it is important that we remind ourselves that the existing model of patent protection is not inevitable”.¹⁰¹⁵ The forms which patent protection has taken along with underlying justifications, have continuously changed over the last few decades, as to have the normative rationales for government intervention. However, it is important to remember that historically, all these forms and ideologies had a single point of connection – namely, enablement. Enablement, understood in a broad sense, is at the heart of patent agency and the patent social contract. Every patent doctrine should be infused and animated by it. Every question of patent quality should revolve around it. Patent office procedure should be should always remain focused on the question of enabling the technical community to engage with the patent system.

Apart from enablement being a normative end in itself, enablement can be the ideological focal point around which other aspects of patent law and practice can be adjusted and modified to achieve various objectives. As our historical analysis has demonstrated, enablement was the key ideological focal point which allowed the patent system to shift back and forth from royal

¹⁰¹⁵ Robert Burrell and Catherine Kelly (n 232) 449.

prerogatives to government administration, from automatic grant to expert examination, from technology transfer to heroic inventor, and from natural rights to utilitarianism, while still securing commitment from various key political and economic stakeholders. Enablement is the key bridge that may practically connect all competing patent ideologies – whether they be utilitarian, natural rights, or otherwise – as there is general agreement that enabling disclosure is a necessary component of modern patent system.

Accordingly, patent law reformists wishing to seek change across any patent law doctrines or parameters might best gain support from interest groups by emphasizing that their proposed reforms would enhance the significance of enablement. History demonstrates that reformists can remain agnostic about many justifications for a patent system and still seek progressive change, so long as one remains committed to the ideology of enablement. Indeed, what history tells us is that if one remains committed to enabling agency within the context of the patent system, all other parameters - e.g. who is entitled to protection, scope of protection, duration of protection, filing fees, and other procedural elements of patent administration - can be shaped and reshaped alongside changing social perceptions of the legitimacy of the patent system. Similarly, democratizing enablement and correspondingly democratizing agency across the patent system may empower new and underrepresented groups to engage with the system, and influence legislative, administrative, and judicial changes necessary to reform patent law, administration, and the scope of patent protection. This may serve as a lesson for reformists who recognize that it may be difficult to traverse the boundary layer reinforced by the professionalized agency of patent law's entrenched special interests – elevate the ideology of enablement to the highest level, and all other patent law ideologies and practicalities may slowly become malleable around this ideological focal point.

b. Experimenting with Patent Agency

The discourse of patent agency defines the contours of the boundary of the system; inventors must pass through this professional boundary to enter the ‘inside’ of the patent system. As with most discourses, this boundary shapes those within it and conditions their view of what is and should be possible. Accordingly, professional patent agency is largely the antithesis of experimentation. As our historical analysis demonstrates, the regulation of professional patent agency was largely designed to eliminate administrative experimentation. It is unlikely that any form of true, endogenous reform can occur while the boundary of professional patent agency remains untouched, and this may require experimentation in how agency is distributed throughout the patent system.

What is true for professional patent agency may be true for all professions. The tendency to foreclose the possibility of experimentation is rooted in a strong professional aversion to failure. Failure is viewed as an embarrassment; it is commonly associated with professional negligence or violations of code of ethics. Aversion to failure is thus engrained in the professional psyche from the earliest days of professional education and training.¹⁰¹⁶

The heroic inventor of patent law and the heroic ego of professionalized patent agency make for a synthesis of narratives that is uniquely resistant to experimentation. What may be needed is “a [new] phenomenology of failure in professional life”, one that allows professionals to appreciate that “every failure is not an act of negligence for which the professional should be sanctioned or punished.”¹⁰¹⁷ Patent agents may then appreciate that not all experiments will succeed, but the failures are ends in themselves, as they will build confidence in challenging the

¹⁰¹⁶ James R. Elkins (n 457) 960–1.

¹⁰¹⁷ *ibid* 963.

dominant narratives animating today's modern patent practice. If the goal is to adjust some of the boundary of professionalized patent agency and distribute agency among the broader innovation and inventing community, this will require courageous steps to reform the regulatory, educational and practice frameworks surrounding contemporary professional patent agency.

The following Sections discuss different avenues of experimentation that may challenge the dominant discourse of professional patent agency.

i. Regulation

As perceptions of the patent system's role in furthering social objectives change alongside notions of public interest and delivery of professional services, so too must the patent system develop new "institutional initiatives" and "organizational forms" to better connect with innovation communities.¹⁰¹⁸ Although professions, including the patent agent profession, tend to over-emphasize the potential risks associated with the delivery of professional services and the need for strict regulation, as we move more towards self-regulation in the Fourth Industrial Revolution we must accept that, much as in the First Industrial Revolution, there may be considerable benefit in experimenting and accepting some institutional imperfection in patent agency and allowing space for experimentation in new service delivery models.¹⁰¹⁹

Over the last several decades, the patent agent profession has come to view its role narrowly and exclusively in terms of prosecuting patent applications for inventors.¹⁰²⁰ Much like

¹⁰¹⁸ Shobita Parthasarathy (n 16) 95- Parthasarathy describes how new ethical considerations regarding patentability of life forms 'helped to stimulate new organizational forms' within the USPTO with respect to patent applications directed to sensitive, ethical inventions. Furthermore, at *ibid* 108, Parthasarathy explains how ethical considerations and new forms of public engagement with the EPO caused the EPO to develop 'multiple institutional initiatives that reinforced its new and expanded understanding of its role, its public, and its approach to relevant knowledge and expertise.'

¹⁰¹⁹ Ian Inkster (n 78) 140.

¹⁰²⁰ (n 973) 118; Furthermore, the overwhelming majority of Canadian patent agent work revolves around the filing and prosecution of Canadian patent applications on behalf of foreign clients- see generally Innovation Government

many other self-regulating professions, it has over-emphasized professional competency as the central objective of licensing intervention to the exclusion of all other public interest concerns.¹⁰²¹ But as the dynamic nature of innovation changes, so too do public expectations about the nature of the patent services they require.

In the new industrial revolution era, the patent system must remain open to public feedback to remain responsive to public needs. As patent agency forms a key nexus between the public and the patent system, regulation must also be guided by similar principles of responsive regulation. The essence of responsive regulation can be stated as follows:

If we go back to the core idea of responsiveness in law, it is about learning from social pressures and this by implication requires open organizational forms capable of detecting, analysing and responding to those pressures. Responsive intervention into a complex system requires a regulator to have open systems of information gathering, to be engaged in a creative process of finding ways to connect with the social pressures that form the basis of learning and opportunities for self-correction.¹⁰²²

Responsive patent agency is at the heart of a responsive patent system. Patent law has always straddled the boundary between public and private law. While patent law lives to serve a public purpose, patent rights are very much a matter of private interests. The patent system must

of Canada, 'IP Canada Report 2017 - Canadian Intellectual Property Office' <https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h_wr04333.html> accessed 14 December 2018. For example, Figure 6 under the 'IP in Canada' heading demonstrates that in 2016, of the total 34,745 patent applications filed in Canada, 30,667 were filed on behalf of non-residents (which represents over 88% of the total patent applications filed in Canada).

¹⁰²¹ See generally Tracy L. Adams, 'Professional Self-Regulation and the Public Interest in Canada' (n 338); See also Michael Trebilcock, 'Regulating Legal Competence' (2001) 34 Canadian Business Law Journal 444, 445.

¹⁰²² Peter Drahos (n 936) 94.

thus be viewed from both perspectives, both as private law and as a regulatory system.¹⁰²³ Patent agency lies on the nexus of these two connected, and occasionally conflicting, objectives.

Responsive patent agency requires much more than the ‘customer service’ mentality that has taken hold of patent offices patent agency practice in recent years. It involves more than the typical patent reform consultation process, where patent intensive industries and their agents provide institutional and governmental stakeholders with ‘pro-patent’ feedback and patent critics provide ‘anti-patent’ feedback.¹⁰²⁴ The selection biases inherent in this process¹⁰²⁵ foreclose opportunities for new information gathering and potentially overlook emerging latent legal markets that may be enabled through innovative new technologies.¹⁰²⁶ Given the public’s general lack of understanding of patent law and processes, the patent system has always been an easy target for such capture, and these customary patent office consultative models reinforce the potential for epistemic and cultural capture.¹⁰²⁷

Thus, “responsive regulation in this context means continuous engagement with and listening to those who can provide information about what is happening in innovation markets.”¹⁰²⁸ This can take place through a networked approach, where the patent office and the profession patent agents partner with other organizations and institutions that can provide information, perform research, and deliver services that neither organization can effectively provide on their own. Entitlement to practice restrictions should not stand in the way of such

¹⁰²³ Lemley, ‘The Regulatory Turn in IP Bureaucracy Unbound’ (n 874) 110.

¹⁰²⁴ (n 936) 89–90.

¹⁰²⁵ *ibid* 89.

¹⁰²⁶ This is a term coined by Richard Susskind, which refers to the overwhelming segment of the population that faces a legal issue, but does not address it either because they are unaware that it is a legal issue or they lack access to legal services. See Richard Susskind (n 587) chap 9. According to Susskind, technology enabled delivery of legal services and legal information may enable this large segment of the population which, under the traditional legal services market, was otherwise almost entirely disconnected from the legal system.

¹⁰²⁷ Vertinsky (n 1014) 526; See also (n 70) 288–9.

¹⁰²⁸ (n 936) 90.

experimentation. Regulatory sandboxing, permitting private sector actors to experiment with various service delivery models without being subjected to the applicable regulatory practice restrictions are now being implemented in various legal service contexts in many jurisdictions.¹⁰²⁹ The purpose of sandboxing is not simply to explore options for liberalizing a regulated occupational field of practice. Rather, it is designed to permit information gathering that to inform responsive decision-making relating to actual individual end-user experiences. Although regulatory sandboxing has become common amongst various occupational regulatory bodies, the patent system remains an outlier. As discussed in Chapter 5, professional patent agent regulatory bodies seldom consider including members from outside the profession in the regulatory process, nor do they consider the possibility of experimenting with licensing frameworks to test new models of service delivery and to gather information from beyond the boundary of professional patent agency. Promising initiatives that have become common-place in other areas of occupational licensing still elude professional patent agency.

ii. Education

In the giant melting pot of interest groups, confused objectives, and epistemic communities that makes up the modern patent system, who is responsible for advocating for the public's interest? Professor Drahos has pointed out that universities, with their public interest mandate and goal of creation and dissemination of knowledge, are one of the top options to take on the task of refocusing patent practice towards a broader public social contract mandate.¹⁰³⁰ University-based education, and specifically university-based IP clinical programs, could play a significant part in a responsive patent agent regulatory framework. Once again, this requires an

¹⁰²⁹ See generally Jorge Gabriel Jiménez and Margaret Hagan, 'A Regulatory Sandbox for the Industry of Law' [2019] Stanford Law School Legal Design Lab White Paper.

¹⁰³⁰ Peter Drahos (n 70) 291–2.

open-minded approach that would likely seem foreign to modern professional patent agency. At best, the agent community would likely view this as a call to improve training of future agents. There is well-documented paucity of institutional educational programs relating to patent agent practice. Clinical programs could provide education and training for future practitioners within a non-profit driven setting, along with providing patent assistance to individuals who would not otherwise be able to access such services.¹⁰³¹ University based clinical programs seem like a natural conclusion - there is a need both for service delivery for traditionally under-served market segments along with a need for greater institutional educational programs for professional training. IP clinical programs are perfectly situated to satisfy both needs.

However, this tunnel-vision view of education and clinical practice only reinforces the epistemic biases inherent in modern professional patent agency. Fully realizing the role of clinics in a responsive patent regulatory framework involves reimagining clinics as a site for dissemination of knowledge as well as experimentation and testing of innovative practices, such as the regulatory sandboxes discussed above under Chapter 12.6.b.i and the program pilots discussed below under Chapter 12.6.b.iii. This would involve much more than simply reinforcing the ‘heroic inventor’ narrative that has historically grounded a justification for attending to the needs of inventive communities and independent inventors.¹⁰³² This narrative may simply reinforce the ‘customer service mentality’ that pervades patent practice. Rather, clinics should function as “open systems of information gathering, to be engaged in a creative process of finding ways to connect with the social pressures that form the basis of learning and opportunities for [patent office] self- correction.”¹⁰³³ Clinics then become an agent of

¹⁰³¹ G. Bruce Doern (n 973) 50.

¹⁰³² For a discussion of the historical fascination with the iconic ‘heroic inventor’, see Mark D. Janis (n 54) 910–22.

¹⁰³³ (n 936) 94.

institutional praxis, assisting patent offices to better understand the inventive community, redirecting the concept of agency towards the objective of democratizing enablement within the patent system and reshaping processes and procedures to better serve the public's needs.

Achieving this objective requires the development of information gathering systems to combat the reality of how ill-informed patent offices generally are in understanding the true needs of the inventive community. To date, few studies have comprehensively examine how individuals *themselves*, rather than professional patent agents, engage the patent system. The patenting activities of small-to-medium enterprises is a relatively nascent field of study; qualitative research pertaining to how these groups engage the patent system, whether through a professional agent or otherwise, is lacking. Given the lack of academic studies and the profession's tunnel-vision, such reform suggestions may well seem radical. However, viewing clinical education and practice through the lens of institutional praxis is a phenomenon that has spread across many disciplines, including law. Once again, the fact that patent practice has been largely left behind is further evidence of the community's insularity.¹⁰³⁴

iii. *Patent Office Practice*

According to Professor Colleen Chien, patent offices have a tradition of pilot programs and a history of experimentation:¹⁰³⁵ they “should leverage [this] tradition of learning, iterative

¹⁰³⁴ See generally Carolina Rito and Bill Balaskas (eds), *Institution as Praxis: New Curatorial Directions for Collaborative Research* (Sternberg Press Ltd 2020) for a discussion of institutional praxis in curatorial and visual arts field. At 9, the editors define institutional praxis as ‘research conducted by means of practice’ that has the potential to ‘advanc[e] radical ways of producing knowledge beyond the repetition of inherited epistemologies.’; For an interesting discussion of clinical praxis in the family therapy context, see generally Steven M Kogan, ‘Clinical Praxis: Examining Culture and Power in Family Therapy’ (1996) 8 *Journal of Feminist Family Therapy* 25. The author suggests that clinical praxis attempts to locate social, economic and political biases that are inherent in what appear to be ‘neutral’ clinical practices. By recognizing these assumptions, clinicians begin to shift practice methodologies away from reproducing received practice wisdom towards resistance in the form of new clinical practices meant to promote social justice rather than the status quo.

¹⁰³⁵ Colleen Chien, ‘Experimentation in the Administration of Patent Law’ (Prototyping for Policy Conference, Stanford School of Design, Stanford University, 10 November 2018) 8 <https://docs.google.com/presentation/d/15_F4UpeUHoPJ8STIAJhMQg2nG3fgEVB87x4NvxJotfk/> accessed 13 November 2018.

improvement and innovation to carry out controlled experiments to improve the patent system.”¹⁰³⁶ Specifically, Chien has advocated for university-led experimentation, in collaboration with patent offices, pertaining to the administration of patent law to improve patent quality, general application processes, and assistance for pro se applicants.¹⁰³⁷ While this may sound like a revolutionary idea to contemporary professional patent agents, many of the key principles underpinning the international patent system were actually developed through many years of experimentation and disharmony between nations. There may be much value in reclaiming this spirit of experimentation.¹⁰³⁸ As previously mentioned, TRIPS permits considerable flexibility with respect to patent office examination and administration processes. From a practical perspective, the institutional level of governance and administration often provides far greater flexibility for experimentation than is available to the legislative or executive branches, especially when considering public participation in shaping patent policies and processes.¹⁰³⁹

Clinical programs, as re-envisioned under Chapter 12.6.b.ii, can work with patent offices to conduct research regarding individuals’ institutional engagement with the patent system. Patent offices can use this research to propose novel administrative changes to improve quality and user experience, and re-iterate this process for continuous administrative experimentation and improvement. Methodologically, clinical programs provide the added experimental benefit of proximity to actual patent applicants from traditionally under-represented market segments (such as students, independent inventors and SMEs). Opportunities for qualitative evidence from

¹⁰³⁶ See also Colleen V. Chien, ‘Four Experiments for Improving the Patent System’ (n 49) 2; Colleen V. Chien, ‘Experimentation in the Administration of the Law’ [2019] Iowa L J forthcoming.

¹⁰³⁷ See generally (n 1035).

¹⁰³⁸ John F. Duffy (n 48) arguing that patent law itself was born and grew through the process of experimentation among nations, and there remains value in maintaining disharmony and room for experimentation.

¹⁰³⁹ (n 1014) 536, 548.

members of the inventive community would thus be opened. Again, robust clinical initiatives create a space for new forms of institutional praxis, allowing clinical programs to study social norms on how and why individuals engage the patent system. They can then develop new organizational forms and institutional processes based on real user and administrative evidence.

The USPTO has already commenced early-stage piloting of programs directed towards improving individual enablement and connecting such enablement to improving patent quality. In addition to accelerated examination for enhanced applications, the USPTO has initiated programs to experiment with deferring filing fees to encourage early disclosure¹⁰⁴⁰, sharing of best practices in utilizing novel software products to enhance prior art searching¹⁰⁴¹, utilizing examiner interviews to clarify the scope of the claimed invention¹⁰⁴², and deferring certain aspects of examination to expedite prosecution.¹⁰⁴³ A foundation for experimenting with new forms of comprehensive and compact patent filing and examination already exists.

However, no pilot program has yet envisioned directly empowering inventors themselves, including the possibility of extending such programs directly into the science, technology, engineering, arts and mathematics [STEAM] programs on university campuses. Patent offices could establish a research funding program to provide support for clinical programs to carry out quantitative and qualitative research on under-represented inventive communities' engagement with the patent system, as well as supporting regulatory sandboxing projects. This could be

¹⁰⁴⁰ 'Deferred-Fee Provisional Patent Application Pilot Program and Collaboration Database to Encourage Inventions Related to COVID-19' <<https://www.uspto.gov/initiatives/deferred-fee-provisional-patent-application-pilot-program-and-collaboration-database>> accessed 29 April 2022.

¹⁰⁴¹ 'Prior Art Search' <<https://www.uspto.gov/patents/initiatives/prior-art-search>> accessed 29 April 2022.

¹⁰⁴² 'Full First Action Interview Pilot Program' <<https://www.uspto.gov/patents/initiatives/first-action-interview/full-first-action-interview-pilot-program>> accessed 29 April 2022.

¹⁰⁴³ 'Deferred Subject Matter Eligibility Response (DSMER) Pilot Program | USPTO' <<https://www.uspto.gov/patents/initiatives/patent-application-initiatives/deferred-subject-matter-eligibility-response>> accessed 29 April 2022.

implemented in conjunction with ‘academic-in-residence’ type programs that some patent offices have already established.¹⁰⁴⁴ Patent offices could also investment in the development and deployment of advanced search tools and portals, which the private sector tends to underprovide-essentially an investment in public goods to improve public accessibility and engagement with the patent system.¹⁰⁴⁵ Clinical programs could carry out experimentation and research on implementing and using such tools.

c. Procedural Justice

The democratization of professional services is now sweeping across various legal services, ushering in the emerging field of legal design. The misconceptions surrounding legal design in the era of automation and AI are numerous. On the government administration side, some believe it will turn administration into a technocratic state where AI-driven systems replace all forms of human interaction. On the private sector side, the belief is that legal design’s end goal is to promote proliferation of legal-tech products or services that make lawyers more efficient, thereby reducing the cost and increasing the timeliness of service delivery. Neither of these views is entirely accurate.

Legal design is rooted in the general principles of designing for dignity.¹⁰⁴⁶ Designing for dignity is a human-centered approach to systems design, which posits that the end goal of systems design should be enhancing the individual sense of dignity of end users. Whether designing a product to be sold in the marketplace, a public transportation system or a system of

¹⁰⁴⁴ Both the USPTO and EPO have created comprehensive academic programs. See for example ‘The USPTO Thomas Alva Edison Visiting Scholars Program Celebrates Its First Year’ <https://www.uspto.gov/blog/director/entry/the_uspto_thomas_alva_edison> accessed 12 December 2018; See also European Patent Office, ‘Academic Research Programme’ <<https://www.epo.org/learning-events/materials/academic-research-programme.html>> accessed 12 December 2018.

¹⁰⁴⁵ Peter S Menell, ‘Economic Analysis of Intellectual Property Notice and Disclosure’ 24 <<https://ssrn.com/abstract=3242854>>.

¹⁰⁴⁶ Margaret Hagan, ‘Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System’ (2020) 36 Design Issues 3, 12–3.

government administration, the designing for dignity principles are substantially the same. It asks who the end user is, and how can the product, service or system be designed to increase their individual agency and autonomy.

The principles of designing for dignity have manifested themselves in the legal sphere in the theory of procedural justice in administration. Traditional notions of administrative justice, rooted in the classical era view of ‘law as science’ discussed in Chapter 7, historically treat legal procedure as a means to the end of good decision making. This idea was viewed through a utilitarian lens: if the system is producing an accumulation of good decisions, this in turn will lead to beneficial and desirable social outcomes. Accordingly, traditional notions of administrative justice could be characterized as *distributive justice* – individuals receive the ‘correct outcome’ through application of a fair administrative process: if the system is efficiently producing correct outcomes, then justice is achieved.¹⁰⁴⁷

Procedural justice, rooted in the principles of procedure as dignity, means that “administrative law does not treat fairness as merely a means to substantive ends or outcomes”, rather, procedure is “an indispensable good [and]... an end worthy of pursuit in and of itself... that is independent of the merits of the final decisions or outcomes.”¹⁰⁴⁸ At the heart of procedural justice is notion that administration of law should always remain focused on the “dignity of the individual person”, and that “a person’s dignity is defined by their autonomy and agency.”¹⁰⁴⁹ When a government administrative system “is overly complex and difficult to use, then it lessens the person’s agency, harms their sense of dignity, and diminishes procedural

¹⁰⁴⁷ Margaret Hagan and Miso Kim, ‘Design for Dignity and Procedural Justice’, *Advances in Affective and Pleasurable Design* (Springer 2018) 136.

¹⁰⁴⁸ Kate Glover, ‘The Principles and Practices of Procedural Fairness’ in Colleen M. Flood and Lorne Sossin (eds), *Administrative Law in Context* (3rd edn, Emond 2018) 187.

¹⁰⁴⁹ Margaret Hagan and Miso Kim (n 1047) 138.

justice.”¹⁰⁵⁰ Empirical studies indicate that individual autonomy and agency is central to the individual dignity, and the more or less any administrative system is designed to enhance individual autonomy the more or less individuals feel a sense of dignity.¹⁰⁵¹

Procedural justice creates a sense of dignity in individual users when they feel that “their voice matters”, and that they can engage with the administrative institution in question in their own voice.¹⁰⁵² Individuals must feel like they have a *perception of control* when engaging with the administrative system.¹⁰⁵³ In order to amplify the voice, and correspondingly, the perception of control, of individual users, the institution must operate in the language of its users. The plain language movement, which preceded contemporary forms of legal design and attempted to reorient the language of law into forms of communication customary to non-lawyers, is thus also rooted in the fundamental principles of procedural justice.¹⁰⁵⁴

Those who believe that legal design is directed to either lawyer-efficiency or an automated technocratic state are therefore mistaken. Emerging technologies such as AI have the potential to reshape the administration of law to the extent that they enhance human-centeredness and individual dignity and autonomy. Legal design “recognizes the importance of new technology but [does] not privilege it as the main way to innovate.”¹⁰⁵⁵ Technologies that improve efficiency, either in legal practice or in direct government administration, may run counter to the principles of procedural justice if they do not “also improve people’s sense of being treated with respect and dignity within the system.”¹⁰⁵⁶ It is here that the principles of procedural justice align

¹⁰⁵⁰ *ibid.*

¹⁰⁵¹ *ibid* 142.

¹⁰⁵² *ibid* 139.

¹⁰⁵³ *ibid* 140.

¹⁰⁵⁴ For a general discussion of the plain language movement, see Christopher Williams, ‘Changing with the Times: The Evolution of Plain Language in the Legal Sphere’ (2015) 28 *Alicante Journal of English Studies* 183.

¹⁰⁵⁵ Margaret Hagan (n 1046) 4.

¹⁰⁵⁶ *ibid* 12.

with designing for dignity generally and uncover certain biases with the legal system. As discussed above, good design principles focus on who the end user is and how best to empower their individual autonomy and agency. Government administrative systems have implicitly often viewed lawyers as the end user rather than individuals themselves. Thus, legal design makes a subtle but important shift: individuals themselves are viewed as the end user and administrative systems are designed to enable their individual autonomy rather than lawyer efficiency.

In contrast to notions of distributive justice, procedural justice is viewed as an end in itself, not just a means to the end of good decision outcomes. Studies demonstrate that improving procedural systems in line with the principles of individual dignity both improve the legitimacy of administrative systems and also often better achieve the ends sought by distributive notions of administrative justice.¹⁰⁵⁷ To reframe this for patent agency, the principles of procedural justice are directed towards democratizing enablement by *enabling* the agency of its intended community of individual users. As we have seen in our discussion of patent agency, by democratizing patent processes by rooting them within the norms of the technical community - including the technical norms of conducting comprehensive ex ante literature reviews, precisely defining the inventive contribution vis-à-vis the state of the art, and improving plain language approaches to the claiming of inventions - we may end up improving patent quality and legal certainty across several different metrics. Improving procedural justice within the patent system may end up improving distributive justice objectives.

As discussed under Chapter 11.2.c, the concepts of procedural justice have taken hold across the legal and administrative spectrum, and in this respect, patent practice remains an outlier.¹⁰⁵⁸

¹⁰⁵⁷ Margaret Hagan and Miso Kim (n 1047) 139.

¹⁰⁵⁸ Margaret Hagan (n 1046) 12–3. Furthermore, the principles of designing for dignity have proliferated outside of the administration of law in other professional fields. For example, in medicine, practices such as palliative care have emerged as a result of the principles of design for dignity.

Furthermore, this reinforces the thesis that professionalized patent agency continues to diminish, rather than enhance, enablement across the patent system. This reality is even more glaring considering the fact the modern patent system is rooted in innovation in government administration focused on empowering the agency of its intended community of technicians and innovators, intended to sweep away the Kafka-esque maze of the earliest patent system which was a vestige of the royal prerogatives of a bygone era. Fast-forward to modern times, and it would be hard for outsiders to believe that a system designed to elevate the pinnacle of human innovation operates on a bureaucratic system of such arcane proportions that users might be forgiven for thinking they are operating in the early 19th Century.

As the forms and concepts of contemporary patent law are rooted in the same classical epoch thinking as traditional notions of administrative justice, it is unsurprising that most of the interviewees subscribed to traditional notions of distributive justice when discussing patent practice. They rarely turned their minds to consideration of general accessibility as a desirable reform.¹⁰⁵⁹ Professional patent agents rely on the role of ‘the patent agent as teacher’ as the predominant means of improving patent system accessibility. But the dissemination of legal knowledge often stifles, rather than empowers, individual agency amongst end users. As empirical studies have demonstrated, interventions that are designed to educate individuals regarding the law, but still maintain complex administrative systems requiring professionalized legal expertise to navigate end up undermining their own objectives by leaving individual users increasingly frustrated.¹⁰⁶⁰

¹⁰⁵⁹ Margaret Hagan and Miso Kim (n 1047) 138, suggesting that many individuals within the legal system operate under an inherent assumption that administrative justice is, or should be, distributive justice.

¹⁰⁶⁰ *ibid* 135.

The disruption caused by legal-tech is already sweeping across the legal industry and professionalized patent agency may soon make its effects felt there. Academic commentary now suggests leveraging technology to modernize the patent application process in line with the principles of human-centered design. For example, Professor Menell has suggested reforming the “the arcane, 19th century paper patent file system into the 21st century” through the utilization of fillable forms that are standard across most areas of government administration.¹⁰⁶¹ Such reforms are directed to facilitate ease of use, by patentees and examiners, in relation to both software-enabled searching and transparency.¹⁰⁶²

¹⁰⁶¹ Peter Menell, ‘It’s Time to Make Vague Software Patents More Clear’ [2013] *Wired* <<https://www.wired.com/2013/02/its-time-to-make-vague-software-patents-more-clear/>> accessed 11 May 2019.

¹⁰⁶² *ibid.* According to Professor Menell, in addition to ‘mov[ing] the arcane, 19th century paper patent file system into the 21st century’, the additional benefits of leveraging new technologies would be to ‘enable a new generation of search and evaluation tools.’

Patent Claim Template

Preamble		☐ Limitation
Transitional Clause	comprising	☒ comprising ☐ consisting of ☐ consisting essentially of ☐ claim limitation - novel ☐ Means + Function 112(f)
Claim Limitation 1		
Claim Limitation 2		☒ claim limitation - novel ☒ Means + Function 112(f)
* * *		☒ combination of limitations - novel
default dictionary: _____		

Figure 13 – Fillable Patent Application Form Proposed by Professor Menell¹⁰⁶³

In the US context, the USPTO was one of the first government agencies, used as a shining example to a public often skeptical of government in general, of how government could empower its people. Inventor's themselves could easily engage with the patent system to achieve their technical objectives in a way that enabled, rather than impeded, individual liberty.¹⁰⁶⁴ The irony cannot be lost on anyone who has engaged in even a cursory review of the modern patent

¹⁰⁶³ Peter Menell, 'Promoting Patent Claim Clarity' (*Berkeley Technology Law Journal*, 10 May 2016) <<http://btlj.org/2016/05/promoting-patent-claim-clarity/>> accessed 11 May 2019; Similarly, see Nefissa Chakroun, 'Vagueness of Patent Claim Language, Claim Construction and Patent Infringement – What a Mess!' (2020) 69 GRUR International 1097, 1103 where Chakroun recommends making claim charting a requirement of invention claiming. Claim charting requires that the applicant break the claim up into discretized components and provide a definition and example for each claimed component, thereby providing enhanced interpretive clarity for the average, non-professional patent reader.

¹⁰⁶⁴ Abramowicz and Duffy (n 1007) 1609.

system. What was once the shining example of progressive legal design is now incomprehensible and inaccessible to anyone not passing through professional patent agency. Once again, the solution to today's modern problems may be found in the past, in the early days of patent agency.

d. Democratizing Enablement: Re-Embedding Patent Agency Within the Technical Community

i. *Re-Coding Patent Agency as a Technical Art*

Professor Eisenberg's examination of the patent system's early 1980s move into the university-sector led her to the nuanced conclusion that the two systems need not conflict with one another and could be mutually reinforcing. However, disputes and conflicts arise when the two systems fail to accommodate each other's similar and different norms and incentives operating under each respective system. The conclusion was remarkably simple; the patent system should accommodate a more endogenous form of development of norms, rather than the other was around. According to Eisenberg, as the patent system pushes deeper into traditionally academic environments, "it will be able to achieve its ends more effectively if it draws from the experience of the scientific community in developing norms and incentives to achieve similar ends."¹⁰⁶⁵

The reality is that patent law and practice has always had a confused and conflicted relationship with the academic community. Attempts to incorporate patent education into the world of institutional education provide an excellent example. Calvert points out that throughout the 20th Century, US colleges and universities rarely taught patent law as a stand-alone subject, whether in law or engineering faculties. However, even as patent law courses began to take

¹⁰⁶⁵ Eisenberg (n 906) 230.

shape, it was not predominantly US law schools that sought to fill the patent educational void; rather, some of the earliest US patent law courses were designed for engineers, not lawyers.¹⁰⁶⁶ Today, this may seem controversial, as comprehensive training has been coded as predominantly a legal subject or, at least, one that should remain under the management of the patent agent profession. Yet as Calvert highlights, there was nothing particularly contentious about engineering schools taking the lead on institutionalized patent education in the early 20th Century.

Across the world, institutionalized patent education has either become dominated by the legal field or overseen by professional patent agents. Still, disciplinary confusion and conflict remain. US professional patent agents have long held that professional patent agents must have a scientific background and need not have any in-depth knowledge of other areas of law outside of patent practice, and yet many still believe that they should have to graduate from an accredited US law school.¹⁰⁶⁷ After patent practice became coded as law, US law schools became reluctant to create patent law courses for engineers for fear that “[professional patent agents] would be primarily technical men and only secondarily lawyers.”¹⁰⁶⁸

Developments in technology relating to prior art searching, application drafting and invention claiming, which have substantially democratized the ability to access and perform these services, have also undoubtedly enabled us to transform patent document preparation from strictly a legal art back into an art of technical writing. From an institutional perspective, this would place patent practice back into the STEAM fields. Engineering students could be taught how to

¹⁰⁶⁶ Robert Calvert, ‘Teaching Patent Practice’ in Robert Calvert (ed), *The Encyclopedia of Patent Practice and Invention Management* (Reinhold Publishing Corporation 1964) 771.

¹⁰⁶⁷ Harry C. Hart (n 546) 93.

¹⁰⁶⁸ Donald Babcock Keyes, ‘Numerical Treatment of Scope of Claims’ in Robert Calvert (ed), *The Encyclopedia of Patent and Invention Management* (Reinhold Publishing Corporation 1964) 603.

complete prior art searches both as part of the ideation process and also to define an invention in a patent application. Perhaps most importantly, this might break the barrier of professional patent agency, and, allow the patent system to be shaped in the future by the norms of the innovating community.

Recent trends in patent office administration have generated discussions about placing greater emphasis on ex ante applicant obligations in the patent application process. This has the potential to democratize enablement, ground patent application processes within the norms of the technical community, and enhance patent quality. If patent offices begin to take seriously the promise and opportunity of applicant incentive programs that place the burden and benefit of comprehensive pre-filing searches and careful characterization of the invention vis-à-vis the prior art upon the applicant, new forms of patent agency and education could well be developed that would more closely align with the technical education of STEAM students.

Changes in ex ante patent applicant obligations and greater access to technology for navigating the patent system make grounding patent training within the technical fields a seemingly natural fit, but there has been little thought to pursuing such endeavours. Patent offices around the world are developing creative new educational programs, but these remain predominantly coded as law. For example, the USPTO has recently launched a much-lauded Certified Law School Clinical Program whereby participating law students are permitted to represent clinic clients in the presentation and prosecution of patent applications before the USPTO despite not being registered patent agents/attorneys.¹⁰⁶⁹ While this program has succeeded in improving patent practice education, it also raises a revealing question; why must

¹⁰⁶⁹ See generally ‘Law School Clinic Certification Program’ <<https://www.uspto.gov/learning-and-resources/ip-policy/public-information-about-practitioners/law-school-clinic-1>> accessed 2 December 2022.

the program remained focused on law schools and the training of professional patent agents, instead of seeking ways to incorporate training directly into STEAM programs?

As the interview data demonstrate, professional patent agents reify the exercise of invention claiming and would likely respond that attempting to teach those outside of professional patent agency the art of invention claiming is reckless. One of the most contentious issues surrounding institutionalized patent training in the 20th Century was the extent to which comprehensive claim drafting training should be incorporated within curricula, regardless whether the training was housed in engineering or law faculties.¹⁰⁷⁰ However, as we have seen, most interviewees struggled to provide systematic responses about how claims are drafted, despite their confidence that this is an art at the core of their professional expertise. Furthermore, interviewees largely felt that patent prosecution operated in its own language and according to processes that most inventors would not understand.

These viewpoints prevail even though there have been few documented attempts to study whether it is possible to teach the principles of patent practice to undergraduate students within the STEAM disciplines. One recent study examined the use of the USPTO's early-stage machine-learning based search platform, *Sigma*, by MBA students, in an attempt to uncover whether machine-learning based technology can replace labour-intensive aspects of human capital in patent information-related managerial decision-making.¹⁰⁷¹ One of the few available studies on patent drafting and prosecution involved a shortened, semester long course for undergraduate and graduate level business and engineering students.¹⁰⁷² While the students

¹⁰⁷⁰ Robert Calvert, 'Teaching Patent Practice' (n 1066) 772.

¹⁰⁷¹ Prithwiraj Choudhury, Evan Starr and Rajshree Agarwal, 'Machine Learning and Human Capital Complementarities: Experimental Evidence on Bias Mitigation' (Social Science Research Network 2020) SSRN Scholarly Paper ID 3185022 <<https://papers.ssrn.com/abstract=3185022>> accessed 11 May 2020.

¹⁰⁷² Paul Swamidass and A. J. Gokcek, 'Empowering Young Inventors: An Experimental Course on IP and Patent Application Drafting at Auburn University' (2010) 35 J Technol Transf 424- Interestingly, the authors of this study

struggled with some of the formalities (such a claim structure, antecedent basis, etc.) and unnecessarily limiting claim language, the authors concluded that with “devot[ing] more time to teaching claims drafting” beyond the 1-credit offering on which this study had been structured, “business and engineering students could learn the essence of patent drafting in a short course.”¹⁰⁷³ One fascinating aspect of this study is the authors’ observation that patent practice training “woke up the inner entrepreneur in the students”, inspiring some students to “want[] to know more about marketing and launching their product as a new business.”¹⁰⁷⁴ Inspiring creativity and the innovative spirit of independent inventors was one of key, and since neglected, objectives of the early patent system.

If we take seriously the goal of democratizing enablement, then the time may have also come to take seriously the objective of recoding patent agency and patent practice as a technical art. This will require Patent offices to reconsider how they engage with institutionalized educational programs in order to enable students in STEAM programs to understand how to engage practically with the patent system. This approach can and should align with the types of experimentation in education and procedural justice discussed under Chapters 12.6.b and 12.6.c above, where such programs could act as catalysts for institutional praxis and experimenting with new forms of legal-tech that would empower individual end-users to directly engage with the patent system. Furthermore, patent office practices can be adjusted better to emphasize the norms of the student community that enhance the democratization of enablement as well as ground the patent system in the norms of the community in question. For example, patent offices could encourage students to learn the patent process and share knowledge through patent disclosure by

were a professor of management focused on cross-disciplinary innovation management studies and a technology transfer professional.

¹⁰⁷³ *ibid* 429–430.

¹⁰⁷⁴ *ibid* 430.

enacting a policy which substantially reduces filing fees for applications filed by students participating in a form of certified patent educational program. While filing fees may be reduced, grant and/or maintenance fees can be significantly increased for such filings, thereby acting as a cost screen that ensures that the focus remains on teaching engagement with the patent system while also preventing all but the seriously meritorious patent applications proceed to grant and are maintained.¹⁰⁷⁵ The balancing of filing versus maintenance fees would ensure that the encouragement to file patent applications does not unnecessarily contribute to the consumption of the public domain of technical knowledge.

Apart from the goals of democratizing enablement and correspondingly, contributing to the dissolution of the boundary of professionalized patent agency, such a program would have additional public benefits. As Professors Schwartz and Cotropia have demonstrated, abandoned patent applications are frequently cited as prior art against subsequent patent applications, thereby contributing to the creation of robust public domain by constraining the scope of subsequently granted patents.¹⁰⁷⁶ Accordingly, such a program, which would encourage the filing of student patent applications while simultaneously substantially increasing the cost of grant and maintenance fees, could also contribute to the creation of a body of public domain patent disclosures which could be used by others, including students, for follow-on ideation and innovation as well as increasing freedom to operate in the marketplace.

¹⁰⁷⁵ For an excellent discussion of cost screens in the patent system, see Jonathan S Masur, 'Costly Screens and Patent Examination' (2010) 2 *Journal of Legal Analysis* 687, 690. Professor Masur argues that professional patent agent fees act as a cost screen by prohibiting the overwhelming of the patent system with unmeritorious patents. However, he points out that such fees are dead-weight costs to the system, and the better approach may be 'substituting higher patent office fees for attorney-driven costs'.

¹⁰⁷⁶ David L. Schwartz and Christopher A. Cotropia, 'The Hidden Value of Abandoned Applications to the Patent System' (2020) 61 *Boston College Law Review* 2809.

ii. *In-House Patent Agency*

The in-house patent counsel, like the patent document itself, is a boundary object that straddles the line between the fields of science, law, and business.¹⁰⁷⁷ Much like a patent document, the in-house practitioner “becomes a passage point between multiple disciplinary realms, aligning disparate networks of actors and resources toward a particular transaction.”¹⁰⁷⁸ The interview data and analysis of the foregoing Chapters, much like several predecessor studies, demonstrate that the in-house patent practitioner possesses many qualities and viewpoints that differ from those of the private practitioner, largely due to their proximity to their different internal environment and community.

The forgotten origins of the ‘professional patent prosecutor’ are tied to the origins of the ‘in-house counsel’. For many years, in-house corporate patent departments were one of the main training grounds for patent attorneys. Some of the leading patent treatise writers reminisce about the quality of their in-house apprenticeships.¹⁰⁷⁹ As Professor Mather highlights, come the late twentieth century, as the demand for patent expertise grew, so too did the quantity of private practitioners and the quality of their training.¹⁰⁸⁰ In-house patent practitioners, in contrast to those in private practice, have long called for the creation of a comprehensive, institutionalized

¹⁰⁷⁷ Dan L Burk, ‘Patent Silences’ (2016) 69 Vanderbilt Law Review 1603 According to Burk, a boundary object is an ‘artifact[] that function[s] at the boundaries, or the overlap, between different social worlds... at the intersection of different communities, belonging to different domains without fully belonging to any of them.’ (1623-4) A boundary object ‘provide[s] a point of commonality where disparate communities can collaborate and where contested meanings can be negotiated. In doing so, they facilitate communication and cooperation between social domains and allow resolution of disparate interests that potentially conflict.’ (1624).

¹⁰⁷⁸ *ibid* 1628.

¹⁰⁷⁹ See Ronald D. Slusky, *Invention Analysis and Claiming: A Patent Lawyer’s Guide* (Second, American Bar Association 2012) xvii. In the author’s Acknowledgements, he states: ‘I owe my biggest debt of gratitude to my employer of 31 years, Bell Laboratories. It was Bell Labs- originally a division of AT&T and now Lucent Technologies- that accepted me into its patent training program in 1970 and launched my career as a patent lawyer. The Bell Labs legal organization afforded me the opportunity to learn the patent craft in an environment that emphasized excellence in all aspects.’ Thereafter, the author goes on in his Acknowledgements to highlight many mentors and experiences at Bell Labs.

¹⁰⁸⁰ Lynn Mather (n 63) 252–257.

training program to train students in the detailed workings of the patent system.¹⁰⁸¹ Yet private practitioners have remained skeptical about the efficacy of any attempt to move patent agent training into the institutional space, let alone patent training for students in general technical fields.¹⁰⁸² These views may be a reflection of the accelerated exodus, beginning in the late 20th century of patent agent expertise from in-house to external firms, and a concomitant shift in the cultural attitude of new practitioners who, did not benefit from the same in-house apprenticeship as did their predecessors.

Along with recoding patent agency as a technical art and regrounding it within the technical community, the time has come to consider whether the late 20th Century exodus of patent expertise from in-house to private practice should be reversed. As patent agency becomes democratized within institutionalized education, new graduates entering into STEAM positions within firms would bring with them an inherent knowledge of patent agency. Patent agency could correspondingly become part of standard technical practices, such as engineers and biotechnologists, thereby becoming internalized within firms as opposed to being a distinct practice. Increasing internalization of legal expertise is not exclusive to patent agency. Within rapidly deregulating legal service markets, new legal professional training programs and designations, such as the Solicitors Training Contracts¹⁰⁸³ and Chief Legal Officer,¹⁰⁸⁴ are now emerging. These programs are geared towards preparing and positioning new legal professionals

¹⁰⁸¹ See for example Roy H. Massengill, 'Training Academy for Patent Attorneys' [1981] 9 APLA Q. J. 65 67.

¹⁰⁸² See generally Philip Griffith, 'The Role of Universities in Teaching and Training Patent and Trade Marks Attorneys - The UTS Perspective' [2001] 3 UTS L Rev 159; Donna Meredith, 'Like Learning Karate From a Textbook: A Critical and Historical Analysis of the Regulatory Regime for Patent Attorneys in Australia' [2015] Journal of the Intellectual Property Society of Australia and New Zealand Inc. 45.

¹⁰⁸³ 'Deloitte Legal Training Contracts to Offer Innovative Option for Aspiring Solicitors' (*Deloitte United Kingdom*) <<https://www2.deloitte.com/uk/en/pages/press-releases/articles/deloitte-legal-training-contracts-to-offer-innovative-option-for-aspiring-solicitors.html>> accessed 13 December 2019.

¹⁰⁸⁴ 'The Chief Legal Officer Program' (*Deloitte United States*) <<https://www2.deloitte.com/us/en/pages/advisory/solutions/chief-legal-officer-general-counsel-executive-program.html>> accessed 13 December 2019.

for what appears the future of legal practice. A combination of legal technology and a desire for cost-management is redefining legal professionals' identities and internalizing more of legal expertise within the firm.

Many of these new legal-training programs are catching on to what other professional fields have known for many years, namely, that the combination of professional service provider and AI-driven technology will outperform either operating alone, provided that complimentary internal training and education embeds the combination into the system in question.¹⁰⁸⁵ Accordingly, from a practice perspective, those firms that are reluctant to remove the boundary of professionalized patent agency for social benefit purposes may be convinced to adopt internalized patent agency for its efficiency and productivity enhancing effects. Similarly, internalizing patent agency may have broader public benefits: some empirical studies suggest that patent claims drafted internally tend to be more precise and narrow than those drafted by external counsel.¹⁰⁸⁶ This empirical evidence corresponds with the interview data: in-house practitioners lamented the fact that external counsel often did not put the necessary effort into comprehensively searching the prior art and carefully crafting the scope of the invention as they themselves would.

iii. Legal Education, Legal Practice and Professional Patent Agency

As discussed in Chapter 1, there is a rapidly growing academic movement that applies progressive socio-legal methodologies and theories to an analysis of the modern patent system. As Professor Burk has suggested, academic analysis of the patent system has, to date, placed too

¹⁰⁸⁵ For an excellent example and case study from the field of diagnostic medicine, see Thierry Pelaccia, Germain Forestier, and Cédric Wemmert, 'Deconstructing the Diagnostic Reasoning of Human versus Artificial Intelligence' (2019) 191 CMAJ E1332, E1334.

¹⁰⁸⁶ Sevim Süzeroğlu-Melchior, Oliver Gassmann, and Maximilian Palmié, 'Friend or Foe? The Effects of Patent Attorney Use on Filing Strategy Vis-a-Vis the Effects of Firm Experience' (2016) 55 Management Decision 1122.

much emphasis on doctrinal analysis to the detriment of other potentially insightful methods of inquiry.

The suggestion that a separate and distinct role for legal education may support the dissolution of the boundary of professionalized patent agency may seem counterintuitive. It appears at least in the US context that progressive legal theories have become common in many law school curricula. Critical legal theories, procedural justice, legal design, and socio-legal methodologies of legal analysis, have the potential to uncover aspects of capture within professional patent agency and support dissolving its boundaries.

As the interview data demonstrate, those agents who had completed a comprehensive legal education beyond just the professional patent agent qualifying training had a far more holistic view of the patent system and their role within it. This was particularly striking in the UK, as most UK agents only complete the requisite professional patent agent training without any further legal education. The perspective of the few UK interviewees who had completed legal training was far different from the others: they were more likely to appreciate various socially constructed aspects of the patent system and their responses demonstrated fewer indications of the epistemic capture prevalent in other UK interviewees' responses. As discussed in Chapter 6, the legally-trained advocate is often driven by the 'hired gun' ethic of 'further my client's interests at all costs', and various social institutions, legal or otherwise, then appear as malleable constructs to be bent and twisted as needed to benefit the client. While this mentality certainly suffers from its own forms of epistemic capture, some of which have been highlighted in Chapters 6, these might be far different from the forms of capture prevalent within the boundaries of professionalized patent agency.

To the extent that prospective patent agents complete legal training as a step towards becoming professionalized agents, the capturing effect of professionalized agency may continue to retard any progressive effect of a progressive legal education. If one wishes to dissolve the discourse of professional patent agency, one may have to disconnect the ‘lawyer’ from ‘patent agency’, with the former being educated to view the law and legal institutions as social institutions that can be used to achieve certain social outcomes, and the latter becoming a democratized technical field. Patent agency’s embeddedness within the technical community will permit it to develop alongside the norms of the technical community. Lawyers educated with adequate separation from patent agency will be able to challenge patent practice developments when necessary to ensure that legal doctrine and the rules of patent administration develop in line with principles of justice common to other areas of law. However, maintaining separation between the two will ensure that both patent agency and legal practice will avoid the extremes of professionalization, thereby reducing the risk of capture.

iv. Re-Constituting the Hypothetical Person Skilled in the Art –From Hypothetical Infringer Back to Curious Reader

As detailed in Chapter 8, the gradual transformation over the late 20th Century of the hypothetical person skilled in the art from curious reader to hypothetical infringer has contributed to patent law’s exceptionalism amongst law’s other ‘reasonable people’. This has also contributed to diminishing the value of enabling disclosure and has disconnected patent law and practice from the technical community in favour of the creation of a stand-alone epistemic community of professionalized patent agents. Much of this has been done in pursuit of the goal of enhancing legal certainty. However, as demonstrated under Chapter 8, this transformation of the hypothetical skilled person may be undermining this goal. The refinement of claiming practices has certainly promoted predictability and clarity for patentees and public alike. Yet

experience demonstrates that certainty, like all things, is subject to the law of diminishing returns. The more courts have legitimated the increasingly complex practices of professional patent agency - including applying rigid textualism to esoteric patent agent claim language, while largely eliminating the doctrine of equivalents - the more the number of vague, broadly worded patent claims have multiplied and patent prosecution has become complex and adversarial.¹⁰⁸⁷ These developments have arguably added complexity to the patent system at the expense of certainty.

As stated in Chapter 8, courts around the world should begin taking seriously the long-standing jurisprudential edict that patents are not written by or for lawyers, and, should therefore not be construed through the meticulously-parsing disposition of lawyers. As technical documents, patent law should recognize a more realistic writer-reader relationship. The principles of claim construction should overtly recognize that patents are written by and for a technical audience.

v. Functionally-Oriented Claim Construction

Grounding patents within the technical community means adopting a functionally-oriented approach to claim construction. As discussed in detail in Chapter 8, such an approach is neither ‘patentee-friendly’ nor a search for the ‘spirit of the invention’. Rather, it gives effect to the fact that a patent’s audience are *real* skilled artisans who are *reading to learn*. Enablement flows throughout every part of a patent specification and infuses every aspect of the document, including the claims. Accordingly, the hypothetical skilled reader reads claims within the context of the entire specification to understand what the claimed invention is *teaching her to do*. Claim language is viewed through this functional lens. This simple reality is the essence of

¹⁰⁸⁷ John R. Thomas, ‘Formalism at the Federal Circuit A Review of Recent Decisions of the United States Court of Appeals for the Federal Circuit’ (2002) 52 American University Law Review 771, 804–5.

functionally-oriented claim construction. In German patent practice, all the corresponding doctrines of interpretation, equivalence and essentiality historically derived from this straightforward foundation.

Despite its simplicity, this understanding has long eluded Anglo-American practitioners and fueled misunderstandings about German claim construction. Even today, attempts to embrace aspects of traditional German practice - for example, the UK move to harmonize its doctrine of equivalents with that of German practice – without truly understanding the underpinning of such doctrines continue to generate confusion and contribute to the diminishing value of enabling disclosure.¹⁰⁸⁸ The essence of claim construction must be that patents are teaching documents

¹⁰⁸⁸ A case in point is the recent UK Actavis test for infringement by equivalency, which, the UKSC in Actavis suggested was intended to move UK practice towards harmonization with German practice. It appears that the third question of the UK Actavis test for equivalency, similar to its predecessor Improver questions, asks whether the patentee intended strict compliance with the language of the claim text. However, Actavis appears to reverse the long-standing presumption of essentiality of the text of the claim in favour of an apparent presumption of non-essentiality. See *Regen Lab SA v Estar Medical Ltd & Ors* [2019] EWHC (Pat) 63, 220, 223 wherein Hacon HHJ suggests that the pre-Actavis approach of presuming that every word of the text is essential is no longer good law with respect to the third Actavis question; This presumption of non-essentiality indirectly harms the disclosure function of patents- applicants will be tempted to avoid characterizing any aspect of the claimed invention within the disclosure in order to leave open the possibility of arguing after the fact that a feature is non-essential- see for example *E Mishan & Sons, Inc (t/a Emson) v Hozelock Ltd & Ors* [2019] EWHC (Pat) 991 ((Pat)) [108]. When applying the third Actavis question to determine whether compliance with the claimed “non-elastic” feature of the invention was essential, Nugee J. answered the question in the negative, supported by the lack of any detailed discussion of the feature within the specification: ‘If [strict compliance] had been intended, one might have expected rather more explanation in the specification as to what the patentee understood the parameters of non-elastic to be, and why it was important to stick strictly to them.’; This presumption of non-essentiality is so strong, that even claim differentiation and prosecution history have been insufficient to constitute a positive indication of essentiality of a claimed feature. See *Akebia Therapeutics Inc v Fibrogen, Inc* (2020) 866 EWHC ((Pat)) [452] Arnold LJ. suggested that the hypothetical skilled reader, for the purposes of the third Actavis question can be ‘taken to be aware that the reason for the amendment [during prosecution] was that the broader claims were invalid (or at least that there was a substantial risk that they would be found to be invalid)’; this was cited in approval by Birss LJ *Facebook Ireland Ltd v Voxel IP LLC* [2021] EWHC 1377 (EWHC (Pat)) [205], yet Birss LJ did not find the amendment in issue in Facebook Ireland to narrow the scope of the doctrine of equivalents given that the amendment was made due to an added matter objection, thereby potentially limiting the scope of this principle; see also *E Mishan & Sons, Inc (t/a Emson) v Hozelock Ltd & Ors* para 94, where Nugee J. suggests that in instances where a claim in question is a dependant claim, and the disputed feature is the only feature which differentiates the dependant claim from its independent claim, the principle of claim differentiation might constitute sufficient grounds for answering the third Actavis question against the patentee. However, in *E Mishan & Sons*, the claim feature in question was the only feature which differentiated the independent Claim 1 of the GB patent from the corresponding independent claim 1 from the EP patent from which it was derived (the feature in question was the only feature of dependent claim 2 of the EP patent), leading one to believe that this feature was added to claim for a specific purpose. Nevertheless, Nugee J. still found the third Actavis question to be in favour of the patentee, and decided that this question did not require an answer to resolve the dispute at hand. See also *Excel-Eucan Ltd v*

written for a technical audience, which reads all aspects of the patent specification, including the claims, to learn how to implement the inventive contribution to the state of the art. This writing to teach how to do something new, and reading to learn how to do something new, underpin a functionally-oriented claim construction. If enablement is the lodestone of agency within the patent system, then functionally-oriented claim construction is the lodestone of patent interpretation.

7. CONCLUSIONS

It has been said that AI and automation in the era of the Fourth Industrial Revolution will not replace legal service providers; rather, legal service providers who learn to adapt and use AI and automation will replace those who do not.¹⁰⁸⁹ The disruption caused by AI and legal-technology will lead to winners and losers within the legal profession. The most-skilled and competent will be freed up to “work[] on tasks with higher-level cognitive demands”, maintaining or even increasing their revenue-generating potential; “non-lawyers or technology will perform the more routine legal services.”¹⁰⁹⁰ It is no longer solely a matter of *who* is entitled to provide legal services, but also *how* the public accesses legal knowledge. Strict regulation of who is entitled to provide legal services has long been justified on the economic theory of market failure, specifically, the asymmetry of information between purchasers and sellers requires regulation to ensure quality control. However, legal-tech is not only disrupting the provision of services, but removing “the asymmetrical advantage that [legal] sellers long held over buyers”

Source Vagabond Systems Ltd [2019] EWHC 3175 (Pat) [88–89, 96], which calls into question whether explicit references to the significance of a claimed feature during prosecution, to overcome prior art objections, will even be sufficient in every circumstance for a negative finding under the Actavis questions.

¹⁰⁸⁹ See Law Technology Today, ‘Artificial Intelligence Won’t Replace Lawyers—It Will Free Them’ (*Law Technology Today*, 27 February 2018) <<https://www.lawtechnologytoday.org/2018/02/artificial-intelligence-wont-replace-lawyers-it-will-free-them/>> accessed 20 November 2019.

¹⁰⁹⁰ *ibid.*

and has justified the regulation of legal services.¹⁰⁹¹ We may have “left the age of the [legal service] provider, and entered the age of the consumer”, with direct-to-consumer automated legal tools ushering in a “new dawn in legal service delivery”.¹⁰⁹²

As legal markets around the world are being deregulated, the era of the megafirm that Professor Phillips predicted for patent agency may already be upon us in other legal fields.¹⁰⁹³ The interview data suggest that few professional patent agents see things this way. Instead they view legal-tech on one or the other end of opposing extremes: either denial that it can have any substantial impact on their work or the belief that it will eliminate them altogether.

A small group of interviewees viewed their work differently, more as a strategic art than the mechanical process of drafting patent applications. To these interviewees, legal-tech may eliminate many practitioners from the market, but it also has the potential to allow them to work more efficiently and effectively and therefore is no cause for concern. For example, upon being asked whether a computer could ever do his job, a legally-trained interviewee responded without hesitation that a computer could not do his job. When the conversation dovetailed into systematic details of what the claim drafting process entails, he backtracked, laughed and whimsically stated that the questions were “forcing him to actually reflect on what precisely it is that he does”. He stated that in the near future, a computer may very well be able to draft claims with far less human input. After all, he acknowledged that computers are now ‘inventing’ in the biotech space

¹⁰⁹¹ Mark A Cohen, ‘Law In The Age Of The Customer’ (*Forbes*) <<https://www.forbes.com/sites/markcohen1/2019/11/25/law-in-the-age-of-the-customer/>> accessed 16 December 2019.

¹⁰⁹² Chris Bentley, ‘Direct to the Consumer Automated Legal Tools’ (Law Society Special Lectures, Toronto, ON, 21 November 2019) 2 <<http://www.legalinnovationzone.ca/wp-content/uploads/Lso-special-lectures.pdf>> accessed 23 November 2019.

¹⁰⁹³ Deloitte is incentivizing and supporting the emergence of new legaltech service providers through a number of initiatives, including its Legal Ventures Program: see ‘Ventures | Innovation | Deloitte UK’ <<https://www2.deloitte.com/uk/innovation/ventures>> accessed 13 December 2019.

bysearching for biomarkers. However, he again reiterated that while a computer could likely draft claims with little human input, drafting claims was not really what his ‘job’ was, and that a computer cannot do all the strategizing that his work entailed. [#17]

Those few interviewees who refused to accept that their *craft* - the *art* of invention analysis and claiming - could ever be carried out by a computer, were referring to more strategic-level thinking which predominantly aligned invention analysis with all aspects of business and legal strategy. With the slow erasure of professional boundaries, it may be these patent agents who will continue to thrive while those who uncritically view their ‘job’ as experts in patent drafting and prosecution might struggle to survive.

One of the most interesting things to emerge from the interview data is that when asked whether a computer could do their job, only a small handful of German interviewees responded about the detailed description of patent disclosure rather than drafting claims. As one interviewee stated:

Legal tech does make it easier to do certain things... But what the legal tech can't do is find out where the invention is, and in my view, cannot write good descriptions. [#11]

The fact that an open-ended question – ‘can a computer do your job?’ – elicited so many responses focused on drafting patent claims and the future commercial viability of the patent agent business, and so little on the enabling disclosure aspect of patenting, is telling and brings us full circle to where we started. As technological advances provide much needed modernization to the patent application process, moving from pages of longwinded and convoluted text with outdated black and white drawings to a system where AI-driven technology can efficiently complete comprehensive searches modern and digital disclosure can be uploaded and published with the stroke of a key, so too will these technological advances advance the

return to democratized enablement and agency. Enablement, the earliest bedrock of patent agency, has largely fallen outside the field of vision of professional patent agency. Having lost sight of this, many professional patent agents have also lost sight of the origins of their own profession, where the successful patent agents practiced as ‘invention agents’ rather than strictly patent prosecutors. The cliché that those who forget the past are doomed to repeat it may yet be apposite for both the history and future of patent agency.

CHAPTER 13: CONCLUDING REMARKS

One of the most fascinating set of responses to emerge from the interview data involved three separate interviews from each of the examined jurisdictions. All three interviewees – one from the US, one from the UK and one from Germany – are recognized leaders amongst their peers, practice litigation in addition to drafting and prosecuting patent applications, and, have all argued leading patent law cases before some of the highest courts in each of their respective jurisdictions. When asked if a computer could one day do their job, each provided a similar response. For example, the interviewee from the UK responded that “when a computer can do my job, then, essentially, a computer will actually be inventing on its own. If that day ever truly arrives, then we will all have much bigger things to worry about than patents!” Similarly, the interviewee from the US responded by stating “Can a computer write a beautiful poem or compose a musical score? If so, then yes, a computer can do my job. If not, then no, a computer will never be able to do my job.” The German interviewee responded, “Can a computer ever truly be creative? I don’t think so... so I don’t think a computer will ever be able to do my job.”

Equally interesting is the fact that each interviewee struggled to provide definite responses to questions regarding what their job entails. They all took considerable pride in acting as an agent for their clients, protecting their interests and their inventions. Yet, all resisted any attempt to pigeonhole their work and professional identity into a concrete form. What is surprising is not that these interviewees provided these responses, rather, that more interviewees did provide similar responses. Agency, whether it be patent agency or human agency in general, is a metaphysical reality that resists formulation, which, it appears, each of these three interviewees are aware of. The challenge with contemporary patent agency is that most within the profession have lost sight of this reality. The boundaries of patent agency have remained in

flux for most of the history of the profession. It is the fact that contemporary patent agents have lost sight of this historical reality that has permitted a modern discourse of professional patent agency to take hold over the profession, along with reverberating legal, political and social impacts.

This foregoing chapters have argued that for a substantial period in the history of patent agency, democratized enablement acted as a guiding principle of the patent system as a social institution. The early patent agents, acting as ‘invention agents’, were a key animating force for democratized enablement across the patent system. Professionalized patent agency has backgrounded democratized agency in favour of formalized patent institutions. To put it simply, now the agency of the technical community must pass through the discourse of professional patent agency in order to engage with the patent system. This was not always the case, and this need not remain the case. The foregoing chapters have set out a normative argument for the desirability of democratized enablement as a guiding principle of the patent system. The nascent social, economic, and, perhaps most importantly, technological landscape of the modern Fourth Industrial Revolution may bring revolution to patent agency’s door, regardless of whether members of the profession are aware of the turning tide. The question remains whether this will result in promising changes across patent policy and practice, or whether this will only affect the nature of the profession. What is certain, however, is that those who, like the three interviewees discussed above, view their practice as much as an art as it is profession, are likely to be the only one who survive and thrive in the next generation of patent agency.

BIBLIOGRAPHY

STATUTES, TREATISES AND REGULATIONS

Convention on the Unification of Certain Points of Substantive Law on Patents for Invention, European Treaty Series - No 47 1963.

EPO Examination Guidelines, G-I, 3.

European Patent Convention, Rule 42.

Regulation on Discipline for Professional Representatives, OJ EPO 1978.

USPTO Manual of Patent Examining Procedure (MPEP) Section 2173.05(e).

CASES

1st Media LLC v Electronic Art, Inc, [2012] 694 F3d 1367.

ABB Technology AG v Hyundai Heavy Industries Co, 2013 FC 947.

Acceleration Bay, LLC v Activision Blizzard INC, [2018] 908 F3d 765.

Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1, [2006] EWCA Civ 1371.

Akebia Therapeutics Inc v Fibrogen, Inc, [2020] 866 EWHC .

Alice Corp Pty Ltd v CLS Bank Intern, [2014] 573 US 208.

Allergan Inc v Canada (Minister of Health), 2012 FC 767.

Am Calcar, Inc v Am Honda Motor Co, [2014] 768 F3d 1185.

Apotex Inc v Chepalon Inc, [2011] 2011 US Dist Lexis 125859.

Aro Mfg Co v Convertible Top Replacement Co, [1961] 365 US 336.

Asia File Products Sdn Bhd v Brilliant Achievement Marketing, [2012] 1 LNS 1470.

AstraZeneca Canada Inc v Apotex Inc, [2017] 1 SCR 943.

Autogiro Company of America v United States, [1967] 384 F2d 391.

Aventis Pharma SA v Amphastar Pharms, Inc, [2008] 525 F3d 1334.

Aventis Pharma SA v Hospira Inc, [2012] 675 F3d 1324.

Barret v Hall, [1818] 2 F Cas 914.

Battelle Memorial Institute v Green, [1962] 133 USPQ 49.

Bhasker v Kemper Casualty Insurance Company, [2019] 361 F Supp 3d 1045.

BJG v Society of the Holy Child Jesus, [2008] 2008 WL 896061.

Brenner v Mason, [1966] 383 US 519.

British United Shoe Machinery Company Ltd v A Fussell & Sons Ltd, [1908] 25 RPC 631.

Byrne v Wood, [2009] LEXIS 61782 .

Byrne v Wood, Herron & Evans, LLP, [2011] 450 F App'x 956.

Catnic Components Ltd v Hill & Smith Ltd, [1982] RPC 183.

Chicago Bar Assn v Kellogg, [1949] 83 USPQ 269.

City of Austin, Tex v Decker Coal Co, [1983] 701 F2d 420.

Cogent Med, Inc v Elsevier Inc, [2014] 70 F Supp 3d 1058.

Cold Springs Harbor Lab v Ropes & Grey LLP, [2011] 762 F Supp 2d 543.

Cole v Scion, Ltd, [2020] EWHC 1022.

Coleman Co, Inc v California Union Ins Co, [1992] 960 F2d 1529.

Collard & Roe, PC v Vlacancich, [2004] 789 NYS 2d 599.

Collins v Secretary of State for Business, Innovation and Skills, [2013] EWHC 1117.

Commercial Ins Co, of Newark, NJ v Gonzalez, [1975] 512 F2d 1307.

Continental Paper Bag Co v Eastern Paper Bag Co, [1908] 210 US 405.

Corning v Burden, [1853] 56 US 252.

Crowe v Bolduc, [2004] 365 F3d 86.

Cybor Corp v FAS Techs, Inc, [1998] 138 F3d 1448.

D01/18, 2019 DBA.

D01/98, 1998 DBA.

D02/06, 2006 DBA.

D02/10, 2011 DBA.

D04/83, 1983 DBA.

D07/05, 2007 DBA.

D10/88, 1989 DBA.

D11/91, 1993 DBA.

D25/05, 2005 DBA.

Davis v Brouse McDowell, LPA, [2010] 596 F3d 1355.

Dyson Appliances Ltd v Hoover Ltd, [2001] EWCA Civ 1440.

E Mishan & Sons, Inc (t/a Emson) v Hozelock Ltd & Ors, [2019] EWHC (Pat) 991.

Eli Lilly v Actavis UK Ltd, [2017] UKSC 48.

Enzo Biochem, Inc v Gen-Probe Inc, [2002] 323 F 3d 956.

Estate of Kurz by First Nat Bank of Chicago v CIR, [1995] 68 F3d 1027.

Excel-Eucan Ltd v Source Vagabond Systems Ltd, [2019] EWHC 3175.

Fabio Perini Spa v LPC Group Plc & Ors, [2010] EWCA Civ 525.

Facebook Ireland Ltd v Voxer IP LLC, [2021] EWHC 1377.

Fashion House, Inc v K mart Corp, [1989] 892 F2d 1076.

Ferguson v British Gas Trading Ltd, [2009] EWCA Civ 46.

Festo Corp v Shoketsu Kinzoku Kogyo kabushiki Co, [2002] 535 US 722.

Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co, Ltd, [2003] 344 F3d 1359.

Formstein, [1986] GRUR 803.

Gillette Co v Energizer Holdings, Inc, [2005] 405 F3d 1367.

Glaverbel SA v British Coal Corp (No4), [1995] RPC 255.

Global Flood Defence Systems Ltd & Anor v Johann Van Den Noort Beheer BV & Ors, [2016] EWHC (IPEC) 99.

GS CleanTech Corp v Adkins Energy LLC, [2020] 951 F3d 1310.

Halliburton Oil Well Cementing Co v Walker, [1946] 329 US 1.

Hazel-Atlas Glass Co v Hartford-Empire Co, [1944] 322 US 238.

Healthcare at Home Ltd v The Common Services Agency, [2014] UKSC 49.

Hospira, Inc v Sandoz, Inc, [2012] 2012 WL 1587688.

Hunt v Optima (Cambridge) Ltd, [2014] EWCA Civ 714.

Immunocept, LLC v Fulbright & Jaworski, LLP, [2007] 504 F3d 1281.

Improver Corporation and Sicommerce AG v Remington Products Inc, [1993] 23 IIC 838.

Improver Corporation v Remington Consumer Product Limited, [1990] FSR 181.

In re Blasius, [1961] 128 USPQ 482.

In re Kalm, [1967] 378 F2d 959.

In re Rouffet, [1998] 149 F3d 1350.

In re Zletz, [1989] 893 F2d 319.

Indivior UK v Dr Reddy's Labs, [2021] 18 F 4th 1323.

Intellect Wireless Inc v HTC Corp, [2013] 732 F3d 1339.

Jeynes v News Magazines Ltd & Anor, [2008] 130 EWCA Civ .

Keystone Driller Co v General Excavator Co, [1933] 290 US 240.

Kingsland, Comr Pats, v Dorsey, [1949] 338 US 318.

Kingsland v Dorsey, [1933] 338 US 318.

Kirin-Amgen Inc v Hoechst Marion Roussel Ltd & Ors, [2004] UKHL 46.

KSR Int'l Co v Teleflex Inc, [2007] 550 US 398.

Kustom Signals, Inc v Applied Concepts, Inc, [2001] 264 F3d 1326.

L Schuler AG v Wickman Machine Tools Ltd, [1973] UKHL 2.

LaAsmar v Phelps Dodge Corp Life, Accidental Death & Dismemberment and Dependent Life Insurance Plan, [2010] 605 F3d 789.

LG Philips LCD Co Ltd v Tatung (UK) Ltd & Ors, [2006] EWCA 1774.

Littlefield v Acadia Ins Co, [2004] 392 F3d 1.

Loctite Corp v Ultraseal Ltd, [1985] 781 F2d 861.

Ludlow Jute Coy Ltd v James Low and Coy Ltd, [1953] 70:5 RPC 69.

Luv N' Care, Ltd v Williams Intellectual Prop, [2019] 18-mc-00212-WJM-KLM, 6-7 .

Lyon v Boh, 1 F2d 48 (1924) [SDNY].

Markman v Westview Instruments, Inc, [1995] 52 F3d 967.

Markman v Westview Instruments, Inc, [1996] 517 US 370.

Martin v H Millwood Ltd, [1956] 73 RPC 125.

Masimo Corp v Philips Elec North Am Corp, [2014] 2012 WL 4365191.

Matter of Hill, [1993] 981 F2d 1474.

Mayo Collaborative Services v Prometheus Laboratories, Inc, [2012] 566 US 66.

Meyer v CUNA Mut Ins Soc, [2011] 648 F3d 154.

Microsoft Corp v i4i Ltd Partnership, 564 US ____ (2011) .

Miguna v Toronto Police Services Board, [2004] OJ No 2455.

Miller v Watson, Comr Pats, [1961] 131 USPQ 435.

Minkin v Gibbons, [2012] 680 F3d 1341.

Minkin v Gibbons, PC, [2012] 680 F3d 1341.

Monster Cable Products, Inc v Quest Group, [2005] 2005 WL 1875466 (aff'd, 210 Fed. Appx. 993 (Fed. Cir. 2006)).

Motion Picture Patents Co v Indep Moving Pictures Co of Am, [1912] 200 F 411.

Mueller Brass Co v Reading Industries, Inc, [1972] 352 F Supp 1357.

National Foundation for Special Needs Integrity, Inc v Reese, [2018] 881 F3d 1023.

National Tax Institute, Inc v Topnotch at Stowe Resort and Spa, [2004] 388 F3d 15.

Nautilus Group, Inc v Icon Health and Fitness, Inc, [2003] 308 F Supp 2d 1217.

Nokia Corporation v Interdigital Technology Corporation, [2005] EWCA Civ 614.

Ocean Rodeo Sports Inc v Oyen, 2019 BCSC 1393.

Okklusionsvorrichtung, [2011] X ZR 16/09 .

Oxonica Energy Ltd v Neuftec Ltd, [2008] EWHC (Pat) 2127.

Parker v Flook, [1978] 437 US 584.

Parker v Hulme, [1849] 1 Fish Pat Cas 44.

Pathé Cinema SA v Coronel Camera Co, [1939] 57 RPC 48.

Pharmacia Corp v Merck & Co Inc, [2001] EWCA Civ 1610.

Pink Floyd Music Limited v EMI Records Limited, [2010] EWCA Civ 1429.

PPG Indus v Guardian Indus Corp, [1998] 156 F3d 1351.

Precision Instruments Manufacturing Co v Automotive Maintenance Machinery Co, [1945] 324 US 806.

R v Hundal, [1993] 1 SCR 867.

Rainy Sky SA & Orsd v Kookmin Bank, [2011] 2011 UKSC 50.

Reedy v Evanson, [2010] 615 F3d 197.

Regen Lab SA v Estar Medical Ltd & Ors, [2019] EWHC (Pat) 63.

Reiffin v Microsoft Corp, [2000] 214 F3d 1342.

Royal Typewriter Co v Remington Rand, Inc, [1948] 168 F2d 691.

Sage Prods v Devon Indus, [1997] 126 F 3d 1420.

Sisvel vs Oppo, [2020] C / 09/578930 .

Smart v Gillette Co Long-Term Disability Plan, [1995] 70 F3d 173.

Smith v Nicholls, [1874] 21 Wall 118.

Society of Lloyd's v Robinson, [1999] 1 All ER 545.

Solar Dynamics, Inc, Appellant, v Buchanan Ingersoll & Rooney, PC, and Christopher E Paradies, [2017] 211 So 3d 294.

Spannschraube, [1999] GRUR 909.

Starsin", *Owners of cargo & Ors v "Starsin", Owners and/or demise charterers of*, [2003] UKHL 12.

T 0006/81 (Electrode slide), 1981 EPO BOA.

T 1444/20, 2022 EPO BOA.

T 2619/11, 2013 EPO BOA.

Teva Canada Ltd v Pfizer Canada Inc, [2012] 3 SCR 625.

Teva v Leo Pharma A/s, [2015] EWCA Civ 779.

Therasense, Inc v Becton, Dickinson & Co, [2011] 649 F3d 1276.

T-Mobile USA, Incorporated v National Labor Relations Board, [2017] 865 F3d 265.

TMW Enterprises, Inc v Federal Ins Co, [2010] 619 F3d 574.

Topliff v Topliff, [1892] 145 US 156.

Total Gas Marketing Ltd v Arco British Ltd, [1998] CLC 1275.

Trulock v Freeh, [2001] 275 F3d 391.

Trumm v Norman, [2008] EWHC 116.

Trump International Golf Club Scotland Ltd & Anor v The Scottish Ministers (Scotland), [2015] UKSC 74.

University of Alberta v Canada (Attorney General), 2018 FCA 36 aff'g 2017 FC 402.

Vehicular Techs Corp v Titan Wheel Int'l, Inc, [2000] 212 F3d 1377.

Virgin Atlantic Airways Ltd v Premium Aircraft Interiors UK Ltd, [2009] EWCA Civ 1062.

Vitrionics Corp v Conceptronic, Inc, [1996] 415 F3d 1303.

Whirlpool Corp v Camco Inc, [2000] 2 SCR 1067.

Wilborn v Dun & Bradstreet Corp, [1998] 180 FRD 347.

Williams v US, [2007] 2007 WL 951382.

Wood v Capita Insurance Services Ltd, [2017] UKSC 24.

Worldwide Home Products v Bed Bath and Beyond, Inc, [2015] 74 F Supp 3d 626.

X ZB 15/67 - Red Dove, BGH.

X ZB 19/20, 2015 BGH.

X ZB 33/03 - Offer of Interactive Support, BGH.

X ZR 24/70 (Molliped), [1974] 1974 GRUR 460.

X ZR 37/90 (Heated Breathing Air Hose), 1991 Bundesgerichtshof.

X ZR 55/89 (Autowaschvorrichtung), [1991] GRUR 444.

X ZR 168/00 (Cutting Blade - Schneidmesser I), [2002] 33 IIC 873.

X ZR 172/04 (Zerfallszeitmessgerät), 2007 Bundesgerichtshof.

Yeda Research and Development Company Limited v Rhone-Poulenc Rorer International Holdings Inc, [2007] UKHL 43.

BOOKS

Alain Pottage & Brad Sherman, *Figures of Invention: A History of Modern Patent Law* (Oxford, U.K.: Oxford University Press, 2010).

Alexander Harguth & Steven Carlson, *Patents in Germany and Europe: Procurement, Enforcement and Defense- An International Handbook*, second ed (Alphen aan den Rijn, Netherlands: Wolters Kluwer, 2017).

American Educational Research Association, American Psychological Association, National Council on Measurement in Education, *Standards for Educational and Psychological Testing* (Washington: American Educational Research Association, 2014).

B Zorina Khan, *The Democratization of Invention: Patents and Copyrights in American Economic Development: 1790-1920*, 1st ed (New York: Cambridge University Press, 2005).

Carolina Rito & Bill Balaskas, eds, *Institution as Praxis: New Curatorial Directions for Collaborative Research* (London: Sternberg Press Ltd, 2020).

Cass R Sunstein, *Going to Extremes: How Like Minds Unite and Divide* (New York: Oxford University Press, 2009).

———, *Valuing Life: Humanizing the Regulatory State* (Chicago: University of Chicago Press, 2014).

David Hricik & Mercedes Meyer, *Patent Ethics: Prosecution* (Danvers, Mass: Matthew Bender & Company, Inc., 2016).

David Hunt, Long Nguyen, & Matthew Rodgers, *Patent Searching: Tools & Techniques* (Hoboken, New Jersey: John Wiley & Sons, Inc., 2007).

David Vaver, *Intellectual Property Law: Copyright, Patents, Trade-marks*, second ed (Toronto, ON: Irwin Law, 2011).

———, *Intellectual Property Law: Copyright, Patents, Trade-marks*, 3rd ed (Toronto, ON: Irwin Law, 2022).

Dean Spade, *Normal Life: Administrative Violence, Critical Trans Politics, & the Limits of Law* (Durham, North Carolina: Duke University Press, 2015).

Donald S Chisum, *Chisum on Patents* (Matthew Bender & Company, Inc.).

Emerson Stringham, *Patent Claim Drafting* (Washington, D.C.: self published, 1930).

Gwilym Roberts, *A Practical Guide to Drafting Patents* (London: Sweet & Maxwell Limited, 2007).

Harold C Wegner, *First to File Patent Drafting: A Practitioner's Guide* (2016).

Harold Irvin Dutton, *The Patent System and Inventive Activity During the Industrial Revolution 1750-1852* (Manchester, U.K.: Manchester University Press, 1984).

Jeffrey G Sheldon, *How to Write a Patent Application*, third ed (New York: Practicing Law Institute, 2015).

Jessica Reyman, *The Rhetoric of Intellectual Property: Copyright Law and the Regulation of Digital Culture* (New York: Routledge (Taylor & Francis), 2010).

Jessica Silbey, *The Eureka Myth: Creators, Innovators, and Everyday Intellectual Property* (Stanford: Stanford University Press, 2014).

Joseph E Root, *Rules of Patent Drafting: Guidelines From Federal Circuit Case Law*, 2020 edition (New York: Matthew Bender & Company, Inc., 2020).

Keith M Macdonald, *The Sociology of Professions* (London: Sage Publications Ltd, 1999).

Mark Monmonier, *Patents and Cartographic Inventions: A New Perspective for Map History* (Cham, Switzerland: Palgrave Macmillan, 2017).

Matthew Fisher, *Fundamentals of Patent Law: Interpretation and Scope of Protection* (Oxford, U.K.: Hart Publishing, 2007).

Nefissa Chakroun, *Patents for Development: Improved Patent Information Disclosure and Access for Incremental Innovation* (Edward Elgar, 2016).

Oren Bracha, *Owning Ideas: A History of Anglo-American Intellectual Property* Harvard, 2005) [unpublished].

Pascal Griset, *The European Patent: A European Success Story for Innovation* (Munich, Germany: European Patent Office, 2013).

Peter Drahos, *The Global Governance of Knowledge: Patent Offices and Their Clients* (Cambridge: Cambridge University Press, 2010).

Richard Susskind, *The Future of Professions: How Technology Will Transform the Work of Human Experts* (Oxford, U.K.: Oxford University Press, 2016).

———, *Tomorrow's Lawyers: An Introduction to Your Future* (Oxford, U.K.: Oxford University Press, 2017).

Robert C Faber, *Faber on Mechanics of Patent Claim Drafting*, seventh ed (New York: Practising Law Institute, 2018).

Robert Calvert, *Patent Practice & Management For Inventors and Executives* (New York: Reinhold Publishing Corporation, 1950).

Robert K Yin, *Case Study Research: Design Methods*, 4th ed (Thousand Oaks, California: Sage Publications, Inc., 2009).

Robert P Merges, *Justifying Intellectual Property* (Cambridge: Harvard University Press, 2011).

Ronald D Slusky, *Invention Analysis and Claiming: A Patent Lawyer's Guide*, second ed (Chicago: American Bar Association, 2012).

Ruth Sullivan, *Sullivan on the Construction of Statutes*, 5th ed (Markham, ON: LexisNexis, 2008).

Shobita Parthasarathy, *Patent Politics: Life Forms, Markets & the Public Interest in the United States & Europe* (Chicago: The University of Chicago Press, 2017).

Slavoj Zizek, *The Parallax View* (Cambridge, Massachusetts: MIT Press, 2006).

Stephen Shear, *Preparing and Prosecuting a U.S. Patent Application – A Treatise From Experience - Book 1* (San Francisco: Silicon Valley Seminars, Inc., 2007).

Steven Lubet, *Interrogating Ethnography: Why Evidence Matters* (New York: Oxford University Press, 2018).

Thomas Kuhnen, *Patent Litigation Proceedings in Germany: A Handbook for Practitioners*, 7th ed, Heymanns Intellectual Property (Koln: Wolters Kluwer Deutschland GmbH, 2015).

Toshiko Takenaka et al, *Patent Enforcement in the US, Germany and Japan* (Oxford, U.K.: Oxford University Press, 2015).

Victor J Evans, ed, *Money in Patents* (Washington: Victor J. Evans & Co., 1914).

W H Baraclough, *Every Inventor His Own Patent Agent: A Handy Book of the Principles of the Patent Law* (London: Effingham Wilson, 1928).

William Callyhan Robinson, *The Law of Patents for Useful Inventions* (Boston: Little, Brown, and Company, 1890).

Yves Dezalay & Bryant G Garth, *Dealing in Virtue: International Commercial Arbitration and the Construction of a Transnational Legal Order* (Chicago: University of Chicago Press, 1996).

JOURNAL ARTICLES

A Samuel Oddi, “Patent Attorney Malpractice: An Oxymoron No More” (2004) 2004 U Ill JL Tech & Pol’y 1–72.

Aaron Bowling, “Just About Equivalent: A Comparative Analysis Of The Doctrines Of Equivalents In The United States And International Jurisdictions Shows That The Varying Doctrines Are Strikingly Similar” (2013) 41:3 AIPLA Quarterly Journal 553.

Abramowicz, Michael & John F Duffy, “Ending the Patenting Monopoly” (2008) 157 U Pa L Rev 1541.

———, “The Inducement Standard of Patentability” (2010) 120 Yale L J 1590.

Adam R Andrea, “Exergen v Wal-Mart: A Costly Cure for the Plague of Inequitable Conduct Claims” (2010) 20 DePaul Journal of Arts, Technology & Intellectual Property Law 449.

Alan C Marco, Joshua D Sarnoff, & Charles A W deGrazia, “Patent claims and Patent Scope” (2019) Res Pol’y, online: <<https://doi.org/10.1016/j.respol.2019.04.014>>.

Allison, John R & Mark A Lemley, “The Growing Complexity of the United States Patent System” (2002) 82:1 BU L Rev 77.

Anderson, J Jonas, “Court Capture” (2018) 59:5 BC L Rev 1543–1594.

Andrew J K Wells, “Technical contribution and plausibility: the approach of the European Patent Office and the courts of England and Wales” (2019) 14:10 Journal of Intellectual Property Law & Practice 784.

Andrew P Morriss & Craig Allen Nard, “Institutional Choice & Interest Groups in the Development of American Patent Law: 1790-1865” (2011) 19 Sup Ct Econ Rev 143.

Anna Guagnini, “Patent Agents in Britain at the Turn of the Twentieth Century: Themes and Perspectives” in Ian Inkster, ed, *History of Technology* (London: Bloomsbury Publishing PLC, 2012).

Arti K Rai, “Machine Learning at the Patent Office: Lessons for Patents and Administrative Law” (2018) 5 Iowa L Rev 2617.

Bar-Gill, Oren & Cass R Sunstein, “Regulation as Delegation” (2015) 7:1 J Legal Analysis 1.

Baxter, Lawrence G, “Capture in Financial Regulation: Can We Channel It toward the Common Good Essay” (2011) 21:1 Cornell J L & Pub Pol’y 175–200.

Benjamin C Zipursky, “Reasonableness In and Out of Negligence Law” (2015) 163 University of Pennsylvania Law Review 2131.

Blevins, John, “License to Uber: Using Administrative Law to Fix Occupational Licensing” (2017) 64 UCLA L Rev 844.

Bock, Jeremy W, “Behavioral Claim Construction” (2017) 102 Minn L Rev 1273.

Bracha, Oren, “The Commodification of Patents 1600-1836: How Patents Became Rights and Why We Should Care Symposium - Intellectual Property at a Crossroads: The Use of the Past in Intellectual Property Jurisprudence” (2004) 38 Loy L A L Rev 177–244.

Bremer, Theo R, “Commentary: Patent Protection in Europe and Japan Part II: Patents: Section II(A): Europe: Chapter 27” (2000) 4 Int’l Intell Prop L & Pol’y 27.

Brian E Clauser & Melissa J Margolis, “Testing for Licensure and Certification in the Professions” in *Educational Measurement*, 4th ed (Praeger Publishers, 2006).

Brian Sheppard, “Incomplete Innovation and the Premature Disruption of Legal Services” (2015) 2015 Mich St L Rev 1797–1910.

Burk, Dan L, “On the Sociology of Patenting” (2016) 101 Minn L Rev 421.

———, “Patent Silences” (2016) 69 Vand L Rev 1603.

———, “Patents and the First Amendment” (2018) 96 Wash U L Rev 197.

C Sijp, “Scope of Protection Afforded by a European Patent” (1979) 10 IIC 433.

Carolyn C Cooper, “Social Construction of Invention through Patent Management: Thomas Blanchard’s Woodworking Machinery” (1991) 32:4 Tech & Culture 960.

Carroll Pursell, “The American Patent Agency: The Embedded ‘Lone Inventor’ in American History” (2011) 17 Icon 31.

Cass R Sunstein & Adrian Vermeule, “Conspiracy Theories” (2008) John M Olin Program in Law and Economics Working Paper No 387, online:
<https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1118&context=law_and_economics>.

Charles Taylor, “Introduction” in *Philosophical Papers 1: Human Agency and Language* (Cambridge, UK: Cambridge University Press, 1999).

Chartered Institute of Patent Agents, “Volume X, Session 1891-92” (1891) Transactions of the Chartered Institute of Patent Agents.

———, “Volume XII, Session 1893-94” (1893) Transactions of the Chartered Institute of Patent Agents.

Chiang, Tun-Jen, “The Upside-down Inequitable Conduct Defense” (2012) 107:3 Nw U L Rev 1243–1306.

Christopher A Cotropia, “Modernizing Patent Law’s Inequitable Conduct Doctrine” (2009) 24 Berkeley Tech LJ 723–784.

———, “What is the Invention” (2011) 53 Wm & Mary L Rev 1855–1914.

Christopher Beauchamp, “Who Invented the Telephone? Lawyers, Patents, and the Judgements of History” (2010) 51 Tech & Culture 854.

———, “Who Invented the Telephone? Lawyers, Patents, and the Judgments of History” (2010) 51 Tech & Culture 854.

Christopher Williams, “Changing with the Times: The Evolution of Plain Language in the Legal Sphere” (2015) 28 Alicante Journal of English Studies 183.

Clarisa Long, “Information Costs in Patent and Copyright” (2004) 90:2 Virginia Law Review 465.

Colleen Chien, “Comparative Patent Quality” (2018) 50 Ariz St LJ 71–140.

Colleen V Chien, “Experimentation in the Administration of the Law” (2019) Iowa L J.

———, “Rigorous Policy Pilots: Experimentation in the Administration of the Law Essays” (2018) 5 Iowa L Rev 2313–2350.

———, “Rigorous Policy Pilots the USPTO Could Try” (2019) 104:1 Iowa Law Review Online 1.

Collins, Kevin Emerson, “The Reach of Literal Claim Scope into After-Arising Technology: On Thing Construction and the Meaning of Meaning” (2008) 2 Conn L Rev 493.

Contreras, Jorge, “Considerations Regarding a Canadian Patent Collective” (2018) CIGI Papers No. 172 — May 2018, online: <<https://www.cigionline.org/publications/considerations-regarding-canadian-patent-collective>>.

Cox, James D & Randall S Thomas, “Revolving Elites: The Unexplored Risk of Capturing the SEC Symposium: Deconstructing the Regulatory State: Perils and Possibilities” (2018) 107:4 Geo LJ 845–922.

Craig Allen Nard, “Legal Forms and the Common Law of Patents” (2010) 90 BU L Rev 51.

Dan L Burk & Jessica Reyman, “Patents as Genre: A Prospectus” 26:2 Law & Literature 163.

Dan L Burk & Mark A Lemley, “Fence Posts or Sign Posts - Rethinking Patent Claim Construction” (2008) 157 U Pa L Rev 1743.

———, “Policy Levers in Patent Law” (2003) 89 Va L Rev 1575.

———, “Quantum Patent Mechanics” (2005) 9 Lewis & Clark L Rev 29.

Daniel Carpenter, “Detecting and Measuring Capture” in Daniel Carpenter & David A Moss, eds, *Preventing Regulatory Capture: Special Interest Influence and How to Limit It*, revised ed (Cambridge: Cambridge University Book Press, 2013).

David E Bernstein, “The Due Process Right to Pursue a Lawful Occupation: A Brighter Future Ahead” (2016) 126 Yale Law Journal Forum 287.

David Hricik, “Aerial Boundaries: The Duty of Candor as a Limitation on the Duty of Patent Practitioners to Advocate for Maximum Patent Coverage” (2002) 44:1 S Tex L Rev 205.

———, “Will Patenting Make as Much Sense in the New Regime of Weakened Patent Rights and Shorter Product Life Cycles” (2017) 20 Vand J Ent & Tech L 457.

David L Schwartz, “The Rise of Contingent Fee Representation in Patent Litigation” (2012) 64 Ala L Rev 335–388.

David L Schwartz & Christopher A Cotropia, “The Hidden Value of Abandoned Applications to the Patent System” (2020) 61 Boston College Law Review 2809.

David McGowan, “Lawyering within the Domain of Expertise” (2015) 84 Fordham L Rev 1929.

David Pretel, “The Global Rise of Patent Expertise During the Late 19th Century” in *Technology and Globalisation: Networks of Experts in World History* (Cham, Switzerland: Springer, 2018).

David Pretel & Patricio Sáiz, “Patent Agents in the European Periphery: Spain (1826–1902)” in Ian Inkster, ed, *History of Technology* (London: Bloomsbury Publishing PLC, 2012).

David Vaver, “Does the Public Understand Intellectual Property Law? Do Lawyers?” (2006) Working Paper No 23/2006 University of Oxford Faculty of Law Legal Studies Research Paper Series, online: <https://digitalcommons.osgoode.yorku.ca/all_papers/37>.

———, “General Introduction” in David Vaver, ed, *Intellectual Property Rights: Critical Concepts in Law* (Oxford, U.K.: Routledge, 2006).

———, “Intellectual Property: The State of the Art” (2001) 32:1 Victoria U Wellington L Rev 1.

———, “Invention in Patent Law: A Review and a Modest Proposal” (2003) 11 Int’l JL & Info Tech 286.

———, “The Perplexities of Patent Prosecution History: Procedure Over Principle?” (2021) 33 IPJ 225.

Deborah J Merritt, “Hypatia in the Patent Office: Women Inventors and the Law, 1865-1900” (1991) 35:3 The American Journal of Legal History 235.

Devlin, Alan, “The Misunderstood Function of Disclosure in Patent Law” (2009) 23 Harv J L & Tech 401.

Di Cataldo, Vincenzo, “From the European Patent to a Community Patent” (2002) 8 Colum J Eur L 19.

Dinwoodie, Graeme B & Rochelle C Dreyfuss, “Designing a Global Intellectual Property System Responsive to Change: The WTO, WIPO, and beyond Intellectual Property in International Perspective: Institute for Intellectual Property & Information Law Symposium” (2009) 46 Hous L Rev 1187.

Dirk Van Zyl Smit, “Professional’ Patent Agents and the Development of the English Patent System” (1985) 13 Int’l J Soc L 79.

Dmitry Karshtedt, Mark A Lemley, & Sean B Seymore, “The Death of the Genus Claim” (2021) 35:1 Harv J L & Tech 1.

Dominic De Cogan, “A Changing Role for the Administrative Law of Taxation” (2015) 24:2 Soc & Legal Stud 251–270.

Donald Babcock Keyes, “Numerical Treatment of Scope of Claims” in Robert Calvert, ed, *The Encyclopedia of Patent and Invention Management* (New York: Reinhold Publishing Corporation, 1964).

Donna Meredith, “Like Learning Karate From a Textbook: A Critical and Historical Analysis of the Regulatory Regime for Patent Attorneys in Australia” (2015) Journal of the Intellectual Property Society of Australia and New Zealand Inc 45.

Doug Lichtman & Mark A Lemley, “Rethinking Patent Law’s Presumption of Validity” (2007) 60 Stan L Rev 45.

Dr Dietrich Reimer, “The Scope of Protection Provided by a Patent Under German Patent Law” in John A Kemp, ed, *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Dr Erich Hausser, “Claim Wording, Inventiveness and Scope of Protection Under German Patent Law” in John A Kemp, ed, *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Dr Franz Lederer, “Problems in Litigation of Claims and Supporting Description: The View of a German Patentanwalt” in *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Dr J L Benton & Dr K J Heimbach, “Claim Drafting and Significance - An Anglo-German Industrial View” in John A Kemp, ed, *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Dreyfuss, Rochelle Cooper, “In Search of Institutional Identity: The Federal Circuit Comes of Age” (2008) 23:2 Berkeley Tech LJ 787.

Durie, Daralyn J & Mark A Lemley, “A Realistic Approach to the Obviousness of Inventions” (2008) 3 Wm & Mary L Rev 989.

Edward Armitage, “Origins of Relevant Provisions of the Munich & Luxembourg Conventions” in John A Kemp, ed, *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Eisenberg, Rebecca S, “Proprietary Rights and the Norms of Science in Biotechnology Research” (1987) 97 Yale LJ 177.

Elmer J Gorn, “Application Writing – Illustrated by Electrical and Electronic Cases” in *The Encyclopedia of Patent Practice and Invention Management* (New York: Reinhold Publishing Corporation, 1964).

Eric E Johnson, “The Case for Eliminating Patent Law’s Inequitable Conduct Defense” (2017) 117 Columbia Law Review Online 1.

Eugene C Lim, “Opening the ‘Pandora’s Box’ of Patent Claim Construction: Purposive Interpretation, Central Claiming and the Doctrine of Equivalents in Comparative Perspective” (2016) 16 Asper Rev Int’l Bus & Trade L 155.

Eva Hemmungs Wirtén, “How patents became documents, or dreaming of technoscientific order, 1895-1937” (2019) 75:3 Journal of Documentation 577.

———, “The Patent and the Paper: A Few Thoughts on Late Modern Science and Intellectual Property” (2015) 7 *Culture Unbound*.

F W H Clay, “The Relation of the Examiner to the Inventor and His Attorney” (1918) 1:1 *Journal of the Patent Office Society* 8.

Fitzgerald, Oonagh, “Understanding the Promise and Peril of Sovereign Patent Funds” (2017) Policy Brief No. 102 — April 2017, online:
<<https://www.cigionline.org/publications/understanding-promise-and-peril-sovereign-patent-funds>>.

Frakes, Michael D & Melissa F Wasserman, “Does Agency Funding Affect Decisionmaking: An Empirical Assessment of the PTO’s Granting Patterns” (2013) 66 *Vand L Rev* 65.

———, “Patent Office Cohorts” (2015) 65 *Duke LJ* 1601.

Gareth E Maybee, “The Patent Profession in Toronto” (1981) 15 *LSUC Gaz* 257.

Gordon, Robert W, “Critical Legal Histories” (1984) 36 *Stan L Rev* 57–126.

Greg Guest, Arwen Bunce, & Laura Johnson, “How Many Interviews Are Enough? An Experiment with Data Saturation and Variability” (2006) 18 *Field Methods* 59.

Gregory Reilly, “Amending Patent Claims” (2018) 32 *Harv J L & Tech* 1.

———, “Our 19th Century Patent System” (2018) 7:2 *IP Theory*.

Guerrini, Christi J, “The Decline of the Patent Registration Exam” (2012) 91 *Neb L Rev* 325.

H E Dunham, “Drafting Patent Claims” (1947) 29 *Journal of the Patent Office Society* 318.

Haris Tabakovic & Thomas G Wollmann, “From Revolving Doors to Regulatory Capture? Evidence From Patent Examiners” (2018) NBER Working Paper Series (24638) , online:
<https://www.nber.org/system/files/working_papers/w24638/w24638.pdf>.

Harry C Hart, “Attorneys and Agents – Regulations, Qualifications and Manner of Working” in Robert Calvert, ed, *The Encyclopedia of Patent Practice and Invention Management* (New York: Reinhold Publishing Corporation, 1964).

Harvey W Mortimer, “Patents a Century Ago” (1964) 46 *Journal of the Patent Office Society* 666.

Heinz Winkler, “The Scope of Patent Protection: Past, Present and Future” (1979) 10 *IIC* 296.

Holbrook, Timothy R, “Patents, Presumptions, and Public Notice” (2011) 86 *Ind LJ* 779.

Holdridge, B Joan, “Malpractice of Patent Attorneys” (1958) 7:2 *Clev-Marshall L Rev* 345–352.

Hrdy, Camilla & Ben V Picozzi, “Claim Construction of Statutory Construction: A Response to Chaing & Solum” (2014) 124 Yale LJ F 208.

Hubbard, William, “Razing the Patent Bar” (2017) 59 Ariz L Rev 383–430.

Hugh Laddie, “Kirin Amgen - The End of Equivalents in England?” (2009) 40 IIC 3.

Ian Inkster, “Highly Fraught With Good to Man: Patent Organization, Agency, and Useful and Reliable Knowledge in British Manufacture Circa 1780-1851 and Beyond” in Ian Inkster, ed, *History of Technology* (London: Bloomsbury Publishing PLC, 2012).

———, “Patent Agency: Problems and Perspectives” in Ian Inkster, ed, *History of Technology* (London: Bloomsbury Publishing PLC, 2012).

Institute of Patent Agents, “Volume I, Session 1882-83” (1882) Transactions of the Institute of Patent Agents.

———, “Volume VIII, Session 1889-90” (1889) Transactions of the Institute of Patent Agents.

JA Kemp, “Summary: Claim Drafting – Random Notes” in *Claim Drafting and Interpretation- a Major European Conference (27-29 April 1983): Sponsored by the Benescience Foundation* (London: Oyez Longman Publishing Limited, 1983).

Jacob S Sherkow, “Patent Law’s Reproducibility Paradox” (2016) 66:4 Duke LJ 845.

James Kwak, “Cultural Capture and the Financial Crisis” in Daniel Carpenter & David A Moss, eds, *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (Cambridge: Cambridge University Book Press, 2013).

James R Elkins, “Ethics: Professionalism, Craft, and Failure” (1985) 73:4 Kentucky Law Journal 937.

Janet Freilich, “Patent Clutter” (2018) 103 Iowa Law Review 925.

———, “Prophetic Patents” (2019) 53 UC Davis Law Review 663.

———, “The Replicability Crisis in Patent Law” (2020) 95 Indiana Law Journal 431.

Janet Freilich & Lisa Larrimore Ouellette, “Science fiction: Fictitious experiments in patents” (2019) 364:6445 Science 1036.

Jeanne C Fromer, “Claiming Intellectual Property” (2009) 2 U Chi L Rev 719.

———, “Dynamic Patent Disclosure” (2016) 69:6 Vand L Rev 1715.

———, “Patent Disclosure” (2008) 94 Iowa L Rev 539.

Jeremy N Sheff, “Legal Sets” (2018) 40:5 Cardozo L Rev 2029–2132.

Jeremy Phillips, “The Patent System - A Patent Lawyer’s View” in *Public Lecture Series in Honour of the Centenary of the Chartered Institute of Patent Agents (Autumn Term 1991)* (Queen Mary and Westfield College, Intellectual Property Law Unit, 1992).

Jessica Silbey, “Heuristic Interventions in the Study of Intellectual Property” (2016) 101 Minn L Rev Headnotes 333–348.

———, “IP and Ethnography: A Qualitative Research Approach” in Irene Calboli & Lilla Montagnani, eds, *Oxford Handbook on Intellectual Property Research* (Oxford, U.K.: Oxford University Press, 2019).

———, “Patent Variation: Discerning Diversity among Patent Functions” (2013) 45 Loy U Chi LJ 441–478.

Joachim Henkel & Hans Zischka, “How Many Patents are Truly Valid? Extent, Causes, and Remedies for Latent Patent Invalidity” (2019) 48 European Journal of Law and Economics 195.

Joel David Briscoe et al, “Mercer Review” *CIPA Journal* (2021) 8.

John Boyle, “A Blue Sky Law for Patent Advertising” (1920) 2 Journal of the Patent Office Society 508.

John F Duffy, “Harmony and Diversity in Global Patent Law Symposium - Patent System Reform” (2002) 17 Berkeley Tech LJ 685–726.

John M Golden, “Construing Patent Claims According to Their Interpretive Community: A Call for an Attorney-Plus-Artisan Perspective” (2007) 2 Harv J L & Tech 321.

John R Thomas, “Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era” (2005) 87 J Pat & Trademark Off Soc’y 781.

———, “Formalism at the Federal Circuit A Review of Recent Decisions of the United States Court of Appeals for the Federal Circuit” (2002) 52:4 Am U L Rev 771.

———, “The Question Concerning Patent Law and Pioneer Inventions” (1995) 10 High Tech LJ 35.

———, “The Responsibility of the Rulemaker: Comparative Approaches to Patent Administration Reform Symposium - Patent System Reform” (2002) 17 Berkeley Tech LJ 727.

Jorge Gabriel Jiménez & Margaret Hagan, “A Regulatory Sandbox for the Industry of Law” (2019) Stanford Law School Legal Design Lab White Paper (Thomson Reuters Legal Executive Institute) .

Joseph P Kalt & Mark A Zupan, “Capture and Ideology in the Economic Theory of Politics” (1984) 74:3 *The American Economic Review* 279.

Justine Pila, “Lord Hoffmann and Purposive Interpretation in Intellectual Property Law” in Justine Pila & Paul S Davies, eds, *The Jurisprudence of Lord Hoffmann* (Oxford, U.K.: Hart Publishing, 2015).

Kara Swanson, “‘Great Men,’ Law, and the Social Construction of Technology” (2018) 43:3 *Law & Social Inquiry* 1093.

———, “The Emergence of the Professional Patent Practitioner” (2009) 50 *Tech & Culture* (519) 519.

Karen Walsh, “Promoting Harmonisation Across the European Patent System Through Judicial Dialogue and Cooperation” (2019) 50 *IIC* 408.

Karl Bruchhausen, “The Scope of Patent Protection in Different European Countries - An Outline of Recent Case Law” (1973) 4:3–4 *IIC* 306.

Kate Glover, “The Principles and Practices of Procedural Fairness” in Colleen M Flood & Lorne Sossin, eds, *Administrative Law in Context*, 3rd ed (Toronto, ON: Emond, 2018).

Kenneth L Sokoloff & Naomi R Lamoreaux, “Patent Alchemy: The Market for Technology in US History” (2013) 87 *Bus History Rev* 3.

Kerri M Patterson, “Inequitable Conduct Post-Therasense” (2014) 27 *Georgetown Journal of Legal Ethics* 825.

Lefstin, Jeffrey A, “The Formal Structure of Patent Law and the Limits of Enablement” (2008) 23:4 *Berkeley Tech LJ* 1141.

Lemley, Mark A, “Point of Novelty” (2011) 105 *Nw U L Rev* 1253.

———, “Taking the Regulatory Nature of IP Seriously Response” (2013) 92 *Tex L Rev* 107.

———, “The Myth of the Sole Inventor” (2011) 110 *Mich L Rev* 709.

———, “The Regulatory Turn in IP Bureaucracy Unbound: Can Limited Government and the Administrative State Co-Exist” (2013) 36 *Harv J L & Pub Pol’y* 109.

Leonard Hoffmann, “Language and lawyers” (2018) 134 *LQR* 553.

———, “Patent Construction” *The CIPA Journal* (2006) 727.

Lisa Larrimore Ouellette, “Do Patents Disclose Useful Information?” (2011) 25 *Harv J L & Tech* 545.

———, “Patent Experimentalism” (2015) 101 Va L Rev 65.

Lisa Larrimore Ouellette & Daniel E Ho, “Improving Scientific Judgments in Law and Government: A Field Experiment of Patent Peer Review” (2020) 17:2 Journal of Empirical Legal Studies 190.

Lise Dybdahl Osterborg, “The European Patent Attorney – A New Profession” (1994) 25:3 IIC 315.

Long, Clarisa, “PTO and the Market for Influence in Patent Law” (2008) 157 U Pa L Rev 1965.

Lynn Mather, “Scientists at the Bar: The Ethical Worlds of Patent Lawyers” in Leslie C Levin & Lynn Mather, eds, *Lawyers in Practice: Ethical Decision Making in Context* (Chicago: University of Chicago Press, 2012).

Mandel, Gregory N, “To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity” (2011) 86 Notre Dame L Rev 1999.

Margaret Hagan, “Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System” (2020) 36:3 Design Issues 3.

Margaret Hagan & Miso Kim, “Design for Dignity and Procedural Justice” in *Advances in Affective and Pleasurable Design* (Chicago: Springer, 2018) 135.

Margaret Jane Radin, “Patent Notice and the Trouble with Plain Meaning” (2016) 96 B U L Rev 1093.

Mark A Lemley, “Ignoring Patents” (2008) Mich St L Rev 19.

———, “Without Preamble” (2020) 100 Boston University Law Review 101.

Mark A Lemley & Carl Shapiro, “Probabilistic Patents” 19 J Econ Persp 75.

Mark A Lemley & Colleen V Chien, “Are the U.S. Patent Priority Rules Really Necessary?” (2003) 54:5 Hastings Law Journal 1299.

Mark C Niles, “On the Hijacking of Agencies (And Airplanes): The Federal Aviation Administration, ‘Agency Capture,’ and Airline Security” (2002) 10 American University Journal of Gender, Social Policy & the Law 381.

Mark D Janis, “Patent Abolitionism” (2002) 17 Berkeley Tech LJ 899.

Mark D Janis & Timothy R Holbrook, “Patent Law’s Audience” (2012) 97 Minn L Rev 72.

Mark Lokanan, “Regulatory Capture of Regulators: The Case of the Investment Dealers Association of Canada” (2017) IJ Public Administration 1.

Masur, Jonathan S, “Costly Screens and Patent Examination” (2010) 2:2 J Legal Analysis 687.

———, “Institutional Design and the Nature of Patents” (2018) 5 Iowa L Rev 2535.

Match, Nicholas, “Patent Office Practice after the America Invents Act” (2013) 23 Fed Cir BJ 225.

Matthew Fisher, “A case-study in literalism? Dissecting the English approach to patent claim construction in light of *Occlutech v AGA Medical*” (2011) 3 IPQ 283.

———, “New Protocol, Same Old Story? Patent claim Construction in 2007; Looking Back With a View to the Future” (2008) 2 IPQ 148.

Maureen Irish, “Interpretation and Naming: The Harmonized System in Canadian Customs Tariff Law” (1993) 31 Can YB Intl Law 89.

McDonnell, Brett H, “Financial Regulation Reform and too Big to Fail” (2011) 1:1 Am U Bus L Rev 113–132.

Menell, Peter, “It’s Time to Make Vague Software Patents More Clear” *Wired* (7 February 2013), online: <<https://www.wired.com/2013/02/its-time-to-make-vague-software-patents-more-clear/>>.

Menell, Peter S, “Economic Analysis of Intellectual Property Notice and Disclosure”, online: <<https://ssrn.com/abstract=3242854>>.

Michael Abramowicz & John F Duffy, “Ending the Patenting Monopoly” (2008) 157 U Pa L Rev 1541.

Michael Foucault, “Truth and Power” in Colin Gordon, ed, *Power/Knowledge Selected Interviews & Other Writings 1972-1977* (New York: Pantheon Books, 1980).

Michael Frakes & Melissa F Wasserman, “Irrational Ignorance at the Patent Office” (2019) 72 Vanderbilt Law Review 975.

Michael J Madison, “Law as Design: Objects, Concepts and Digital Things” (2005) 56:2 Case Western Reserve Law Review 381.

Michael J Meurer & Craig Allen Nard, “Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents Exchange: The Doctrine of Equivalents” (2004) 93 Geo LJ 1947.

Michael T Kane, “Reflections on Bar Examining” (2009) The Bar Examiner, online: <http://www.ncbex.org/assets/media_files/Bar-Examiner/articles/2009/780409_Kane.pdf>.

———, “Validating the Performance Standards Associated with Passing Scores” (1994) 64:3 Review of Educational Research.

———, “Validation” in *Educational Measurement*, 4th ed (Praeger Publishers, 2016).

Naina Khanna, “Patent Quality: Does One Size Fit All?” (2019) 4iP Council, online: <<https://ssrn.com/abstract=3328123>>.

Naomi R Lamoreaux & Kenneth L Sokoloff, “Intermediaries in the Market for Technology, 1870-1920” (2002) NBER Working Paper No 9017 1.

Naomi R Lamoreaux & Kenneth L Sokoloff, “Inventors, Firms, and the Market for Technology in the Late Nineteenth and Early Twentieth Centuries” in *Learning by Doing in Markets, Firms, and Countries* (Chicago: University of Chicago Press, 1999).

Nefissa Chakroun, “Using technology transfer offices to foster technological development: A proposal based on a combination of articles 66.2 and 67 of the TRIPS agreement” 20 J World Intellect Prop 103.

———, “Vagueness of Patent Claim Language, Claim Construction and Patent Infringement – What a Mess!” (2020) 69:11 GRUR International 1097.

Nuno Garoupa, “Regulation of Professions” in David Levi-Faur, ed, *Handbook on the Politics of Regulation* (Northampton: Edward Elgar Publishing Limited, 2011).

———, “Regulation of Professions in the US and Europe: A Comparative Analysis” (2004) Texas A&M University School of Law Studies Research Paper Series, online: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=640502>.

O’Leary, Majella & Robert Chia, “‘Epistemes’ and Structures of Sense-Making in Organisational Life” University of Exeter Discussion Papers in Management.

Oren Bracha, “The Emergence and Development of United States Intellectual Property Law” in Rochelle Dreyfuss & Justine Pila, eds, *The Oxford Handbook of Intellectual Property Law* (Oxford, U.K.: Oxford University Press, 2018).

Oskar Liivak, “Finding Invention” (2012) 40 Fla St U L Rev 57.

———, “Rescuing the Invention from the Cult of the Claim” (2012) 42 Seton Hall L Rev 1.

Oskar Livak, “The Unresolved Interpretive Ambiguity of Patent Claims” (2015) 49 UCD L Rev 1851–1880.

Ouellette, Lisa Larrimore, “Pierson, Peer Review, and Patent Law Symposium: The Disclosure Function of the Patent System” (2016) 69:6 Vand L Rev 1825.

Park, Walter G, “Globalization, Patent Reform, and Patent Professional Services” (2001) 83 J Pat & Trademark Off Soc’y 303.

Patricio Sáiz, “Social Networks of Innovation in The European Periphery: Independent Versus Corporate Patents in Spain Circa 1820-1939” (2012) 37:4 Historical Social Research 348.

Paul J Larkin, “Public Choice Theory and Occupational Licensing” (2016) 39 Harvard Journal of Law & Public Policy 209.

Paul Swamidass & A J Gokcek, “Empowering young inventors: an experimental course on IP and patent application drafting at Auburn University” (2010) 35 J Technol Transf 424.

Peter Drahos, “Rethinking the Role of the Patent Office From the Perspective of Responsive Regulation” in Frederick M Abbott, Carlos M Correa, & Peter Drahos, eds, *Emerging Markets and the World Patent Order* (Chatham, UK: Edward Elgar Publishing Limited, 2013).

Peter Meier-Beck, “Patent Claim and Feature Structure” (2002) 33:6 IIC 679.

Philip Griffith, “The Role of Universities in Teaching and Training Patent and Trade Marks Attorneys - The UTS Perspective” (2001) 3 UTS L Rev 159.

Port, Kenneth L, Lucas M Hjelle & Molly Littman, “In Pursuit of Patent Quality (and Reflections on Reification)” (2016) 20 Marq Intell Prop L Rev 79–136.

Prithwiraj Choudhury & Tarun Khanna, “The Future of Patent Examination at the USPTO” (2017) Harvard Business School Case 617.

Rachel E Barkow, “Insulating Agencies: Avoiding Capture Through Institutional Design” (2010) 89 Texas Law Review 15.

Radin, Margaret Jane, “Property and Personhood” (1981) 34:5 Stan L Rev 957.

Rai, Arti Kaur, “Regulating Scientific Research: Intellectual Property Rights and the Norms of Science” (1999) 94 Nw U L Rev 77.

Richard A Posner, “The Concept of Regulatory Capture: A Short, Inglorious History” in Daniel Carpenter & David A Moss, eds, *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (Cambridge: Cambridge University Book Press, 2013).

Richard H Pildes, “Forms of Formalism” (1999) 66 University of Chicago Law Review 607.

Richard W Voss et al, “Tribal and Shamanic-Based Social Work Practice: A Lakota Perspective.” (1999) 44:3 228.

Robert Burrell & Catherine Kelly, “Parliamentary Rewards and the Evolution of the Patent System” (2015) 74:3 Cambridge Law Journal 423.

Robert C Post, “‘Liberalizers’ Versus ‘Scientific Men’ in the Antebellum Patent Office” (1976) 17:1 Technology & Culture 24.

Robert Calvert, “Chemical Applications” in Robert Calvert, ed, *The Encyclopedia of Patent Practice and Invention Management* (New York: Reinhold Publishing Corporation, 1964).

———, “Teaching Patent Practice” in Robert Calvert, ed, *The Encyclopedia of Patent Practice and Invention Management* (New York: Reinhold Publishing Corporation, 1964).

Robert M Cover, “Nomos and Narrative” (1983) 97 Harv L Rev 4.

Robert P Merges, “What Kind of Rights Are Intellectual Property Rights?” in Rochelle C Dreyfuss & Justine Pila, eds, *The Oxford Handbook of Intellectual Property Law* (Oxford, U.K.: Oxford University Press, 2018).

Ronald J Mann & Marian Underweiser, “A New Look at Patent Quality: Relating Patent Prosecution to Validity” (2012) 9 J Empirical Legal Stud 1–32.

Rousso, Lee, “Japan’s New Patent Attorney Law Breaches Barrier between the Legal and Quasi-Legal Professions: Integrity of Japanese Patent Practice at Risk Comments” (2000) 10 Pac Rim L & Pol’y J 781.

Roy H Massengill, “Training Academy for Patent Attorneys” (1981) 9 APLA Q J 65.

Rüdiger Rogge, “Equivalents and Importance of Prior Limiting Statements” in David Vaver, ed, *Intellectual Property Rights: Critical Concepts in Law* (Oxford, U.K.: Routledge, 2006).

Russell Hardin, “The Crippled Epistemology of Extremism” in Albert Breton et al, eds, *Political Extremism and Rationality* (Cambridge: Cambridge University Press, 2014).

Ryan Abbott, “Everything is Obvious” (2017) UCLA Law Rev, Forthcoming, online: <<https://ssrn.com/abstract=3056915>>.

Saurabh Vishnubhakat, “An Intentional Tort Theory of Patents” (2016) 68 Florida Law Review 571.

Schemmel, Jakob, “The ESA Guidelines: Soft Law and Subjectivity in the European Financial Market - Capturing the Administrative Influence” (2016) 23:2 Ind J Global Legal Stud 455–504.

Sean B Seymore, “The Teaching Function of Patents” (2009) 85:2 Notre Dame L Rev 621–670.

Sevim Süzeroğlu-Melchior, Oliver Gassmann, & Maximilian Palmié, “Friend or foe? The effects of patent attorney use on filing strategy vis-a-vis the effects of firm experience” (2016) 55:6 Management Decision 1122.

Shapiro, Dorothy, “Lessons from SEC v. Citigroup: The Optimal Scope for Judicial Review of Agency Consent Decrees” (2014) 15:1 J Bus & Sec L 63.

Siva Thambisetty, “The Construction of Legitimacy in European Patent Law” (2017) 3 IPQ 221.

Stephen Yelderman, “Improving Patent Quality with Applicant Incentives” (2014) 28 Harv J L & Tech 77–136.

Steven M Kogan, “Clinical Praxis: Examining Culture and Power in Family Therapy” (1996) 8:3 Journal of Feminist Family Therapy 25.

Stuart J H Graham et al, “High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey” (2009) 24 Berkeley Tech LJ 1255–1328.

Sunstein, Cass R, “The Office of Information and Regulatory Affairs: Myths and Realities Commentary” (2012) 126:7 Harv L Rev 1838.

Superfine, Benjamin Michael, “At the Intersection of Law and Psychometrics: Explaining the Validity Clause of No Child Left Behind Education, Legislation, Law & Social Science Research” (2004) 33 JL & Educ 475.

Ted Sichelman & Stuart J H Graham, “Patenting by Entrepreneurs: An Empirical Study” (2010) 17 Mich Telecomm & Tech L Rev 111–180.

Thierry Pelaccia, Germain Forestier, & Cédric Wemmert, “Deconstructing the diagnostic reasoning of human versus artificial intelligence” (2019) 191:48 CMAJ E1332.

Thomas Ewing & Miles Poindexter, “Indorsements of Patent Attorneys by Congressmen” *Scientific American* (26 September 1914) 246.

Thomas F Cotter, “An Economic Analysis of Patent Law’s Inequitable Conduct Doctrine” (2011) 53:3 Ariz L Rev 735.

Thomas, Robert J, “Invention Development Services and Inventors: Recent Inroads on Caveat Inventor” (1978) 60 J Pat Off Soc’y 355–402.

Thompson, Dennis, “The Draft Convention for a European Patent” (1973) 22 Int’l & Comp LQ 51.

Timothy R Holbrook, “Patent Anticipation and Obviousness as Possession” (2015) 65 Emory LJ 987.

Timothy R Holbrook & Lucas S Osborn, “Digital Patent Infringement in an Era of 3D Printing” (2014) 48:4 UCD L Rev 1319.

Toshiko Takenaka, “Harmonizing the Japanese Patent System with Its U.S. Counterpart Through Judge-Made Law: Interaction Between Japanese and U.S. Case Law Developments” (1998) 7:2 Washington International Law Journal 249.

Toshiko Takenaka & Christof Karl, “Claim Construction Under US and German Patent Acts: Wording Used in the Claims and the Invention Disclosed in the Specification” in Toshiko Takenaka, ed, *Research Handbook on Patent Law and Theory*, second ed (Cheltenham, UK: Edward Elgar, 2019).

Tracy L Adams, “Legislating Professionals: Private Member Bills for Entry to Practice Professions in Ontario, 1868-1914” (2005) 18:3 Journal of Historical Sociology 172.

———, “Professional Self-Regulation and the Public Interest in Canada” (2016) 6:3 Professions and Professionalism.

———, “Self-regulating Professions: Past, Present, Future” (2017) 4:1 Journal of Professions and Organization 70.

Trebilcock, Michael, “Regulating Legal Competence” (2001) 34 Can Bus LJ 444.

Tun-Jen Chiang & Lawrence B Solum, “The Interpretation-Construction Distinction in Patent Law” (2013) 123 Yale L J 530–615.

Vertinsky, Liza, “Comparing Alternative Institutional Paths to Patent Reform” (2009) 61 Ala L Rev 501.

Volker Vossius, “Claim Drafting and the Supporting Description Under the EPC and the German Patent Law” in John A Kemp, ed, *Patent Claim Drafting and Interpretation* (London: Oyez Longman Publishing Limited, 1983).

Wagner, R Polk, “Understanding Patent-Quality Mechanisms” (2008) 157 U Pa L Rev 2135.

Wasserman, Melissa Feeney, “Limiting the Inequitable Conduct Defense” (2008) 13:3 Va JL & Tech 1.

Weston, Ray D Jr, “A Comparative Analysis of the Doctrine of Equivalents: Can European Approaches Solve an American Dilemma” (1998) 39:1 IDEA 35–80.

William E Conklin, “Human Rights, Language and Law: A Survey of Semiotics and Phenomenology” (1995) 27:1 Ottawa Law Review 129.

William J Rankin, “The ‘Person Skilled in the Art’ Is Really Quite Conventional: U.S. Patent Drawings and the Persona of the Inventor, 1870-2005” in *Making and Unmaking Intellectual Property* (Chicago: University of Chicago Press, 2011).

William T Gallagher & Deborah J Halbert, “Intellectual Property and Sociolegal Studies” in *Intellectual Property in Context: Towards a Law & Society Perspective* (Cambridge: Cambridge University Press, Forthcoming).

William T Gallagher, “IP Legal Ethics in the Everyday Practice of Law: An Empirical Perspective on Patent Litigators” (2010) 10 J Marshall Rev Intell Prop L [i]-364.

Wissam Aoun, “Canadian Patent Agent Regulation Reform (Part 1): (In)Validity Issues Surrounding the Canadian Patent Agent Exam” (2017) 99:2 J Pat & Trademark Off Soc’y 1.

———, “Canadian Patent Agent Regulation Reform (Part 1): (In)Validity Issues Surrounding the Canadian Patent Agent Exam” (2017) 99 J Pat & Trademark Off Soc’y 151–191.

———, “Canadian Patent Agent Regulation Reform (Pt. 2): Governance, Self-Regulation and Canada’s Patent Professional Identity Crisis” (2017) 99 J Pat & Trademark Off Soc’y 388–445.

———, “Constructivism, Embedded Liberalism and Anti-Dumping - Canadian Public Interest Inquiry as Case Study of Embedded Liberalism” (2017) 41:1 Canada-United States Law Journal 18.

Woodward, William Redin, “Definiteness and Particularity in Patent Claims” (1947) 46 Mich L Rev 755.

Ylona Chun Tie, Melanie Birks, & Karen Francis, “Grounded Theory Research: A Design Framework for Novice Researchers” (2019) 7 Sage Open Medicine 1.

CIRCULARS, BLOGS & ONLINE RESOURCES

“A Patent Attorney Firm to be Disbarred” *Scientific American* (2 October 1897) 210.

“Canada needs an innovative intellectual property strategy”, online:
<https://www.theglobeandmail.com/report-on-business/rob-commentary/canada-needs-an-innovative-intellectual-property-strategy/article35065156/?utm_medium=Referrer:+Social+Network+/%2BMedia&utm_campaign=Shared+Web+Article+Links>.

“Deceptive Methods of Patent Attorneys” *Scientific American* (21 August 1897) 114.

“Official Endorsement and Patent Advertising” *Scientific American* (8 January 1916) 54.

“The Alleged Patent Office Frauds” *Scientific American* (7 March 1908) 162.

“University of Waterloo in battle with on-campus startup over clean energy invention”, online:
<[https://www.theglobeandmail.com/business/article-university-of-waterloo-in-battle-with-on-campus-startup-over-](https://www.theglobeandmail.com/business/article-university-of-waterloo-in-battle-with-on-campus-startup-over-clean-energy-invention/)

clean/?utm_medium=Referrer:+Social+Network+Media&utm_campaign=Shared+Web+Article+Links>.

“Use of Congressmen’s Names for Advertising” *Scientific American* (4 March 1916) 236.

A Report to the Hon Peter J McGauran MP Minister for Science and Technology (Australia), *Review of the Regulation Regime for Patent Attorneys*, by A Report to the Hon Peter J McGauran MP Minister for Science and Technology (Australia) (1996).

Administration, Office of Patent Legal, “Accelerated Examination”, online: [</node/159268/draft>](#).

blogger, Kluwer Patent, “Industrial action at the EPO to demand restoration of fundamental rights”, (22 February 2022), online: *Kluwer Patent Blog* [<http://patentblog.kluweriplaw.com/2022/02/23/industrial-action-at-the-epo-to-demand-restoration-of-fundamental-rights/>](http://patentblog.kluweriplaw.com/2022/02/23/industrial-action-at-the-epo-to-demand-restoration-of-fundamental-rights/).

Choudhury, Prithwiraj, Evan Starr & Rajshree Agarwal, *Machine Learning and Human Capital Complementarities: Experimental Evidence on Bias Mitigation*, SSRN Scholarly Paper, by Prithwiraj Choudhury, Evan Starr & Rajshree Agarwal, papers.ssrn.com, SSRN Scholarly Paper ID 3185022 (Rochester, NY: Social Science Research Network, 2020).

Chris Bentley, *Direct to the Consumer Automated Legal Tools* (Toronto, ON, 2019).

Cohen, Mark A, “Law In The Age Of The Customer”, online: *Forbes* [<https://www.forbes.com/sites/markcohen1/2019/11/25/law-in-the-age-of-the-customer/>](https://www.forbes.com/sites/markcohen1/2019/11/25/law-in-the-age-of-the-customer/).

Colleen Chien, *Experimentation in the Administration of Patent Law* (Stanford School of Design, Stanford University, 2018).

Colleen V Chien, *Four Experiments for Improving the Patent System* (Santa Clara University, 2018).

———, *Policy Pilots: Experimentation in the Administration of the Law*, SSRN Scholarly Paper, by Colleen V Chien, papers.ssrn.com, SSRN Scholarly Paper ID 3300167 (Rochester, NY: Social Science Research Network, 2018).

David Hricik, “Machine Aided Patent Drafting: A Second Look”, online: *Patently-O* [<https://patentlyo.com/hrick/2017/08/machine-patent-drafting.html>](https://patentlyo.com/hrick/2017/08/machine-patent-drafting.html).

Dr J L Benton, *Drafting a European Description and Claims: Paper to be delivered at the Annual General Meeting of the Chartered Institute of Patent Agents to be held on 24th May, 1978* (Chartered Institute of Patent Agents, 1978).

EPI, *e:EQE Discussion Paper*, by EPI (Munich, Germany: EPI, 2021).

February 28, patent litigation | & 2011 at 4:07 pm | Reply, “Book review: ‘Rules of Patent Drafting’ by Joseph E. Root”, (21 February 2011), online: *IP Spotlight* <<https://ipspotlight.com/2011/02/21/book-review-rules-of-patent-drafting-by-joseph-e-root/>>.

Federal Trade Commission, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy*, by Federal Trade Commission.

G Bruce Doern, *Regulation of Patent and Trade-mark Agent Qualifications: Institutional Issues and Options*, Study Prepared for the Canadian Intellectual Property Office, by G Bruce Doern, Study Prepared for the Canadian Intellectual Property Office (1995).

Gaétan de Rassenfosse et al, *Getting Patents: Does the Quality of Patent Attorney Matter?*, SSRN Scholarly Paper, by Gaétan de Rassenfosse et al, papers.ssrn.com, SSRN Scholarly Paper ID 3254958 (Rochester, NY: Social Science Research Network, 2018).

Government of Canada, Innovation, “IP Canada Report 2017 - Canadian Intellectual Property Office”, online: <https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h_wr04333.html>.

———, “Patent Collective Pilot Program - Home”, online: <<https://www.ic.gc.ca/eic/site/135.nsf/eng/home>>.

Gugliuzza, Paul R, *The Supreme Court Bar at the Bar of Patents*, SSRN Scholarly Paper, by Paul R Gugliuzza, papers.ssrn.com, SSRN Scholarly Paper ID 3347935 (Rochester, NY: Social Science Research Network, 2019).

Heck, Daniel, “How have we gotten into this mess? And how can we get out?”, (25 May 2021), online: *Medium* <<https://danheck.medium.com/how-have-we-gotten-into-this-mess-and-how-can-we-get-out-bf131cc97d35>>.

Hughes, Rose, “BREAKING: 2018 FD4 (P6 - Infringement and Validity) Pass Mark Reduced”, online: *The IPKat* <<http://ipkitten.blogspot.com/2019/02/breaking-2018-fd4-p6-infringement-and.html>>.

———, “Carpmaels & Ransford sued for missed appeal deadline”, online: *The IPKat* <<https://ipkitten.blogspot.com/2021/06/carpmaels-ransford-sued-for-missed.html>>.

———, “EPO declares eEQE format went ‘very smoothly’, but do candidates agree?”, online: *The IPKat* <<https://ipkitten.blogspot.com/2021/03/epo-declares-eeqe-format-went-very.html>>.

———, “EPO plans radical shake-up of EQEs 2024 onwards”, online: *The IPKat* <<https://ipkitten.blogspot.com/2021/04/epo-plans-radical-shake-up-of-eqes-2024.html>>.

———, “Gantry-gate: CIPA releases statement on FD4/P6 (Infringement and Validity)”, online: *The IPKat* <<http://ipkitten.blogspot.com/2019/03/gantry-gate-cipa-releases-statement-on.html>>.

———, “Gantry-Gate: Have your say in the Mercer Review”, online: *The IPKat* <<http://ipkitten.blogspot.com/2020/02/gantry-gate-have-your-say-in-mercer.html>>.

Intellectual Property Institute of Canada, *Consultation: A Governance Framework for IP Agents Part 2: Governance Model*, Submission to Innovation, Science and Economic Development Canada, by Intellectual Property Institute of Canada, Submission to Innovation, Science and Economic Development Canada (Innovation, Science and Economic Development Canada, 2016).

Joff Wild, “There are 40,000 patent attorneys in the US and under 10,000 in the EU. That can’t be right.”, (10 January 2010), online: *iam-media (blog)* <<http://www.iam-media.com/blog/detail.aspx?g=e32cb875-ccc2-45ed-836a-9297a74be4de>>.

Julia Powles, “The Inventive Concept in Patent Law”, online: *Max Planck Institute for Innovation and Competition* <<https://www.ip.mpg.de/en/projects/details/the-inventive-concept-in-patent-law.html>>.

Kara Swanson [@KaraWSwanson], *Fun fact: the 19th c patent office was such a popular tourist site that a collection box for coins to help build the Washington Monument was placed in its display hall during the 23 years monument construction was halted for lack of funds.* (2021).

Laura G Pedraza-Fariña, “Online Symposium: To Adapt Patent Law to Modern Innovation Realities, End Administrative Patent Law Exceptionalism”, (23 February 2022), online: *Fed Circuit Blog* <<https://fedcircuitblog.com/2022/02/23/online-symposium-to-adapt-patent-law-to-modern-innovation-realities-end-administrative-patent-law-exceptionalism/>>.

Lisa Larrimore Ouellette, “Written Description: We Robot Comments on Ryan Abbot’s Everything is Obvious”, (27 April 2018), online: *Written Description* <<https://writtendescription.blogspot.com/2018/04/we-robot-comments-on-ryan-abbots.html>>.

Martin Schweiger, “A Punch Against The Establishment: Contract Drafting Robots Are Legal in Germany”, (18 October 2020), online: *IP Lawyer Tools* <<https://ip-lawyer-tools.com/another-punch-against-the-legal-establishment-legal-text-robots-are-legal-in-germany-for-the-time-being/>>.

Office, European Patent, “Academic Research Programme”, online: <<https://www.epo.org/learning-events/materials/academic-research-programme.html>>.

———, “EQE Results and statistics”, online: <<https://www.epo.org/learning/eqe/statistics.html>>.

———, “Validation agreement with Morocco enters into force”, online: <<https://www.epo.org/news-events/news/2015/20150302.html>>.

Peter Meier-Beck, *The Scope of Protection Conferred by the European Patent: A German Perspective on the Doctrine of Equivalence* (Washington, D.C., 2004).

Peter Menell, “Promoting Patent Claim Clarity”, (10 May 2016), online: *Berkeley Technology Law Journal* <<http://btlj.org/2016/05/promoting-patent-claim-clarity/>>.

Professional Standards Authority for Health and Social Care, *The Regulator’s Role in Professional Identity: Validator Not Creator*, by Professional Standards Authority for Health and Social Care (U.K., 2018).

Ramanna, Karthik, “The Metaphysics of Regulatory Capture”, (2 August 2021), online: *ProMarket* <<https://www.promarket.org/2021/08/02/regulatory-cultural-capture-stigler-karthik-ramanna/>>.

Russ Krajec, “Patent Myths #3- ‘Broad Claims are a good thing.’”, online: <<https://blog.blueironip.com/patent-myth-3-broad-claims-are-a-good-thing>>.

Takase, Baker McKenzie-Kensaku & Tsuyoshi Kawasaki, “Application of AI technologies to IP Processes - Japan Patent Office | Lexology”, online: <<https://www.lexology.com/library/detail.aspx?g=ae8d79a4-540f-4eb9-84ab-d98d8385b00d>>.

Today, Law Technology, “Artificial Intelligence Won’t Replace Lawyers—It Will Free Them”, (27 February 2018), online: *Law Technology Today* <<https://www.lawtechnologytoday.org/2018/02/artificial-intelligence-wont-replace-lawyers-it-will-free-them/>>.

Uma Suthersanen, *Utility Models: Do They Really Serve National Innovation Strategies?*, SSRN Scholarly Paper, by Uma Suthersanen, papers.ssrn.com, SSRN Scholarly Paper ID 3139963 (Rochester, NY: Social Science Research Network, 2018).

United States of America, Federal Trade Commission, *The Costs and Benefits of Occupational Regulation (report prepared by Carolyn Cox, Susan Foster)*, by United States of America, Federal Trade Commission (Washington, D.C.: Federal Trade Commission, 1990).

W Nicholson Price, *Artificial Intelligence in the Medical System: Four Roles for Potential Transformation*, SSRN Scholarly Paper, by W Nicholson Price, papers.ssrn.com, SSRN Scholarly Paper ID 3341692 (Rochester, NY: Social Science Research Network, 2019).

Willem Hoyng, *2019 Sir Hugh Laddie Lecture: No cats and no doctrine of equivalence?* (University College of London, 2019).

“A blog with a name - ‘Ant-like Persistence’”, (3 May 2014), online: *Ant-like Persistence* <<https://blog.oppedahl.com/?p=174>>.

“A Worthwhile Intervention? The Potential Role for a Sovereign Patent Fund in Canada”, online: *Centre for International Governance Innovation*

<<https://www.cigionline.org/articles/worthwhile-intervention-potential-role-sovereign-patent-fund-canada>>.

“About Us”, online: *Teranet* <<https://www.teranet.ca/about-teranet/>>.

Access to Information Request No. A-2017-01275 (Gatineau, Quebec: Canada, Ministry of Innovation, Science and Economic Development, 2017).

“AIPatents”, online: <https://www.aipatents.com/aip_new/index.html>.

Annex_7_-_IPReg_Application_to_LSB_2018_Fees_-_Consultation_Papers.pdf.

“Annual Report 2016/2017 | The Intellectual Property Regulation Board”, online: <<https://ipreg.org.uk/about-us/annual-reports/annual-report-20162017>>.

“AppColl | Cloud-Based Patent and Trademark Management Software”, online: *Cloud-Based Patent & Trademark Management Software* <<https://www.appcoll.com/>>.

“Applicant Submitted Prior Art”, online: *Patently-O* <<https://patentlyo.com/patent/2022/01/applicant-submitted-prior.html>>.

“Artificial Intelligence Will Help to Solve the USPTO’s Patent Quality Problem”, (23 November 2019), online: *IPWatchdog.com | Patents & Patent Law* <<https://www.ipwatchdog.com/2019/11/23/artificial-intelligence-will-help-solve-usptos-patent-quality-problem/id=116302/>>.

Candidate Support Project for EQE Application Form (European Patent Office, 2017).

“CIPA announces a review of the training, support and assessment of students | Chartered Institute of Patent Attorneys”, online: <<https://www.cipa.org.uk/policy-and-news/latest-news/cipa-announces-a-review-of-the-training-support-and-assessment-of-students/>>.

“Comparing and Contrasting European 2-part claims with US Jepson claims”, (7 December 2016), online: *IPWatchdog.com | Patents & Patent Law* <<https://www.ipwatchdog.com/2016/12/07/european-2-part-claims-us-jepson-claims/id=75085/>>.

“Could a computer do your job?”, online: <<http://www.managingip.com/Article/3502938/Could-a-computer-do-your-job.html>>.

“Cultural Influences in Regulatory Capture”, online: *Social Science Research Council (SSRC)* <<https://www.ssrc.org/programs/scholarly-borderlands/cultural-influences-in-regulatory-capture/>>.

“Deferred Subject Matter Eligibility Response (DSMER) pilot program | USPTO”, online: <<https://www.uspto.gov/patents/initiatives/patent-application-initiatives/deferred-subject-matter-eligibility-response>>.

“Deferred-fee provisional patent application pilot program and collaboration database to encourage inventions related to COVID-19”, online: <<https://www.uspto.gov/initiatives/deferred-fee-provisional-patent-application-pilot-program-and-collaboration-database>>.

“Deloitte Legal training contracts to offer innovative option for aspiring solicitors”, online: *Deloitte United Kingdom* <<https://www2.deloitte.com/uk/en/pages/press-releases/articles/deloitte-legal-training-contracts-to-offer-innovative-option-for-aspiring-solicitors.html>>.

“epi Information | The Patent Attorney of the Future: The Dutch View”, online: <<https://information.patentepi.org/issue-4-2018/the-patent-attorney-of-the-future-the-dutch-view.html>>.

“epi Information | Thoughts on EQE Training”, online: <<https://information.patentepi.com/2-16/thoughts-on-eqe-training/>>.

“EPO president Campinos still has to show he is serious about restoring social peace - Kluwer Patent Blog”, online: <<http://patentblog.kluweriplaw.com/2019/10/04/epo-president-campinos-still-has-to-show-he-is-serious-about-restoring-social-peace/>>.

“First Inventor Selected for IAP Support in Ecuador”, online: <https://www.wipo.int/iap/en/news/2019/news_0001.html>.

FOIA Request No. F-17-00336, Freedom of Information Request, Freedom of Information Request (Alexandria, Virginia: United States Patent and Trademark Office, 2018).

“Full First Action Interview Pilot Program”, online: <<https://www.uspto.gov/patents/initiatives/first-action-interview/full-first-action-interview-pilot-program>>.

“Heightened Written Description Standard for Reissue Patents”, online: *Patently-O* <<https://patentlyo.com/patent/2019/06/heightened-description-standard.html>>.

“ILOAT: Former EPO president Battistelli violated staff’s right of free association”, (3 February 2022), online: *Kluwer Patent Blog* <<http://patentblog.kluweriplaw.com/2022/02/03/iloat-former-epo-president-battistelli-violated-staffs-right-of-free-association/>>.

“International Seminar on the Role of Pro-Bono in Facilitating Access to the Patent System”, online: <https://www.wipo.int/meetings/en/details.jsp?meeting_id=41264>.

“Inventor Assistance Program (IAP)”, online: <<https://www.wipo.int/iap/en/index.html>>.

“IPProduct”, online: <<https://iproduct.io/app/#/public/page/home>>.

Is Intellectual Property, Property: A Debate Between Mark Lemley & Richard Epstein.

“Jepson Claims (Part II)”, online: *Patently-O* <<https://patentlyo.com/patent/2017/09/jepson-claims-part.html>>.

“Law School Clinic Certification Program”, online: <<https://www.uspto.gov/learning-and-resources/ip-policy/public-information-about-practitioners/law-school-clinic-1>>.

“LegalZoom Allegedly Engages in the Unauthorized Practice of Trademark Law”, (28 March 2018), online: *The IP Law Blog* <<https://www.theiplawblog.com/2018/03/articles/ip-law-blog-lawyers-in-the-news/legalzoom-allegedly-engages-in-the-unauthorized-practice-of-trademark-law/>>.

“Legit”, online: <<https://legit.ai/>>.

“Make Your Disclosure Meaningful: A Plea for Clarity in Patent Drafting”, (4 October 2020), online: *IPWatchdog.com | Patents & Patent Law* <<https://www.ipwatchdog.com/2020/10/04/make-disclosure-meaningful-plea-clarity-patent-drafting/id=125740/>>.

“May The LegalForce Be With You: California IP Firm Sues To Stop LegalZoom’s Unauthorized Practice Of Trademark Law”, (20 December 2017), online: *McCabe IP Ethics Law* <<https://www.ipethicslaw.com/may-the-legalforce-be-with-you-california-ip-firm-sues-to-stop-legalzooms-unauthorized-practice-of-trademark-law/>>.

“McDermott Sheds Claims In Bra Co.’s \$5.9M Malpractice Suit - Law360”, online: <<https://www.law360.com/articles/654622/mcdermott-sheds-claims-in-bra-co-s-5-9m-malpractice-suit>>.

Meeting of Intellectual Property Offices (IPOS) on ICT Strategies and Artificial Intelligence (AI) for IP Administration, UN WIPO/IP/ITAI/GE/18/1 (World Intellectual Property Organization, 2018).

“Morocco: More Professionals Eligible to Offer Pro Bono Services”, online: <https://www.wipo.int/iap/en/news/2018/news_0005.html>.

“News & Updates | Mete Mercan Patent | Turkish Patent & Trademark Attorneys”, online: <<http://www.metemercan.com/en/news.html>>.

“Patent Office Studies”, online: <<https://www.law.uh.edu/patentofficestudies/>>.

“Peer to Patent”, online: *Peer to Patent* <<https://www.peertopatent.org/>>.

“Prior Art Search”, online: <<https://www.uspto.gov/patents/initiatives/prior-art-search>>.

“Regulations”, online: *CIPA* <<https://www.cipa.org.uk/patent-examination-board/regulations/>>.

“Request for Proposals: Cultural Influences in Regulatory Capture”, online: *Social Science Research Council (SSRC)* <<https://www.ssrc.org/programs/scholarly-borderlands/cultural-influences-in-regulatory-capture/request-for-proposals-cultural-influences-in-regulatory-capture/>>.

“Similari”, online: *Similari* <<https://www.similari.com>>.

“Specifio :: Auto-Generated Software-Patent Applications”, online: <<https://specif.io/>>.

“Standard Patent Size”, online: *Patently-O* <<https://patentlyo.com/patent/2017/10/standard-patent-size.html>>.

“Technology and Innovation Support Centers”, online: <<https://www.wipo.int/tisc/en/index.html>>.

“The Chief Legal Officer Program”, online: *Deloitte United States* <<https://www2.deloitte.com/us/en/pages/advisory/solutions/chief-legal-officer-general-counsel-executive-program.html>>.

“The quest for patent quality: European inventive step and US obviousness”, (21 December 2016), online: *IPWatchdog.com | Patents & Patent Law* <<https://www.ipwatchdog.com/2016/12/21/patent-quality-european-inventive-step-us-obviousness/id=75860/>>.

“The USPTO Thomas Alva Edison Visiting Scholars Program Celebrates its First Year”, online: <https://www.uspto.gov/blog/director/entry/the_uspto_thomas_alva_edison>.

“TurboPatent – Inventing a Better Way”, online: <<https://turbopatent.com/>>.

“TurboPatent Launches AI-Powered RoboReview to Improve Patent Drafting – TurboPatent”, online: <<https://turbopatent.com/turbopatent-launches-ai-powered-roboreview-to-improve-patent-drafting/>>.

USPTO Patent Bar Exam, April 1989.

USPTO Patent Bar Exam, February 1968.

USPTO Patent Bar Exam, November 1965.

“Utilization of Bio-Ontologies for Enhancing Patent Information Retrieval by Siddharth Taduri, Kincho Law, Jay P. Kesan, Ram Sriram :: SSRN”, online: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3580353&download=yes>.

“Ventures | Innovation | Deloitte UK”, online:
<<https://www2.deloitte.com/uk/innovation/ventures>>.

“Victor Evans, Patent Attorney Extraordinaire”, online:
<<http://www.streetsofwashington.com/2011/05/victor-evans-patent-attorney.html>>.