The Posthuman Reality of Feed-Based Social Media Systems

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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 Humanities

York University
Toronto, Ontario
April 2019

Abstract:

The conceptual boundary between the "subject" and "user" parallels the boundary between "humanist" and "posthumanist" definitions of human being, and the challenges of new media communications technology today impel this evolution. My dissertation discusses subjectivity as the self-differentiation of a particular set of processes, and the influence of communications media upon this process. Here, it includes the basis of differentiation for an "I," including: the question of identity, potential agency, and knowledge. The collage of attributes that constitute a portrait of what I call the *user,* the subject of online social media, is demonstrably emergent, dispersed, and discursive; in terms of agency and sovereignty, the user—as with other instances of posthuman subjectivity—is contingent upon its media ecology and is decidedly less free than other definitions of subjectivity (such the self-sovereign individual of the social contract, which comes to be as a negation of contingency). The concept of self-sovereignty excludes the influences of history, and other influences upon the emergence of the subject, emphasizing an exclusively internal causation. The user's existence, conversely, is processual and dispersed throughout networks; its being and agency are dividual, not individual. The "subjectivity" of the user must thus be thought in terms of its mediated contingency, as the self-sovereign agency that is characteristic of humanist traditions is less applicable to today's media ecologies. I argue that the traits of the subject in humanist traditions can be interpreted as the epiphenomena of societies whose information ecology was dominated by logocentric, typographic literacy. Today, with the advent of social media and its users, we can understand from a new vantage how subjectivities are modulated, amplified, and attenuated by technical distributions, particularly the unseen (and unseeable) non-human agents in the computation systems that constitute online social networks.

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Introduction

Paradoxes entice because they are symptoms of the incommensurability of reality with itself. Communication events, furthermore, are both real and referential—deferring to realities that exceed them. The liar's paradox—"this statement is false"—is a basic reminder of the incommensurability between medium and message, if we take them to be equivalent events enacted as aspects of the same reality. Yet communication as a process is seemingly uninhibited by this paradox, or many others; it appears, rather, that the opposite is the case: communication feeds upon such contradictions as generative potentials, the openings of possibilities. The history of comparative media theory repeatedly confirms such paradoxes as exploits. The *Phaedrus* is a text written to preserve the wisdom of Socrates, yet it records Socrates' denigration of text, asserting that written media are unsuitable for the transmission of wisdom. Furthermore, his disciple, Plato, writes into his teacher's mouth: "you give your disciples not truth, but only the semblance of truth… the show of wisdom without the reality" (275a). So, are Socrates' *words* still true[1] now that they are reduced to "foreign forms"[2] or "external written characters" (275a)? In this germinal statement comparing the relative value of media, Plato undermines mediation, not only creating suspicion with respect to his own text, but of text *itself*. Still, despite this self-sabotage, writing is clearly none the worse for wear. Rather, this paradox tells of a generative potential resulting from radical instability not only of writing, but of social mediation in general; communication emerges from the progressive habituation of such "foreign forms" and external media, which is its unique power: as articulated by Niklas Luhmann, "communication unleashes a subversive, universal, irremediable suspicion, and all protestations and assurances only

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[1] "*aletheian*" or "unhidden"
[2] "*allotrios typon*" can be variously translated, but refers specifically to written marks or letters.

regenerate suspicion" (*Social Systems* 150). This is a work of suspicion on a rising star in the ecologies of communication: the Feed of online social media.

The paradox of mediation persists in the newest of new media. While speaking at Stanford, Facebook's former Vice President of Growth, Chamath Palihapitiya, confessed his "tremendous guilt" over the tools and strategies he deployed while working for world's largest social network, placing the blame for a host of social ills—psychological, interpersonal, and political—on the external mediation of social media communication:

> We've created tools that are ripping apart the social fabric of how society works. That is truly where we are…The dopamine-driven feedback loops that we've created are destroying how society works. No civil discourse, no cooperation, misinformation, mistruth…. It is eroding the core foundations of how people behave by and between each other.

As with Socrates' subversion of media, Palihapitiya's expression of contempt for social media paradoxically went viral: it has over a million views on YouTube and was shared on the feeds of social media platforms hundreds of thousands of times—as long as communication events continue to occur, media can thrive even in their self-flagellation.

Palihapitiya, an architect-turned-sapper, is not alone. Google and Facebook employees Justin Rosenstein (notable creator of Facebook's "like" button),[3] James Williams, Tristan Harris,[4] Leah Pearlman,[5] and Sean Parker[6] have all undergone *volte-faces* from creations for which they are in part responsible. Each cites alarm that social media are negatively and

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[3] See Lewis.
[4] See Thompson.
[5] See Luckerson.
[6] See Ong, Thuy.

irreversibly affecting society, either in terms of social relationships, the collective psyche, or even fundamental brain activity. The advent of social media represents "a full-blown crisis, not just of 'fake news,' but of journalism, democracy, and *the nature of reality itself*" according to Brooke Binkowski, a former Facebook Fact-Checker. In advance of deliberation on each of these claims in detail, I shall call the rhetorical position of these defectors *Feed-alarmism*, a position which also includes authors, scholars and researchers. The Feed[7] is a particular module of many social media platforms in which content is ranked and may be indefinitely refreshed and populated it with new content. Not all social media are Feed-based; notable exceptions wikis, communication apps, and search engines. Feed-alarmist positions range from regretful reformism to doomsday scenarios which argue, at their most extreme, that social media are undermining "the pillars of our society" (Center for Humane Technology) and that the bastions of Western civilization and democracy itself face an existential threat. This dysphoric spectrum of alarmism is due to the growing anxiety that social media are, among all previous forms of media, unprecedentedly anti-social.

If indeed the collective dings of Feed notifications *do* constitute the death knell of society, it would be pertinent to inquire as to *which* society or institutions are being unravelled, eroded, and destroyed. The targets of alarmist criticism vary, yet in each case it calls for responsibility for the particular destructive capacities that the widespread adoption of Feed-based systems enables. I suggest that we approach claims of the destruction of society, and whether or not such a process is underway, as a historiographical question; for claims like these

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[7] Feed-based social media include those—Facebook, Twitter, Instagram, Reddit—that contain an indefinitely refreshable vertical scroll. They prioritize new and trending information by their ranking algorithms, and the newest bits of popular information only require a click or thumb-drag. Not all social media are Feed based—Wikipedia is an example of social media that might be approved by an Enlightenment humanist—and the platforms mentioned above also have many modules in addition to the Feed. Nevertheless, the Feed is often the most profitable and prominent element to social media systems, it functions as the promise of further stimulation, a "dopamine-driven feedback loop," or an information slot machine.

often accompany novel technological disruptions of the status quo. For example, in 1897, a journalist warned that, as a result of the adoption of the telephone, "We shall soon be nothing but transparent heaps of jelly to each other," as the boundary of the private from the public would erode, and the protective barrier of our skin would disappear (quoted in Marvin, 68). Yet this "we" is always contentious, as the boundary of internal and external is in flux (as Plato's Socrates, warning against foreign aids to memory, was first to note). If we contextualize these historiographical claims of "our" erosion by external forms, from Plato to Palihapitiya, *which* society is threatened by foreign disruption depends upon who is proclaiming its doom. Speaking of "society" at a given moment requires acknowlement that any existing status quo is itself the result of novel or revolutionary technological development, and insofar as societies persist, these end-of-days proclamations usually turn out to be the herald of as-yet unimaginable social arrangements. Luhmann, whose work is a touchstone of my scholarship here, describes how coming to terms with anxieties produced by the instability of mediation permits us to experience society "as something that is held together not by a natural order but by communication" (*Social Systems* 150). Alarmism is therefore an expected response; however, it may lack historical perspective on the *already* unstable terms that constitute social systems.

A central purpose of my endeavour here is to excavate the terms as used in an alarmist context: namely, *which* society is threatened by the proliferation and irritations of social media? What is its current constitution? Who are its adherents? Its defectors? Is it conceived in nostalgia or is its value empirically verifiable? The Feed-alarmist position almost always comes to the defence of a tight locus of terms which include civil discourse, cooperation, freedom to access information, and more general proclamations about communal or psychological well-being. Feeds threaten this table of values by prioritizing seduction over veracity, encouraging

antagonistic and reactionary discourse, and by spreading misinformation. However, this particular "table of values"[8] is not universally esteemed in every society in the present, let alone in the past. Few, if any, social contracts, from the stelae of Hammurabi to the *Magna Carta*, prioritize universal access to information or civil discourse as normative social aims. Yet, the latent assumptions as to what may be lost in the widespread adoption of Feed-based social media are well worth exploring, for it may grant insight into the historiographical position of our particular media ecology, which, like the widespread adoption of the telephone, comes with risk to and the reconfiguration of existing status quos.

A historiographical approach shows the development and disruption of technologies at large scales. While rendering a narrative in this manner may reduce the resolution of certain details, it permits the acts of a larger drama to emerge. This is a drama of shifting values, the negotiation and negation of ideas and concepts, and most significantly, it demonstrates how actors and agents position themselves within narratives derived from specific media ecologies. We can thereby more easily recognize the metaphors that serve such narratives. For example, the social-contract is itself metaphoric, and belongs to a narrative beholden to the literacy of long form documents—there is no actual document or actual signatories, but the social contract yet symbolizes the essence of our interaction with such texts and their perceived temporal perpetuity. Conversely, to narrate our position in the inhuman region of the Feed, the metaphors of information flows, codes, processors, and public exhibition are foregrounded. My approach here is to present these instances of disruption and conflict in a narrative arc, as an unfolding drama with an as yet unknown conclusion.

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[8] From Nietzsche's *Will to Power*, in which he argues that "Analysis of individual tables of values revealed that their erection was the erection of the conditions—often erroneous—of existence of a limited group—for its preservation" (§260)

This drama plays out with a rotating cast, with the Feed as lead. We have the rational, literate subject, whose dialogue was written by Enlightenment philosophers, statesmen, and activists. Next there are Feed alarmists who, esteeming this rational individual, rush to defend him from an unwitting but potentially nefarious antagonist. There are the posthumanists, of both optimistic and fatalistic tendencies, who usher in new concepts and metaphors to address the disruption of a status quo by Feed-based systems. Finally, there is the user and its understudies— bot, hacker, click farmer, troll—which populate these systems. The user and its schizophrenic symptoms are most worrying for the Feed alarmist position, and these worries are grounded in the operators of the Feed and the dispositions it both predicts and encourage through communication feedback loops. Still, as I shall argue, this cast is not merely rhetorical, as each makes effective decisions according to a particular criterion of relevance that construct realities. Conflicts, disputes, and negotiations are inevitable, in large part, because these realities are fundamentally incommensurable.

There is a communal project implied by the Feed-alarmist position in general— a society based on civil discourse, cooperation, and broad access to information. These particular values are not universal or naturally articulated together. They are, rather, the result of a progressive articulation of Enlightenment intellectuals during the late 17th and 18th centuries—the advent of modern, liberal humanism. It somewhat strains responsible scholarship to render history with general approximations, nevertheless, the alarmist position concerning social media today with respect to what society *should* be inherits its objections to Feed-based social media from the prescriptions of authors such as Locke, Diderot, and Kant: namely, that society should be rational; to be rational is to be informed; to be informed is to be, above all, literate, studious, and to debate in good faith. This is not to say that Feed alarmists always engage directly with such

oeuvres, but rather that their particular notions of the common good have been inherited from constitutions, legal systems, educational institutions, and more general auspices of liberal democracy. If I am granted that, then it is no coincidence that these historical thinkers and their compatriots (in particular, the aptly named "Republic of Letters"), were by-and-large outspoken proponents of mass literacy and education in an age when access to information was largely a matter of privilege based on birth. Furthermore, the definitions of civility for liberal humanists appear everywhere hand-in-hand with a particularly bookish form of rationality, admonition of the rule of law, and an appreciation for public civil discourse. Again, while liberal optimism may not define this period as a whole or even in general, the values specifically cited by detractors of Feed mechanisms today nevertheless appeal to these values of modern liberal humanism. As such, my claims concerning the Enlightenment project are historiographical, rather than historical. The relevance today is the implicit and explicit appeals to an elixir of civility (which include, as shorthand: democracy, civil discourse, cooperation, and access to information) which is now put at risk by the widespread adoption of the Feed—and "our" humanity, as part of this lineage, is threatened. A portion of the blasé invocations of the unrivalled goodness of these values constitute a reactionary, rear-guard action to much more complicated disruptions, and I hope to articulate this particular situation much more thoroughly with respect to media and communications technologies.

Critiques of social media are certainly warranted as a response to their disruption of an existing status quo, yet hindsight more often proves these to be overreactions. According to the more polemical Feed alarmists, social media are literally *undoing* the Enlightenment. More specifically, Feed algorithms—those which ceaselessly rank refreshable content according to the likelihood of user-interaction—by their mass influence, are debilitating the Enlightenment's

ethically responsible standards for subjectivity, society, and knowledge. There are a number of instances by which the behaviours emerging from Feed-based social media might contribute to such a position, and which might cause revulsion in a proponent of a modern liberal humanist's table of values. However, there is a lack of thorough reflection upon the incommensurability between the reality of social media and the lineage of Enlightenment political, legal, and educational institutions—which are valued as the inheritance of a particular historical occasion. This incommensurability does call for adaptation of law and policy to new media in the more likely case that they do not collapse as a result.

I want to be clear: the Feed as a communications medium is not a sufficient cause for the incommensurability of modern Enlightenment humanism with the current social imaginary and the various elements of contemporary media ecologies. However, from the perspective of Feed alarmism, Feed-based social media are prioritized as threats to a particular set of values derived from Enlightenment ideals. In contrast to both positions, as I shall attempt to demonstrate throughout this work, social media at once instantiate and extend *existing* tensions within the Enlightenment project itself, even as current media ecologies draw from pre-existing counter-currents to such forms of thought. As is the case with humanisms generally, the modern, self-sovereign individual figures as the centre, the trunk, of an arboreal taxonomy: i.e. the individual formulates ideas as "roots", such that it can deploy its sovereign free will to negotiate the "branches" of political outcomes—in particular the social contract as grounds for the common good—as the ultimate purpose of political action. However, the instability of Enlightenment values has long been critiqued on many grounds: the unconscious constitution of ego, the incoherence of onto-theological metaphysics, the excess and abject of political action, Eurocentric class or gender bias, and so on. The contemporary Feed ecology simply initiates

critique from the perspective of technological posthumanism, one which is perhaps more concrete than those restricted to academic or theoretical contexts. For example, Derrida was already musing a half-century ago that "If the theory of cybernetics is by itself to oust all metaphysical concepts—including the concepts of soul, of life, of value of choice, of memory—which until recently served to separate the machine from man, it must conserve the notion of writing, trace, grammè [written mark], or grapheme, until its own historico-metaphysical character is also exposed." (*Grammatology* 9).[9] Although the study of cybernetics and Derrida's speculation as to its significance were articluated long before anything like Feed-based media were conceived, the Feed renders this speculation explicitly and concretely in a novel way. The inhuman potential of the externality of media forms is anticipated in advance, and the Feed exemplifies the outcome of such theoretical approaches as a consequence of its mass adoption. Although Feed-based systems are not the *cause* of the posthuman condition in which we find ourselves, they can be considered a new rallying point at which many previously theoretical or occult concerns are being actualized in a manner that was formerly unprecedented.

Posthumanism

Feed-based social media systems disproportionately reward some rather un-Enlightened behaviours; many of these will be discussed with examples, but comparatively—insofar as the Enlightenment project coincides with the ideals of modern liberal humanism—social media concretize *posthuman* definitions of subjects, societies, and knowledge. "Posthumanism" is

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[9] Phrased otherwise, the humanist metaphysics which supports the bifurcation of activity (the historical or cultural) from passivity (the natural) does so by speculating that agency is derived from these causes—i.e. soul, choice, memory, and so on—which are exclusive to humanity. Such notions are intertwined, also, with a feature of writing qua medium itself: that signs are distinct from their meaning. Cybernetics (specifically in computing) computing intervenes both in the metaphysics of meaning and in the "notion of writing" attributing causal significance to self-organization within systems that are firmly outside of humanity's proper domain, and because computing systems read, write, record, and seemingly signify without ever *experiencing* meaning in the metaphysical sense.

multifaceted and nebulous; and refers to a social imaginary that encapsulates both academic scholarship and broader popular culture; both imagine a future in which the human being is decentred based on contemporary cultural and technological developments.

As a scholarly outlook, posthumanism may either refer to intensifications, critiques, or shifts in emphases from the canonical library of humanist values; it may therefore include, as Pramod Nayar catalogues, everything from techno-utopian transhumanism to poststructuralist literary techniques (*Posthumanism* Ch. 1). Cary Wolfe's *What is Posthumanism* broadly defines posthumanism as the "decentring of the human in relation to either evolutionary, ecological, or technological coordinates," and notably, "*how* thinking confronts that thematics, what thought has to become in the face of those challenges" (xvi). For Katherine Hayles, posthumanism is a vector along which humans are narrated as disembodied information processes; not unlike my position, her "reference point for the human is the tradition of liberal humanism; the posthuman appears when computation rather than possessive individualism is taken as the ground of being, a move that allows the posthuman to be seamlessly articulated with intelligent machines" (*How We Became Posthuman* 34). According to Hayles, the posthumanism includes critical analysis, but can be observed as a disposition of literary genres as well. With respect to co-evolution with media, the most relevant area of academic discourse is that which Nayar labels "critical posthumanism," which is defined by the major themes of "the human as co-evolving, sharing ecosystems, life processes, genetic material, with animals and other life forms; and technology not as a mere prosthesis to human identity but as integral to it" (8). Rosi Braidotti approaches the topic by mapping "the ways in which the posthuman is circulating as a dominant term in our globally linked and technologically mediated societies. More specifically, posthuman theory is a generative tool to help us re-think the basic unit of reference for the human in the bio-genetic age

known as 'anthropocene'" (5). Other posthumanist theorists (including Nayar and Wolfe) focus on the interspecies co-evolution of humans and animals, arguing that many humanist concepts are defined by the quiet exclusion or repression the animal as "other." Although diverse, the common denominator for posthuman theory is the analytical decentring of human beings from the special exclusivity they enjoyed in the minds of most Enlightenment theorists.

As all of these critical theorists note in their works, posthumanism is not only a matter of academic contemplation, it is also a matter of concern for popular culture more broadly. This aspect of posthumanism is equally important in terms of a "social imaginary," In Charles Taylor's use of the term, for nonhuman technologies, including the Feed, are increasingly ubiquitous and affect every dimension of life on Earth. According to Taylor, a social imaginary is a local milieu of identities and narratives which play a role in subjects' general sense of the possibilities of the future, both in terms of individual agency and social change. He uses the concept of social imaginaries as means of comparing historically or geographically dissimilar societies. It describes a pre-theoretical self-understanding (146), or the affordances and limits of identity formation. He summarizes the social imaginary as "the ways in which [people] imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations which are normally met, and the deeper normative notions and images which underlie these expectations"(171). Notably, his discussion of the social imaginary is focused on the historical transition from what he denotes the "porous self" to the "buffered self," a broad movement that models, as one example, the ascendency of Anglo-Saxon entrepreneurship and individualism, which "moved towards a conception of the social world as constituted by individuals" (Taylor 156)—a humanism which emphasizes individual subjects in place of faith-based communities. Critical posthumanism often interacts with such themes and

dispositions which follow, critique, and complicate the "buffered self," particularly by complicating the aspects of experience that were once considered exclusively human, and are now generalized such that they extend to nonhuman figures as well. However, the *imaginary* aspect of this transition is a "matter of identity," particularly "the contextual limits to the imagination of the self—and of the social imaginary: the ways we are able to think or imagine the whole of society" (Taylor 156). While critical posthumanism is used specifically in academic scholarship to deconstruct the biases of the traditional humanities, this broader social imaginary of posthumanism concerns the construction of identities, which is particularly relevant during periods of rapid disruption.

There is an implied communality and constructivism in the social imaginary postulate. It refers to a general milieu; a constellation of narratives, images, concerns and anxieties that together shape the boundaries of identity-formation by social situations. There are strongly posthuman elements in the contemporary social imaginary. The encroachment of the nonhuman into human domains is evident and visible, and spaces that used to be "ours" now require nonhuman chaperones. Our daily experience may now include automated checkouts and self-service for both online or brick and mortar transactions. Factory floors are fully or partially automated. Food and transportation can be ordered through smartphone apps. Cars and freight trucks will soon drive themselves, drones may deliver groceries, while AIs can beat us at chess, Go, and *Jeopardy*. Algorithms decide upon prison sentences, diagnose illnesses, and play the stock market better than their human counterparts. Nonhumans are only getting better at doing what we used to, while we are not. The posthuman social imaginary is produced by such experiences, and there now seems to be as much anxiety over the future as excitement. Robots and AIs replace us at work, while literature and film express this anxiety by presenting futures

without human society in post-apocalyptic images, or in futures beyond our control (machine rebellion or alien takeovers, or when these attempts are thwarted by our superhuman or cyborg allies). Furthermore, there are those in which AIs simply leave us behind (e.g. films such as *Her* or *Ex Machina*). News media keeps us within earshot of climate scientists who remind us that we are well underway to our species' extinction. Although these are general aspects of a posthuman imaginary, and although counter-narratives remain alive and well, it is yet within this milieu that Feed alarmists also warn us that social media are eroding humanity. So while none of these are particularly novel observations in their own right, their influence in our social settings is only growing, and each represents a future coming into focus—one in which we are as yet unsure of our place as human beings.

With critical theoretical posthumanism and the posthuman social imaginary grounding the deployment of this term, the position of the Feed and the Feed alarmists' position become quite important as symptoms of anxiety concerning the future. We have been exposed to feeds for barely a decade, yet they have massive influence over what we learn, watch, and buy, whom we communicate with, how we vote, and the narrative about the future in which we place ourselves. Users behaviours are structured by social media systems' operation, including the subjective aim of seduction, trans-locality (or spatial plasticity), and contingent agency. Our changing media ecology is a cause of the disruption of subjectivity, and we are confronted with a "posthuman subject" of which the user is a figure. We must then consider how a posthuman subject might appear. From the coordinates of critical posthumanism, the human individual is not, and never was, the substantive centre of a phenomenological horizon, but an ongoing process of interactions with the nonhuman, including technics and media technologies. The substantive, impenetrable coherence of "man" permitted the subject to be defined *in opposition*

to its others (the natural and animal, the artificial and technological); the decentring of the former also means the confusion of that differentiation. It is replaced by an "instantiation of a network of connections, exchanges, linkages, and crossings with all forms of life" (Nayar 5). This description is directly applicable to the user as subject, whose experience and very being are always mediated by digital, networked media.

Communications media, which interact with and co-evolve with human society, groove along a posthumanist vector in their decentring of anthropocentric accounts of subjectivity. Particularly as a condition for intentional action, subjectivity is distributed throughout inhuman systems, which include human users, nonhuman users, and operators such as algorithms. While each of these classes has individual goals, their communication also serves the goals of the Feed in which they operate. This distributed agency does not scale with the anthropocentric notion of humans' exclusivity when it comes to intentionality. Through analysis of the user, I shall argue that the double contingency of the relationship between user and Feed is a concrete expression of decentring; although social media platforms are designed and programmed by humans, in their ongoing communication they demonstrate a sort of interpellative, cybernetic agency over human behaviour—although agency does not extend to technological determinism. In this "invention of the human" (Stiegler *Technics* I), technology reciprocally generates a user at the site where networked social media manipulate human beings' *self*-observation as they communicate. The technics of discrete, digital data—memory storage—is a precondition for the becoming of users, and based upon this feedback loop subjectivity is dividual, fluctuating from the outset. At least within communications systems, human behaviour is generic rather than exceptional. Furthermore, ranking algorithms predict a future based on human behaviour, but also offer content that increases the likelihood of those predictions being actualized by recommending

content—the degree of control nonhuman operators exercise over the space of information compels a reconsideration of the limits of human freedom in this case.

The co-evolution of information technology and the potentiality of human freedom emphasizes the condition, reflected upon at length by Derrida and others, that self-definition perhaps has never been as autobiographical as has been articulated by humanists. Rather, human being emerges via differentiation from and negotiation with nonhuman others, including the techniques of communication that enable differentiation to occur in the first place. Nonhuman actors serve as external agents that permit subjectivities to emerge. The user emerges already enmeshed with technologies and techniques, and yet it is subjective in its attending to a world of potential experience.

The Feed is by no means the first instance of technologies' influence on the emergence of social imaginaries, yet the technical constitution of user experience serves to retroactively demonstrate the emergence of subjectivity from the technical operations of other media as well. I argue that the behavioural patterns of the liberal subject are steered by the operations of typographic literacy. Furthermore, it is only by ignoring the supplementation of the techniques of literacy that the supposed universality of the liberal subject—which is fundamentally marked by differentiation—can be conceptually maintained. Nevertheless, the bifurcations that this humanist paradigm enables, including that of active versus passive, free versus determined, and subject versus object, are facilitated by the externalization of typographic literacy. In contrast, the user is constructed by the same programmed visions by which it communicates; it cannot achieve independence because there is no alternative location for it to exist, and such divisions become nonsensical. With the advent of users' subjectivities, Feed systems present a concrete process by which the theoretical constitution of human subjects has always occurred: the

emergence of particularly human subjectivities only emerges as a consequence of nonhuman agency. Long before Feed ecologies, the techniques of literacy were necessary to deferentially become a rational individual. Accordingly Wolfe argues

> 'we' are always radically other, already in- or ahuman in our very being—not just in
> the evolutionary, biological, and zoological fact of our physical vulnerability and
> mortality, our mammalian existence but also in our subjection to and constitution in
> the materiality and technicity of a language that is always on the scene before we are,
> as a precondition of our subjectivity." (89)

This assessment is definitive of a posthumanist perspective, which emphasizes the ways in which humans are always already co-implicated with nonhuman agency. Human agency is distributed among many processes of differentiation that are generally excluded from logocentric humanisms, and these conditions can no longer be denied in the case of the user. The user, it is apparent, is constituted by technologies and applied techniques supplemented by nonhuman agents.

Although Feed alarmists decry the effects of social media on liberal humanist grounds, there are positions that articulate posthuman shifts as purely liberatory, without acknowledging that they may proffer unprecedented degrees of control. Rosi Braidotti, for instance, seems overly optimistic about the decline of humanism, and (following the vein of Deleuze and Guatarri's *A Thousand Plateaus*) extols the deterritorialization of the self-sovereign subject: "Posthuman subjectivity expresses an embodied and embedded and hence partial form of collectivity, relationality, and hence community building...resting on the ethics of becoming" (49). While there is surely evidence for liberation in some instances, new instances of freedom

emerge part-and-parcel with unprecedented forms of control. As Wendy Chun argues, the "computer, with its emphasis on information and its reduction of the individual to the password, epitomizes control societies. Digital language makes control systems invisible: we no longer experience the visible yet unverifiable gaze but a network of nonvisualizable digital control" (*CF* 9). The Feed represents nonvisualizable control through *total* surveillance of all actions and inputs, and subsequently redeploys gathered data to create and organize a future in which users behave more predictably. This central purpose of Feed-based systems is a far cry from Braidotti's estimation that "a serious concern for the subject allows us to take into account the elements of creativity and imagination, desire, hopes and aspirations" (52), demonstrating the opposite tendency. While the Feed alarmists decry social media on one side, we cannot attend to liberation from individualistic subjectivity as a benefit without acknowledging that it too has a cost.

The Symbryo

I shall introduce the neologism "symbryo" as the crux of my posthumanist analysis of social subjectivities in the media ecology of the Feed (from the prefix sym-, alongside or together, and the verb *bruo* [βρύ̄ω], to grow or swell). This term connotes the organic, co-implication of the technics of mediation, human beings, and the mutualistic development of their shared environment. Unlike an embryo, which is wholly dependent on its host, mutualistic symbryos become the condition of each other's development, and as I shall discuss in a following chapter, this emergent complexity can only be described by a metaphysics of process. To this end, I shall stress the emphasis on concurrent causation through the "organic philosophy" of Alfred North Whitehead, which serves to cross, confuse, and complicate the misperceived

bifurcation between active human beings and passive instruments. Communication is an ongoing mediation that concurrently negotiates the very *being* of human societies and nonhuman operations. Through the effects of the Feed on experience in general, "the technical," as a partially distinct set of processes involving both nonhuman and human actors, concurrently defers to "the human" in its subjective aims and operations, and vice versa. Each is a development impelled, intruded upon, irritated by and enmeshed with the other. While we have societies, subjects, speech, and institutions associated with "the human," each is a part of a symbryonic lattice of connections to ongoing processes steered by the exteriorization and activation of media and *their* agentic decisions, including material tendencies, virtual capacities, and the criteria of relevant information according to which particular realities are constructed over time.

Symbryonic relationships may be generalized beyond the Feed, and the mutualism of human and nonhuman are not unique to today's media ecologies. Typographic print has long been the idealized figure of information in Western societies. That is, the meaning of "being informed" was uncontested and required reading non-fiction publications (newspapers, journals, and books) as an indication of social status. Positions of status are often directly connected to one's training with the dominant media in an ecology. The widespread disruption of typographic literacy as the primary means of access to information has surely been disrupted in the past century—from the novel, to the radio and television, to today's Feed-based media, and each is heralded by alarmists and advocates alike. The symbryonic thesis demonstrates the inseparable connection between human institutions and the potentialities offered by these shifts by describing the reciprocal influence of technological agency on the one hand, and human subjectivities on

the other. Between these symbryos, the world of human experience cannot be separated from or be given primacy over the technical world.

My thesis parallels such contentions as to the quieted deferrals to the nonhuman that allow the human to emerge as such. Its focus is the exteriorization of communication qua media, and as such it is a technological posthumanist position. Communication technologies and techniques are figured as co-evolving species, symbryos of human being. As I shall argue with reference to social systems theory, agency may be generically described in terms of its making decisions apropos an environment, with resources and irritants that reward adaptation to the unprecedented. The adaptation of technologies and techniques to human behaviour, and the adaption of human behaviour to the affordances of various technologies constitute local ecologies that resemble a process of evolutionary development. What distinguishes these processes from one another is mainly their criterion as to the relevance of particular information events, and posthumanist discourses seek to represent the significance of nonhuman actors in what were seemingly exceptional human capacities and behaviours.

Social media are *inhuman* communication systems, more than any previous media. Paradoxically, relative to other media, the user has *more* agency over its particular experience of reality because the Feed caters to its desires. At the same time, the generation of realities is constructed by the activity of non-human agents to a greater degree than any previous medium. While users use feeds to communicate, the system also uses the user's inputs to select content for other users; the same event, the "input" as decision, is a figure of both cause and effect. Here, the *user* is doubled as *used*, for the algorithms weigh other users' data in ranking the content offered to a particular user. The use of a user finds purchase at several degrees of separation, for there are multiple levels of aggregate data that may be weighed by a single algorithm. For example,

some content will be valued highly in a feed because it is popular system-wide, such as the trending topics and hashtags of Twitter. At other times, content may be recommended in a feed because it is popular among users attributed to a particular geographic area or because it is popular among a class of users with a shared attribute (such as an age demographic or common interest). At the most nodular level, the aggregate data may be that which is popular among users with whom a user interacts most often, e.g. a user's Facebook friends. Finally, the attribute of recent popularity in tandem with a user's history of inputs is used to recommend ads or sponsored content to a user, whose attention is capitalized. So content is given a visibility rank depending, not only upon the user's history of communication with the system, but also upon the communication of *every* user with the system. General patterns emerge from billions of events and determine the weight given to one variable or another in the ranking algorithm. So, while humans are free to see what they want more often than in other media, the social media system is relatively *inhuman* because the agency of communication is always, in advance, steered by non-human decisions, such as those of algorithms. The user is not precisely less free than the humanist subject, however, the potential range of action is effectively limited to that which is most likely to achieve continued communication: freedom is channeled and localized. The responsibility that burdened the modern subject is here replaced only with a sort of indifferent, generalized *steering* of an individual to communicate as others do; as far as the system is concerned, what is communicated is irrelevant so long as communication occurs.

The majority of commentators, bloggers, and academics who take the alarmist approach reference the negative effects of social media; they warn that these platforms range from unhealthy to dangerous, and causally linking them to everything from narcissism to mental regression, from attention deficit disorder to self-harm. Whatever the case, the basis of various

differentiations between healthy/unhealthy, positive/negative, or socially beneficial/harmful is ultimately indicative the tension between media ecologies. As a point of origin, I suggest that the Enlightenment outlook is decidedly anthropocentric with regards to subjectivity, society, and knowledge; it espouses exclusively human capacities to make decisions and tends to turn a blind eye to the repressions and transgressions which make such concepts possible in the first place; it is this set of lapses and contradictions which are fundamentally challenged by the operations of feeds' ranking algorithms.

James Williams, former Google employee-turned-scholar, has made many of these liberal humanist ideas explicit, couching his ethics of design in the texts of Jean-Jacques Rousseau, John Stuart Mill, and Adam Smith, among others. Rousseau, he says, posits the general will as the basis for democracy: "If the digital attention economy were compromising the human will, it would therefore be striking at the very foundations of democracy. This would directly threaten not only individual freedom and autonomy, but also our collective ability to pursue any politics worth having" (47). The values of autonomy and general will are indeed placed on a radically different course by the social contract theorists, but it is rather alarmist to suggested that "individual freedom" and "collective politics" are suddenly under any more threat than they have ever been. For example, Williams also cites Diogenes' as a champion of individuality, yet neglects to mention that Diogenes was of the opinion that human social life was inferior to that of a dog, steeped as it is in hypocrisy, and who expressed his contempt by being a nuisance to collective politics (including openly masturbating in the market, if Diogenes Laërtius is to be believed). Williams deploys the associations of the Enlightenment as if they are *naturally* worth defending. Still, it's doubtful that Diogenes would share his definition of a "politics worth having." This is not to disagree with Williams' calls for ethical restraint of the attention

economy, yet we should remember that such calls are ultimately based on the opinion that Enlightenment humanist values are worth defending because they *should be* preferred; this, however, is contested by many critical strains.

Approaching the evidence via a comparative media studies methodology begins with a constructivist historical position, for societies are constituted by ongoing communication patterns which are inseparable from the materials of communication in technical ecologies. That is, the existing and potential uses of available tools (technologies) steer social behaviour. Technologies and human social life are symbryonic in that each has the potential to persist, and this persistence depends upon the ability to adapt to the other's decision-making processes. Such adaptation takes time, and is somewhat unpredictable, and as such there are also failures to adapt whereby institutions and technologies are reduced—we have as few witch doctors as fax machines, though both were important, perhaps indelible, to their particular social contexts.

Social media algorithms and the human societies that interact with them, such that the relationship becomes self-perpetuating are symbryos. Although people invented Feed-based systems, their ongoing communication is now mutualistic; they adopt and adapt to each other's behaviour as a strategy of persistence (for example, new social roles, identities, or methods of communication are made possible). Ranking algorithms change the criterion by which they make decisions depending on the user decisions across the entire platform, and yet also weigh each variable differently for each individual user. Furthermore, as the alarmists note, these systems program and "hack" human psychology to such a degree that we can legitimately question who is programming whom. Yet I argue both happen concurrently: the userbase trains feed algorithms to approximate human desire, while ranking algorithms train users to behave more predictably, more often. The consequences of this symbryonic relationship includes everything the Feed

alarmists have drawn our attention to, and more. We, as users, are stored inside them as associations of data points; they, given enough time, can re-program our methods of communication to better approximate their ends as well.

It is inarguable that social media has, over the last decade, become an antagonizing force. This is at least part of the reason its effects are so often described with negatives: "unhealthy," "irresponsible," and "misinformation." However, we should not ignore the arbitrariness of the blasé humanism that the Feed alarmists suggest are our only hope for the continuation of civil society. For why would social media succeed where writing, printing, telegraph, radio, and television all failed?

This Project

In what follows, I shall first deliberate over the implied position being negated (which I have thus far called modern liberal humanism as shorthand), and second, analyze how Feed-based social media, as a symbryonic agent, bring about these negations. It is obvious that communications technologies in particular are exceptionally influential when it comes to defining social imaginaries, for they provides the terms by which we narrate social behaviour; it is less obvious, however, that once behavioural norms are programmed by techniques or technologies, it would be nonsensical to consider ourselves capable of analyzing distinctions (even "good" and "bad") as if from a circumspect position, for we too are symbryos. Yet we can perhaps hypothesize that the techniques of typographic literacy and the technology of the printing press generated favourable conditions for humanist concepts of subjectivity and knowledge. Marshall McLuhan, for example, noted the tension inherent in typographic print "which isolates the individual yet also creates massive groupings by means of vernacular

nationalism" (*GG* 215);[10] that is, an abundance of printed books promotes individualism, for the student can read independent of his teachers, but also makes nation-states possible, for they can be unified by the extended standardization of a written language over large geographic distances. As a result, the values of a typographic ecology come to include both independent, critical thinking and wide-scale democracy—each of which is now said to be threatened by the expanding Feed ecology.

Extending this hypothesis, today's Feed-based social media steer definitions and narratives towards the posthuman, wherein the definitions, theoretical mechanisms, and explanatory metaphors shift from the exceptionality of human agency and rationality—a founding assumption of many existing institutions—to a dispersed network which includes many nonhuman agents as informants and operators. Indeed, human-being is itself a convenience of non-human actors. The Feed generates an undeniably *inhuman* technical ecology, the implications of which are constantly scrutinized relative to a more civilized—if mythologized— social past. That is, according to this humanist motif, we used to have more meaningful interactions, longer attention spans, we could believe what we read, and could discuss polarizing issues more reasonably before the advent of social media. If my thesis is correct, then calls to return to the past, to an "Age of Civil Discourse"[11] is impossible due to the basic conditions of success in social media feeds. Beyond the fact that reversal of a symbryonic evolution is impossible, increasing the likelihood of the success of humanist goals in a feed based system also requires decreasing the optimization of inhuman goals that have made them valuable.

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[10] As was the project of many of the Toronto School of Communications theory.

[11] The Age of Civil Discourse, if there is such a thing, is a rhetorical construct imagined, not only by today's detractors, but by the Enlightenment philosophes themselves. In some cases, as J.D. Bishop for example has shown with reference to Locke's views on the indigenous of the Americas, which "makes clear that Locke's concept of property rights was more narrow and Eurocentric than his own premises and arguments allow" (335); it is not always enough to be human to be invited to civil discourse of the social contract. The Enlightenment remains a rhetorical image that often transcends the ruts in the terrain of reality.

In each of the following chapters I trace shifts that are exemplified and actualized by social media systems. These observations are not novel individually, but they come to affect much of what we consider significant when it comes to social action, including subjectivity, labour, and consensus concerning reality. Social media are neither the first examples nor sole causes of these changes to our various means of narrating our broad human experience, however, their operations render such shifts unprecedentedly tangible and concrete.

The first chapter of this work analyzes the subjectivity of the user as compared to that of the liberal humanist position. Liberalism and its defining contract metaphor hypothesizes the private causality of self-interested decision making as the process by which the sovereign subject transcends contingency. Insofar as the society is concerned, the individual is a *signature*, a written mark that exteriorizes the subject's submission to society. The notion of such a decision breaks from natural law as proposed by Aristotle, for example, who theorized that humans and some animals, are *naturally* social, and thus were *impelled* to form societies; neither decision nor contract is required. According to natural law theorists, a human without a polis "is either low in the scale of humanity or above it" (*Politics* 1235a), that is, they are *inhuman*. Furthermore, for Aristotle, humans are only different from bees or other gregarious animals in *degree* (because they can speak), but not in kind, as both have a naturally propensity to behave as they do. The (then revolutionary) view of the social contract construes society as artificial, a severance of causal, natural contingency. In short, society is *unnatural*, as Hobbes affirms:

> as men, for the attaining of peace and conservation of themselves thereby, we have
> made an artificial man, which we call a commonwealth, so also have they made
> artificial chains, called *civil laws,* which they themselves, by mutual covenants, have

fastened at one end to the lips of that man or assembly to whom they have given the

sovereign power, and at the other end to their own ears. (172)

The natural trait most definitive of humans is self-sovereignty—one cannot be ruled by others

except by consent, and thus individual liberty is continually contending—or threatening—the

sovereign's liberty. According to such credos of liberalism, the mediating event between the

collective and the individual is a free decision.[12]

Social media, perhaps paradoxically, more closely resemble a schema of contingency and

assume the naturalness of society. Originating in the system, the *user* exists by the fact that

operational values are directed towards particular subjective aims that impel certain behaviours,

and the agency of a user depends upon the decisions of a network comprised of both human and

nonhuman. While the subject of the social contract makes a rational, uncoerced decision to give

up his natural liberty in exchange for other self-serving benefits, users' freedom is rather the

guarantee of the social media system's legitimacy, for the behaviour of users increases the

predictive value of its algorithms. In short, it continually defers the *right* of the decision to the

Feed. Individual users pose no risk to the Feed, for as we see in the paradox of anti-Feed

sentiments going viral, even deviancy contributes to the distribution of predicted behaviour for

the feeds of other users. Whereas moral liberty is a condition of human exceptionality, the user's

behaviour is interpreted as indeterminately contingent: because every action can be accounted as

data, even deviant behaviour is constitutes the future-to-come. And even as platforms such as

Facebook, Twitter, and Reddit label behaviours deviant, such as impersonation, vote

manipulation, or inorganically promoted content, these are in fact deviant only by the

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[12] Although other liberal theorists, e.g. Rousseau will disagree this decision is actually free, and made without deceit, they are yet liberal in their belief in the principle of individual responsibility.

superimposition of a humanist perspective upon the Feed which is radically indifferent to them; the Feed is not concerned whether a user is a human or not, or whether it is honest or not, or whether it is free or not, as all of its decisions are based upon inputs rather than originary causality or motivation.

In Chapter 2, I interrogate labour as a special instance of human action, as for many liberal and political economists, labour and the value it creates are what separates humans from animals. However, as subjectivity and agency shift, so too does the meaning of labour, which is redefined in Feed-based systems. The economic value of social media systems is intertwined with how much communication they are able to record. Users who communicate thus generate value in the system, but this generation of value counts for both human and nonhuman agents, and in fact, nonhuman agents can create value that would be impossible for humans to replicate on any comparable scale. Anthropocentric political economy, which ultimately counted all value in an economy as the result of human labour, does not have the conceptual resources available to explain the immense valuation of machines that modulate human agency. Human labour in these systems loses its linear, causal relationship with value, and an inhuman capacity to predict becomes an unprecedented exemplification of the potentiality of nonhuman labour.

Chapter 3 takes on the metaphysical challenge of agency in the Feed, for the potential for action depends upon which actions are seen to be effective. Social systems thereby construct the conditions for their own persistence. A primary consequence of this development is that societies cannot be seen as groups of self-identical individuals and groups of individuals. Rather, societies must be seen as processual patterns of events by interested agents (both human and nonhuman). My argument is deeply indebted to Niklas Luhmann's general systems theory, which as the name suggests, seeks to *generalize* system formation in a way that does not rely on an original

bifurcation between human consciousness and social systems; so, the formation of social media

systems resembles the formation of other systems, such as organisms. Systems theory offers

conceptual resources for explaining how entities can adapt to changing environments and bring

about their own persistence, and this model is complimented by the metaphysics of Alfred North

Whitehead: realities are fundamentally processual and contingent; they are constructed over

time. Furthermore, both Whitehead and Luhmann seek to separate subjectivity from human

consciousness, seeking to blur the distinction between the two. Although having intentions may

be associated with particular examples of subjectivity, they are not a special case or the ground

for rendering human society as something different, in kind, from other societies. Rather,

subjectivity describes purposiveness in many different systems, including the Feed. Social media

are inhuman societies, and a demonstrable case that communicative *events* constitute realities,

yet as we observe them, we also emerge from their observations of us.

The fourth chapter explores what happens when the inhuman processes of the Feed comes

into conflict with existing systems, including those of legislative and governing bodies in regions

of human concern. I provide instances—particularly the public debate in which India's

telecommunications authority banned Facebook Inc.'s Free Basics program from offering its

products in the country. Conflicts such as this one are symptoms as to the growing

interpenetration of social media systems with traditional human systems, and show how

incommensurate realities can be produced from different methods of decision-making. The

examples in this chapter serve to support the argument that ranking algorithms at once predict

and construct reality by selecting relevant aspects as discrete quantities: the value of information

emerges according to such variables as time, popularity, and the nodular relations between

particular informants. Sometimes, as is a fear of the Feed alarmists, the result is that regions of

human concern are liquidated as automated systems run their courses. The Feed-based system is predictable but indeterminate, and tends towards troughs of local *homogeneity* while debilitating the possibility for individual social agency—they may be seen, then, as unprecedented forms of control.

The fifth chapter explores the difference between former definitions of information, wherein rationality and understanding are replaced by information and novelty for its own sake. Perhaps the most notable difference between users and self-sovereign is that the former's communication is steered to *irrationality* by design. Scandal, conflict, violence, and other norm-deviant behaviour are much more likely to become the norm in social media Feeds, such they resemble offline reality with increasingly less fidelity. Reactionary politics, proliferation of conspiracy theories, and misinformation (or misleading) are incentivized more than rational argument. The highest goal of the Feed is return traffic, not a rational userbase, and this shows in the complaints against the dangerous behaviours that are exhibited on social media today. These behaviours are considered dangerous, again, because they threaten the Enlightenment values at the centre of political and educational institutions, and yet they promise a future that looks different from the past.

Part of the shift in subjectivity is a shift in constitutive identities. Individuals have identifiable roles in social systems—e.g. there are citizens, representatives, and civil servants in democracies which provide conditions for the emergence of new roles, such as political party members, pollsters, and image consultants. Yet in place of the taxonomy of identities, to which the common denominator always includes inalienable rights and other instances of instantiated universals, a user is a differential archive of actions. Classification occurs, but only after occasions of action. The single characteristic that truly differentiates one user from another is

access to various modules. Beyond that, all users are in principle of the same kind, and become differentiated over time by the ways they interact with datasets. As bounded datasets, user identities are nonlocal diffusions which exist as data throughout systems, and their actions reemerge in aggregate through ranking algorithms. User decisions are at the same time both personal and merely members of massive records of action; via feedback, what becomes visible and experienceable is both personal and universal, all the while these occasions are unspecified, and reify themselves variously through the variables by which decisions are made. Unlike the social contract, these decisions are no longer proprietary to the individuals who have made them.

To summarize, the defining ecological shift concerns the generalization of patterns as regards those behaviours which are incentivized in evaluating information. Whereas the social contract theorists and political economists of the Enlightenment era defined the subject primarily by its rational self-sovereignty, social media systems offer little incentive for practicing rationality; more often, the opposite is the case. Instead, they seek to seduce attention by a purely quantitative measure. The quantification of actions and patterns of actions is required for them to be computable, yet the consequence of making such actions and patterns of actions computable is that humans are less likely to consider their participation in online social systems based upon humanist criteria. Communication in the Feed is unlikely to be undertaken as an intentional action made as an expression of one's freedom, since this criterion cannot play a role in the rubric for effective communication in the Feed. This is not to say that free action in its humanist conceptualization cannot occur in Feed-based systems, only that the operators of these systems incentivize incommensurable outcomes in each of these dimensions of sociability.

The User: Social Media and Modulated Subjectivity

The Feed ecology impels a reconfiguration of the notion of subjectivity. Subjectivity as a concept has a storied philosophical history and broad theoretical scope, and in this context, I emphasize its processual nature as an ongoing differentiation of a particular set of processes that are distinguished from the world in general. Subjectivity is the basis for the differentiation of an "I," the address to a perpetuating identity; from it issues age-old ethical questions of identity, agency, and responsibility. The user is an instance of subjectivity, one that is demonstrably emergent, contingent, and nonlocal. Given these traits, the user is an expression of concepts from posthumanist literature, and draws contrasts with more anthropocentric accounts of subjectivity. A primary difference is users' narrow degree of free action compared to humanist subjectivities, such as its main anti-thesis in present debates, the liberal humanist individual of the social contract. The liberal humanist individual, unlike the user, is always bestowed with some capacity to transcend contingency. This creation of this individual is accomplished through a concept of self-sovereignty which *suppresses* the influences of history, nature, and external causation upon the process of the differentiation of the subject, instead emphasizing an exclusive internal causation; the user, on the other hand, cannot be considered apart from the systems it informs and by which it is reciprocally informed.

Users are the subjects of Feed-based social media in that their experience is shaped by ranking algorithms that control the ongoing appearance of phenomena. Concerning the user, we cannot exclude the influence of external causes over its decisions. Users' identity is processual

and dispersed throughout networks and storage. First, its *being* is dividual[13]: each user has a wholly variable composition, which is no more than the record of its interactions. The user is fundamentally a history of associated data. Second, the user's *agency* is dividual: in addition to every possible action being scripted in advance—viz. the ability to communicate with the system via posts, reactions, comments, and feedback inputs—the user cannot act outside the parameters of the system which affords it being. A Twitter user can tweet, but cannot edit Wikipedia pages—there are no Twitter users in Wikipedia's userbase.[14] The subjectivity of the user must therefore be considered in terms of its mediated contingency, for it has no constitution outside a particular system, and it has only the agency afforded to it by that system.

Mediated contingency as a subjective trait requires that experience and identity formation contiguously depends upon that which is not the subject. Users' access to experience in general is not structured transcendentally, but through their decisions, which are mediated by nonhuman agents. This premediated deferral to the nonhuman is a primary difference between users and the self-sovereign subjectivity that is characteristic of humanist traditions; the latter adopt the premise of autonomy from nature in order to make a case for human exceptionality. Mediated contingency is always already external, and this is evident in the Feed ecology. Today, with the advent of social media and its users, we can understand how subjectivities (even those of the humanist traditions) are modulated, amplified, and attenuated symbryonically within technical distributions like the Feed, including the unseen (and unseeable) non-human agents operating therein.

[13] The concept is found in Deleuze's assertion that modern society is transitioning from a disciplinary society to a society of control, "[w]e no longer find ourselves dealing with the mass/individual pair. Individuals have become "dividuals,"and masses, samples, data, markets, or 'banks'"(5), a list which the dataset, such as those of social media, already makes an appearance.

[14] This may seem pedantic at this juncture, as it may be retorted that the user is simply a person, and a person can have multiple accounts, but users and persons inhabit different realities and are thus incommensurate; a more thorough case will be presented.

Before demonstrating this subject-system symbryosis, the term "user" warrants some complication. The term suggests a duality between *activity* and *passivity,* although a strict dichotomy between the two would be inappropriate in this case. Somewhat problematically, the word "user" already implies a contradistinction from that which is used: the agent as *opposed* to the tool. Martin Heidegger, an adamant critic of anthropocentric phenomenology, describes this as an instrumentalist "attitude" towards subject/object relations, that the tool is "present-at-hand," a mode which refers to a dispassionate, uninvolved relationship with things. Users complicate this anthropocentric picture—for humans do not normally encounter the world in this dispassionate mode. Furthermore, things already reveal themselves with a given "manipulability."[15] Heidegger argues that "our concern subordinates itself to the 'in-order-to' which is constitutive for the equipment we are employing at the time; the less we just stare and the hammer-Thing, and the more we seize hold of it and use it, the more primordial does our relationship to it become" (*BT* 98). From the perspective of technological posthumanism, the user exceeds even this primordial relationship, finding itself at a more radical point of departure, for the user is born *of* the system. In the first place of course, there can be no user without a system, yet at the same time systems cannot precede the users informing it—systems only become recognizable processes as communication occurs on large scales. The operators of the Feed, including ranking algorithms, are a tool the user can never put down or take off, as is yet possible with the hammers, needles, and shoes that serve as Heidegger's primary figures. The inverse is also true, for ranking algorithms never put users down either. They process every action in real time, and each interaction is counted as relevant, archivable data. Somewhat problematically, the term "user" as applied to tools solely connotes the agency of the human

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[15] Both the German *Handlichkeit* and "manipulate" play host to the etymological root of hand (L. *manus*)

subject, yet this is not the case with the Feed. While it is obvious that ranking algorithms are more agentic than the hammers, needles, and shoes with which humans are implicated, they are also *more* agentic than users in terms producing system-wide effects.

Heidegger's analysis of the division between active/passive, and subjectivity/objects anticipates my emphasis on symbryos' co-implicated agency within an embodied situation or world. His concept of ready-to-hand is a precursory emphasis of technological posthumanist literature (primarily through the channel of Bernard Stiegler's notion of epiphylogenesis). He is suspicious of the anthropocentrism that characterizes modern thought about using, and argues that "[t]he current conception of technology [that is, the dispassionate and theoretical encounter], according to which it is a means and a human activity, can therefore be called the instrumental and anthropological definition of technology" (*QCT* 5). The connotation of *user*, it may be argued, suffers from this fundamental shortcoming and may bely an anthropocentric orientation that user-symbryos show to be much more complicated.

The potential problems with the term user are not limited to social media, but have also been discussed with reference to computation systems in general. In a 2003 book (which was published a year before Facebook's launch and three years before the News Feed module) Matthew Fuller critiqued the term and the focus it drew in computing circles at the time. According to Fuller, "HCI [that is, the study of human-computer interaction] has an unusually narrow understanding of its scope. Much of the rhetoric is about empowerment and the sovereignty of the user, whose 'personality' shapes and dialogues with the machine. It should be asked what model of a persona, what 'human' is engineered by HCI" (12). The user, here, is the "model of a persona" or a subjectivity, and as Fuller points out, the term itself leads to an unwarranted emphasis on one side of the mutualistic relationship between symbryos. The

impropriety of this bias is made all the more evident by the Feed, for even as users interact with the tools of the Feed, the latter reciprocally manipulates the former.

Nevertheless, despite the potentially misleading connotation of the term, there really is no viable substitute in a discussion of computational systems. Discussing users in this context is necessary due to its indelible status in the syntax of the programming languages by which computational systems have always operated. Since the first Unix operating systems, to be a user is a declaration of identity; this identity frames the parameters for any possible interaction of a human with such machines. For example, a superuser or system administrator, may, using a command (*su,* for superuser), execute other commands with the permissions of another user class, and so far as the system is concerned, this extemporaneous reconfiguration of identity is perfectly permissible. Identity is attached to access and specific declarations, not to individuals. Furthermore, any human operator can act as *any* user of a system, provided the operator can justify their access to that identity within the system's parameters, i.e. with a password— incidentally, this is an initial indication that users *per se* are not commensurate with human identities. In contrast, user-identity is protean and declarative, and develops from communicative processes, and within this context of computational systems there is no alternative. The term "user" serves as an artifact of a paradigm that the user itself attenuates.

Feed-based social media are computational systems which run as end-user software, and they are inarguably manipulative (as per Heidegger's etymological gloss)—they *handle* users: they are inhuman, yet exert significant influence over the behaviour of human societies. The Feed operates by the repetition of communication patterns. Especially with the advent of mobile apps, social feeds are more literally "ready-to-hand" (or ready-to-thumb) than any medium ever. Just as hammers phenomenologically present themselves as things suitable for pounding, Feeds

have become embedded in the human situation as a refilling trough of novelty. Even as we gorge upon trending data, the Feed feeds upon our reactions and productions—feeding them back, modularly, to our Feeds and those of other users. Although social media platforms vary in many respects, one to the next, this is the novelty of Feed-based media. While social media platforms incorporate the digital images of preceding media forms: profiles, links, text, photo galleries, videos, comment threads, bulletin boards, messaging functions, invitations and commerce, these remediations are skeuomorphic and relatively familiar. The Feed is novel in that all incorporable forms are assembled and ranked by a single mathematical curator, while all formal differences between them are otherwise leveled; they are all quantified "content." Feeds are not only the basis of major platforms such as Facebook, YouTube, Twitter and Reddit, but has also been integrated into many traditional news media websites and apps, online pornography, and many ecommerce sites—all of which recommend associated content or products based upon the previous decisions of the current user and the aggregate userbase. Although there are many other modules for communication on these platforms, the Feed is the place to start looking for novel subjectivities due to its ubiquity and lack of precedents.

I should note that the Feed is not unprecedented as an aggregator of information submitted by a body of users (the "social" aspect of social media), as newspapers, journals, bulletin boards (all of which, notably, have online counterparts) for example, have served similar purposes for a long time. However, the Feed is unique in three ways: first, it operates as an ongoing, real-time process; second, there is immediate feedback between user and its dataset; and third, while each feed is particular to each user, the aggregate of users is incorporated as a variable in each decision, providing a basis for "trending content." Social media systems are constructed over time by communication events between users and datasets, and agency is distributed: users make

individual decisions, informing or training the algorithm as to which content they find seductive. The algorithm then incorporates these inputs as variables in order to display content that is most likely to continue seducing its users' attention. So while algorithms do not *determine* user behaviour *per se*, their "decisions" render some behaviours more probable than others on a systemic scale, as the aggregate of the userbase is consulted as to the seduction-index of any bit of data.

Because each user's decisions are scattered across system-wide indices, it resembles what Deleuze calls "dividual" subjectivity. In contrast to an individual, the identity of the user is radically processual: it is constituted by a multiplicitous, nonlocal record of digital decisions and events for potential affordances (particularly commercial). Individuals as defined by traditional humanist paradigms, on the other hand, are usually defined by certain characteristics which belong to them transcendentally, including freedom, responsibility, and a list of essential mental faculties, depending upon the psychological model.[16] As a poignant example, Locke argues that his *natural* liberty is to "follow my own will in all things….This freedom from absolute, arbitrary power is so necessary to, and closely joined with a man's preservations, that he cannot part with it" (17). Will in Locke's context is proper himself, and, as a defining characteristic, is the radical basis of the sort of autonomous action that defines individuality.

According to Feed alarmists today, social media are a looming threat to individuals' freedom and the proper functioning of their mental capacities, many of which seems to come

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[16] For example, Hume reflects that each individual is an instantiation of faculties, in a bundle, that yet follow some pattern: "the faculties of the mind are supposed to be naturally alike in every individual; otherwise nothing could be more fruitless than to reason or dispute together" (53). However, Hume also brings humanity down to a mammalian level in many respects, drawing parallels between human reason and "the reason of animals" in *A Treatise of Human Nature*. He writes "Tis from the resemblance of the external ac-tions of animals to those we ourselves perform, that we judge their internal likewise to resemble ours; and the same principle of reasoning, carry'd one step farther, will make us conclude that since our internal actions resemble each other, the causes, from which they are deriv'd, must also be re-sembling" (§XVI).

from a similar, liberal point of observation. The Feed, from this perspective, is not only inhuman,

it is *inhumane*. The Center for Humane Technology, an organization largely comprised of

reformist tech insiders, declares in their mission statement that "[t]echnology is hijacking our

minds" and "eroding the pillars of our society."[17] Such statements perhaps belie a latent

presumption that there were, in a lost age, minds and societies independent of technics. These

claims are supplemented with examples, each of which utilizes a feed:

- **Snapchat** turns conversations into streaks, redefining how our children measure friendship.

- **Instagram** glorifies the picture-perfect life, eroding our self worth.

- **Facebook** segregates us into echo chambers, fragmenting our communities.

- **YouTube** autoplays the next video within seconds, even if it eats into our sleep.[18]

Each of these examples of Feed-based media are affecting normative conceptions of selfhood,

society, and habits. Yet before we light the signal fires of civilization, I argue we should have

some indication as to where these normative notions originate, for similar alarms could be (and

were) raised about the mass adoption of electricity, automobiles, or photography—not to

mention the many genres of writing itself.[19] A common charge against social media is their

capacity to manipulate, and the precision with which this manipulation can occur. For example,

"the competition for attention and the 'persuasion' of users ultimately amounts to a project of the

manipulation of the will....At individual levels, these problems threaten to frustrate one's

authorship of one's own life" (Williams 88; emphasis added). Manipulation, when one's

psychical faculties or will are *handled* by external agents, evidently frustrates one's proper

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[17] http://humanetech.com/problem
[18] http://humanetech.com/problem
[19] In Plato's *Phaedrus*, for example.

"authorship," viz. individual self-sovereignty, which is here assumed to be something given *eo ipso*.

In general, posthumanism as a discursive position inquires as to the extent to which something like self-sovereignty or self-authorship was *ever* truly given. David Cecchetto summarizes that "posthumanism in the broadest sense might be initially defined as a recognition that the static term *human* has entered into discourse, where it flows, mutates, amplifies, exchanges, and propagates according the various and often paradoxical logics of language" (8). Once this stasis is called into question, as is the case of the user, how this stasis was accomplished in the midst of such paradoxes should also be a matter of analysis. Extending this development of posthumanist discourse, my symbryonic thesis suggests that dividual subjectivities, including that of the user, serve to critique Enlightenment humanist subjectivities—Williams' use of the "authorship" metaphor is particularly telling as to which universal model is normative here (and notably, it echoes a common Enlightenment analogy for God as the "Author of Nature" [c.f. Berkeley 52, Hume 100]). Our notions of individuality are certainly being disrupted, but taking a more historicist stance towards this event would, I suggest, temper the claim that a new Dark Age is imminent.[20] Rather, we are in the midst of a shift of social imaginaries for which media ecologies are in part responsible.

The individual, I argue, is a symbryo of a typographic ecology, to which the Feed ecology is proving to be an existential threat. Alarmism is an expected response, as many institutions that we cherish as ethically good—educational, political, and legal systems in particular—were founded upon the concept of individual identity such that it can be afforded

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[20] As is suggested by alarmist titles such as *New Dark Age: Technology and the End of the Future* (Bridle); even as the original metaphoric invocation of the so-called "Dark Ages" is itself historiographically suspect and irresponsible, as has been contested by historians at least since the 1970s.

rights: the rights of humans (naturally) and citizens (civilly) are both dispensed based on a person's non-contingent status of existing. In 1791, Thomas Paine (who does not deign to justify these premises) declares that "Natural rights are those which appertain to man in right of his existence….Civil rights are those which appertain to man in right of his being a member of society" (119); in Paine's thinking, the latter are rational conclusions deduced from the former. The latency of the typographic imaginary is also immediately manifested, as Paine connects the legitimacy of government to a physical, written constitution:

> The fact therefore must be that the individuals themselves, each in his own personal and sovereign right, entered into a compact with each other to produce a government: and this is the only mode in which governments have a right to arise, and the only principle on which they have a right to exist…A constitution is not a thing in name only, but in fact. It has not an ideal, but a real existence; and wherever it cannot be produced in a visible form, there is none. (122)

Among Anglophone liberals during the Enlightenment period, we can virtually choose at random any treatise that justifies the parliamentary state— I will present several others in this chapter—to find equivalent statements which relate individual rights to the sovereignty of *writing*, which is symptomatic of the dominance of the medium over this particular social imaginary.

In stark contrast to the inborn natural rights of the citizen and primacy of written constitutions, the user has no status in advance of its inputs and is not bound to society by a contract signed in good faith. Rather, the user's status and access are defined by the operational parameters of the system. Before interacting, the user is an empty placeholder within the

parameters of agency. A computational system determines a finite number of possible interactions for users or classes of users, yet in advance of user interaction there is no communication, and thus no system. In end-user software, including social media websites and apps, the code that defines such parameters is unseen and unalterable as far as the user is concerned, and thus is certainly not a matter of a willfully signed compact or social contract.[21]

As with the early Unix systems, any end-user's attributes and particular permissions define which data can be accessed or altered on a multi-user system, indicative of Deleuze's reasoning that "[t]ypes of machines are easily matched with each type of society—not that machines are determining, but because they express those social forms capable of generating them and using them…. societies of control operate with … computers" (6). The machinations of Enlightenment liberalism are textual, and tend to emphasize the privileged literate rationality of humans relative to the non-human, including the technical or any others deemed incapable of exercising independent rationality. The Feed ecology, on the other hand, defines agency not by rights or potential but by informing inputs.

The *liberum arbitrium*, or the non-contingent freedom from necessity is a humanist staple, from Augustine to Schopenhauer, yet the exceptionality of human action is blurred in the Feed ecology.[22] While human users are certainly agents in social media systems, they are co-implicated with other forms of agency which can add, alter, and control data (via filters, ranks and other inputs). That is, there is no *exclusively* human phenomenology within social media systems simply because, as an informatic and selective process, it is indifferent to most of the

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[21] Breaches of the opaque division of code from the end-user constitutes a *hack,* a liminal case of encounter between the user and code. The frontier or "outlaw" status of the hacker has been extensively developed elsewhere. For example, by Hafner and Markoff (1991), in many cases showing the constructive contributions of hackers to the present ecology of the Internet. Yet our present concern is the status of most users, which function within their defined agentic parameters within social media systems.

[22] See, for example Zimmerman, Jens. *Humanism and Religion*. Oxford: Oxford University Press, 2012.

information humans might concern themselves with. Furthermore, ranking algorithms are proprietary and inaccessible to users in almost every case. The subjectivity of the user is, in advance, manipulated by the archive of computable events which they and the aggregate userbase have communicated to the system; users program the Feed by what they are doing and have done—a sort of displaced, archival authorship performed by unseeable operations. Deleuze concurs that while it is "the signature that designates the individual," the "password" designates the dividual (5): that is, where the individual marks itself with a personalized, textual signifier, with which it identifies positively, the dividual or user is designated differentially by its access or lack thereof to control societies of modular networks. This subjectivity is therefore deferred to external premediation, rather than to the ownership of individual will and self-sovereignty.

A Symbryonic Thesis of Text and Feed

Symbryosis describes the reciprocal influence of technological agency on one hand, and human subjectivities on the other. There is an ongoing evolutionary process via feedback. As applied to the Feed, which refreshes in real-time. Users' interactions are immediately *rewarded* with associated content they have deemed valuable by their inputs—clicks, views, likes, comments, favourites, upvotes or retweets. Extrapolating from these interactions, Feed algorithms make decisions as to what content is most likely to continue to seduce the user's attention, and thus, the user is more likely to continue to interact. This represents a feedback loop of plural subjectivation that generates a shared yet adscititious reality, for technics and behaviour are coeval. Each simultaneously processes the information decided upon by the other, and each subsequently reconfigures the criteria by which the other is selecting content. According to the symbryonic thesis, virtual phenomenal experience is ecologically local, not universal as Berkeley

suggested. Between these symbryos, the world of human experience cannot be separated from, or be given primacy over, the technical world.

In Feed-based social media, more than any previous communication system, human and nonhuman actions reciprocally affect one another. For users, this relationship steers the evolution of system-wide behavioural patterns such that some behaviours are incentivized more than others, and subsequently certain types of content are more likely to appear than others. The Feed makes determinations based on associations of content by the use of tags, title keywords, or based on the preferences of other users who have interacted with the same content. The user's experience is thus shaped by the Feed algorithm's interpretation of its interests, causes, political views, or relationships. By reinforcing and extending such associations over time, algorithms *steer* human subjectivity because they are also *concerned* with reality; that is, they select information according to criteria. This may have effects on a user over time by imperceptibly reinforcing certain attitudes or connections at the expense of others (the worst case scenario, a fear that is often raised, is that of a person with moderate views may be radicalized by a feedback loop of content). The Feed is designed to *seduce* the user—ranking algorithms serve this goal. As Heidegger's hammers and needles lent themselves to particular embodied actions, ranking algorithms take this lending to an extreme by shaping the whole of the user's experience, and every variable is weighed in accordance with this aim. Most often these variables are given by their programmers, but with the deployment of machine-learning algorithms, they adjust automatically over time according to success rates, having been given a particular goal, such as return traffic. The resultant behaviours of social systems are indeterminate due to the unpredictable variables of human communication; however, trends do emerge over time from the construction of seductive associations. The user, as symbryo, better serves the system by having

a malleable will, by seeking immediate gratification in place of long-term contracts, and by responding quickly and immediately—each of which is contrary to the subject of a social-contract.

The subject of the social contract is also a symbryo, though one of a different media ecology. The liberal, self-sovereign subject has unwittingly defined itself (and much else in its phenomenal horizon) as a combinatory matrix of operations particular to techniques of literacy. According to authors such as Bernard Stiegler, Jacques Derrida, and Marshall McLuhan, the Enlightenment individual's fully transparent self-reflexivity and independent rationality is suspect. In the phenomenological experience of typographic writing, for example, each element is equivalent to a referent of a distinct order: letters refer to phonemes, words refer to concepts, and sentences refer to the relationships between subjects and predicates. When it comes to defining the subject or its differentiated "other," then, there is a logical equivalence that leaves out the contingency of the "I"—identity is a matter of signification, rather than differences in a chain of signification (as is the project of post-structuralist critique). The literate social imaginary is generated by an originary reduction of a multiplicity of wills, desires, and fluctuating temporalities to the individual signifier "I." This reduction is monumentally effective, yet it inadvertently suppresses its own locality, one that is particular to the genealogy of the sovereign subject. McLuhan observes that rationality "has for the West long meant 'uniform and continuous and sequential.' …we have confused reason with literacy, and rationalism with a single technology" (*Understanding* 30). The post-humanist seeks to reintroduce reflexivity by investigating the shifting ecology.

Although the relation of symbryos to their media ecologies is tentative, similar arguments are made by a variety of theorists from a variety of disciplines.[23] Comparing the emergent traits of the user to those of other subjectivities enables identification of what is novel in Feed. Typographic print was, for a long time, the dominant arbiter of information in Western societies. That is, to be informed was to read non-fiction publications (newspapers, journals, and books, depending upon period and location). Chief among these genres is the philosophical treatise: lengthy speculative works on the first principles of topics including subjective experience, ideas, society, and political economy. In the centuries since, there has been widespread disruption of the primacy of typographic literacy as the dominant form of information—including, radio, television and the Feed—each has been heralded by alarmists and advocates alike. Yet, many of the liberal ideals that emerged from typographic literacy remain touchstones of modern political institutions, legal institutions, and educational ideals. They are also the touchstones of Feed alarmists' objections. Such differences provide a basis for comparing emergent subjectivities. Just as algorithms are agents of information, the techniques and genres of typographic print media have selective biases that emulate their own operations.

Subjectivities emerge from criteria of selection and operational biases. This model builds upon both Bernard Stiegler's "epiphylogenesis," which develops "the pursuit of the evolution of the living by other means than life" (*Technics I* 135) and what Félix Guattari calls "machinic heterogenesis." While Stiegler makes the case that inorganic materials serve as externalized memory (and thus actualize a particular conception of time), Guattari focuses on the machines that "hold an eminent place within assemblages of subjectivation, themselves called to relieve our old social machines which are incapable of keeping up" (54). Although written before the

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[23] In addition to those cited in this chapter, see Hayles, Pickering, Haraway, Virilio and Baudrillard as examples in the following chapters.

advent of social media, such descriptions presciently describes our current disruption. Communications technology exemplifies both conceptions: that media are externalized supplements to internal processes and also manipulate the process of subjectivity and identity formation.

If there is a shortcoming to these descriptors, is that while they describe the parallel evolution of techniques, technologies and human society, they do not sufficiently emphasize the inhuman agency of media. While prescient, they do not account for the ubiquity of various feeds' influence, especially concerning the capacity of artificial intelligences and machine learning. Technics shape favourable environments in and through "us," qua users, for *their* utility which is, to a degree, increasingly indifferent to human existence—that is to say in principle that the Feed could function the same if its entire userbase were comprised of bots (automated software programs) without human agents. This posthuman imaginary could not emerge from the paradigms of hammers, books, or steam engines. Their independence from human operators, once the system is operating, is unprecedented.[24] The process we observe is summarized by Stiegler, who declares that "humanity's history is that of technics as a process of exteriorization in which technical evolution is dominated by tendencies that societies must perpetually negotiate…socio-genesis recapitulates techno-genesis" (*Technics II* 2). *Who* the subject may *become* in exteriorization can be sought in the operations of the various media by which communication occurs. In symbryosis, that which is exteriorized (the "content" of writing) is a concurrent process undergoing feedback from the exteriorizing agent as technical ecologies evolve in—and with—social situations. The distribution of effective agency implicates both in a reciprocal process that is proving to be indifferent to regions of human concern.

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[24] This must be supplemented by the caveat that the hardware, physical networks, and electrical grid continue to function, for as systems, they are far more dependent on human supervision.

In a symbryonic model, there are as many subjectivities as technical ecologies, so rather than a technological determinism, this should be viewed as a historical *constructivism*, which produces predictable patterns at large scales yet includes accidents and deviations at the level of individual data points. Deviations are significant because they both impel evolution and always prevent perfect prediction, for "we know of no system that functions perfectly, that is to say, without losses, flights, wear and tear, errors, accidents, opacity" (Serres 12-13). The Feed is a self-reproducing process, tirelessly appetitive of the unreachable end where all of its users are fed precisely the data they desire at every moment. The implication of this goal is the source of anxiety for the Feed alarmists in particular, who recite refrains about human freedom and the ideal that this freedom cannot be manipulated by external forces. Still, contentious scenarios take the stage each time a new technology confronts existing ecologies; often, clashes of operations become a clash of values. In *Phaedrus*, Thamus similarly rejects writing for its potential manipulation of human minds, telling Theuth that "this discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves" (275). Over time, dominant, widespread technology and techniques steer their host societies such that virtual subjects come to *anticipate* patterns of exteriorization. Anticipation is then generalized such that the possibilities of time and space, i.e. "the world," seem to be, *post hoc*, universal. With the Feed, we are faced with novel subjectivities, or according to Michel Serres, a new *parasitism*:

> One parasite drives out another…noise, chance, rain, a circumstance, produced a new
> system that in this case is inverted or contradictory, but that in general could be
> entirely different from the one that was interrupted…we are finally free of the overly
> simple chains of contradictions whose use was rarely apparent. (18)

The individual, no less than the user, is a symbryo, and as such the subversion of its theoretical underpinnings by Feed ecologies does not necessitate the end of humanity, but instead proffers its reconsideration from a posthumanist perspective if "we" can adapt.

New technics do not simply challenge the existing *status quo*, for they also impel adaptation. Some scholars call this "media convergence" which is "more than simply a technological shift. Convergence alters the logic by which media industries operate and by which media consumers process news and entertainment. Keep this in mind: convergence refers to a process, not an endpoint" (Jenkins 16). In Derrida's deconstruction of *Phaedrus*, he attends to the double meaning of *pharmakon*, which may signify both a remedy and poison (*Dissemination* 97-98). Theuth, the god of writing, introduces it as the remedy, and thus has "played on the word, interrupting, for his own purposes, the communication between the two opposing values" (98). Perhaps the claims of the "end of freedom," "inescapable manipulation," and the "collapse of civil society" can be similarly imagined as both remedies and poisons, for there are channels of distribution and cultural capital, by which new subjectivities and new forms are produced. These shifts may in part humiliate the notion of self-sovereignty, yet they also belie other more subtle irritations to identity that broadly reconfigure subjects' self-authorship. In Stiegler's articulation, "technics [are] inventive as well as invented. This hypothesis destroys the traditional thought of technics, from Plato to Heidegger and beyond" (*Technics I* 137). The tradition Stiegler declares "destroyed" here refers to humanist subjectivities, particularly in that human being is considered different *in kind* from the rest of nature; here, the posthuman subject is a product of disruption via technics. Media ecologies reproduce attributes of their basic operations within subjects, both human and nonhuman, that interact with them. Technical milieus are therefore symbryonic with respect to human society, and partially as a result of new media "the

unity of the human here becomes tenuous: one can hardly see *any other permanence*…than the fact of technicity" (Stiegler *Technics I* 149; emphasis added). The past century featured the disruption of typographic print's dominance, a series of events concurrent with the theoretical development of posthumanist subjectivities, as remedy and poison.

Those who espouse versions of the posthumanist, symbryonic thesis include, in addition to Stiegler, the Toronto School of media theory (Harold Innis, Marshall McLuhan, and their theoretical heirs), which offers much reflection upon the historical dominance of typographic print and how this dominance came to define thinking as such. Stiegler argues that humanist subjectivities are by and large products of a logocentric[25] bias of writing:

> What is in question is not emptying the human of all specificity but radically
> challenging the animal and the human. Such an aim encounters problems...that can
> be compared to those met in (at least) the relativization of the specificity of
> alphabetic linear writing. It is a case of the same reasoning starting with different
> names: (1) if the privilege granted to linear writing by Hegel and Rousseau is
> logocentric, (2) if metaphysics is logocentric and vice versa, (3) if all metaphysics
> are humanist and vice versa, (4) then all humanisms are logocentric. To privilege
> alphabetic writing is to privilege man….To oppose speech to writing is always to
> oppose man to animal in opposing him in the same stroke to the technical. (*Technics
> I* 136)

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[25] Logocentrism is, according to Derrida, a process by which writing effaces its contingency by the suppression of certain supplements that allowed a text's coming-to-be in the first place. In *Of Grammatology*, he writes that "the philosophical text, although it is in fact always written, includes, precisely as its philosophical specificity, the project of effacing itself of the signified content which it transports and in general teaches" (160). Whereas signification is always differential, logocentric writing attempts to efface contingency to produce a self-substantive presence.

This passage exhibits several posthumanist critiques, particularly that human being is not exceptional relative to nonhuman being (including the animal and the technical). Such blurring of the exceptionalism of human being, relative to the non-human, is not new, as it was nascent in the writings of Hume and Heidegger (in *A Treatise of Human Nature* and *The Question Concerning Technology*, respectively). However, it achieves new explicitness as human types—symbryos—are defined in terms of technics. Linear print is replete with operational constraints that tend towards the becoming of a particular imaginary. In this case, the image is "logocentric," which pathologically differentiates cause from effect according to a substantive dualism (which Derrida, in *Of Grammatology*, deconstructs using the effaced *différance* of the signifier to the signified). Among these dualisms, the differentiation of thought from action is most important for humanist exceptionalism, as it is a founding tenet of the type of anthropocentrism to which Stiegler objects (following Heidegger's analysis of *dasein*). Separating thought from action is a necessary, preliminary differentiation which generates proffers individual autonomy as both the cause and condition of moral liberty. This separation reflects, as Stiegler argues, the selective capacity of writing in the history of Western philosophy: because writing exteriorizes thought in a medium, content (as intention) and form (as actualization) can be rendered wholly separate from one another. In a symbryonic model, cohabitation with this prosaic, linear writing steers subjects towards narrating their subjectivity in a mode fashioned after the medium itself; from technics, thought.

From Literate Detachment to User Immediacy

The question remains as to how typographic literacy constructs the normative elements of modern humanist paradigms of subjectivity. This will always remain a matter of *post hoc*

speculation, yet analysis can provide something of an expected direction for new media's reconfiguration. Stiegler considers how artifacts can serve as memories, even memories for events we have not experienced (i.e. including history), which is known as "tertiary retention," by which societies can experience events across generations. Tertiary retention permits a mediated escape from one's local situation, a temporary exception from one's historical position into a mediated image or narrative of transcendence. With a historicist method that parallels that of Stiegler concerning the significance of exteriorization, Marshall McLuhan reflects at length upon the modern subject as a product of the techniques and privileges afforded by literacy. His analysis also emphasizes disruptions of this subject in the 20th century by the widespread adoption of radio and television. History can be laid out in written format and seemingly as a whole. Phenomenologically, history becomes concrete, appearing in front of one's eyes as text. The image of one's exception from history or nature is proffered by the externalization of this linear text. This particular method of detachment is the first example of a sense of subjective detachment enabled by text as technology.

Literacy facilitates abstract notions and ideals in a way that other media cannot. On a societal scale, self-sovereign subjects perceive their agency via the technologies of literacy as an original externality, or tertiary retention particular to writing. Accordingly, those with the privilege—access to information via books, the education required to read them, and leisure time towards that end—can exceed common experience. George Berkeley, in the early 18th century, associates the ability to abstract and generalize specifically with the techniques of reading and writing, suggesting that "The generality of men which are simple and illiterate never pretend to *abstract notions*. It is said they are difficult and not to be attained without pains and study. We may therefore reasonably conclude that, if such there be, they are confined only to the learned"

(11; emphasis in original). Although such musings on typographic ecologies would not reach a point of self-reflexivity until the advent of competing information ecologies, Berkeley explains the capacity of textual technics to influence the shaping of human types and behaviours. Implicitly, he designs a hierarchy of humanity by the measure of literacy (notwithstanding the privilege of opportunity).[26]

The process of abstraction identified by Berkeley not only classifies human types according to their technical capcity, but is also the same set of behaviours that McLuhan claims is under threat by the *pharmakones* of television and radio. McLuhan argues that typographic literacy incentivizes a detached posture of non-involvement, humanity's transcendent liberty from nature via thinking is a symptom of mediation. For McLuhan, to be free from manipulation is a characteristic of the literate, self-sovereign, subject:

> Western man acquired from the technology of literacy the power to act without reacting. The advantages of fragmenting himself in this way are seen in the case of the surgeon who would be quite helpless if he were to become humanly involved in his operation. We acquired the art of carrying out the most dangerous social operations with complete detachment…our detachment was a posture of non-involvement. (*Understanding Media* 20)

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[26] The association of literacy with humanity puts the moral superiority of the free individual into an ethical bind. The Feed alarmists accept the superiority of this idealized individual *prima facie*, as a construct that must be defended at all costs. However, comments such as Berkeley's belie the inherent suppression that exists in the association of abstract reasoning with higher human types. As soon as such an association becomes definitive of "the human" in general, it generates a division between rationality and the illiterate, natural, emotional, animal, even the feminine, as abject or *other* characteristics. Simone De Beauvoir identifies clearly the eventuality of opposing "man" to nature such that he might transcend it: "Man's design is not to repeat himself in time: it is to take control of the instant and mold the future. It is male activity that in creating values has made of existence itself a value this activity has prevailed over the confused forces of life; it has subdued Nature and Woman"(65). It is hardly coincidental that the construct of the individual in terms of the capacity to abstract denies the subjectivities of the abject who were systematically denied the privilege to become literate symbryos.

A social imaginary of detached individuality emerge from many contingent instances of individuals' technical experience (typified as "Western man"; which includes those with access to literature, education, and leisure). As linear, typographic literacy came to dominate the information ecology of Western Europe in particular, the technics of literacy steers the agents with which it is implicated—the 'ideal' literate subject is, like *his* tool of information selection, discrete, fragmented, linear and syntactic. This ideal is of course an abstraction, which selects certain traits and behaviours as *more* human than others, yet is facilitated by the obfuscation or suppression of the technical symbryo to which it originally corresponds and the social capital he can muster. Thus, the inhuman or *unlearned,* as Berkeley describes them, react according to instinct, which is associated with the animal. The ideal human, conversely, postpones his irrationality long enough for reason to intervene, thereby elevating them from mere nature (although many Enlightenment philosophers were proponents of expanded public or universal education, few if any remarked on the unequal social capital and norms that permitted them to become scholarly, literate gentlemen where their labouring or female counterparts were disadvantaged). The Feed alarmists are notably silent on the suppression of the abject that is symptomatic of the subjectivity they rush to defend.

Detachment and abstraction, as outcomes of the liberty of literacy, also extend to moral considerations, for symbryos can construct, by counterfactual imaginings, what *should* be done with their autonomy. Liberal humanist genealogies of subjectivity depend upon self-sovereign behaviour—put simply, persons are free agents who are individually responsible (to God and/or a contractual community) for their agency. In this context, non-contingency—that is *causa sui,* action—refers to what Schopenhauer calls "moral freedom." By Schopenhauer's definition, moral freedom refers to situations in which no necessity impels a decision one way or another;

the absence of compulsion is the *in situ* of *liberum arbitrium*: "the *free* remains that which is in no relation necessary; and this means that which is dependent on no ground" (7). In other words, there are decisions for which the agent may be wholly responsible, subject only to his or her own volition, or the complete *negation of contingency*.[27] Schopenhauer expresses the freedom of will in the language of human exceptionality:

> From the assumption of such a *liberum arbitrium indifferentiae*, the immediate
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> consequence that characterizes this concept itself and is therefore to be stated as its
>
> mark is that for a human individual endowed with it, under given external
>
> circumstances that are determined quite individually and thoroughly, two
>
> diametrically opposed actions are equally possible. (9)

Schopenhauer's concepts also orbit the detachment of the individual: where one supposes responsibility, some freedom from manipulation is inferred. Responsibility calls for an impenetrable causal split between thought and action. A free subject self-differentiates itself from nature and is thus, where circumstances permit, the sole sufficient cause of his actions. In case there is any doubt that this ideal of detachment is in part based upon a particular, genre of literacy epitomized by the philosophical treatise, Berkeley makes that connection explicit:

> those who have spent most time and pains in [philosophy] should enjoy a greater
>
> calm and serenity of mind, a greater clearness and evidence of knowledge, and be
>
> less disturbed with doubts and difficulties of other men. Yet so it is we see the
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> *illiterate* bulk of mankind that walk the high-road of plain, common sense, and are
>
> governed by the dictates of nature. (7)

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[27] This does not mean there are not forces or motives influencing the decision, only that they do compel the agent one way or another, in the way that the rules of mathematics impel mathematical decisions to a conclusion.

In acts of moral freedom, the ideal individual—humans when acting most in line with true human essence—is exceptional. The remainder of nature, all those *others* from which humans are differentiated, whether beasts, stars or angels, are beholden to the determinations of their being, but the self-sovereign subject is free by abstraction, just as the written word is understood as the trace or form of thought.

In stark contrast to the subjectivity of the philosopher, user symbryos offer little ground for the differentiation of thought from action, as computation systems are indifferent to the antecedent causation from which the leap to non-contingent subjectivity can be made. All that exists in communication with the Feed is the record of actual, discrete events performed by users. The category of intentions is empty and unprocessable. For instance, the YouTube feed cannot take into account *why* a user chose to watch a video in its recommended feed, only *that* it chose to.[28] The algorithms of feeds only adapt to recorded actions, or more specifically, the material record of concrete action. As a communications media, the Feed discourages detachment. As previously mentioned, the user *is* an archive of digital inputs which informs ranking and sorting algorithms. With the user, "thought," insofar as it refers to the mental processes with which a subject associates with itself, is detached, yet is encouraged to be reactionary and immediate. Instead, thought is redefined as *attention*. Rather than an antecedent *cause* of action, attention is a *record* of action.

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[28] To illustrate, say that I am seduced by the title of some video into a click, out of interest, and the video turns out to be an unsubstantiated conspiracy theory. Now, I no longer want to spend my attention on nonsense; however, the feed has registered that I am the type of user that can be seduced by such content, and the entire feed of recommended videos is now littered with associated conspiracy theory content. My will was manipulated in the first place, and now shall be continued to be manipulated by offering more of what first coerced my attention initially whether or not I now want to see such content. YouTube's "autoplay" is particularly nefarious to the independence of will in this respect, for my will to no longer be fed conspiracy theory content makes cannot make a difference to this feed.

Contingency in this sense is not necessarily deterministic, but it may generate and reinforce behavioural patterns over time. Whereas McLuhan argues that the subject of literacy was constructed upon *a special independence of human agency*, that is, something resembling moral freedom, this bifurcation, as presented by Schopenhauer and Berkeley, may be a misrecognition of a long-established symbryonic relationship with discrete literacy. The ideal individual is a phantasmal image of a technical mirror stage, always already informed by the operations of literacy which, long after the fact, effaces the materiality of the technique that structured its emergence. Feed algorithms, on the other hand, construct a different subjectivity, one that has no use for a rational individual. The user, rather, is a *virtual mine of attention*, and the notion of thought without action is unprocessable. In a Feed-based platform, interaction and activity are counted, while detached decision making is not, and "[w]e are now constantly called on to map and to value mapping in order to experience power/agency. [The user] is constantly driven to make connections and to relate his or her actions to the totality" (Chun 74-75). Attention is the scarce resource for which media systems compete and yet this attention requires activity; rational detachment can no longer be considered ideal.

Future time: From Responsibility to Prediction

The following chapters address the transcendental intuitive categories of experience— space and time, yet my points come to bear upon the notion of subjectivity as symbryonic. According to Harold Innis, in his (admittedly over-simplistic yet useful classification) all civilizations are animated by media which are biased towards either space or time:

A medium of communication has an important influence over the dissemination of knowledge over space and time and it becomes necessary to study its characteristics

in order to appraise its influence in its cultural setting…The relative emphasis on

time or space will imply a bias of significance to the culture in which it is embedded.

(33)

Although many of Innis' classifications of civilizations as one or the other are rather tenuous, if

humans and communications techniques are symbryos, it is a likely result that their relationship

would be affected by the speed, cost, and permanence of transmissions. In this chapter I focus on

the asymmetrical futures offered by text (particularly the imaginary text of the social contract)

and the futures sought by the subject aims of Feed-based systems.

A common expectation of the self-sovereign individual is his responsibility for

consequences, which compacts the exteriorization of typographic literacy with the noncontingent

rationality of liberal agency as a prescription for ethical behaviour. As regards temporality,

responsibility is assumed for a future that does not yet exist. This future is made possible by the

exteriorization of written communication, as opposed to speech—writing hails an as-yet absent

posterity by means of tertiary retention. Responsibility for the future can emerge from this

addressee who does not yet exist. Such postures introduce a consequence of detachment from the

immediate present. For example, a Christian subject's responsibility is divinely bestowed and

should be reciprocated to fulfill one's divine unction, for the individual is implicated in God's

plan for the future. According to Augustine,

when we say that it is necessary that, when we will, we will by free choice, in so

saying we both affirm what is true beyond doubt, and do not still subject our wills

thereby to a necessity which destroys liberty. Our wills, therefore, exist as wills,

and do themselves whatever we do by willing, and which would not be done if we

were unwilling.…he lives ill who does not believe well concerning God.

Wherefore, be it far from us, in order to maintain our freedom, to deny the

prescience of Him by whose help we are or shall be free. (V.10)

For Augustine, the cause of free will is divine investment, and therefore to live well or ill is

differentiated by aligning one's will with the transcendent will of God (which was revealed, by-

and-large, in documented history). Humanisms generally dictate that to live well is to bear

responsibility for some future human flourishing, whether that is the City of God or a social-

contract (and what counts as flourishing may be proffered by divine mandate or be a

deontological deduction given the capacity to reason about the future, depending on the

humanist). This is not merely facilitated by imagination, but its very generation. According to

one of McLuhan's students, symbryonically "[w]riting leads verbalization out of the agora into a

world of imagined audiences—a fascinating and demanding and exquisitely productive world"

(Ong 339).

As another resemblance among the family of literary subjectivities, the liberal modification

of responsibility offers a program of good and bad behaviour; the signatory individual *should*

adhere to the social-contract because it is rational and conveniently aligns with his self-interest.[29]

For example, because he lives in fear of having his person molested and property stolen, he

rationally transcends his *natural* right to inflict violence on them, as long as they adhere to the

same agreement in good faith (Hobbes' thesis). Society, for liberal humanists, is an unnatural but

rational intervention originating outside the state of nature. The social contract and its

concretization in written constitutions, is also created for posterity. That is, contracts exist for

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[29] The gendered pronoun as a signifier itself serves as an exemplar of logocentric self-effacement, and I use it in reference to the philosophical tradition in which it is embedded, not generically.

generations not yet conceived, to determine how they should act in some as-yet indeterminate situation; in part, this disparages reaction or instinct in advance, for what constitutes good behaviour has already been agreed upon in a fixed written document. In principle, if we have literate courts, we should not resort to mobs. Immanuel Kant extends individual responsibility not just to law, but to reason itself. In his *Religion within the Limits of Reason Alone* he reflects that moral freedom, as regards man, "is innate in him. Yet in doing so we shall ever take the position that nature is not to bear the blame (if it is evil) or take the credit (if it is good), but that man himself is its author" (372), and the ultimate ground of any maxim "must ultimately lie in free choice" (372). The morally free subject is radically *non-contingent* in his decision making. Insofar as it is made up of rational individuals, society operates accordingly: "The species of rational beings is objectively, through the idea of reason, destined for a social goal, namely, the promotion of the highest good as a social good" (408-9). The purpose of written contracts, constitutions, and laws is that they will be relevant in a future circumstance, for a posterity that does not yet exist.

Accruing commitments for the longevity of constitutions and contracts should be the cornerstone of society, and even according to the theorists who conceptualized them, this is an unnatural event—a supersession of nature. The indeterminate moral freedom of the liberal subject establishes the bases for the self-definition of individuals and society, who are thereafter responsible for their self-improvement. Through the Enlightenment, in the Western European context, human exceptionality from the natural order is underpinned by Christianity—a religion of the book. The "dignity of man" generally subsists in the divine revelation of scripture which thereby permits the leap from mere nature into freedom. As an early example of man's cosmological position in this context, God informs the original man, Adam, that

> The nature of all other creatures is defined and restricted within laws which We have
> laid down; you, by contrast, impeded by no such restrictions, may, by your own free
> will, to whose custody we have assigned you, trace for yourself the lineaments of
> your own nature. I have placed you at the very center of the world, so that from that
> vantage point you may with greater ease glance round about you on all that the world
> contains. (Mirandola 7)

The freedom for self-definition is unique to "man," according to Mirandola, who is "at the very centre of the world." Liberation from natural contingency is *the* essence of humanity, insofar as this estimation is concerned. The responsibility bestowed by contracts and constitutions emerges from a similar expectation granted by text's temporal transcendence, which offers the capacity to think without reacting so as to ethically inform future circumstances. The exteriorization of writing can define the subject's responsibility in advance because a deferred reader is implied by the text. Typographic writing generates a fixed past for a future of the common good. To reiterate, God's anachronistic speech to Adam in the past opens onto the future of humanity, just as the social contract, signed in the past, justifies the adherence of future generations.

Social media also imply a subjective posture towards time, but the concept of the future is defined very differently: the past is hastily erased such that a predictive future can arrive more expediently. The only responsibility users have is to hasten the arrival of a predictive future, which they accomplish by more frequent interaction and input—ethics is an extraneous variable. Insofar as the Feed alarmists worry about the immediacy of Feed communication as antithetical to personal responsibility, they are correct on this point.

All feeds incorporate *age* as a variable, wherein new content is inherently more valuable. For example, the default of Reddit's front page and mobile app is the "hot" sort. Reddit's hot sort[30] ranks posts by two variables: popularity, measured by score (*downvotes* subtracted from *upvotes*), and their age—that is the popular is ranked higher than the unpopular, and the new is ranked higher than the old. The content of the feed is *trending* content, the recently popular. The score and age are combined in an algorithm which returns each post's position in the order. A post's age value is derived from its UNIX timestamp, that is, the difference, in seconds, between the time it was posted and zero (the zero value—for a human observer—translates to January 1, 1970). In effect, because the age variable increases incrementally each second, a new post will always have a greater base-value than any post before it. The value of a particular change in a post's score is determined according to the moment at which it changes—phrased otherwise: an upvote or downvote on a young post will affect its rank more than an upvote or a downvote on an older post. The result of the logarithmic function of the hot sort is that Reddit's feed, and feeds generally, is much more likely to be populated by newer posts, while only the most popular older posts retain their staying power for more than a few hours. Rather than the responsibility made possible by temporal extension, as was the case with the social contract, feed algorithms increasingly relegate old content to obscurity: the older the post, the less significant it is.

Feeds seduce by the rapid decay of content's rank over time, and thus value the coming-to-be of the future in the present much more highly than the past. Furthermore, they encourage ongoing reaction to the present without any demand of ethical responsibility for the future. Here

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[30]At the time of this writing, the precise base value of age in Reddit's hot sort new post will have an equivalent rank to a post 12.5 hours old with a score *ten times* greater, due to a $\log_{10}$ function. A new post will have an equivalent rank to a post 25 hours old with a score *one hundred times* greater, and so on. This formula illustrates specifically how the logarithmic function ensures that the front page is always populated by new content.

many of the concerns the Feed alarmists find traction with respect to social media as a threat to institutions. For the user, temporal value, "age," is structured by imperceptible, discrete integers, and the future becomes a routinized anticipation of the disappearing present. There is no equivalent value of decay in typographic ecologies (in fact, the reverse is often true: that age and time can increase the value of text, giving us "classics"). The Feed supplants the past in real time because it privileges novelty. Unlike the social contract, the Feed's future is indeterminate and therefore the present does not contain a future for which the user can be responsible. The aim of the Feed is constant erasure in order to make way for future content.

Even before the advent of autonomous Feed algorithms, Derrida expressed concern over the inhuman temporality of computer systems. He argued, presciently, that computer systems are mere figures of a more fundamental *cultural* shift, one opposed to temporal resistance: "now everything negative is drowned, deleted; it evaporates immediately, sometimes from one instant to the next. It's another kind of experience of what is called 'immediate' memory and of the transition from memory to archive" (*WP* 24). The symbryonic societal development from typographic print to the algorithmic feed is a cause of temporal anxiety that stokes fears about responsible communication and is also a case where instinctual reactivity is tempered by rational thought. Social media concretizes immediate memory, incentivizes reactionary communication, and the erasure of institutional memory. This is not the case for every individual user, yet to be reactionary better serves the goals of the system. In this case, the very notion of causality is shaped by a phenomenal time which is *opposed* to responsibility or fidelity to a common social end—this notion of the future is vastly different from that of contractual responsibility. After all, why should a subject be responsible to a past if that past is disappearing? The authors of the social contract sought to mitigate disruption in advance, such that social responsibility for the

future could be compelled, for all, by an invariable abstraction; the Feed, conversely, represents the continuous reconfiguration of an indeterminate future in which the notion of responsibility is not rewarded. Temporal value varies by media, and in trending ranking algorithms this value is explicitly biased towards the new, towards the future-to-come, and as users participate symbryonically in the Feed, this temporal disposition is reflected in their subjectivity. Relative to social contracts, users are at least permitted and at worst encouraged to be irresponsible.

The Feed depends upon the conditions created by the plasticity—the immediate memory—of digital media for its emergence. This is an aspect of its novelty relative to more permanent media. Algorithms are informed by user interactions to bring about a predictive future. Users attend to seductive content, and thereby supply the Feed with a stream of resources as to what constitutes seductive content for themselves and other users. Decision making or selection is symbryonically redefined, and characterizes the shift of subjectivity. The meaning of "thought" is radically different from the abstraction that defines the literate individual. Relative to humanist subjectivities, the utility of rational agency or moral responsibility lose purchase; in the Feed, the mere capacity to select, to click, is a sufficient decision. The moment of selection is a definitive point in the differentiation of humans from users, for these decisions need not be made by humans, and the influence of automated programs (viz. "bots") upon feed content is, today, a legitimate threat to humanist subjectivities. A systemic bias towards the immediate shifts the predilection of selectivity such that immediate decisions are more valuable than reflective decisions, because the number decisions that can be made are directly correlated to system-wide efficacy. Many likes, upvotes, or comments are more influential than fewer, carefully considered likes, upvotes, or comments, simply because there are more, they bring about the future more quickly. As a consequence, bots are potentially even more effective than

human users due to the frequency and speed with which they can react, and can thus be deployed to increase the visibility of specified content including that manipulated for commercial or political ends.

Temporal Affect: Immediate Memory and Manipulation

The disappearance of history as that which provides ethical consensus for the future has already been effectively demonstrated. The capacity to manipulate opinion with media, especially opinion that can be converted into legislative power, has always been a goal of political agents. Even before Facebook was accessible by the general public in 2006, the *New York Times* reported that "while the Internet is efficient at reaching supporters, who tend to visit and linger at political sites, it has proved to be much less effective at swaying voters who are not interested in politics," and quoted a campaign advisor as saying "The holy grail that everybody is looking for right now is how can you use the Internet for persuasion."[31] The Feed is this holy grail. As many alarmists note, a consequence of the efficacy of automated reactions to content is the threat of popularizing false or misleading information, for content need not be *true* for its visibility to be increased either by humans, or bots, or inorganic manipulation (including buying reactions or followers). "True" here is defined as a corroborated consensus (coincidently, "consensus" resembles a social contract, as what a community considers *true* is relatively stable through time), that is, information can be validated outside the system. However, in the Feed, exaggerations or even intentional falsehoods are likely to be *more* seductive than the truth, and thus are likely to be ranked higher (this is in part due to a mathematical definition of information, and we will return to this topic in chapter 5). The displacement of corroboration as a value of

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[31] www.nytimes.com/2006/04/02/washington/politics-faces-sweeping-change-via-the-web.html

information is a direct result of the subjectivity of users acting as symbryos within the decision

making operations of Feed-based systems which are embroiled in a war on fake news. By design,

because of the privilege given to users to increase the visibility of information as well as the

inhumanity of the user, veracity is not a valuable variable in Feed communication. This is not to

say that there are *no* checks on corroboration, but rather that it is less important than factors such

as age and popularity, as systemic characteristics which bot networks can exploit. The result has

been something of a panic with the proliferation of feeds as information processors, as decisions

are based upon variables other than veracity, and attention is correspondingly indifferent to

responsibility valued according to the consensus.[32]

Rewarding reaction rather than responsibility generates the conditions for widespread

behaviours of actors who "game" the system, viz. the spread of false and misleading information.

The virtual indifference of the Feed symbryos to corroboration resulted in targeted criticism and

speculation over the role of Facebook's News Feed in the outcome of the 2016 U.S. Presidential

Election. In the post-election weeks, articles had appeared online such as *The Guardian*'s

"Facebook's failure: did fake news and polarized politics get Trump elected?",[33] and *Wired's*

"Here's How Facebook Actually Won Trump the Presidency."[34] These articles argue that

Facebook not only "helped generate the bulk of the campaign's $250 million in online

fundraising" (Lapowsky), but also that "the bitter polarization of the social network over the last

eighteen months suggests Facebook is actually doing more to divide the world" (Solon). The

following year, *The Atlantic* published the alarmist article "What Facebook Did to American

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[32] A disregard for the value of consensus is not a feature of social media proper. Wikis, such as Wikipedia, do approach a normative consensus over time through an openness to edits by any user. Wikis, notably, are not Feed-based social media. Information is included in a negative feedback cycle, and it becomes increasingly difficult for deviant information to achieve the benchmark required to be communicated because the mass of users moderates the dataset until it resemble a normative consensus.

[33] www.theguardian.com/technology/2016/nov/10/facebook-fake-news-election-conspiracy-theories

[34] www.wired.com/2016/11/facebook-won-trump-election-not-just-fake-news/

Democracy" which claims "that the very roots of the electoral system—the news people see, the events they think happened, the information they digest—had been destabilized."[35] Each of these articles argues that, in the months leading up to the 2016 Presidential Election, there was a widespread circulation of patently fake news and conspiracy theories on Facebook: ranging from the conceivable falsehood that Pope had endorsed Donald Trump, to the bizarre story that Hillary Clinton was involved in a child sex ring in the basement of a pizza shop (known as pizzagate). The summary case made by these journalists is that democratic institutions may be fundamentally undermined by the operations of feeds, demonstrating that users are susceptible to manipulation. These stories were thrust into visibility by shares, comments and likes by automated and fake accounts linked to The Internet Research Agency. According to Mark Zuckerberg, Facebook "found that the Russian IRA had set up a network of hundreds of fake accounts to spread divisive content and interfere in the US presidential election."[36] Twitter was also targeted, and stated that they had

> identified and suspended a number of accounts that were potentially connected to
> a propaganda effort by a Russian government-linked organization known as the
> Internet Research Agency (IRA). Consistent with our commitment to
> transparency, we are emailing notifications to 677,775 people in the United States
> who followed one of these accounts or retweeted or liked a Tweet from these
> accounts during the election period.[37]

Beyond fake news and conspiracy theories, even those stories that were verifiable but contrary to a subjective aim of these agents could be pushed out of visibility by strategic downvoting. The

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[35] www.theatlantic.com/technology/archive/2017/10/what-facebook-did/542502/
[36] www.facebook.com/zuck/posts/10104771321644971
[37] blog.twitter.com/official/en_us/topics/company/2018/2016-election-update.html

capacity to influence communication on this scale is a direct result of the incommensurability of *user* with *human*, and a major reason I insist on distinguishing between the two. Such scenarios compel some acknowledgement as to the unprecedented inhumanity of Feed communication regarding inherited values concerning time.

Spaces: From Locality to Absence

Having discussed the ecological shift concerning the subjective relation to time, I now turn to the shifting meaning of space wrought by Feed-based social media. The success of the Feed as a medium is its virtual totality as a local reality; it programs its symbryos to act according to its interpretation of time as immediate. Similarly, the Feed has an operational value of space, and the notion of individual *locality* is also now drifting along a posthumanist vector. In terms of the relative uniqueness of its agency, and the behaviours incentivized by symbryosis, users' identities are increasingly dispersed and indeterminate; and the behaviour of self-differentiation parallels the dispersion of identity and responsibility. According to Kroker, this nonlocality constitutes an exit to a posthuman future:

Under the massive stress of rapid technological change, consciousness may have adopted the figurative identity of the drone: packed with data, constituted by flows of information, profoundly relational in character, thinking of itself as an algorithm with a personality, inhabiting a time and space that is always interstitial, and indeterminate gap between the material and the immaterial. (22)

This evolution corresponds radically with the shift of the media ecology into the plasticity of digital space; its constant, refreshing and overwriting, relative to the space of typographic print.[38] Put simply, the Feed, which refreshes in real-time, produces a processual and dividual subjectivities in its symbryos. The novelty of the "Feedspace" of social media breaks apart the particular individuality of users by selecting them not as unities, but as dispersed data events.

Space in computation systems since graphic user interfaces became widespread is fluid and manipulable relative to previous media. The fluidity of real-time, post-typgraphic media has been noted by Richard Cavell in his interpretation of McLuhan's "acoustic space." Acoustic space was first applied to radio and television, yet is now made all the more concrete by the modular flexibility of digital media. According to Cavell, the new media ecology "refers to the *abolition of visual* space [i.e. the typographic] and asserts the viability of the post-Einsteinian concept of spacetime (wherein space and time are collapsed) in speaking of electronic media….Acoustic space encapsulates time as a dynamic of constant flux" (22). Broadcast media produce a fluctuating, "live" information space. Cavell argues that this incessant stream-like quality associates it more with the features of sonic media, such as speech and music, than the highly predictable visual space of text-based media. Sonic media are more ephemeral with regards to their locality and persistence. The shift of the fixed locality of typographic print to the processual flux of new media—including the Feed—challenges the stability of the atomistic, local individual. Virilio similarly remarks on the perceptual temporalization of space relative to other scopic regimes:

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[38]This plasticity is, as Matthew G. Kirschenbaum has convincingly argued, contained within the phenomenal experience of digital information on the screen. He has introduced "the field of computer forensics as a counterpoint. At the applied level, computer forensics depends upon the behaviors and physical properties of various computational storage media" (45). In the storage hardware of the computer, even deleted and overwritten data leaves concrete traces that persist, and "forensic materiality rests upon the instrumental mark or trace, the inscription that is as fundamental to new media as it is to other impositions and interventions in the long technological history of writing" (7)

What are the implications for the transparency of air, water, and glass, for the "real

space" of the things surrounding us, when the "real-time" interface [i.e. the screen]

supersedes the classical interval, and distance suddenly gives way to power of

emission and instant reception? What happens, in the end, when classical optical

communication is replaced by electro-optical communication? (*Polar Inertia* 136)

The imaginary permanence and objectivity of space in previous media ecologies regimes gives

way to "real time" media. Virilio sees this as a significant event for human society; for him "the

disintegration of the time of light is now upon us. Most likely, it will bring an equally major

cultural shift in its wake, so that the depth of time will finally win out over the depth of spatial

perspective inherited from the Renaissance" (*Polar Inertia* 143). This cultural shift parallels

what I have been referring to as the posthuman imaginary. David Cecchetto, elaborating on this

disruption, has associated the processual fluidity of sound and sonic metaphors explicitly with

posthumanist subjectivities. In *Humanesis: Sound and Technological Posthumanism*, he argues

that sound "is emphatically *not* where it sounds like it is. Indeed, the added twist is that it also

isn't where it appears to be…because it only comes to be at all throughout the differential act of

hearing" (2). Considering the nonlocality of sound in the posthumanist context provides a

possible counterpoint to the dominance of visual metaphors in the discourse of human being, or

the process of "humanesis," and Cecchetto goes on to argue that the disruptions of our technical

ecology offers such a reconfiguration, should we choose to consider it:

even though the worldviews that have sprung from refocusing on haptic and sonic

perceptual apparatuses have been mobilized against this [visual] hegemony—there

remains a relative dearth of study that focuses specifically on the role (and

constitution) of sound….This exclusion implies, to my ears, that sound in some way

threatens this discourse. (9)

The alterity of sound, vision's *other*, within discourses on subjectivity is its nonlocality and

fluctuation. The Feed is similarly a threat to the clear division of the individuated form from its

fluctuating others, and the idealized special independence of the will from external manipulation.

Social media feeds combines real-time publicity with a private space—a novel ecology.

In the acoustic space of digital media, symbryonic "subjects are constantly networked,

circulating, communicating, reaching out, in motion, breaking beyond the boundaries of the

previously private self" (Kroker 24). The definite boundary of the individual is blurred as a

typographic ecology, with its visual intensity, is cooled by the fluid plasticity of digital

communication. Digital communication is supplemented by informalities, memes, onomatopoeic

additions, video, images and symbols including emojis and Gifs—a far cry from the relative

stasis of print—everything is in flux, editable after the fact. In an online thread or a social media

feed, experience is a modular collage of windows, tabs, and apps that appear and disappear,

which are constantly opening and closing in a barrage of real-time notifications; and each of

these elements is furthermore populated by digital text, sound, image, non-alphabetic symbols,

and hyperlinks, all of which ceaselessly modify the affordances of space.

The user navigates open-ended virtual spaces non-linearly, relative to the sequential

rigidity of space embodied by typographic print. In a social media environment, space itself

defers to a user's archive of decisions (private, yet always haunted by the public) as well as the

archive of successful decisions for the aggregate userbase (public yet always already haunted by

the private). It is therefore impossible to draw a boundary between which decisions are public

and which are not. In contrast, within the imaginary of the social contract, private ownership is guaranteed by the text of a title document—an anachronistic land claim which justifies the ownership of the space by those who can read and interpret them, and which can only be transferred to other private owners by further written documents and contracts (viz. wills and bills of sale).[39] Feedspace is not private; the outside is always inside, and neither can they be separated into distinct locales, resembling the relativist "acoustic space" named as such by Cavell. Feedspace represents the participation of innumerable informants in the convergence of many types of media: it combines the public, real-time space of broadcast media, which then gives emergence to privatize space (like print, an individualized feed), however, the latter is always in the process of seeping back into the former such that there is no boundary between them.

Feedspace affects the process of self-definition such that the human is nonlocal to the user. As we have argued, users are processually dividual and complicate the boundaries of subjectivity that the individual was supposed to have. McLuhan argues that typographic ecology channels the agency of thought into a private and personal mental space—a particular "I" gave shape to the image of private subjectivity—monk, rabbi, philosopher, scholar—the individual man, always alone, calm, reflective, and surrounded by books. Similarly, in a social symbryosis, the private study became a designated room in the houses of those who could afford one. Eventually, the radio and television would steer parlours into living rooms, and man would be seduced into rejoining the family. For McLuhan, broadcast media figure as the disruption of the private and private spaces, as the public voices entered the space of the private home.

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[39] Consequently, the colonization of non-literate societies is justified by their illiteracy, according to Locke.

Considering the significance of spaces and rooms even to broadcast media, social media eliminates this significance in comparison; a user may communicate from multiple devices at once, more portable than books, and over 90% of users access Facebook and Twitter from mobile apps (rather than web browsers). Wireless data passes through walls into studies and classrooms, living rooms and bedrooms. Information in previous ecologies was location specific, departing from here and arriving there, yet now it departs from anywhere and arrives everywhere. Even something as acoustic as radio arrives from a definite location (as is most noticeable when leaving a specific range where the signal becomes noise). Interruptions are now more often due to lack of access (as in Deleuze's control society) rather than a technological deficiency (and of course spaces exist where this is not yet or not always true; still, the ubiquity of data is increasing, not decreasing). We no longer need to be at the store to shop, be at the mailbox to receive, or be in the living room to watch, and the Feed is an instance of this indifference to local space as a nonlocal space.

The Feed, with its a nonlocal spatiality, connects millions of nodes in real time, such that all points of the system contribute to what is aggregately relevant or popular to it as a whole. The communiqués and users of social media system in their local spaces are globally distributed across servers, cables, clients and devices, yet the communication between them actualizes a membrane that differentiates what is of the system from that which is not: its many far-flung stolonic nodes are conjoined to a single dataset which they each affect and to which they all belong. The user, furthermore, *is* its data history, a record of its interactions with a dataset stored on multiple linked servers, many of which are thousands of kilometres away from each other. The same data pattern that constitutes a particular user may be backed up on other servers, perhaps thousands more kilometres away, or be replicated *en masse* in aggregate metadata. The

dataset is never complete, coherent, or location specific, meanwhile, its elements can each be requested via multiple platforms and devices.

As opposed to the subjects of typographic ecologies, the symbryos of the Feed challenge the particularity of perceivable spaces, and point to yet another incommensurability between users and individual humans. To reemphasize the inhuman with respect to locality and embodiment, the hail of social media cannot be answered by a human being. As bodies, we are not digitally networked: In order for the user to gain access to the dataset, it must be an element of the system that it hails (by making a client request to the server where the system's data are stored), but users' belonging depends upon access having been granted to a particular dataset, and thus do not depend on human locality, such as the haptic or agentic limits of an individual person.

Another instance of incommensurability of human with user is demonstrated by the plasticity of the concept of ownership, which is cast solely in terms of access. For example, a user's identity shifts: accounts may be shared or hacked, identity may be impersonated, faked or stolen, while some users may be no more than automated programs, or bots which manipulate the popularity of content. Furthermore, there are other non-individual manipulators of feeds: YouTube, Twitter, Instagram, or Facebook followers can be bought to promote content (also known as inorganic manipulation), giving rise to the phenomenon of "click farms," in which human labourers are paid to like or comment on content to increase its visibility. Click farms are comprised of warehouses of wage labourers with access to hundreds or thousands of social media accounts, which increase the visibility of content and are not correlated with individuals. Most of these farms are located in developing countries, but impersonate audiences in developed countries: a severance of the link between persons and users. As an important aside, these low-

wage labourers are the inverse of the Utopian ideal of the user that is classless, raceless, and free to participate. Kroker articulates the social inequality that emerges from a supposedly equal system:

> The entanglement of the supposedly transparent world of information with the complexities of class, gender, race, and ethnicity firmly situates the future of contemporary society under the sign of intermediation. For example, when data flows collide with the hard materiality of class, the result is, most definitely, not the disappearance of class distinctions based on permanently clashing economic interests but precisely the reverse: the rapid development on a global scale of incipient class conflict, pitting a rising class of technologically enabled plutocracy against a society of individuated masses. (20)

Click farms are effects of the basic operations of the Feed that manifest in human societies. Social media companies call these "inauthentic" or "inorganic" users, yet there is no reason in principle that they are any less authentic given the operational parameters of the system, and the notion that they are inauthentic is derived from a phantasm of an equivalence between users and human persons.

The nonequivalence of humans and users is not merely a question of theoretical analysis. The novel consequences of exploiting this difference made headlines in 2017, when representatives from Facebook, Twitter, and Google were called to testify before the U.S. Senate Intelligence Committee concerning the influence of Russia's Internet Research Agency on Americans' feeds with the intention of manipulating the outcome of the 2016 Presidential

Election. Facebook, acknowledging the problem of inauthentic users and targeted content,

released a report stating that

> We define information operations, the challenge at the heart of this paper, as actions
>
> taken by organized actors (governments or non-state actors) to distort domestic or
>
> foreign political sentiment, most frequently to achieve a strategic and/or geopolitical
>
> outcome. These operations can use a combination of methods, such as false news,
>
> disinformation, or networks of fake accounts aimed at manipulating public opinion
>
> (we refer to these as "false amplifiers"). (Weedon et al. 5)

This statement is somewhat misleading concerning the issue at hand, as there is nothing "fake"

about the accounts in question; the accounts themselves are as real as any other, as far as the

system is concerned. The fakeness of users motivated to influence content is not an accident or

error, it is precisely the way Feed-based systems are designed, and is made possible by the

distinction between users and humans. The accounts are called fake because they function in

absence of a human individual; however, this is merely a symptom of how *all* users function:

they are digital traces of absent humans. Amidst the shock and political intervention there

remains a pertinent demonstration of the incommensurability of human individuals with users.

The reduction of individual decisions to a user has, unprecedentedly, made it possible for false

amplifiers to decide the range of possibility for not-yet-decided virtual human decisions.

 The nonlocality of digital data further reconfigures sovereignty in terms of one's proper

ownership of themselves, for as an archive the user does not own itself or its inputs (which will

be addressed at length in chapter 2). A fundamental tenet of individuality, in the social contract

tradition at least, is an inalienable *original* ownership of one's person and property; the liberal

subject owns himself as a matter of right, and can own the objects of the world too, provided he has paid the required dues for it (either investing by labour, exchange, or by contractual agreement). In the original sense, this was very much a spatial domain connected to land ownership. For Locke, such boundaries are the essence of human nature: "To understand political power right, and derive it from its original, we must consider, what state all men are naturally in, and that is *a state of perfect freedom* to order their actions, and dispose of their possessions and persons, as they think fit, within the bounds of the law of nature" (Locke 8; emphasis in original). The liberal subject has, in principle, abdicated his self-sovereignty consensually. The user, on the other hand, has no *original* state to speak of. It exists only once it has been admitted to the dataset by some input, and the data which constitutes it belongs to whomever owns the server(s) on which it is stored. While Locke bestows a natural, original status upon subjects, one of perfect freedom (which has since been sacrificed for political protections), the user has no volition to offer. The account of the user cannot include a deferral of action to will, and there is nothing exceptional about, or parallel to, an individual as a matter of proper ownership. The user is, rather, a multiplicitous process with an anticipatory, extrinsic nature.

Knowledge: From Reason to Attention

Predictive contingency is the user's essential relation to the Feed, and therefore, the faculty of reason no longer predominates in social media. With this reconfigured symbryonic contingency, there is no distinction between thought (reconfigured as *attention*) and action, for the system only values any behaviour insofar as it produces a record. The system is agnostic to prevenient causation. The consequence is that social media, in present and future, makes content

visible based upon a user's viewing history, nodal relationships, location and other variables—

social engagement is never a rational decision made in self-interest, but an algorithmic, inhuman

decision. Therefore, from the perspective of the logocentric subject, "in the electric age man

seems to the conventional West to become *irrational*" (McLuhan 30); users are posthumanist

subjects insofar as reflective reason is an irrelevant cause.

Commentators and alarmists may, understandably, reference the many irrationalities of

Feed communication, viz. reactionary politics, proliferation of conspiracy theories, and atrophy

of rational argument. Yet rationality is not a universal common good. From the symbryonic

perspective, the fantastical history of the supremacy of reason may be the result of prolonged and

ongoing manipulation via interactions with linear treatises, its exteriorized abstraction, and those

who came to see the future under such auspices. Alarmism is an expected result of shifts in

media ecologies, and it should be expected that "[t]o personalities shaped by literacy, oral folk

often appear curiously unprogrammed, not set off *against* their physical environment, given to

soaking up experience, unresponsive to *abstract* demands" (Ong 18; emphases added). I shall

present the case that users count among these "oral folk," as they inhabit the new "acoustic"

Feedspace. Alarmists, the qualms of whom imply the supremacy of the individual, are therefore

a reaction to the *cybernetic*, or symbryonic steering, of the Feed ecology. Yet perhaps we should

(as Cecchetto and Cavell argue) grant the operations of social media a hearing as the return of a

repressed fluidity better represented by sonic metaphors. As Ong remarks, "[i]n the resulting

perspectives—not the visualist term, 'perspectives,' for in my twentieth-century posture, I am

standing back too—the sense of our present subject can perhaps be better interpreted" (274).

The user, and its indeterminate fluctuation, is perceived with alarm, but this is not the only

possible perspective. I direct my observation not to the supposed downfall of society, but rather

one of its elements, one that may always be in view and yet rarely observed. While each user is an ongoing loop of selection and feedback, techniques channel thought itself into a mode by which it then sees itself—something of a symbryonic mirror stage. We are seeing—or, as auditory metaphors are more appropriate to the current milieu, hearing a remodulation of subjectivity. The Feed's operations are mirrored in users. On the social systems of Facebook, YouTube, or Twitter, attention supplants reason as the means for commonality. Entire platforms, although they offer different products, content, and media on their feeds, steer "us" by training modes of interaction. As such, there is a new tear in the information ecology, and a new tear in "us" (or more likely, an old tear opened further). The symbryonic *différance* of subjectivity is an opening for refigured subjects as beholden to contingency as we have always been.

While social media systems steer their users towards particular goals, these goals are reciprocally informed by user decisions. The most effective or influential users of a social media system are those which judge or interact with as much information as possible, as frequently as possible, thereby setting criteria for which content will be considered valuable in future experiences. This efficacy extends, in principle, to *every* user system-wide. The incentive for reaction to large lots of information favours a kind of skimming, as opposed to reflective analysis; the most effective and agentic users are those which make more judgments quickly, and they are thereby disproportionately rewarded as their communications are more likely to become visible. According to Katherine Hayles, digital media inadvertently train users to skim information, reading that more closely resembles machine-thinking than human exceptionalism might:

> I now turn to explore the interrelations between the components of an expanded
> repertoire of reading strategies that includes close, hyper, and machine reading. The

overlaps between them are as revealing as the differences….Hyper reading overlaps with machine reading in identifying patterns.… Indeed, skimming, scanning, and pattern identification are likely to occur in all three reading strategies; their prevalence in one or another is a matter of scale and emphasis rather than clear-cut boundary. (*How We Think* 73)

While the speed and frequency of users' interactions allow them to have more agency over what they attend to, this is accomplished as the human is steered to behave in a manner that more and more closely, as a feedback mechanism, resembles the machinic operations of the system.

Steering, in this register, occurs diachronically, as the *adaptation* of subjects to new technologies allows the emergence of new techniques that would previously be impossible to imagine. We must ask, with Fuller, "what 'Human' is engineered by [Human-computer interaction]?" (Fuller 13). In a speculative answer, Kroker predicts the eventuality of users becoming more machinic through such interactions, arguing that

The polar shift of perception required to navigate the fast, complex drift currents of the posthuman condition literally involves a new way of seeing, that is, seeing like a robot, a code-work, an artifact of human artificial intelligence, a splice. In a digital universe where perception most of all is the subject of intense technological pressure, duplex vision—seeing simultaneously like a human and a technological device— increasingly appears to chart the direction of social and cultural adaptability. (18)

To some degree it is inescapable that what Kroker and Fuller call "a human" is embedded within the signifying chain of humanisms, which brought the human *out* of nature in novel ways. The world of the humanist perceiver and its subject, within an exceptional

phenomenological *epoché*, remains the product of a long history of steering towards

private, discrete operations. User-subjectivity drifts—or is steered—along the temporal

vectors defined by Feedspace. Unlike typographic print, digital percepts are "never fully

resolvable into a fixed position, always oscillating, ever fluctuating" such that "a sense of

drift permeates the posthuman condition" (Kroker 18). That which we are drifting from,

however, is not the human *per se*, but a different symbryonic ecology.

The incentives of Feed interactions for users, including skim reading, produce systematic

behavioural consequences in ranking algorithms as users' hasty, unreflective interactions skew

content tends toward exaggerated, misleading headlines, or content in which an uncompromising

rhetorical position is staked out—so-called "clickbait"—so as to garner positive judgements

(likes, favourites and votes) as unreflectively as possible. Within the economy of the Feed,

content is ranked based upon its capacity to garner and keep attention, rather than upon

consensus or corroboration. The ideal user is able to attend to many media forms (posts, articles,

videos, the photos of other users) rapidly, and in contrast to a propositional treatise or time-

consuming debate—the type in which literate Enlightenment individuals should ideally engage—

the most valuable Feed inputs are brief, discrete and need not be qualified or furnished with

evidence. Veracity is not all that important, for whether the content is true or false, it will

immediately be replaced. Content that requires too much attention is less valuable, given the

system's aims. The tradeoff, then, is that the users who can react quickly ultimately have a

greater effect on the system's behaviour, as a whole, than slower, non-reactive users which

interact with the Feed more slowly. Communiqués that are simple and brief are effective, and

thus punchy slogans, memes, macros, and gifs abound. Paradoxically, as users have more

personal influence on the information they receive than in many other media ecologies, visible

information is much more likely to be brief, superficial, or misleading, in spite of whether the user prefers such content.

The produced phenomena of ranking algorithms are simple. They can be read quickly, and renders prolonged discussion, debate, or production of evidence inefficient. Content with which a user disagrees or dislikes need not be tolerated because it can be made invisible. The user is a product of this environment. Notably, this stands in contrast to Facebook-founder Mark Zuckerberg's sentiments about his system's News Feed:

> Even if most of our friends are like us, we all know people with different interests, beliefs and backgrounds who expose us to different perspectives. Compared with getting our news from the same two or three TV networks or reading the same newspapers with their consistent editorial views, our networks on Facebook show us more diverse content. ("Building Global Community")

While Zuckberg's claim that we have *access* to more diverse content is true in principle, Feed algorithms are functionally opposed to making diverse content visible. Rather users' reward for participating is a narrower range of content (unless the user actively seeks out that with which it disagrees or dislikes). Because of the nature of the Feed and algorithmic feedback, the user need not encounter any information it does not wish to. The Facebook News Feed is actually successful because it does the *opposite* of what Zuckerberg claims, which is also it is abhorred by critics: for the first time, it allows them to curate their information in order that the system can curate their future behaviour.

The paradox of effective individual agency is that, on the one hand, *every* action by any person-qua-user is counted as relevant and effectual, yet nonhuman agents determine *in advance*

the range of available action for every user, increasing the contingency to which such decisions are beholden. The platform is an exteriorization which gives the subject some capacity of self-definition; however, users' limitations are strictly defined in advance, thus subverting anything like the *liberum arbitrium indifferentiae*. Ranking algorithms are far from indifferent, as their very purpose is to advance the subjective aim of the system which they constitute: a predictable future. Feeds aim to steer behaviour towards dominant patterns rather than promote moral freedom. They function as control societies, programming likely outcomes based on the limitations of access. Users' potential agency is *formed* by the Feed. Local contingency, especially in the realm of co-implicated technics, have forced us to reconsider the portrait of the sovereign individual and his free will. The individual has never been fully individuated, for it is always a symbryo—the user demonstrates this irrefutably. Social media and its ranking algorithms are a concrete example of posthuman subjectivity, which only emerges by other symbryos, and human subjectivity has always been ongoing with non-human processes. With the advent of the Feed user, a posthuman subjectivity and its novelty relative to previous ecologies is actualized.

Labour and Value in Social Media Systems

Labour and its relationship to commodities is a particularly important case of human action, and labour in Feedspace exemplifies the shifting imaginary of specifically humanist to generalized posthumanist concerns. The Feed ecology causes strain on the concepts inherited from classical political economy. The anthropocentric understanding of labour contrasts and complicates what we observe in the economy in which attention is scarce, for "a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it" (Simon). Social media systems primarily communicate information, yet at the same time they are interpenetrated with economic entities— large companies and their subsidiaries—which are among the most valuable in human history. Although the connection between particular feeds and those who own them will be discussed with reference to their "interpenetration" in the following chapter, I shall argue here that the decentring of the human is occurring in what was one of its most historically-significant domains. Within social media systems, as opposed to other methods of digital production, all users offer up their labour in the production of value—although the meanings of labour, production, and commodity are now centred on communication acts, rather than the exertion of particularly human effort. Labour is exchanged not for capital, but for the privilege of access, as typifies control societies (and as was discussed in the previous chapter). In Feed-based systems, each act of communication is also an act of production, generating massive datasets as symbryos with "prosumers." This shift is relevant as it runs parallel to the symbryonic emergence of subjectivities, and the new notion of labour in social media systems follows from the posthuman redefinitions of subjects, societies, and information. Although there is no definitive "humanist

economic theory" as such, the bases for economic theories or proposals do espouse anthropocentric narratives and priorities as their foundation in that human action, qua *labour*, is the said to be both the origin of value, and the distinguishing feature of humans from nonhumans. However, in the case of social media the accrued record of user behaviour—datasets—is incommensurable with the labour theory of property, so articulated. What it means to own one's labour is somewhat confused by social media systems, as all data belongs to those who own the dataset, and as such, the labour theory of value must migrate from its basis of anthropic exceptionality if it is to make sense of the immense valuations of companies that are valued according to their user-generated datasets. Human labour in these systems loses its linear, causal relationship with value, as it becomes co-implicated with nonhuman agents, and yet presents a novel situation in which many aspects of human life become potential labour and value for inhuman systems.

Labour is an exemplary case of human action and has been analyzed for centuries. For both inventors and critics of classical political economy, labour is *the* action that differentiates the human from the nonhuman. It has been theorized as a deviation from or transcendence of the natural order. An early formulation of this distinction is accordingly articulated by Marx and Engels, who propose that

> Men can be distinguished from animals by consciousness, by religion or anything
> else you like. They themselves begin to distinguish themselves from animals as soon
> as they begin to produce their means of subsistence, a step which is conditioned by
> their physical organisation. By producing their means of subsistence men are
> indirectly producing their actual material life. (*Ideology* 42)

Although this is a relatively early designation (one which becomes much more opaque in Marx's late work) Marx and Engels not only differentiate human from non-human as a structural determination, but opt to signify all human action relative to production, as either labour or leisure. All *effective agency* with respect to the materiality of nature is labour. In sum, "Marx gave an anthropological characterisation of work" (Fuchs 25). Animals cannot undertake labour in this sense, while machines merely increase the efficiency of labour, yet value always is marked by the trace of human activity. Furthermore, the individuality of the labourer, whether he or she constructs power looms or uses one to weave, is always an inalieable operator in the process.

In a wage-labour relationship, owners profit from labourer's surplus value. While this exploitation is the basis for inequality, capitalist political economy does bestow individuality upon owners of the means of production where it once was the sole privilege of inherited land ownership. In this change of ownership, so too do ideas about individuality, which was and is a contested domain: "The class which has the means of material production at its disposal, has control at the same time over the means of mental production….The individuals composing the ruling class possess among other things consciousness...and regulate the production and distribution of ideas in their age" (*Ideology* 65). In the terms of symbryonic media ecologies, we should expect this to be the case: in any particular ecology the means of producing knowledge is dominated by media production, and in the mid-19th[th] century books, journals, and newspapers, for example were owned by a particular interested class. However, in Feed systems, this is no longer the case. The ability to propagate ideas is no longer class-based and neither do owners consciously regulate the distribution of content in social media (except in rare circumstances); rather, they own the means by which *users* create, evaluate and potentially manipulate content.

According to the symbryonic thesis, abstract detachment emerged from an extended relationship with linear, typographic text which was exemplified by philosophical treatises, constitutions, and laws written with the express intent of anticipating and controlling for future deviations. From a critical feminist perspective, Donna Haraway has linked this abstract detachment to the concept of labour (as well as traditional notions of normative masculinity).

> The consequence of the wage relationship is systematic alienation, as the worker is dissociated from his (sic) product. *Abstraction* and illusion rule in knowledge, domination rules in practice. *Labour* is the pre-eminently privileged category enabling the Marxist to overcome illusion and find that point of view which is necessary for changing the world. Labour is the humanizing activity that makes man; labour is an ontological category permitting the knowledge of a subject. (158; emphasis added)

While abstraction in knowledge grants man (sic) the position from which to have circumspect knowledge of nature—transcending it, if but in an imaginary sense—labour establishes the conditions for separating the human ontologically. Haraway goes on to describe the disruption of this ontological separation via a being with a profile that markedly resembles a user: "Human beings, like any other component or subsystem, must be localized in a system architecture whose basic modes of operation are probabilistic, statistical" (163); although her argument on this point pertains to the bureaucratic logic of population management (specifically that of legislative "control strategies" for birth-rates) it also describes a Feed system remarkably well, which is wholly probabilistic and whose goal is prediction. In an apt description of the posthuman imaginary, Haraway describes how the "Integrity…of the Western self gives way to decision procedures" (163) in a way which has been made concrete by the Feed and user symbryos, and

the concept of labour, for her, is the central ontological crux targeted by this posthumanist critique.

Already years in advance of the widespread proliferation of the Feed, theorists were discussing the potential affordances and risks of "digital labour." It is now general knowledge that social media companies achieve their monumental valuations from the amount of time their users spend interacting with content, which they encourage. Nonetheless the potential of social media was not yet fully grasped at the turn of the millennium, just two decades ago. In 2000, Tiziana Terranova began "looking at the Internet as a specific instance of the fundamental role played by free labor," and at the time "free labor on the Net include[d] the activity of building Web sites, modifying software packages, reading and participating in mailing lists, and building virtual spaces on MUDs and MOOs" (33). Terranova did not yet refer to digital labour as we might with regard to Feed-based media, which features passive surveillance and control for an exchange of access. With the benefit of now having hindsight, it certainly did not prove to be the case that the collective intelligence of digital labourers "neutralizes the operations of capital" (44). However, Terranova does note presciently with respect to the Feed, that

> The Internet highlights the existence of networks of immaterial labor and speeds up their accretion into a collective entity. The productive capacities of immaterial labor on the Internet encompass the work of writing/reading/managing and participating in mailing lists/Web sites/chatlines. These activities fall outside the concept of "abstract labor," which Marx defined as the provision of time for the production of value. (42)

The accretion of a collective entity anticipates the aggregate datasets of the Feed, which I argue defy the linear logic of human labour as that which determines value. Terranova also notes that

much of what would traditionally be cast in terms of "production," in terms of creating value now leaks into what would usually be considered to belong to the category of "consumption", or in her terms: "The process whereby production and consumption are reconfigured within the category of free labor signals the unfolding of a different (rather than completely new) logic of value, whose operations need careful analysis" (35). The Feed's value is created by user interactions in exchange for access, which offers its own pleasures in exchange for exploitation (although this term is a matter of debate).[40] In any case, the novel relationship between user and labour may not be created by the Feed, but does surely confuse some of the foundational terms of political economy regarding value.

What constitutes labour in Feedspace is complicated. In classical political economy, individuals invest their time and skill into products and services which can then be traded or sold as commodities. As commodities, they will forever bear the traces of individuals that transformed it from a thing into an object worthy of exchange, i.e. whether it had to be discovered, gathered, transported, or crafted, each represents some units of labour. In Feed systems, the boundaries of the relationship between labour, capital, and ownership are more fluid and each is associated with each other by relation and access to data. The user creates value, but not in a traditional way. The most valuable commodities of a social media system, which justifies their immense financial value, are records of users' communication with Feed content, and the total record of associations such as time, location, and demographic classifications. In

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[40] As one commentator notes, the free labour upon which whole communities of the internet are built are important, but do not need to be viewed in terms of exploitation: "Terranova's seminal account usefully pointed to the huge amount of unpaid work necessary to create the internet. But it may be said in response that those who undertook such unpaid digital labour might have gained a set of rewards from such work, such as the satisfaction of contributing to a project which they believed would enhance communication between people and ultimately the common good" (Hesmondhalgh 278).

addition to reactions (likes, favourites, retweets, comments, and other reactions) these systems gather user data passively with *implied consent*, in exchange for access. Such data are commodities paid for by advertisers even without any change in ownership—advertisers pay for their content to be displayed to those users most likely to be seduced by it. The meaning of ownership, then, is particularly muddied by passive data collection: users invest their time into the system, which might be called labour in the classical sense because it produces value. However, the trace of individuality that related commodities to the human is broken when it is diffused throughout aggregate sets of remodulated data. This value of this commodity, user data, comes from its predictive potential, and only with a growing, active userbase can the Feed's predictive potential be increased. The userbases "owned" by social media companies provide the vast majority of the total invested labour, yet there is only value to an individual user input if it is part of a predictive, aggregate record of ongoing events. The userbase is of course not the only source of labour invested into Feed-based media, for ranking algorithms perform the labour of recording, recalling and matching multilinear data to advertisements, thereby actualizing their programmed visions. This labour is originally connected to the humans that programmed them, but the ongoing activity far exceeds this original labour cost. It would be an impossible task to determine where any particular action becomes meaningfully individuated when the economic value of *all* labour is measured as according to system-wide patterns.

Although I argue for a fundamental shift in the value of human labour, we should acknowledge that social media systems are also still interpenetrated with existing economic structures that are relatively traditional with respect to labour. Human labour can indirectly reduce friction such that users' labour is more effective and ranking algorithms are better at predicting outcomes. This includes the functionality or lack thereof (the domain of UX or

interface designers), the efficacy of ranking and sorting algorithms (written by engineers and developers), and the organization and structure of stored data such that it can be utilized (data scientists and back-end developers). [41] Each of these is a case of human labour in the traditional sense, however, each is operationally distinct from the user labour which generates the value of the communication system and its recorded data. These human employees do not increase the value of the dataset by their labour, rather they increase the *potential* of user labour to generate more predictive ranking algorithms. Their success determines a feed's value. All of the aspects of social media systems I have identified with the inhuman—the aspects which make the particular feeds of Facebook or YouTube so exceptionally valuable—are located within a communication system in which users communicate both intentionally and consensually (or passively). To be sure, the communication system could not successfully seduce without the human labour that allows it to emerge and seek the conditions of its continuation, yet the shifts from subject to user, society to system, and understanding to information are each symptoms of a shift of the meaning of labour: from the labour of political economy to one of attention.

A central shift that occurs from the classical political economy and the new media technical milieu is the conflation of the late-capitalist-subject's bipolar schism, compelled to be a singularly-focused *producer* by day and a susceptible, flippant *consumer* by night. Where these were distinct categories, an clear shift of the attention economy of social media from Wikipedia to Instagram is that now content is both produced and consumed by users. This renders them

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[41] And we need not stop with the digital labourers, for they are accompanied by more human labour—psychologists, behavioural theorists, or researchers to improve the efficacy of seduction; A multitude of departments— human resources, IT, payroll, janitors, security—structure the workplace. Additionally, there are the ambassadors from other systems that allow a company to function in a world of other systems: lawyers and accountants mediate between the company and the law; marketing and PR departments mediate between the company and public; lobbyists mediate between the company and legislators; administrators mediate between the company and shareholders, and so on.

"prosumers" which follow a "trend toward putting consumers to work"(18) in exchange for access, rather than capital. Ritzer and Jurgenson associate the character of the prosumer, whose labour *is* consumption by attending and reacting to the content they are fed. As the authors note, as with many of the shifts I have described, Feed-based media do not *initiate* this shift, but they establish it beyond its previous boundaries and demonstrate it as an already-active historical agent: "Prosumption was clearly not invented on Web 2.0, but given the massive involvement in, and popularity of, many of these developments (e.g. social networking sites), it can be argued that it is currently both the most prevalent location of prosumption and its most important facilitator as a 'means of prosumption'"(20). The Feed realizes existing tendencies to an unprecedented extent, and is but one of several shifts of the role of human labour from classical political economy.

The comparison of anthropocentric labour economy to that of attention is yet another example of symbryosis: the definitions of political economy manufactured the individual in the image of their own operations, one which repressed non-human agency in its symbryosis: "the double potentiality of man as needs and labor power, this double 'generic' face of universal man, is only man as produced by the system of political economy" (Baudrillard *Mirror* 30). Baudrillard observes that "all this must be overturned to see that the abstract and generalized…developed form of political economy is what makes the *concept of production* itself appear as man's movement and generic end" (*Mirror* 30-31). The new media symbryos that we can now see in operation demonstrate the anthropocentric bias that has enabled the bracketing of individual human labour from action in general. Even in critiques of liberal political economy, such as that of Marx, humanisms maintain human exceptionality at the expense of nonhuman agency.

Labour and Property

A second, related complication of labour emerges with the disrupted by nonhuman technics in terms of property. The earliest articulations of the value of labour are radically anthropocentric and deal with bifurcated articulations of the relationship between human and non-human in terms of ownership. For example, Locke associated labour with property: exerting (active) human labour into (passive) nature produces ownership. Nature, "and all that is therein, is given to men for the support and comfort of their being" (*Second Treatise* V.26), so that "whatsoever then he removes out of the state that nature hath provided, and left in, he hath mixed his *labour* with, and joined it to something that is his own, and thereby makes it his *property*" (*Second Treatise* V.27). Even for Locke, this only applies in principle to the original and hypothetical differentiation of human beings from the state of nature—his examples include land, trees, soil, acorns (Stone Age imagery, perhaps because this was when "man" first appeared in his historiography)—yet the division of human from nonhuman remains a touchstone throughout Locke's conception of modern political economy. The origins of ownership consist in cutting down trees or erecting a fence, but in fact, this history is only justify the contemporaneous definition of ownership that is guaranteed by a written *title* or *deed*. I argue that this represents an anachronistic but voluminous claim rooted in literate privilige, which justifies the ownership of nature by literate subjects (and consequently justified the colonization of non-literate societies).

The labour theory of property is hypothetical, yet its implications are vast insofar as it becomes a post-hoc justification of symbryos—exemplified here by literate societies' association of deeds and titles with property, which are ultimately guaranteed by the social contract and maintained by the threat of violence. Locke's is a written defence of a literate status quo. For

example, the existence of *title*s assumes the presence of a literate leviathan to enforce one's right to the land because they hold a written document. This relationship is disrupted in the present media ecology, for while the labour theory of property still holds for the employees of social media companies*,* who are compensated for the intellectual property they produce, it does not hold for user labour. User activity increases the value of the datasets enacted by ranking algorithms, and might thus be considered labour so defined, but in fact all records of their activity is owned by the company who owns the data. And it is not as though one signs away one's right to their labour—rather it never belongs to them in the first place—users are *eo ipso* alienated from the outset.

What is more, as has been the subject of multiple scandals in our time, ownership means that users' data profiles can be sold as a commodity to third-parties. Unlike the subjects of the social contract, in Locke's estimation, user labour does not "put a distinction between them and common" (V.28) and neither is labour "the unquestionable property of the labourer" (V.27). The alienation of the user from its labour not only includes its active interaction with the system, which is explicitly voluntary communication, but also passively gathered data. Facebook states in its *Data Policy* that it reserves the right of ownership to its users' device attributes, device operations, identifiers, device signals, data from device settings, network and connections, cookie data, and information from partners."[42] The concept of self-sovereignty that the social contract theorists associated with the human individual becomes blurred in social media systems

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[42] www.facebook.com/about/privacy

which dissociate the user from its labour.[43] This is an additional indication of the

incommensurability of user labour with human labour.

The datasets of user labour are not only valuable to advertisers, as is their primary

purpose, but also to political third parties. The question of ownership became a central issue in

the Cambridge Analytica scandal of 2018, as Facebook users learned from a press release (after a

whistleblower spoke to the press) that 87 million users' data "may have been improperly

shared."[44] Note that the data was not improperly *collected*, or that sharing itself is contentious, as

Facebook both records user activity and makes it available for targeted advertisements (the

degree to which this is direct or indirect is not public knowledge). Facebook only acknowledged

this as a particular instance of imprudence by a third party app. The process of gathering data is

financially exploitative since it appropriates ownership of the products of user labour.

While the success of Facebook's communication system lies in its capacity to predict the

value of information, the success of Facebook Inc. as an economic entity lies in its capacity to

record and remediate data from the communication system as a useable commodity for their own

purposes, or those of advertisers. The Cambridge Analytica case was not scandalous because

data was being collected and used, but *because* it all happened within the ambiguous stipulations

of the terms of service. There was no breach or technically illegal activity by use of the

application parameters at the time, yet it was concerned a breach of good faith as an intentional

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[43] The counter-argument can surely be made that this is a private exchange, a barter of value in exchange for a service, and the onus is on the user to understand the conditions of the contract, and this may be true, but even the ambiguity concerning the degree of consent in this exchange exhibits the dramatic degree to which the meaning of "labour" shifts in an inhuman context.

[44] https://newsroom.fb.com/news/2018/04/restricting-data-access/

effort by a politically motivated organization to exploit, influence, and manipulate the political

positions of voters structurally coupled to user profiles.[45] Zuckerberg confirmed that

> In 2015, we learned from journalists at *The Guardian* that Kogan had shared data
>
> from his app with Cambridge Analytica. It is against our policies for developers to
>
> share data without people's consent, so we immediately banned Kogan's app from
>
> our platform, and demanded that Kogan and Cambridge Analytica formally certify
>
> that they had deleted all improperly acquired data.[46]

As confirmed here, the transgression Zuckerberg cites is that the offending parties acted against

Facebook policy. However, the capacity to collect data and use it to steer predictions is

fundamental part of the Feed system's design. Ownership of the data generated by user labour

was used *as intended*, despite Facebook Inc.'s protestations to the contrary. In this case any

impropriety comes from a standard of behaviour originating outside the communications system,

and even if it becomes a legal matter (as lawsuits are still pending at this time), the whole

situation remains a legitimate expression of the reality of Facebook's platform—it acted as it was

made to act by recording the information. Simultaneously political interests capitalized on its

fundamental commodification of user labour for their benefit.

Labour and Value

   A third dimension of labour in political economy that we may now scrutinize is the

labour theory of value, which is also subverted by data-as-commodity. Not are users alienated in

terms of ownership, but the trace of human labour in the creation of *value* is also fundamentally

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[45] Perhaps the particular outrage at this event was because it is known and expected that advertisers should manipulate us, but politicians—in our social imaginary—should persuade us with honest rational argument.
[46] https://www.facebook.com/zuck/posts/10104712037900071

diffused relative to nonhuman agents. The labour theory of value, which features in the works of

classical economists, including Adam Smith and Marx, suggests that the value of commodities

can be calculated by the sum-total of toil and trouble exerted in creating it (plus some additional

factors like surplus labour-value and scarcity. Consistently though, the standard by which all

value is measured is anthropocentric: the trace of the human in any artificial thing is, in large

part, determines its worth. For example, Smith summarily states that value is determined by

adding up the labour for which it can be exchanged:

> The value of any commodity, therefore, to the person who possesses it, and who
>
> means not to use or consume it himself, but to exchange it for other commodities, is
>
> equal to the quantity of labour which it enables him to purchase or command.
>
> Labour, therefore, is the real measure of the exchangeable value of all commodities.
>
> (V.1)

Although there are varying opinions of Smith settling upon a theory of value ultimately, in

this quotation at least he emphasises the metric of specifically human labour as the real

determining factor of value. This would influence the economic theories of Ricardo and

Marx, who also strike anthropocentric veins in their economic theories. Marx, for instance,

asked "What is the common social substance of all commodities? It is labour….If we

consider commodities as values, we consider them exclusively under the single aspect of

realized, fixed, or, if you like, *crystallized* social labour" (*VPP* VI; emphasis added). The

notion of the concretization or crystallization of human effort into objects, tools, and

commodities is a pillar of historical materialism, and is humanist in that it relies

fundamentally on the distinction between human and non-human action as determining.

Artificial objects possess and exist as actualized instances of a history of human labour in a

social context. Human labour as the measure of value is also the basis for Marx's critique of alienation, for the production of commodities' surplus capital transfers the value of human labour into ownership (which no longer belongs to the labourer, but the owner who compensates the labour), as "it is the employing capitalist who immediately extracts from the labourer this surplus value" (VI). The cached value produced by the labourer might be exchanged as property, while at the same time it remains "crystallized" in the commodity. Through surplus value, the whole profitability of the capitalist system of political economy depends entirely on human activity—only humans can become alienated from the products of their labour due to the supposition that only humans have a right to ownership of themselves.

The labour theory of value finds some limited correlation in the ads populating Feedspaces: active users' labourer is crystallized in the social media platform as value. We see the transfer of value on YouTube channels, for example, where the number of subscribers or views is the largest single factor for the price by which ads can appear on the channel. Similarly, Instagram accounts which promote sponsored products organically are valued based upon the quantity of attention they accrue (measured by followers); and of course the sponsored content of feeds are valued based on the number of "impressions" they make or can be expected to make.[47] In such cases, in accordance with the labour theory of value, users generate the value of the various modular spaces in which they communicate. At the same time, datasets record their value as a commodity of seduction, and determine their value relative to aggregate trends.

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[47] Tracking cookies, furthermore, can be used in some cases to determine whether an "impression" actually results in a purchase leading to commission-based payment to content creators.

While applicable to ads, the labour in acheiving impressions rarely occurs linearly because there is no linear function which connects labour to the value of an influential account or profile in a Feed-based system. That is, the Feed has no measure for the quality of labour that goes into the creation of content—the *only* measure of value is quantitative, i.e. the number of followers and the number of impressions. Meanwhile, there is no accounting for the quantity of labour required to produce some content. The value of an influencer's labour is entirely dependent on the number of followers: according to one site's metrics 100,000 followers = ~$700 per sponsored post, 500,000 followers = ~$2000 per post, while celebrities can earn $100,000 per post.[48] Unlike classical political economy, there is no necessary connection between the amount of human labour invested in an influencer's account or profile and its value. Value is generated by the structures of the Feed, which are designed to facilitate these nodular connections based upon offering seductive content. That is, the Feed thrives by permitting users to filter the content they find seductive (by follows, subscriptions, blocks and so on), and an entire "attention economy" emerges from the competition among influencers and advertisers to commodify this attention. In the process, the original linear relation between the expenditure of human energy and value is completely remodulated by computable structural affordances and nonhuman premediation.

On this point we should not neglect the human labour that is crystallized into the feeds themselves: the efficacy of feeds' seduction (and therefore, their value to advertisers) is based upon ranking algorithms—which are indeed the products of human labour. The programmers and entire apparatus are designed (such as the layout, color scheme, relative prominence of certain elements) with the goal of creating more efficient nonhuman labourers—algorithms—so

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[48] influencermarketinghub.com

as to increase the value of the commodity: predictive datasets. The value of the system as a whole emerges from the labour of humans, users, algorithms, and the host of devices and network infrastructures that enable fluid communication between these agents. To an extent, the relationship between human programmers and ranking algorithms fits the labour theory of value. Humans invest time creating a communication system in which created content can be consumed, then users invest time generating data as a commodity for those who own the platform, while algorithms figure as a crystallization of the labour of their human programmers, and operate as tools to better communicate seductive content to users.

Despite the fact that algorithms are products of labour, the labour theory of value does not fully account for the nonhuman labour of Feed systems because it gives exceptional precedence to human labour's relationship to value. This is not the case when it comes to the valuation of Feed-based platforms. Given the particular ecology in which Smith and Marx wrote, we should expect a division between the activity of subjects and the objects which they put to use. However, in conjunction with the datasets they produce, algorithms work to create value far beyond the initial investment of their human programmers. The function of their ongoing efforts to create value may just as easily be exponential or logarithmic. While algorithms are indeed tools used to generate datasets, their labour is radically different from the tools and technologies included in the means of production in previous media ecologies, for several reasons. First, they require no ongoing human labour (at least in principle): while a spinner can produce more thread with a spinning wheel relative to the time he or she operates it, algorithms labour as long as they have the materials to do so—inputs from users. The Feed does not require an operator. Users as prosumers both consume and produce content for ranking algorithms that automatically generate value by predicting seduction. Yet, *at the same time*, algorithms commodify user-labour as

attention. The whole relation of labour to commodity proposed by the labour theory of value is confused by algorithms, which use the resource of attention to produce the commodity of predictive datasets. In turn, these processes create more resources for the continued production of that commodity, and all of this occurs in the absence of operators or additional labour. Such a circumstance could never be predicted by the political economists, but ranking algorithms do not resemble anything like a tool of crystallized labour as its capacity for the exchange of value from labour to commodity cannot be exhausted.

Second, algorithms do not break down or require repair. This further distances them from the tools and machines described by Smith and Marx. The labour theory of value's indelible shortcoming in explaining the Feed's production of value is the assumption that machines represent crystallized human labour, which cannot account for the exponentially increasing value of prediction. Machines in the labour theory of value convert labour to value through a simple exchange that mirrors the first law of thermodynamics: they are built by humans whose labour continues to inhabit them, and they exist as embodiments of labour whenever they are put to use, for they reduce the required labour relative to the value of the commodity. Traditional machines cannot ultimately produce more value than the sum total of the labour by which they were developed and the ongoing labour used to operate them—minus the labour cost for their upkeep. Marx explains his theory of machines with the spindle as a figure:

> Instruments of production properly so-called, such as tools, machinery, buildings, serve again and again for longer or shorter period during repeated processes of production. If they were used up at once, like the raw material, their whole value would at once be transferred to the commodities they assist in producing. But as a spindle, for example, is but gradually used up, an

average calculation is made, based upon the average time it lasts, and its

average waste or wear and tear during a certain period, say a day. In this way

we calculate how much of the value of the spindle is transferred to the yarn

daily spin, and how much, therefore, of the total amount of labour realized in a

pound of yarn, for example, is due to the quantity of labour previously realized

in the spindle. (VI)

The spindle reduces the expenditure of the human operator relative to the commodity each time

it is used, until the labour embodied in it is used up and it breaks, whereupon more human labour

is invested in the process of repair. However, the spindle is unlike the algorithm in this limited

initial investment of human labour. Algorithms can indeed be considered crystals of human

labour, however, not only do they not break or expend that labour, but they increase in labour

power *as they are used*: they increase the labour to value ratio while becoming more predictive.

The spindle's expense to profit ratio increases over time, because it may break and wear out,

while a predictive ranking algorithm's decreases over time, as its pattern recognition and

predictive potential increase. The ranking algorithm can exceed its labour expenditure (the time

which was invested to program it) as it increases its offset of human labour in subsequent cycles.

Although this is not a *necessary* outcome, it is the case for any of the large social media systems

discussed thus far (and is evinced by their billion dollar valuations). While algorithms (in

keeping with the analogy of the first law of thermodynamics upon which this theory of value

relies) do require the ongoing labour of content creators and user attention/interaction to continue

to function, these inputs do not detract from the quantity of labour invested in the machine over

time. Quite the contrary, they increase in efficiency over time and there is no precedent for such

an increase of a machine's increase in labour power absent human labour.[49] Algorithm's nonlinear predictive potential is precisely what enables them to create such immensely valuable datasets.

The value of the commodities of social media systems includes (depending on where in the feedback loop we observe) both the dataset itself and the attention it can *potentially* seduce. This reveals a fourth point at which the labour theory of value falls short of predicting what we can now observe. In contrast to spindles, where the dataset is the commodity there is no equivalent commodity that could be created by human labour alone. The algorithm is therefore not a *supplement* or a mere reduction of friction for human labour, rather, it entirely exceeds any potential for human activity. Whereas a spindle, spinning wheel, or spinning jenny all decrease the hours of human labour required to produce a spool of yarn, that yarn may still have been produced by human effort. On the other hand, in social media systems, both user-labour and the data record of it *are* commodities. There is a distinct difference here in the relation of labour to commodity: user-labour is not *additive* like a spinner producing yarn is. To illustrate: if ten hours of human labour produce a half pound of yarn, then twenty hours should produce one pound, and profit is doubled. Conversely, the production of datapoints is nonlinear; instead, the value of a user's labour follows a logarithmic function: the value of the labour done by *newer* users (that is,

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[49] Although user interactions are required to create the information processed by such algorithms, the "labour" as value in the algorithm cannot be "used up" in any tangible sense, for it is not merely a crystallization of the quantity of human labour invested in it—it is more complex. This of course assumes the continued presence of wireless networks, wired networks, and the devices and servers connected to them. And while there is some wear and tear on this hardware, the potential networks are so large, with so many overlaps and possible routes that it is impossible to conceive of it breaking down short of a planetary cataclysm. In Marx's view, focused as he was on individual labourer such as spinners and craftsmen, but this local possibility does not extend to the macroscopic view, for the redundancy and complexity of networked societies means that it is not definitively clear where any particular labourer's labour has gone, or how much some labour has added to the commodity.

as new informants to the system) is far more valuable than the labour done by *older* users, for the returns on labour diminish as the dataset grows. Seeking out new users is therefore extremely valuable for a social media system's continued operation (or *autopoiesis*, which I shall discuss at length in the following chapter), as is demonstrated in Facebook's *Internet.org* initiative, which offers the Internet to developing nations for free because the value of new users' data far exceeds the cost of providing the necessary infrastructure. The logarithmic value of labour over time is not only true of a social media system in aggregate but is also true of individual user profiles: the first data added to a profile (usually attributes such as gender, age, and location) and a user's first interactions with a site are far more valuable for the purposes of predicting which content and ads will be seductive than the communiqués of a long-time user, simply because they make a greater difference to the algorithm's decision making process. The logarithmic, nonlinear generation of value is not predicted by the labour theory of value, which holds that the value produced is relative to the amount of human labour invested either into the development and production of the machines themselves or into their deployment.

Fifthly, in addition to increasing the value of commodities indefinitely, the algorithm deviates from the spindle in that it is indefinitely reproducible. Although we should note that their indefinite reproducibility is *in principle* limited by such factors as storage capacity (which requires ownership of physical servers, real estate to store them, electricity to cool them and so on) and processing speeds (limited by hardware), these factors do not represent a significant limitation by the Feed-based systems I have focused on, due to the capital resources already available because of the existing userbases. The same crystallized algorithm may process *each* individual user's data record, yet ultimately re-presents individuals' data profile also as a diffused, aggregate commodity. That is, an individual's data in isolation is worth almost nothing,

and certainly less than the "productive leisure" time that he or she spent producing it. The machine here, as opposed to a machine understood from the point-of-view of liberal political economy, can vastly exceed the sum total of the labour that produced it, as it adapts to each individual user as an independent "labourer" and "resource" simultaneously. In effect, there are as many particular ranking algorithms as there are users on the social media platform, and its facilitation of labour is reproduced almost no further expenditure (besides those referred to above). The equivalent, in Marx's example, would be that a new spindle automatically assembles itself the moment a human worker enters the workshop door. Nevertheless, the value of any particular algorithm depends upon the labour of a user who invests their interactions and attention into it. There is something of a paradox relative to the labour theory of value: machines increasingly increase the value of the commodity, yet user labour is now the yarn on the spindle, rather than the spinner. User labour functions as both the commodity and the labour power simultaneously.

Labour, we recognize with the privilege of hindsight, is a not a transhistorical concept.[50] The labour theory of value is a product of the social, historical and technological environment, or what might be simplified as industrial capitalism. In effect, as Claudio Bueno observes, "Marx's definition of machines is limited to theories of simple and thermodynamic

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[50] Indeed, it is questionable whether our labour theorists, Locke, Smith, and Marx would have agreed with this, for they generally take the stance that labour is the difference between natural and civil society, it is thus the defining activity of humanity. However, the notion of labour power they deploy, as a value making activity, is a definition particular to industrial capitalism and thus is historically specific. Marx acknowledges something of the relativity of labour to the system in which it is performed, when he argues that all labour is social labour, and its value depends upon "the quantity of labour necessary for its production in a given state of society, under certain social average conditions of production, with a given social average intensity, and average skill of the labour employed…If then the quantity of socially necessary labour realized in commodities regulates their exchangeable values, every increase in the quantity of labour wanted for the production of a commodity must augment its value, as every diminution must lower it" (*Value, Price and Profit*). So although it seems that labour in general is a basis for societies, the meaning, appearance, and value of the labour depends heavily on the context of the society in which it is performed.

machines. Therefore, it was impossible for him to think of information as an active element within the valorization process" (43). Post-industrial capitalism, and the attention economy in which social media appears is a definitive figure, has seen the emergence of labour that no longer aligns with anthropocentrism of the labour theory of value: cybernetic machines, the commodification of attention itself, and the valorization of data encourage us to "further the analysis of the attention economy from an immanent perspective" and "to bridge Marx's of the organic composition of capital to the new forms of labour" (42, 43). Bueno concludes that

> In the traditional understanding of machines…micro-decisions could not be reduced to the domain of fixed capital and remained a constitutive aspect of living [see *human*] labour. With the emergence of cybernetic machines, however, the micro-decisions which constitute the valorization information that defines the singularity of living labour, could become transmitted to, translated into and finally integrated into the means of production themselves. (51)

Algorithms and their datasets are not the first figures of this shift, but they neatly align with the description: information is produced inhumanly and beyond even the potential reach of human activity, for data are processed at imperceptible sizes and speeds before being seamlessly reintegrated into the feedback loop of digital communication. This work is enacted by non-human actors in real-time. The attention economy, at least with regard to social media systems, represents a changing tide in theories of value. The non-human is no longer a supplement to the human, but something that changes the very definition of labour henceforth.

What is called the attention economy is increasingly digital. The seduction of attention is not limited to digital space, but the immediate feedback upon attention that social media

platforms provide is a novelty of this media ecology. Seducing attention in high information

environments has led to an emergence of an economics of attention in post-industrial capitalism,

and is the basis of the entire advertising industry. Vague prediction of the effectiveness of

advertising (as commercials, print ads in public spaces, branding) has been replaced in the social

media ecology with complete, quantifiable metrics which increase in predictive capacity to

become ever more precise and consequently ever more valuable. The feedback between

seduction and interaction does not change the basic structure of the attention economy, but over

time the introduction of such powerful and potentially *complete* surveillance of user labour also

compels us to reformulate the meaning of value.

The Redefinition of Human Labour

As was discussed previously, social media systems produce a paradox for the underlying

anthropocentrism of the labour theory of value. While reducing the special centrality of humans

to labour processes and replacing them with cybernetic, automated, and self-improving agents, it

also makes a radical intervention: *every* aspect of human life becomes a potential source of

labour in social media. Social media are by no means the first disruption of the labour/leisure

boundary. Julian Kücklich, for example, coined the term "playbour" to describe modding, that is,

modifying existing software or games using a developer's tools, such as a game engine, to create

a new product. Often such projects are undertaken as "productive leisure," as there is no

guaranteed compensation even as they increase the value of products sold by established

companies. According to Kücklich,

> While there have always been forms of productive leisure – crafts such as knitting and
>
> woodworking as well as hunting, gardening and fishing come to mind – the products of

these activities may have never made a significant appearance in the marketplace in capitalist societies. Arguably, this has only changed with the advent of affordable digital technology that enabled their consumers to mass-produce high-quality digital artefacts at low cost and without loss of quality. ("Precarious Playbour")

Underlying this designation we find, again, something like *intentionality* which is now modified by digital technology's intervention in the process. According to the author, these digital tools themselves are responsible for the disruption of the inherited meaning of labour because suddenly the individual is capable of mass-production. The example of modding further demonstrates that the capacities of digital tools far exceed a supplementation of human labour, and furthermore, they can even facilitate the shift of labour into leisure.

There is an unannounced metric by which some value-producing activities are rewarded by compensation, and other value-producing activities are rewarded by pleasure. Playbour is technically exploitation, as it creates uncompensated value for companies, yet labourers choose to thus spend their leisure time regardless. As every act of communication on social media creates value for the company who owns the dataset, this can be classified as exploitive productive leisure—although the degree of exploitation depends upon the metric by which one measures the *pleasure of access* to such control societies. Kücklich goes on to make this connection explicit: it is a function of a shift in regime that labour takes on new forms; he argues that "It is this regime of self-discipline that allows us to describe new forms of labour in the information society … in terms of freedom and rules….[the] individual upholds the rules simply for the sake of the pleasure she derives from submitting to them, since, paradoxically, her freedom results from her submission to the rules of the game" ("Playbour"). The same paradox is the case within social media—there is a *freedom to constrain oneself* to the code of the system,

with some notion of "pleasure" as a reward. Whether or not this is problematic depends on what one means by exploitation, for once a user enters a Feed-based system, *eo ipso* every action it takes in that space can be considered exploited.

As Kücklich has argued, the productive potential of digital media relative to human labour far surpasses the linear relationship between the latter and spinning wheels or even mechanized looms. Furthermore, it is rather anachronistic to apply the terms of the labour theory of value to the inhuman economy of Feed-based systems, and this extends to the term "exploited labour." On the point of exploitation, David Hesmondhalgh concurs that it is difficult to classify user-submitted-data as "exploitation" in the Marxist sense, and suggests that the concept with regards to labour is out-of-date in an economy based upon user-generated content. As with many of the concepts inherited from labour theory, the bifurcation it relies upon is too rigid to account for the actual conditions and metrics of digital exchange and creation. Hesmondhalgh explains that the "analytical use of the concept of exploitation has been overwhelmingly Marxian: it is about the historical relationship between classes," and in particular is "the mechanism through which…causal dependence and exclusion… operate is appropriation of the labour of the exploited" (272). It would unusual and imprecise to classify all productive leisure as exploitation, although regarding the Feed it is important to consider that "the vast social reach of certain digital technologies makes it important to highlight the labour that they depend upon. The development of the internet might be an example of this, or more specific sites such as YouTube" (278). Once again, there is a recurring schism between collaborative, inhuman systems and their indefinite modularity that result in a nonlinear relation of human labour to profit. While social media certainly profits from surplus labour value, for Hesmondhalgh that "contacting friends and uploading photographs on to Facebook represents some kind of exploited

labour is, to my mind, more along the lines of arguing that we should demand that all amateur football coaches be paid for their donation of free time: not impossible to argue for, but hardly a priority" (278).

Virtually any activity may be used to create value in the Feed ecology, as everything is a potential source of content: consumption, preparing food, having children, sex and even getting dressed may all become labour for social media if they can be done seductively. Users post pictures of meals, film their makeup regimens, and document their children's first steps, all of which may procure the attention of other users. So while nonhumans now work in the place of humans, doing what humans could not, any aspect of human life can now be transformed into work and increase the value of the systems in which we participate, or the value of our own personalities (in terms of cultural capital). Any activity can be considered labour and valorizing activities if they are recorded digitally (either as text, audio, video, or photograph) and used as information. Social media replaces human labour on one side of the process only to reintroduce it in another.

Cultural Capital as Value

Social media users figure, in part, as participants to which the labour theory of value applies. The main differences are, as mentioned, the nonlinear relationship between labour and value as well as the requirement that machinic labour be considered independent of human investment—i.e. not merely crystallized labour— where algorithms are concerned. Beyond the labour theory of value, which was of a different symbryonic epoch in terms of sociotechnical feedback, there are more fitting sociological methods already deployed as reflections of post-industrial societies that social media extends to unprecedented lengths, as value is not only

economic. Christian Fuchs summarizes social media's connection to other-than-economic capital:

> Users create content, browse content, establish and maintain relations with others by communication, and update their profiles. All the time they spend on these platforms is work time….This work time contains time for social relationship management and cultural activities that generate reputation. One therefore needs to reflect on how economic value production by the media is connected to what Bourdieu termed social, cultural and symbolic capital. (115)

This prime example of the divisions of capital by Pierre Bourdieu, who argues that capital can be exchanged well beyond the exchange value of commodities. In addition to economic capital, which includes all things (including labour) that can be exchanged for money, Bourdieu develops the alternatives of cultural capital, social capital and symbolic capital. While cultural capital refers to particular intangibles (such as acquired knowledge, speech patterns and vocabulary, manners, taste, fashion sense) which signifies one's belonging to a group or caste, social capital denotes the (often inherited) access to an exclusive network that confers advantage upon one's ability to accrue economic capital. To illustrate: while neither manners, education, or one's communication network can be directly exchanged for money, they do offer inconspicuous privilege to those who have them.

Cultural capital in particular, and its intensity, is pushed to the extreme in Feed-based systems. Bourdieu theorized cultural capital in order to complicate the economic definition of capital, especially to expose the less conspicuous economic advantages of elite social classes., One of the methodological problems for his social theory is how to accurately measure social

and cultural capital; they exist as forms of potential energy, and unless in some event or another they are actualized, they only exist speculatively and can only be evaluated post-hoc. However, social media redefines cultural capital, and as with many other previously exclusive human concepts, converts them into quantified, computable variables.

Cultural capital on social media demonstrates the need to shift emphasis from distinguishing oneself in classist terms, to distinguishing oneself in terms of "influence" or popularity in strictly quantitative terms. Cultural capital is a function of information value, which leads to the construction of seductive personae. Such personae, or "influencers"; are an extreme case of prosumers (as was summarized by Ritzer and Jurgenson). The production of "lifestyle," which may include any number of mundane activities, is the product of the influencer, whose commodity is an image; or more accurately, a unique profile of digital images. The ability to exchange cultural for economic capital occurs in Feed-based system through ad-buying indirectly, as well as directly through organic sponsorship (such as paying an influencer for a post). The value of an influencer's endorsement is based upon how much attention they have already accrued in the discrete forms of likes, followers, friends, and subscribers. While the influencers with the largest efficacy on social media are already celebrities from other industries—sports, music, and film—we are also witnessing the emergence of platform native celebrities who offer genre-specific content; the most popular categories include beauty, fitness, fashion, and lifestyle. Their influence is lucrative, for with cultural capital comes economic capital by way of sponsorships from the world of cosmetics, apparel, and other "lifestyle specific" products. What is unique about platform-native celebrities is that their social capital has been exclusively generated by the apparatus of the Feed, and their value is the likelihood that they can seduce because of the quantity of their accrued capital. The quantity here rewards mass

appeal, which is rather paradoxical considering Bourdieu's cultural capital signifies one's membership to an exclusive caste. The medium of seduction depends upon the platform (which includes text, photo, or video) but the unifying theme is that cultural capital is generated by the repeated imagery of the channel or influencer for the purpose of seducing attention. Cultural capital reconfigures and also exceeds the boundaries as defined by Bourdieu. Firstly it can be more accurately quantified and exchanged, and secondly what is most significant to the system is decided by the mass, rather than by exclusivity.

The production of value is, for classical political economists especially, an original distinction between human and nonhuman action. Yet the humanist tenets of this theoretical position on what produces value, both in terms of the media ecology and the global economy, face some glaring shortcomings when it comes to explaining value in a Feed ecology. Production, consumption, labour, leisure, value, exploitation and the relations between each take on different emphases, often blurring the distinctions between them. The continued use of these terms requires generalizing the production of value such that it can also account for the nonhuman agents in social media systems that make such systems so economically and culturally influential. When prediction from datasets becomes a commodity, the human individuals of the labour theory of property can no longer persist as the only active agents in a passive, natural world. Similarly, the labour theory of value cannot have human effort as its ultimate origin when human labour is not only an activity, but also a resource of nonhuman labour that renders it useful to computational systems. There is, in each case, a severance of the causal relationship between labour and value. A paradoxical outcome of the situation is, however, that the anticipation or potentiality of labour and commodification has come to define those aspects of human life that were considered distinct from labour in classical political economy. Today, the

most ordinary activities, for influencers as figures of the shift, can now be considered labour in that they produce value in terms of cultural capital and by increasing the value of the dataset to which they contribute. Human labour in these systems does not disappear, for without it social media systems would not be able to function. However, the exceptionality of human activity no longer frames an absolute causal relationship with value. The narrative is complicated by the inhuman systems' engagement and co-implication with nonhuman activity that has no human correlate.

Inhuman Selection: Constructivist Metaphysics and the Feed

New media ecologies challenge the notion of independent agency that was foundational for social contract theory, and our social imaginary is experiencing new tensions as a result. The social contract is real in the sense that it can be the basis for appeals as to how society should be organized politically, but it relies on an anthropocentric understanding of how systems emerge—when human being is decentred, this conceptual edifice is shaken. This chapter deploys Niklas Luhmann's general systems theory, which as the name suggests, seeks to generalize system formation such that it applies to those which do not include humans. As I shall argue, online social media are constructivist processes, ongoing patterns rather than structures. Although human agency certainly plays a role in the development of social media systems, its role is not that of the exceptional, detached, rational self-interest as conceived by social contract theorists. As was argued previously, these characteristics emerge from a symbryonic relationship with a genre of writing and are historically localized to the dominant media of that genre. We can now argue that social systems emerge from ongoing, system-wide communication patterns, rather than non-contingent decisions of individual actors. Luhmann's systems theory offers a perspective as to how social systems emerge from selective operations that is less anthropocentric than liberal humanists', and his theoretical approach is complimented by the metaphysics of Alfred North Whitehead. These thinkers in tandem offer a novel conception of social realities as ongoing, self-organizing pattern of information selection with particular aims. Although they apply their concepts to diverse contexts, their shared notion of the relation between constitutive and aggregate agency in self-organizing systems coincides with the patterns we observe in Feed-based systems. Their analyses are particularly apt in the areas where

disruptive patterns come into conflict with established ones, as is the case when a media ecology is disrupted by the introduction of new technologies and techniques. Just as subjectivity is reconfigured towards non-locality and temporal contingency, those human individuals and citizens that are the loci of rights and freedoms are attenuated, and their causal agency is redistributed over the boundary of non/human. The emphasis in the Feed ecology is no longer the individual's decision to confer his or her rights, but on the social system's capacity to modulate or steer user behaviour by controlling access and enforcing patterns. Effective agency in a social system is reconfigured by an inhuman media ecology that constructs realities by contingent selection.

One of Luhmann's contentious claims, that which propels his conclusions off on a posthuman vector more than perhaps any other, is that human beings are not individuated systems, but an association of multiple, functionally differentiated systems, including the psyche, the physical body and its subsystems, and communication. A human being, like a user, is already dividual—although our inherited self-image may suggest otherwise. In his interpretation of the liberal humanist tradition, Luhmann maintains that:

> Human beings were called 'individuals' because they were the ultimate, indivisible
> elements of society. It was impossible to conceive the soul and body as separate and
> then dismantle them further. Such a dissolution would have destroyed what the
> human being was in and for society. Accordingly, the human being not only was
> viewed as dependent on social order (which no one will dispute), but was also
> interpreted as bound to a conduct of life within society. (*SS* 210-11)

Liberal social imaginaries, from the contractual responsibilities espoused by Hobbes or Locke to the rational-ethical responsibility for which Kant argued, and extending to the Feed alarmist camp today, are built upon individuals as the fundamental atoms of society; human beings are conceived as free and morally responsible. Yet, there is something originally out of place in this picture, which can only be imagined within an already established society—as Luhmann will argue, assuming the prior existence of individuals fails at explaining the ongoing reciprocity between individuals and society, units and wholes, and the process that facilitated their coming-to-be in the first place.

There is a second problem with what Luhmann calls "Old-European conceptual formations" (212) explanation of society as a collected aggregate of rational individuals: The social contract is supposed to persist because every free individual has (in principle) consented to it because of who they are as morally free subjects. However, while supposed to be free, human being is only ever bound. The whole edifice is said to be based on an essential freedom, but we only see contingency everywhere. On the other hand, "If one views human beings as part of the environment of society (instead of as part of society itself), this changes the premises of all the traditional questions, including those of classical humanism" (212). The problem is not that the anthropocentric version of society is ill-conceived, but that it is reductive of the contingency that is actually observed, because it is based upon freedoms that it in principle unobservable. The purpose of systems theory sociology should be to explain the coeval reciprocity between actors, including influence, manipulation, and intervention of other actors, even actors within "the human being." Ultimately, building an arboreal structure upon the individual comes up short in that it cannot account for the indeterminate processes of development. The social contract theorists saw society as the *completion* of a past negotiation; an atemporal principle; an

established structure. This is evidently not the case when it comes to online Feed-based systems, and if they are to be described as *social* media we should, like Luhmann, emphasize the ongoing negotiations over the relevance of new, disruptive, and irritating information that needs to become settled. In a system of diverse agents and operations, information is communicated and adaptations to innumerable particular exchanges occur among a mesh of humans and nonhumans. This precisely parallels the social media Feed's valuation of content that is considered newsworthy based on a number of variables and associations, but none of which is "good faith"; The Feed actually dilutes common responsibility because of its posthuman indifference to the content of communication, and as far as its decision making is concerned, any communication is "good" communication.

As my presentation of symbryosis offers definition to the potential agency of emergent media ecologies, Luhmann's systems theory seeks to explain the emergence of communications patterns from the "structural conditions of selectivity"(SS 215). That is, each traces a relation from basic operations to observable behaviour. The emphasis on operations and emergence are processual, and thus contrasts with any social theory that organizes society by structures and units. According to Luhmann, the individual is not a unit, and sociality is an ongoing adaptive process. The roles of people are thus functionally differentiated according to the acts it performs in various systems:

> A human being may appear to himself or to an observer as a unity, but he is not a
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> system. And it is even less possible to form a system out of a collection of human
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> beings. Such assumptions overlook the fact that the human being cannot even
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> observe what happens within him as the physical, chemical, and living processes.
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> The living system is inaccessible to the psychic system; it must itch, hurt, or in some

other way attract attention in order to stir another level of system formation—the consciousness of the psychic system—into operation. (SS 40)

For Luhmann, to say "human being" is to refer to several *operationally closed* systems. *Most* of the operations we perform as human beings are inaccessible to "us," and "we" are incapable of observing them. Defining society as a collection of individuals is therefore a second confusion based upon an initial misrecognition of ourselves.

An indelible distinction of the Feed, relative to traditional media, is that cause and effect are recursively differential across the distinction between *non/human*. Humanist paradigms, conversely, disproportionately assign causal efficacy to human beings, a consequence of God's investment, consciousness, or free will. Jean-Paul Sartre's existentialism, for example, sums up humanity's non-determined situation, that

man is of a greater dignity than a stone or a table… For we mean to say that man primarily exists–that man is, before all else, something which propels itself towards a future and is aware that it is doing so. Man is, indeed, a project which possesses a subjective life, instead of being a kind of moss, or a fungus or a cauliflower. (349)

Yet inhuman systems too are driven by *subjective aims* (a term from Whitehead's organic philosophy), propelled into a future of their design, and even if they are not self-aware, they are may be *self-referential* in making decisions, as Luhmann explains. Within the Feed there is a recursive reconfiguration of agency. Not only are actors' behaviours manipulated by aggregate reinforcement, but the Feed also steers users' future actions towards *its* subjective aims—affecting the causal efficacy of volition itself. Current changes in our technical ecologies make new conceptions of inhuman agency possible.

The potential of agency is an element of any theory of causality. That is, a metaphysical explanation for *which* actions are possible depends upon the possibility of action. Theorizing media symbryos has as much to do with how they operate as their effects upon the societies which put them to use, and the question is thus raised: who is using whom? Societies are created by communications processes, and the possibilities for those processes are given with communications technologies: their physical limitations (such as their speed and geographical reach) as well as the techniques they make possible for users. As these ecological developments are continuous and ongoing, complexity emerges from repetition. Whitehead's process metaphysics or what he calls "organic philosophy" is a well-suited approach for describing symbryos as agentic subjectivities. In tandem, Niklas Luhmann generalizes acts of communication such that they generate conditions for predictable human behaviours: the agency of Feedspace is reciprocal and inhuman.

Process Metaphysics and General Systems Theory

Facilitated by Whitehead's organic philosophy, we imagine symbryonic relationships as a form of mutualism in which both human and nonhuman systems are implicated as participants. As processual communication systems are self-perpetuating, the changing possibilities of individual actors' agency is particularly well-modelled by the the social systems theory of Luhmann; Whitehead and Luhmann's theories together present an interactive, processual world. From the perspective of systems theory, observed realities are constructed by the decisions of systems, and different systems can produce asymmetric or conflicting realities because of the information they have come to evaluate as relevant. This definition of reality is somewhat idiosyncratic, and according to Luhmann is "correlative to the operation of observation, which

introduces this distinction" (178); that is, particular systems manage the distinctions between what is relevant/irrelevant differently, but they can only make that distinction based on what is real, yet what constitutes reality depends on the observer at a given moment in time. So, while "a communicative social system arranges everything in its own communication as either internal or external…at the same time it presupposes, as a condition of possibility for this practice, that physical, chemical, organic, and psychic realities on their own levels ignore this difference" (*SS* 179). That is, although certain conditions exist in a presupposition of a world, pre-environmental factors cannot be further dissolved by the communication system being observed. For example, human perception does not detect differences in the earth's magnetic field and can make no distinctions as to its relevance; from this system of reference the magnetosphere is not real (despite the dependence of human evolution upon its existence). However, homing pigeons use magnetoreception to orient themselves (if it is relevant at a given time), or they may not, if other perceptual cues are available (thus it is real, but irrelevant at a given time). However, earth's magnetic field *is* relevant to humans' empirical study of homing pigeons' behaviour (in which they are observers of the selective processes of another perceptual system). Thus depending on which system is observing or being observed at a given time, realities may be coeval, complimentary, or in the case of communications systems, as I shall argue, *incommensurable*. Although I will not enter the debate on the epistemological validity of systems theory to all systems here,[51] it offers a pertinent description of Feed-based communication systems as social systems.

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[51] As an example, Luhmann offers a defense against critics who "reproach systems theory with 'reification' or with having a truncated view of reality" (*SS* 177), to which Luhmann responds that neither system nor environment are ontologically different, rather that they "both are what they are only in reference to each other" (*SS* 177). That is to say that difference, in this case, is not a thing but only a relation as determined by a selective process.

Ranking algorithms and users—as individuals in relation to the aggregate—are the selective operators of the Feed which condition its reality. As each user's selections are weighted with respect to the types of content that will be made visible in their feeds, every reality is therefore a *personalized* pattern. Insofar as realities are determined by decisions as to relevance, no two users' feeds will maintain the same distinction of system from environment; each user's feed is, in this respect only, an individualized system. However, no Feed ranking algorithm only takes into account one user's decisions—as the Feed's defining feature is to prioritize recently popular content; the popularity of any content is a result of the decisions made by *all* users, and by subsets of users in a larger system. So while a user is a selective operator for itself, it is also a selective operator for other systems that it does not observe; all users are, to some degree, selectors of relevance for others. Among this mass of users, those to whom the user subscribes, likes, favourites or visits frequently are ranked higher. So while there is a version of individuality in play, it is one variable among many, and depending on which communication circuit is being observed, users may appear as individuals or as groups associated by feedback, or as an aggregate mass, each of which communicates with a dataset and each other by the decisions of the Feed.

Luhmann's sociology is based upon generalized definitions of selection and feedback; it is also negates previous sociologists emphasis on human units. Instead, communication acts constitute social systems. As I have argued previously, Feed actors—primarily users and algorithms—select and feed information back that immediately and directly influences the way the other selects; that is, manipulating their potential agency in advance. Any active/passive distinction that opposes human to nonhuman is complicated in the context of social media ecologies, and Luhmann explicitly states his wish to "disassociate" himself from "'humanistic'

concepts of norms and values" (*SS* 210). Furthermore, "the point of difference is that for the humanistic tradition human beings stand within the social order and not outside it" (*SS* 210); the social contract is a prime example of the anthropocentric images he wishes to surpass with his general systems theory. In a posthuman register, the tenor shifts to the attenuation of human action in favour of mutualistic modulations with nonhuman agents. Communication constitutes society, and within it humans are merely a site of communication acts rather than a fundamental unit. Luhmann's description more than approximates the user, for the user *is* its ongoing digital communication profile. As with the user, the human qua human is absent from social media systems.

Systems theory stresses that communication is generalizable and not exceptionally human. Patterns of communication events that become perpetual societies are constituted by self-observation, which differentiates a system from its environment; this definition applies equally to certain machines, organisms, legal systems and even the psyche. That is, "they manage the distinction between system and environment within themselves" (*SS* 178); in other words, when confronted with some information, they possess by some mechanism, a readiness to decide whether or not it is relevant and may alter future behaviour based on the difference made by that irritation. This capacity to self-reference is an emergent product of the history of a system, whether it is a perceptual system's capacity to detect movement based on momentary changes in reflected light, a legal system's capacity to decide whether an event was legal based on precedent, or a ranking algorithm's decision to recommend some new content to a user. This generalizable model of selection, observation and decision-making crosses the non/human division.

Systems theory is about processes, adaptation, and the means by which a whole retains its identity through time despite the modification of its parts. Luhmann's concept of "interpenetration" explains the "structurally limited simultaneity of permanence and change….It thereby guarantees the continual reproduction of as yet indeterminate possibilities" (SS 218). Interpenetration refers to the fundamental incompleteness of systems, which may be forced to adapt to unforeseen events or irritations. While "penetration" would describe how one system might put pressure on another to select (thereby penetrating its system/environment distinction), *interpenetration* occurs when "both systems enable each other by introducing their already-constituted complexity into each other" (*SS* 213). As I have detailed, users and ranking algorithms, while being functionally differentiated from one another, are interpenetrated in feedback: each decision made by one immediately and indelibly affects the decision-making of the other. With every input the user offers the system, the Feed's ranking algorithm will adjust its offerings accordingly. In each case, functional differentiation better describes how humans and non-humans interact as collaborating agents within inhuman systems.

Irritability is fundamental to ongoing systems and it represents their perpetual incompleteness. Symbryos such as users and algorithms are necessarily "irritable," in that they must be adaptable and reactive over time. From the perspective of systems theory, an irritant is the introduction of information about which a decision must be made, given that a system is mutable and seeks its own persistence. This applies to a living organism as much as a social contract such as "law" which is considered an ongoing series of irritations and negotiations. When events force decisions, "the system establishes and augments its sensitivity, and thus exposes itself to evolution by lasting sensitivity and irritability" (*SS* 172). Change over time depends upon irritability, which indicates incompleteness rather than stasis. The Feed presents a

tireless, uninterrupted stream of irritations to users, notifying them that pending information requires them to make decisions about their desire for content. At the same time, users irritate the Feed by making selections, impelling the evolution of its criteria.

Social systems are self-referential in that the events they reproduce over time and space create a distinction between themselves and their environment; future events will be decided upon based on their relevance to a contemporaneous distinction. The types of events that are communicated are negotiated according to some criterion; for example, the difference between more and less seductive content (Feed system), events that are newsworthy or not (news media), or actions that are legal or illegal (legal system). Which information is selected as relevant over time functionally differentiates systems from each other. As irritations occur, communication by the particular operators makes judgements for it—i.e. users, viewer ratings, and judges respectively. Feed systems are differentiated from each other by datasets, which have levels of specificity: user profiles have their personal histories, access to different communities within the network, and the system as a whole; each can be observed making decisions with effects. Both users and algorithms inform the Feed system. This again forces us to eschew, to a degree, anthrospecific notions of communication, for it may here occur in the absence of conscious intention (although some communication can be experienced consciously, it is not a necessary condition for communication within the Feed). Luhmann concurs that "The concept of *selection* also changes when one considers complex systems. Selection can no longer be carried out by a subject, as analogous with action. It is a subjectless event, an operation that is triggered by establishing a difference" (*SS* 32). Although the decision is not recursive in the sense of being deliberate and motivated by a consciousness, neither is it arbitrary. The history of a system leading up to the moment of a decision provides criteria by which the irritation is evaluated, that

is "[a] guiding difference arranges these constraints, for example, from the viewpoint useful/unuseful, without specifying the selection itself. Difference does not determine what must be selected, only that a selection must be made" (*SS* 32). Another way this could be phrased is that the environment is something that *happens to* a system, and the system may either react to such occasions or ignore them. In response to such events, if it is to perpetuate, the system must continually review the criterion of difference that differentiates it, forcing adaptation, an increase in complexity, and by this process the selective operations evolve.

This notion of subjectless events is relevant to the way the Feed makes decisions, for example, which content is visible to a particular user. When new content is uploaded, a human person will understand it based on any number of factors: a recognizable image, interesting news story, a post from a favourite channel, one based on a personal hobby or interest, and so on. The ranking algorithm, however, has no such experiences—recognition, interest, preference. Rather, its offerings are based on other "subjectless" associations, including the source of the content (i.e. the user or advertiser who posted it), tags, keywords, and the types of users seduced by it in the past, given weight according to the current user's history of interaction with each of these associations. Although the occasion of the event is one and the same, the communication of data and the criteria by which the human reader or viewer evaluates its relevance is wholly extraneous to the way the algorithm ranks it. Similarly, the record of the user contains no data as to *why* its human counterpart selected these data as relevant, and predicts potentially seductive content only based on computable variables, not human experience. Almost every variable of information about the post that factors into its being recommended to a user (that is, the aspects of it which

are processed by the algorithm) is extraneous to the human experience of the content.[52] The

incongruity of the criteria by which content is evaluated as relevant or irrelevant by the Feed's

ranking algorithm and the human counterpart to the user further speaks to the operational closure

of these systems from one another.

From our point of observation, one which observes this hypothetical relationship between

user and Feed, we can make a distinction between subjective and subjectless decisions. Whereas

subjective decisions are acts of will, subjectless decisions occur out of the environment (*SS* 32).

For example any video content on YouTube can be "liked" or "disliked" each is an active input

based on the content, and a subjective decision. However, YouTube's recommended video Feed

places inordinate weight on subjectless decisions (almost all of the weight, in my personal

experience). These "subjectless" experiences are not voluntary, and can only be recorded by

software: e.g. that the video has been opened, whether it was a query from a search engine or a

link, the geographical location from where it was watched, which device was used to open it, for

how long it streamed before a new video was opened, and many other associations of the user

that are not intentionally surrendered. The user-algorithm relation is largely a subjectless

evolution, rather than subjective participation, although both do play a role. There is no correlate

to this passive data collection in traditional media (and as such it is no surprise that privacy

concerns arise so frequently as a result), as no other media can process feedback as data in real

time. While an active communiqué, such as a "like," is given more weight than this associated

data in ranking recommended videos, it is all assembled into a single algorithm which then

influences future communication. A single instance of communication not only affects the

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[52] This definition of "experience," is going to be increasingly difficult to maintain when it comes to recognition algorithms, which can already ascertain with a high degree of accuracy the content of image or sound data, as is the case with facial recognition algorithms, for example.

current user's feed, but provides data points with potential outputs in the feeds of *all* users in the system. There is no singular subject, yet all subjects' divestments count among environmental irritations to users' feeds.

The underpinning metaphysics of Luhmann's definition of reality is one of process, contingency, and emergence—this is the reality of the Feed. Social media systems, informed by the human and inhuman alike, are ongoing communication patterns interpenetrated with other information processes, and the pattern produced over time is that by which systems can be observed as different from one another. Luhmann's method espouses a constructivist metaphysics of agency, such that the possibilities for action—decisions about the environment in particular—are located within parameters set by the record of a system's decisions. In this regard, various social media feeds are operationally closed from their environment, and develop as coherent systems precisely because they make decisions recursively, i.e. with reference to their own operations and emergent criteria. What Luhmann calls "self-referential closure" (*SS* 9) describes the circumstance that to maintain coherence, a system "must create and employ a description of themselves, they must at least be able to use the difference between system and environment within themselves, for orientation as a principle for creating information" (*SS* 9). Through repeating this criteria of self-reference, systems' codes determine their reality. Once more, the notion of self-referentiality "maintains that unity can come about only through a relational operation, that it must be produced and that it does not exist in advance as an individual" (*SS* 33). The repetition of *similar enough* differences allows a system to observe reality as such, as distinct from its environment. Again, this is not to say there is no interaction between systems and environment, only that events must be of the right sort, the sort that

addresses the existing self-referential criteria, to count within a system. Within Feed-based systems this criteria is a computable interaction of seduction and surveillance.

Take, as another example, a non-personalized feed, such as Reddit's front page "Hot" sort. Reddit as a platform is a content aggregator calling itself the "front page of the internet." According to this notion of "self-referential closure" (SS 9) as being characteristic of systems, Reddit cannot be penetrated directly by "the Internet," or other systems we may find therein. While this may seem contradictory, observing the selective limits of Reddit may help to clarify. Since the content of Reddit is almost entirely drawn from other sites, only users within this system—that is, those with controlled/controlling access—can induct content into Reddit or make decisions about content. To become an event in the system, a "post" must be created, that is, by converting some content into relevant information for the Reddit social system. The content from elsewhere on the internet, say, a YouTube video, cannot affect Reddit until it becomes a Reddit post. This is possible only because a user, although absent from one social system while communicating in the other, is structurally coupled as a site of interpenetration for two systems. Furthermore, the introduction of new irritants from elsewhere on the internet is only possible because these other sites are also networked, written in a readable language, and adhere to the same protocol (HTTP in this case), and obviously, other types of information which are coded for different systems (RNA, magnetic tape, printed text, speech) cannot be irritants to any social media feed until they are first converted into a digital format, uploaded to the Internet, and submitted for evaluation by that feed. It is because of this difference, the possibility of not participating and to become part of the *environment* of Reddit that one is capable of making differences *inside* it. Because the feeds of Reddit, YouTube, Facebook, and Twitter are operationally closed, the communication that takes place within them constructs reality

differently in each case, and subsequently different patterns of communication come to define each as a unity.

Constructivism and Lemniscatic Causality

Explaining the emergent construction of various realities is a primary motivation behind the general systems theory approach. Processes which appear to be exceptional or fundamentally heterogeneous—including psychic systems, legal systems, or social media feeds—can be described by a process of decision-making that differentiates the system from the environment. Each, furthermore, exhibits the process of information selection by self-reference. Underlying the general systems theory is process metaphysics of events and patterns—it is inimical to substantive ontology or transcendental structures. Todd Cesaratto compares Luhmann's metaphysic to Nietzsche's emphasis of the radical contingency of human being (the latter, notably, is a progenitor of many themes in critical posthumanist discourse):

> [that] we no longer live in an essential world, but in an operational one, is perhaps
> the most basic premise from which Luhmann and Nietzsche unfold their arguments
> for what it means to be human….In Luhmann's terminology and with reference to
> social systems, the argument would run: there is no 'reality' behind communication;
> communication generates reality; or, if the system is conscious, 'thought' generates
> reality. 'Doing' is 'operation' for Luhmann. (115)

Cesaratto, although he is sceptical of the success of Luhmann's posthumanist project,[53] locates a common metaphysical image that leads to conclusions about human systems in

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[53]Cesaratto suggests that there is a stealthy re-entry of the human, so he accuses Luhmann of bad faith. Yet even so, a distinction must be made between the semantics of "human being" and the century long traditions of Christian or

general: like Nietzsche, Luhmann is sceptical of non-contingency, precluding both teleological and substantial causation in favour of constructivism. This constructivism parallels the symbryonic thesis I have presented, wherein the activity of humans upon technics and technics upon humans is mutualistic and reality forming.

General systems theory, when applied to Feed based systems, advances an image of agency that I propose to call *lemniscatic causality*. While a linear figure of causality is grounded in a division of agency along lines of active and passive (and inevitably from there, of humans from tools), lemniscatic agency describes the symbryos of the Feed system, both of which are used and use. As opposed to linear causality, in which agency is exclusive to one pole of the figure, in a lemniscate, each pole simultaneously reconfigures the other's operations at any moment of observation (as long as communication is ongoing). In the figure of the lemniscate, agency is reversible in that each symbryo shapes the conditions of action for the other; together their interactions form a system.

Signing the social contract is an effect of a cause, i.e. an individual's rational, self-interested decision which generates a perpetually bound state of affairs; causality, here, is linear and irreversible. In contrast, a lemniscate is comprised of two loops, which represent two cycles of feedback: as opposed to mere cyclical causality the lemniscate demonstrates the operational closure of interpenetrated systems: while users' communication is a cause leading to algorithmic ranking decisions, algorithmic ranking decisions, in the same moment, enable or limit, encourage or discourage, users' decisions towards particular ends. Both poles are simultaneously causal and effective. The distinction between cause and

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liberal humanism that are Luhmann's main concerns. Again, posthumanism does not jettison the human from discourse, but figures as a return of the suppressions that were necessary for its portrait to be hung up as such in the first place.

effect cannot bifurcated into a past and a future, for multiple decisions are being made simultaneously that immediately, in real-time, affect the other's potential to act—that is, they redefine reality with unprecedented rapidity.

Predictable communication patterns emerge from the lemniscatic interactions of ranking algorithms and users in a network; this requires both change and adaptability to allow systems to maintain stable aims. The concept of *autopoiesis*[54], from systems theory, explains how complex, self-perpetuating systems emerge as patterns over time from relatively simple decisions. The patterns by which behaviours emerge are not deterministic, as irritations from the environment are always unpredictable because the environment is always, necessarily, more complex than a system. Yet the patterns by which systems make decisions about such irritations form patterns over time, rendering certain responses more likely than others. The conditioning of likely outcomes, or what I refer to as *steering*, is connected to the Feed's subjective aims, that is, frequent return traffic and frequent interaction; its autopoiesis is primed for this purpose. A system is a system as opposed to an arbitrary series of events because it follows a pattern of response to irritations that serves this purpose. Even as individual operations may be subjectless (in organic evolution, a genetic mutation in DNA transcription is an example), a complex system has its aggregate history available as a resource such that it can often adapt to unpredictable irritations, for those systems that were unable to adapt have already ceased to exist. Basic operations produce themes of behaviour as they become more complex, sometimes with unpredictable results (such as random mutations providing a natural selection advantage). It is advantageous for a system to be flexible so it can adapt to changing environmental circumstances

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[54] *Poiesis*, in Aristotle's definition, is an agentic undertaking to produce an intended result. Consequently, *auto-poiesis* is the production of an intended result: the agent produces the capacity for future production of *itself*. An autopoietic system, including social media systems, generates the conditions for its own persistence.

and incorporate accidents usefully. Unpredictable irritants persistently threaten the predictable processes of a system, yet they also cause it to develop. As processes, systems are never complete. If they are unable to make decisions regarding the sorts of events they may encounter in an ever-changing environment, they may cede their autopoiesis to competition that can. So, unlike contracts, which are inflexible in principle (although they often must be flexible in practice, as legal judgements may be based on new precedents, or constitutions amended, albeit as infrequently as possible) the systems of systems theory are not the results of intention or exterior principles or ideas—anthropic, divine, or otherwise—rather, systems persists as a sort of accidental success of adaptation, patterns that may have been otherwise. The analogy to biological evolution is evident, and it is no coincidence that Luhmann adopts the term "autopoiesis" from biologists (Maturuna and Varela). Practical reason or intentionality are not necessary conditions for order or complexity: there need not be an intelligent designer for biological evolution, or a primordial social contract for human society to exist. Both describe systems that belong to a dynamic environment, and both reward dynamic adaptation in response to changes in that environment.

While the connection of autopoiesis to organisms is clear, we can observe very similar responses to self-organization in media symbryos. Media evolve with human society, functionally differentiating into genres, disrupting existing media ecologies, and consequently forcing adaptations from structurally coupled systems, including politics, the economy, the law, and the imaginaries of news media. Luhmann's prominent example as to the constitution of local realities is the mass broadcast media of the 20th century, which he presents in symbryonic terms. The realities of broadcast media, as with other autopoietic systems, are generated by decisions about a world of events. The reality of the mass media illustrates an important consequence of

the constructivist perspective: that there can be no ultimate consensus concerning an Ur-reality

upon which all observers agree. He reasons that any observation already produces a difference,

thus a system cannot include its own criterion for differentiation in the difference it creates by

observing; that is to say that no system can observe *all* realities, for its process of observing is

not included in the observation itself: therefore "the mass media may generate reality, but a

reality not subject to consensus" (*The Reality of the Mass Media* 92). A state of incompleteness

is necessary to establish the selective criterion for as-yet-unanticipated events. The mass media

and its various genres—including news, entertainment, and advertising—construct realities. As

previously discussed, selective acts make decisions as to the relevance of events to a system's

conditions. News media, in particular, has a unique criterion of relevance: in a news broadcast,

some event must be relevant enough to its audience such that they continue attending to it, which

incentivizes advertisers. The threshold of relevance, furthermore, is established by the aggregate

values of previous events *to that system*. To be news, information must have a degree of

unexpectedness (this definition of information will be discussed at length in chapter 5) or

deviancy relative to previous patterns, and yet disruptive enough to reach an information

threshold (which again, is produced over time by the patterns of preceding events). Predictably,

predictable events do not make news, and thus the reality of news media will deviate vastly from

what is the norm in the environment, because the criterion for the selection of news is a level of

unexpectedness. "News" is thus a selection of increasingly unexpected events, and a news media

system can only continue autopoietically by encountering such unexpected events (or, as is often

the case, by *manufacturing* unexpectedness).

A problem that the news media faces with respect to its autopoiesis and subjective aim is

that its environment, the settled world, is relatively predictable. To continue to operate in a

competitive environment, news media are incentivized to offer a reality that is more unpredictable or shocking than the reality they observe. This criterion is the selective basis for sensationalism, laconicism, or "spin," and such contentions are symptoms of a conflict of irreconcilable criteria—that is to say, in order to survive, the news media must report news *whether or not there is news to report* or the audience will lose interest, followed by the advertisers that keep such organizations ticking over. The reality of news media thus distinguishes its reality from the environment, its communication is characterized by the *norm-deviant*: extreme opinions, daily scandal, perpetual conflict, outrage, and violence.

As the environment irritates the news media with events, or as the news media manufactures the unexpectedness of events, and this information is broadcasted. Yet at the same time as this differentiation occurs, the events are overwritten in a sense, and their reality is eclipsed. Jean Baudrillard describes this construction and disappearance as the procession of simulation, the reality of which is hyperreal, one in which the reality of the news media replaces the environment such that the events can only be experienced insofar as they are simulated. In accordance with the lemniscate, Baudrillard observes that, with news media,

> It is the whole traditional world of causality that is in question: the perspectival, determinist mode, the "active," critical mode, the analytic mode—the distinction between active and passive…. It is in this sense that one can say: TV is watching us, TV alienates us, TV manipulates us, TV informs us. (*Simulacra* 30)

Even before Feed-based media made this lemniscatic causality its subjective aim, Baudrillard envisioned the tendencies it would perfect. He recognized the disappearance of reality, calling it the perfect crime. The symbryonic thesis, taken to its conclusion, suggests consequences to those

of Baudrillard and Luhmann, Reality was always already mediated. Observation, similarly, is the

point where realities come to be and that to which Reality defers. Baudrillard reaches this crucial

point elliptically, stating that "one remains dependent on the analytical conception of the media,

on an external active and effective agent, on 'perspectival' information with the horizon of the

real and of meaning as the vanishing point" (*Simulacra* 30-31). The news media, as an active

communicative agent, concretizes a particular perspectivism. The hyperreality of news media is

its particular construction, in Luhmann's terms. Each particular construction is already in the

process of differentiating itself from an environment, thereby overcoding the virtuality of

Reality-in-itself, which is never complete.

A consequence of the constructivist perspectivism of Luhmann and Baudrillard's

theoretical models is that the same event can generate information in a plurality of systems.

Furthermore, the meaning of an event to one system may then irritate other interpenetrated

systems such that the first irritation becomes simulated, then that simulation becomes

resimulated. The collapse of the Twin Towers is an event that irritated a vast array of separate

systems. The demolition of a skyscraper in Manhattan would be newsworthy on its own, as such

an event is far from an everyday occurrence. Yet the physical collapse of the towers themselves

hardly compares to the information created by their collapse. September 11 was an economic

event, as the markets closed for almost a week with losses in the trillions. It was a spectacular

event, as its images were played and replayed on loop for weeks while the news media thrived on

the unexpectedness of what took place. It was an event for military systems, as an act of foreign

aggression that demanded retaliation and new investment. It was a political event, as any bill or

budget for homeland security, surveillance, or foreign policy would redeploy its significance. It

was a psychic event, as it would invoke fear in individuals and groups. It was a religious event

for some, proof of conspiracy for others, and its meaning to each of these systems affected how each would respond to new events (and continues to do so to this day). The collapse was not a singular event, but a plurality of information about which many different systems continue to make decisions. For Baudrillard, the Towers' "end in material space has borne them off into a definitive imaginary space" (*ST* 36). Yet this imaginary space is not homogenous, as the information created by the towers' collapse depends on which system is observing. The collapse was an irritant that caused heterogeneous operational adaptations as various as fear, changes to building and fire codes, the loss of value of market shares, and new security measures for airplane passengers. An observer ignorant to the collapse of the Twin Towers could yet observe an operational change in each system, and while the meaning of "9/11" to these various systems are not judged relevant by the same criteria, each system adapted to the event.

Returning now to the reality of the news media—a hyperreality that anticipates the subjective aim of the Feed—this particular construction demonstrates its systematic tendency to present the norm-deviant as normal. While 9/11 was the most unexpected event in a generation, it was the *primary content* of communication in the news media for weeks: replayed, theorized, analyzed, narrativized, and investigated. Luhmann and Baudrillard conclude their arguments similarly concerning the news media: it differentiates itself as a reality by the selection and simulation of its environment, and most of the world is irrelevant to its subjective aim (as with all systems); news media, and the Feed after it, normalize the norm-deviant.

Social media systems follow the same program as the news media in that they feed on the unexpected, however, online networked systems are vastly more efficient. Unlike social media, the success rates of broadcast media systems (at seducing viewer attention) can only be measured *post hoc* by secondary metrics, such as poll data. Social media systems, on the other hand,

measure their success rates in real time, and adapt their operations to user inputs accordingly. So, if the various genres of broadcast media (news, entertainment, and advertising) generate local realities and evolve into new genres such that they are incommensurable with a consensual reality, we should expect that the speed and efficiency of social media systems' processes can further bend or break the fantasy of what Luhmann calls a reality "subject to consensus."

The Contingency of Observation

Demonstrating how communication systems emerge processually includes a fundamental indeterminacy that depends upon *which* system is observing at a given time. Luhmann's general aim is to explain specifically how associated operations come to constitute a single system/environment boundary. A social media platform consists of interpenetrated systems, some of which make decisions about the same events differently. There are the physical operations such as data transmission and storage, which depend on an infrastructure of real estate, electrical grid, fibre optic networks, cellular networks, servers and processors. Within that infrastructure there are the site, app, and user data, virtual libraries, and the general and specific protocols and back-end privileges that control how these data are communicated. In addition, there are the redundancies of these various sectors ensuring that the platform is "always on." Then, there are all the human societies and labourers who maintain these networks, update and develop software, parse data, and translate these many processes into anthropically relevant terms for the press, the public, or political actors; finally, there are the advertisers whose communication is the primary purpose of the whole apparatus, and whose investment keeps it running. Although I am focused exclusively on the Feed as a particular system within this

scheme, I gesture to a generalized description as to how these conversions of data occur and how they too demonstrate a process metaphysics.

Each of these systems cooperate, ensuring there is always new, seductive information available to the user. A general metaphysic is needed to explain how apparent "transitions" between systems occur. I present here a complimentary anticipation of Luhmann's understanding of emergence through Alfred North Whitehead's *Process and Reality*, first published 1929. This text outlines what Whitehead calls "organic philosophy," which argues, like Luhmann, for a generalizeable and processed-based understanding of things and societies. Many of the themes of general systems theory, including differentiation, selection, and temporal contingency are paralleled in Whitehead's speculative metaphysics. *Process and Reality* offers a furnished set of models for process metaphysics, and figures as a theoretical compliment to Luhmann's method. As with many of the glosses of posthumanisms and symbryonic theses, Whitehead rejects any metaphysics wherein consciousness is an unprecedented or unique instance of being, or that it is different *in kind* from the rest of nature. In contrast, he attempts to establish a general metaphysics of contingency, asserting that "the actual world is a process, and that the process is the becoming of actual entities" (*PR* 22). These entities are not unchanging substances, but events or "occasions," in his terminology. The prehensions (the state of anticipating events) of societies towards such occasions establish patterns and they develop organically.

For Whitehead, as for Luhmann, societies and subjects are adaptive developments. To be a subject is to be guided by aims that condition particular patterns of world-observation, that is, by their "feelings" in his terminology. As we have shown, algorithms, users, and complex social media systems constitute subjectivities, according to the definition of acting according to subjective aims. Feelings are actual occasions' experience of one another based on their

expectations or prehensions, the conceptual equivalent of self-reference in Luhmann's systems theory. Yet Whitehead develops this interaction even further to emphasize the particularity of every event; each actual occasion

> is conceived as an act of experience arising out of data. It is a process of 'feeling' the many data, so as to absorb them into the unity of one individual 'satisfaction.' Here 'feeling' is the term used for the basic generic operation of passing from the objectivity of the data to the subjectivity of the actual entity in question. (PR 40)

That subjects "feel out" or adduce the world is a perspectivist notion; environmental irritations, become *information* relevant to an actual entity. The feeling of experience and the coherence into a unity resembles the process of differentiation by self-reference. In substance-based metaphysics, the coherence of reality is based upon the identities of a substances that undergo accidental changes, while retaining necessary properties. Our foil, the social contract, can never alienate the political subject from his natural rights, they belong to him *eo ipso*, despite any appearance to the contrary (as Rousseau was first to point out). For Whitehead, conversely, the subjective "satisfaction" of a process reproduces the conditions required for its continued becoming, a process of autopoiesis. In becoming there are no necessary properties, only patterns over time. Because the user is merely a record of occasions, it has no properties in advance of decisions. For Whitehead as for Luhmann, there is, in every actualization, an indefinite tendency towards outcomes, that is, an as-yet indeterminate *virtuality*.

A primary consequence of Whitehead's subjective societies or "superjects" has been recognized by digital media theorist Mark Hansen as a temporal disposition called the "predictive condition." The predictive disposition is not born of online systems, although given

the amount of data to which they have access and the immediacy with which they can self-adjust, digital systems represent the predictive condition at its most ecstatic. With subjective aims, these superjects attempt to bring about *the* future most favourable to the satisfaction of their aims. Hansen develops the predictive condition based on Whitehead's speculation that future aims are always already implicated in a present. This means that each of their non-conscious feelings is yet interested in a particular future, but which are also subject to accidents and surprise (that will then compel adaptation or cause damage, as the case may be). In this mode, a virtual future operates in the present as an agent; in Whitehead's terminology, the societies and systems *feel* the future in the occasions of the present. The future, however, is not a set of predetermined possibilities or determinable outcomes; there is no "true" future in the present, but a virtual future of real potentiality; the subjective aim of superjects is itself a causal efficacy in "the world that can never be known in its entirety, but that can be partially, if imperfectly, predicted and represented as discrete probabilities" (Hansen *PC* 132). As an extension of the premediated interactivity of the user, this relationship also takes the form of a lemniscate: the predicted future steers the present system to bring itself about, while its decisions continuously redirect conditions towards the future it predicts, thereby changing the prediction *and* the present subjective aims. This relationship is concretized by the Feed, wherein the future activity of the user is at once predicted and steered by the offer of seduction. The Feed plans for a future in which the user is most likely to interact with it by generating the conditions for user experience in the present; at the same time, the user symbryonically serves the Feed's satisfaction in a present that may actualize this future. Hansen draws the same conclusion from large-scale data mining and the algorithms that learn from these sets, stating that such data give prediction access to "the future, not as a set of represented media events, but as a partial glimpse into the present

operations of real forces that will produce—that are already producing—the future to come" (*PC* 133). The Feed exemplifies Whitehead's notion of temporality whereby a virtual future operates in the present, causing the actualization of that future.

Although the Feed symbryo exemplifies the predictive condition, we can speculate in hindsight that a lemniscatic causal relationship steers literate sensibilities as well, for the subject of the social-contract, enmeshed with deeds, titles, laws and constitutions, brings about a future in which a literate sensibility is a necessary condition for engaging in many important social relations, especially those that make the largest differences (high courts, for example). In ages where writing is dominant, those who define and bring about the conditions of social life— lawmakers, jurists, intellectuals, and journalists—are esteemed for their literate specialties. Because of the incommensurable reality sought by the predictive condition and new media, the disruptions of new media are considered threats to the existence of civil society by alarmists. Consider, for example, Guy Debord's increasing moroseness: in 1988, while reflecting on his 1967 *Society of the Spectacle,* he writes in past tense, that "history's domain was the memorable, the totality of events whose consequences would be lastingly apparent. And thus, inseparably, history was knowledge that should endure and aid in understanding, at least in part, what was to come: 'an everlasting possession,' according to Thucydides" (15). Not only does he invoke an original patron of the literacy of history (and history of literacy), but declares that the age of history has ended after a bitter critique of the spectacle of news media and politics, where truth "has almost everywhere ceased to exist" (13). According to the symbryonic thesis, which coincides with the displacement of history by his visual metaphor of "spectacle," Debord's argument can be interpreted as a rearguard disparagement of visual, banal culture relative to the dignity of literate culture. He goes on to state that

It is in the interests of those who sell novelty at any price to eradicate the means of

measuring it. When social significance is attributed only to what is immediate, and to

what will be immediate immediately afterwards always replacing another, identical,

immediacy, it can be seen that the uses of the media guarantee a kind of eternity of

noisy insignificance. (15)

Debord refers to a characteristic shared by television news media and the Feed, that is, their

disposition to bring about a seductive future with the side-effect of indifference to history.

However, to claim that such information is "insignificant" on this basis alone is simply to

reassert a bias of literate culture, which is just as contingent upon media symbryos. Anticipating

the concerns of the Feed alarmists today, Debord bemoans that "in Greece history and

democracy entered the world at the same time. We can prove that their disappearances have also

been simultaneous" (20). Now to what extent lamentation is warranted is a matter of perspective,

however, it is certainly justified for one who extols the values of literacy. History (in Debord's

meaning) and democracy are bound together by a literate sensibility—long-form, linear and

dispassionate (but never indifferent). The alliance of literacy, democracy, and history is disrupted

by the various media of an attention economy; none of these media rival the efficiency and

predictability with which Feed-based social media actualize a future conducive to the satisfaction

of their particular subjective aims.

Inhuman Decisions and the Primacy of Process

Whitehead's definition of "society" shares the emphasis on temporal contingency with

Luhmann's "system," an emphasis also programmatically instantiated by Feed-based systems.

Societies and systems are similarly subjective in that they make decisive judgements as to the

relevance of a continuous wash of data. The criteria by which such judgements are made are the

virtual future's causal efficacy in the present. Whitehead and Luhmann agree that, instead of an

aggregate of individual beings expressing the same basic properties, societies are a set of

associated events and operations. To an ever greater degree than Luhmann, however, *Process*

and Reality generalizes the concept of subjectivity, in an attempt to divest from the

anthropocentric basis of subjectivity as a voluntary, self-reflective consciousness: "an actual

entity considered in reference to the privacy of things is a 'subject'; namely, it is a moment of the

genesis of self-enjoyment. It consists of a purposed self-creation out of materials which are at

hand in virtue of their publicity" (289). The materials at hand in virtue of the publicity of the

subject are irritations, which are either judged relevant to purposed self-creation, or not.

Resembling Luhmann's version of autopoiesis, "prehensions impose a *condition of reproduction*

by reason of their inclusion of positive feelings of that common form. Such a nexus is called a

'society,' and that common form is the 'defining characteristic' of the society" (*PR* 34; emphasis

added). In addition, Whitehead advances a somewhat idiosyncratic definition of society, which,

far from an exclusively human phenomenon, describes an association of events that endures

through time; societies include molecules, organisms, and (by extension of his definition) social

media systems. The purpose of his resignifications seems to be a renegotiation of the

human/nature bifurcation that is prominent in the history of philosophy—a posthuman frontier.

This is significant, for human beings (qua human beings) are dividual and thus cannot be reduced

to the indissoluble atoms, of a society. The "defining characteristic" of a social system is the

associated "prehensions" of communication that condition the persistence of the

system/environment distinction, i.e. their "privacy." Both Luhmann and Whitehead maintain that

societies persist as patterns of events, not of individual beings.[55] Users, similarly, are by

definition records of events—for each user *is* the ongoing archive of its inputs. The "common

form" of social media feeds is of course the digital dataset, with which both users and algorithms

communicate and exist archivally, and as such, these systems exemplify the posthumanist

tendencies of both Whitehead and Luhmann. This is not to say that humans are excluded from

relevance in such societies, only that both authors intend to generalize those categories of

exclusivity that have been questioned less often in the philosophical traditions with which they

engage.

Patterns which *appear* as self-identical beings in the world are in part anthropic

confusions concerning that which Whitehead calls "personal order." Personal order is, for our

purposes here, equivalent with the observation of system/boundary distinction from systems

theory, where decisions concerning environmental stimuli are made according to criteria that

emerge from self-reference. The attribution of thingness as a primordial property of things—or

ousia in Greek—is a radical misrecognition of processes that originates in perceptual biases. Our

observation of patterns' personal order, which are then habituated in language, are misrecognized

as the substance of forms: complete beings with necessary properties. Yet in a constructivist

metaphysics, all realities are contingent processes. Complex societies make *decisions*, in

Whitehead's terminology, which (referencing the Latinate etymology) "hews away" relevant

data from the virtual environment in order to process it. Although I have been using the term

decision already, it acquires a special designation here: the generic definition of *decision* applies

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[55] We should note that not all societies are systems. A system's development differentiates it from other processes because it has an *appetite* for novelty; it incorporates the relevant data it comes upon. Some processes are structured and complex, yet non-appetitive, Whitehead includes "crystals, rocks, planets, and suns" (102) in this category. Systems, however, make decisions about irritations and their relevance to reproduction to generate conditions in which they can persist.

equally to an organic cell's selection of sugars for energy conversion as to an animal perceptual system that prioritizes movement and light.

Decisions, or cuttings-from, are not exclusively conscious activities, a proposition with which Luhmann emphatically agrees (although he uses the term observation, or *Beobachtung*, in place of "decision"); both however describe *making a difference* or separating some occasions as relevant from a background of environmental events (interestingly, this is precisely Claude Shannon's definition of a "signal" in *A Mathematical Theory of Communication*, which will be discussed at length in Chapter 5). Luhmann writes that "Observation means nothing more than handling distinctions. Only in psychic systems [such as the mind] does the concept [of self-observation] presuppose consciousness. Other systems must acquire their own possibilities of observation" (*SS* 36). In this scheme, the continuity of things is indeterminate: for both Whitehead and Luhmann, realities are contingent processes of selection, and inflexible or less-adaptive criteria inhibit systems' propensity to perpetuate (which apply equally to endangered species or endangered languages). The process metaphysics of systems theory and organic philosophy complement each other as general descriptions of reality that are applicable to a variety of events. Furthermore, the specific reason this metaphysics is useful for observing online communication societies is that, while occurring at incomprehensible speeds, the structural coupling of various systems or societies—including psyches, digital communication, and machines—generate private realities particular to each.

Systems are temporally extended via their adaptive, indeterminate selection of environmental data. From the perspective of process metaphysics, the philosophical seduction of beings-in-themselves as terminable a-temporal kernels of being are misrecognitions of contiguous adaptive processes whose adaptive contingency appear as essential properties. In a

lecture, Whitehead gives an apt explanation for the tendency of transforming becoming into beings:

> We are accustomed to associate an event with a certain melodramatic quality. If a man is run over, that is an event comprised within certain spatio-temporal limits. We are not accustomed to consider the endurance of the Great Pyramid throughout any definite day as an event. But the natural fact which is the Great Pyramid is the same character as the man's accident, meaning thereby all nature with spatio-temporal limitations so as to include the man and the motor during the period when they were in contact….We are so trained, both by language and by formal teaching and by the resulting convenience, to express our thoughts in terms of this materialistic analysis that intellectually we tend to ignore the true unity of the factor really exhibited…retaining in itself the passage of nature. ("Concept of Nature" 250)

Our notion of being is biased according to unavoidably anthropic decision making; not only language, but even mammalian perception serves to make essentialist metaphysics *convenient*. After all, the world we perceive is constituted by macroscopic objects as a matter of evolutionary common sense. Whitehead explains our embodied spatio-temporal bias with the most permanent human artefact, the Great Pyramid, which serves to illustrate how objects become objectified in perception and language.

Systems, in contrast with pyramids, become entities as selection-patterns become settled upon an archive of "prehensions" which actualize systems' endurance. Unlike systems or complex societies with satisfactions, the Great Pyramid does not adapt to environmental irritations. Systems adapt. For example, the "law" persists only as long as legal decisions are

made. Systems exist as enduring entities over time only because their decision-making operations maintain a distinction between themselves and the environment, and they self-referentially negotiate the division between legal and illegal based on precedents. Without the maintenance of this distinction, the elements of a system dissolve into the environment—the result of a failure to adapt to the complexity of the environment. Simply put, the "satisfaction" of an entity depends on its *flexibility* in negotiating unexpected conditions. Competition occurs because systems, which are by definition incomplete—or "appetitive" in Whitehead's terms— have "goals that can be attained only at the expense of another system's goals" (Luhmann 382). The tension of incompleteness is always subjectively deferred to the virtual, or the present possibilities of futures not-yet actualized,[56] which initiates ongoing occasions for satisfaction:

> The purpose of this initiative is to receive the novel elements of the environment into explicit feeling with such subjective forms as to conciliate them with the complex experiences proper to members of the structured society. Thus in each concrescent occasion its subjective aim originates novelty to match the novelty of the environment. (Whitehead 102)

Otherwise phrased, to unite these concepts, a system's endurance depends upon its capacity to make *use* of the unexpected—that is, to adapt its threshold of relevance to changing environmental irritations.

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[56] The virtual should not be confused with the possible; possible futures are in opposition to an actual future (one path among others) whereas the virtual is represented in the subjective aims of occasions which actualize occasions for a future. This definition accords with that of Deleuze, who writes that "virtual time itself determines a time of differenciation, or rather rhythms or different times of actualisation which correspond to the relations and singularities of the structure and, for their part, measure the passage from virtual to actual. In this regard, four terms are synonymous: actualise, differenciate, integrate and solve. For the nature of the virtual is such that, for it, to be actualised is to be differenciated. Each differenciation is a local integration or a local solution which then connects with others in the overall solution or the global integration" (*DR* 211)

Within systems of Feed communication, each user's particular subjective aim is to create a future in which it is fed more seductive content whether they are aware of this or not. This subjective aim exceeds the desires of the human individual with which it may be structurally coupled. That is, whether or not you want the Feed to seduce you, it will act as if it is doing so, and make future decisions as if it is doing so. The decisions made in service to these aims factor into the feed variables as stimuli, and the algorithm is extremely adaptable to a wide array of possible associations to satisfy such aims. Interacting with a particular user, channel, or group reinforces their visibility, like a neural pathway in a symbryonic brain. The same goes for popular associations of content such as gaming, comedy, music, or politics. Competition for users' attention between social media systems comes from scarcity: attention is limited by time. Thus just as languages die if they are too inflexible to produce "explicit feelings," so too social media systems die if competitors adapt to user inputs with more efficient rewards. Luhmann's general systems theory is metaphysically organic, as comparison with Whitehead's metaphysics shows; his social systems theory, more specifically, observes the increased functional differentiation of communication among different systems within the online ecology. Both algorithms and users to have aims means adapting quickly in order to make the most use of unexpected inputs; that is, to turn them into information.

The "Return" of the Human

A selective process as the basis for complex subjectivity puts human subjectivities onto a radically different footing, one which is shared with other organic processes, including those of the animal, the machine, and the social system. For Luhmann, there are no humans within social systems —as singular conscious animals— although there are human selections. As I have

stressed, for both Whitehead and Luhmann, subjectivity is not necessarily intentional. Although having intentions may be associated with kinds of subjectivity, they are not a special case or the ground for rendering human society as something different, in kind, from other societies. However, inhuman systems certainly interact with and emerge within what we might accurately label the world of *our* human concern (as I will argue later in the following chapter).

For Luhmann, there are structurally coupled systems that constitute what is referred to as a human. They are partially *psychic* systems, which is structurally coupled with *biological* systems and *communication*. Their relationship is interpenetrated: the mind is coupled with the body, because it depends upon its continued healthy functioning for its autopoiesis, yet they are operationally closed in that the psyche is not cognizant of the body's selective operations; similarly, the psyche uses the vocabulary of languages to think and narrate its behaviour sometimes, yet thinking does not communicate. These systems are intimately associated, however, and changes in one are very likely to irritate another. In Luhmann's scheme, "meaning simultaneously enables consciousness to understand itself and continue to affect itself in communication, and enables communication to be referred back to the consciousness of the participants" (*SS* 219). That is to say, the syntax of thought depends in part upon previous irritations of linguistic syntax, while social events are affected by the outputs of conscious communicators. Likewise, the increase of the complexity in a biological system like the brain increases the virtual complexity of mental processes, just as mental complexity increases the virtual complexity of communication; reciprocally, more complex communication increases the virtual complexity of mental processes. Simply put, psychical processes are in-formed by communication in social systems, but social systems are indifferent to the rest of the human—the absences which remain uncommunicated. In this plural contingency, featuring the concurrent

relations of lemniscatic causality, minds do not communicate directly with other minds, yet communication depends upon the relevance of the data that emerge from minds. Luhmann criticizes models of communication that confuse these psychical and communicative processes (which are each closed systems) particularly because they invent entities to come to the rescue of intentional will:

> Psychic process are not linguistic processes, nor is thought in any way 'internal dialogue' (as has been falsely maintained). It lacks in an 'internal addressee.' there is no 'second I,' no 'self' in the conscious system, no 'me' vis à vis an 'I,' no additional authority that examines all linguistically formed thoughts to see whether it will accept or reject them and whose decision consciousness seeks to anticipate. All of these are theoretical artifacts induced by an understanding of discourse, (or, in parallel, reflection) as an intentional activity. (*SS* 272)

Thought, even when structured linguistically (one type among others) is not dialogic; it is rather an ongoing pattern of communicative events that is ultimately a *self*-description of that system, not the description of an "other" self. This sequence can be irritated and interrupted, and the important connection here is that the social system increases the complexity of the environment of the psychic system; the psychic system must then respond to that complexity *selectively*. In the case of social media systems, it is obvious that neither brains nor minds communicate within social media, for only digital data are relevant to such systems; yet social media are wholly dependent upon the prehensive complexity of minds (that are always already linguistically and technically symbryonic) for their autopoiesis. So while we are discussing a process of reconfigured subjectivity, it yet remains a posthuman method of observation since the human qua human has no place in social systems.

Having complicated the notion of the individual entities, societies and social systems are reconfigured. Luhmann is reflectively aware of his disruption of this history:

> The point of difference is that for the humanistic tradition human beings stand within the social order and not outside it. The human being counts as a permanent part of the social order, as an element of society itself. Human beings were called "individuals" because they were the ultimate, indivisible elements of society. It was impossible to conceive the soul and body as separate and then to dismantle them further. Such a dissolution would have destroyed what the human being was in and for society…The form of human existence could be realized only within society. (*SS* 210)

For Whitehead, as discussed previously, societies are associations of events, or *occasions*; societies may be molecules, cells, and animal bodies, given that the "wider environment must be permissive of its continuance" (*PR* 99)—or in the terminology of systems theory, the environment must have information relevant for the continuation of a difference. For the continuation of Feed-systems, similarly users must continuously add new data, because for the Feed to continue, its content must be seductive enough that advertisers will pay for its value (demonstrating the interpenetration of a Feed-system, such as the Facebook News Feed, with the social media *company*, such as Facebook, Inc., which is an organism in an external economic system; interpenetration will be discussed in the following chapter). This means that even if the "same" content exists on multiple platforms (for instance, when same links are posted in the feeds of Facebook, Reddit, or Twitter) each remains a unique event, because each adds content to an individuated dataset. Whitehead says much the same in his own terms: "each individual occasion within a special form of society includes forms which do not occur in analogous

occasions in the external environment. The first stage of systematic investigation must always be the identification of analogies between occasions within the society and the occasions without it" (*PR* 99-100). The event of a posted link is unique, but analogous. Societies are unique self-referential patterns, rather than aggregate collections

In online social media networks, *user* interactions—as opposed to human beings qua beings—construct the reality for the future of the system. Humans and users are not interchangeable but are structurally coupled, and user-acts occur in the absence of humans. Yet, this is where a category of "the human" re-enters social media, albeit in a new form: not as presence, but as spectre. The "human," here, is a Janus-faced site of structural coupling between two inhuman systems: the Feed and the consumer economy: it is now a clicking informant, and next a potential consumer for the companies that advertise, but never in the same moment. Therefore, in neither system does an "individual" ever occur, but the "human" serves as a descriptor of the crux whereupon inhuman systems select information relevant to their particular autopoietic processes. What we call the human being is a pivot point between the user (which communicates with the Feed) the consumer (which communicates with the economy) and the image-perceiving mind (which communicates with the body), yet because each of these processes is operationally closed, this crux does not inform these systems at the same time. The human cannot be the sum total of these processes, because they are not concurrent, yet it names a site of information observed by each system by their own criteria, the centre of a plural lemniscate.

"Human" in this context is a misnomer, and bears no relation to the individual. We can only gesture to it as the unobserved absence beyond a system; that is, it names *no-thing* but fictional origin of the consequences of various selective processes. For the Feed, the "human"

exists in whatever is the indefinite beyond of user data. For advertisers observing the feed, it names whatever is the indefinite beyond of user attention. For an economic system, it names whatever is the indefinite beyond of a consumer. For a court, it names whatever is the indefinite beyond of a defendant. For myself as a mind, it names whatever is the indefinite beyond of my thoughts at a given moment. Yet for myself as an informant of communication, the utterance of "I" assumes all that passes, spectrally, from system to system, and informs each. It is the habit of self-reference in communication that generates the individual, which, as Whitehead argues, is misrecognition of what is an interminable process of ongoing observation.

Occasions, such as clicks on the Feed, are "felt" by systems. The event of the click is structurally coupled with an event to which the system is indifferent, i.e. a body, in a chair, clicking a mouse with an index finger, yet the causation is indirect. Even as inputs are performed, they are only become relevant to the Feed as user input. Users are their ongoing archive of recorded/recalled occasions, so there is no *necessary* connection between them and the ability to click in one particular way, as bots can like or vote without bodies. Nonhuman bots are programmed, giving them subjective aims, and they can be deployed to steer communication towards particular ends (e.g. through vote manipulation, or to promote or spam content). Their level of influence is equal to mine, qua user. The human is not a single identity, which accords with the organic philosophy of Whitehead. Neither it is a single system, which accords with the systems theory of Luhmann. Rather, what we call human is dividual; and now the user is introduced as an aspect of this multiplicity. However, the way the Feed steers user behaviour will likely affect other systems' observation of "us." Due to structural coupling, it should be expected that biological and mental processes (neurological activity and reasoning, are examples) are affected by the irritations of social media, yet as humans, we remain the product of observation

all the way down. Social media are inhuman societies, and a demonstrable case that communicative *events* constitute realities, yet as we observe them, we also emerge from their observations of us. *We* are the hybrid spectre at the centre of processual lemniscates

Interpenetration: Realities & Control

As a topic of discourse, social media has become increasingly contentious amongst parliamentarians, journalists, and pundits. At the fringe, social media systems are considered an imminent threat not only to civility, but to social order and democracy as well. Lawyers, lobbyists, and public relations specialists represent the interests of social media companies to the public. Mark Zuckerberg himself remains the public face of Facebook Inc., and has personally extolled and defended Facebook and its subsidiaries before the United States Congress and the European Parliament to address their concerns over public welfare. He has also sparred with The Telecom Regulatory Authority of India, which outright banned Facebook's *Internet.org* initiative, Free Basics, from local operations. Each instance figures as a symptom of the growing interpenetration of social media systems with traditional legislative bodies. Each, to some degree (and the India Case in particular), represents a certain incommensurability of social media systems with existing human institutions, and they serve as case studies of the interaction between in/human realities. Each represents conflicting *second-order observations* of what Feed-based systems do. While the Feed constructs a reality of trending data, observers may develop various understandings of the good or harm that may result if the subjective aims of social media systems are realized. Ultimately, regions of human concern may become agentic to the Feed only if they can become quantified variables which serve the subjective aim of predictability, thus demonstrating the primary difference between human and non-human criteria of relevant information.

The "environment" of social media includes not only the whole of the Internet and publicly-accessible content, but also for potential users who do not yet exist in a system. A social

media company, which relies on its userbase to generate data, has a vested interest in converting potential into information events. User activity is now a raw resource to be gathered and one which can be converted into exchange value. Social media companies and those who make decisions therein are thus second-order observers of the selective processes of their own Feeds. Based on such observations, economic interests affect its operations and procedures. Increasing ranking algorithms' capacity to predict and steer also increases such companies' likelihood of survival in their environment. The predicative capacity of ranking algorithms is largely based upon the datasets from which predictions are made. Therefore, larger sets are better. Companies, then, seek more users to communicate with their feeds for two reasons: better prediction (based on more data) and more profit (based on more attention). As an observer of the system, companies are interested in in what does not yet exist in the Feed reality. According to the systems theory perspective, feeds and their owners are operationally distinct from one another. However, due to interpenetration, the latter has an indelible interest in the success of the former.

Second-Order Observation

While the Feed-user lemniscates are operationally closed, other systems observe their observations. These relationships are what Luhmann calls "second-order observation." While users observe the Feed's decisions and vice versa, these are first-order observations. Their reality is mutualistically constructed as a consequence of the other's communication. On the other hand, second-order observation observes the process and criteria by which first-order observations are made, and so "first-order" processes are meaningless in isolation. As a result, these decisions are only valuable in an established, ongoing context. Indeed, by this measure, the whole of this written work is constituted by second-order observations, a matter of making decisions as to the

relevance or irrelevance of particular events. My criteria of relevance concerning that which

occurs in feed systems includes many of the concepts I have already established: symbriosis,

lemniscatic causality, and the posthuman aspects as to how decisions are made. However, there

are many other criteria of relevant events: Feed alarmists observe events of the Feed's

incongruence with existing institutions; users, as a second case, tend to observe the Feed's

decisions explicitly only when it fails, i.e. when it recommends irrelevant or undesired content;

click farms observe the Feed's decision-making in order to more effectively manipulate it; and

finally, advertisers observe the Feed's decision-making according to its rates of success in

converting attention into profit. So although each position observes the same events, each

interprets the Feed's decision-making according to private criteria that do not interact. Some

operations and behaviours are judged to be relevant to the negation of others. As with any

process of observation, second-order observation can never offer complete perspective of its

object: for data to be interpreted at all, it must be simplified according to the operating criterion

of relevance for a particular system.

From an alarmist position, the Feed's egregious indifference to regions of human concern

is immediately evident in news headlines and current events, and the situation is getting worse.

This is ample evidence to support this conclusion because social media systems and civil society

symbryonically compel one another to respond to increases of internal complexity that render

each other's observation incommensurable. A prolific recent example featured the United States

Congress calling upon Facebook and Twitter executives to testify concerning Russian Ad

purchases in advance of the 2016 Presidential Election. This was a novel development in that

such an orchestrated effort had not been considered a threat before it was alleged to have

occurred. Furthermore, it is telling in itself that manipulating social media systems is seen as a

worthwhile investment of labour for adversarial agents. As described previously, the "human" is the site at which the user is structurally coupled with the voter. Influencing one process may affect how the other determines relevance and makes decisions. Additionally, the fact that ads are targeted at users with associated traits, which correlate with electoral demographics, makes the Feed useful for a purpose its creators and designers did not intend nor apparently foresee—another example of the indeterminacy of these constructed realities.

It may be objected that the programmers or company can or should be held responsible for the influence of ranking algorithms. This is possible to an extent, as variables can be weighed and altered manually, yet the fault lies with the most basic operators of Feed-based systems—the real-time ranking algorithms. Yet it is the userbase, not the programmers, that trains these ranking algorithms *how* to value content, and subsequently make the Feed susceptible to inorganic manipulation The methods that are used to manipulate the Feed appear as consequences after-the-fact, and may be impossible to predict in advance because they are emergent and dependent upon the decisions of users. As with other social systems, these platforms develop selective criteria contingently. The indeterminacy of serially-contingent decisions makes it nearly impossible to predict particular results, but it does follow patterns and trends. Similarly, while ads can be bought, there is no way to predict what effect they will have outside the system except based upon previous, aggregate patterns. This demonstrates what Andrew Pickering has called a "dance of agency": that is "a vision in which both the human and the nonhuman are recognized as open-endedly becoming, taking on emergent forms" (1). While system-wide behaviour can be predicted, the future is never fully determined because complexity may always increase. Thus different social media feeds, such as Reddit, Twitter, YouTube, and Facebook, may each tends towards different themes of content and present different strategies as

to how to "game" or manipulate their algorithms. Each will exhibit variant behaviour based on their different userbases, despite having similar variables in their algorithms. No programmer can predict all of these outcomes in advance. Furthermore, while some algorithms, including basic trending algorithms can be understood with relative ease, others, such as machine learning algorithms, which at any given moment may be opaque even to those who have programmed them. This is not to absolve designers and engineers of their responsibility for products, only to say that before November 2016, it was less likely to be considered worthwhile for a concerted effort to inorganically manipulating the outcome of an event in a different system (an election), where motive is difficult to determine. This event has entirely changed what was considered possible in terms of algorithmic agency. Nevertheless, the fact that such actions are now possible demonstrates how the interpenetration of Feed systems with regions of human concern may be exploited.

While common subjective aims, such as return traffic, result in tendencies common to all Feed-based systems, the evolution of the communication that occurs on a particular social media platform will be indeterminately swayed by the decisions of the particular userbase; these vary by platform and by subgroups (especially if they are associated by user-attributes like interests, location, or political views). Locally relevant communication, which in social media sites includes in-group jargon, jokes, and memes, emerge unpredictably over time. The timeframe in which these communiqués remain relevant is often relatively short when compared to traditional media.[57] The life-cycle of relevance demonstrates a process-based metaphysics, which confuses

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[57] A version of this that is unique to this medium is the *meme*, which includes images, gifs, and "copypasta", which refers to pasted text blocks that can be reconfigured to suit various contexts. The original context of memes is often obscure or relevant only to the in-group, but are adjusted and redeployed in new contexts. Probably the best example of a meme use and reappropriation is Pepe the Frog, which was a comic book character used to for his facial expressions on MySpace and 4chan, and now a decade later is a symbol for Donald Trump supporters, internet trolls, and has a place on the Anti-Defamation League's list of hate symbols.

the metaphysical bifurcation between subject and reality, that "the theory of prehensions is founded upon the doctrine that there are no concrete facts which are merely public, or merely private" (Whitehead *PR* 290). That is to say, the events of communication and their relevance are always subject to renegotiation. Although social media sites can become seemingly settled realities temporarily, communication is at best predictable, and no ongoing system is ever complete or immune to irritation.

The India Case

When observers observe the operations of systems, a difference of criteria may produce conflicting, incommensurate explanations. An exemplary case of such conflict was the Telecom Regulatory Authority of India (TRAI)'s rejection of Facebook's "Free Basics" proposal and the long debate that surrounded it. As a system with subjective aims, Facebook Inc. (the company, a financially motivated entity) is appetitive for more users for its Feed-based social system (the platform). More data increases the algorithm's ability to predict seductive content, and consequently improves the likelihood of user responses. As far as Facebook Inc. is concerned, this increases the value of the ad-space of the News Feed, meaning more advertisers are more likely to pay to communicate. A second observer, India's telecom regulator, has different aims and a different criterion of relevance when it comes to Facebook's attempt to acquire users within India's borders. In this case, it judged that the subjective aims of the Facebook system were incommensurable with the criteria by which it judges events. This includes (as we shall see) some degree of particularly Indian sovereignty over Indians' access to the Internet.

In partnership with other companies, Facebook Inc. launched an initiative called "Internet.org," stating its intentions "to share the internet's knowledge and inspiration with the

world, Internet.org is overcoming issues of accessibility, affordability and awareness—in hopes that one day, everyone will be connected," because "the more we connect, the better it gets."[58] The subjective aim of Internet.org is unsurprisingly identical to that of the Facebook as a Feed-based system: as the userbase grows, more users can be seduced, and their attention can be predicted. The value of these users' attention to Internet.org is greater than the cost of subsidizing the cost of their Internet access. Together with Indian telecommunications company Reliance, Internet.org released its Free Basics initiative in India in February 2015. Free Basics is a package that includes, at no cost, access to a limited number of sites and platforms, including Facebook and Microsoft's Bing search engine. Any websites or apps not included from the Basics package could only be accessed with an additional paid data plan.

The debate and disagreement surrounding the Internet.org initiative in India is a matter of second-order observation. The voice of Facebook Inc.'s interests throughout the affair was Zuckerberg himself. He personally pitched Internet.org to India throughout 2014 and 2015 as humanitarian endeavour, replete with the liberal language of rights and social welfare. There are of course some grounds for this interpretation, however, as an observation, it is also highly selective when evaluating aspects of this proposed event are considered relevant. As such, Zuckerberg serves as a selective informant performing a second-order observation on the operations of the Feed, database, and other elements of the platform. He reduced Facebook's goal to "connectivity," which he rhetorically considers a good in itself. Indeed, the News Feed connects users in a circuit that allows them to share, like, and comment on the same data. However, the Feed alarmists observe the same process as *antithetical* to liberal values, in particular, exposure to and tolerance of contrary viewpoints. Obviously these sorts of behaviours,

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[58] info.internet.org/en/

which are also facilitated by the Feed, are not socially beneficial, yet drawing attention to them would inhibit Facebook Inc.'s data prospects. Zuckerberg instead focuses on appeals to more a liberal society. For example, in New Delhi in 2014, he told an audience that "technology has to serve the whole of society, connectivity cannot be a privilege of the rich and powerful, it needs to be something that everyone shares and an opportunity for everyone."[59] The obstacle to this goal is that too many Indians, about a billion, cannot afford or do not have access to the internet for infrastructural reasons, and thus are excluded from its economic, political, and educational benefits. He is afraid "that the whole world is being robbed of those people's ideas and creativity. So it's not just those folks who are missing out but we really all are." And in explicitly liberal terminology: "We believe that connectivity is a human right." Zuckerberg set up the profile of Facebook as something that does not conflict, but rather seamlessly coincides with a liberal, humanistic society.

The rhetoric of this pitch belies the assumption that the humanist subject and user are fully commensurable. For my part, I have argued this is fundamentally not the case. Social welfare, diversity of discourse, and especially the bestowal of human rights are consistent with what we might call the ideology of Facebook, which is a constructed perspective as to how Facebook is an extension of the humanist goals elaborated throughout and since the Enlightenment. Within this reality, the differences between humans and users are irrelevant or downplayed. The ideology emerges a discourse which does not distinguish the process of the user, as a data profile, with the self-sovereign individual human being (which, as Luhmann, Whitehead and others have argued, is always already a misrecognition). Facebook desires users which act in the *absence* of human beings. Despite its public claims, a Feed-based social system

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[59] Zuckerberg, Mark. "Keynote Internet.org summit in New Delhi" (October 2014). YouTube. www.youtube.com/watch?v=aYggcyvkndY

has no use for humans that are not coupled with users (hence the goal of expanding the userbase to make their labour useful). Discussing connectivity with respect to human rights recalls the basis for the social contract, in which one's status in the social system is granted based on its individual sovereignty and being, when in fact, Facebook only desires users' attention and inputs.

As an observer with particular and identifiable intentions, Zuckerberg's humanitarian ideology serves the subjective aim of connectivity, and offered a commensurable unity between the goals of Internet regulators in India and Internet.org. However, the TRAI banned Free Basics in 2016. This decision came at the end of a lengthy debate between Facebook, the Indian people, other telecomm providers, and the TRAI. The latter's final judgement was that Free Basics violated the principle of net-neutrality, based on the mandate "No service provider shall offer or charge discriminatory tariffs for data services on the basis of content"(TRAI).[60] The TRAI did not specifically address Zuckerberg's criterion of relevance that the Free Basics initiative should be considered a service advancing the human rights of Indians. During the debate, but before the ruling, Zuckerberg had answered charges that his initiative violated net-neutrality. In a Facebook post, he repeated the refrain that the spirit of Free Basics is that "everyone in the world deserves access to these opportunities," and rebutted critics that "net neutrality is not in conflict with working to get more people connected. These two principles — universal connectivity and net neutrality— can and must coexist."[61] This argument exemplifies the ideology of the Feed in general, which is articulated so as to simultaneously advance the goals of Facebook Inc.: that the reality of social media and the reality of a liberal public *must* be commensurable, which the TRAI ruled was not the case.

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[60] www.trai.gov.in/sites/default/files/Press_Release_No_13_28_08-02-2016.pdf
[61] www.facebook.com/zuck/posts/10102033678947881

Zuckerberg was accused of cynicism and oversimplifying the positions of his opponents, who raised concerns over commercial interest, adversely affecting competition (especially for startups and smaller companies), and significantly, given the national history of India, the spectre of colonial rule. Each of these issues concerns those within the national borders of India. Feeds, of course, are not concerned with borders, states, or competition. That is, national borders are human constructs and do not have bearing on the capacity of the Feed to rank, seduce and predict its users. These are, rather, reasons of human concern—yet by definition, the connectivity ideology *cannot* deem them to be relevant information, for they are obstacles to the satisfaction of it aims. Thus, even after the ruling, Zuckerberg either strategically ignored or indignantly maintained that there was no conflict—and from the point of observation he presented, the two *should* be commensurable. In effect, Zuckerberg identifies his position with that of the Feed while disregarding alternative criteria, such as those used by alarmists or the TRAI. Such conflicts are to be expected in clashes of observation, for Facebook Inc. generates its particular reality with indifference to information it has decided to be irrelevant to its autopoiesis; when userbase and economic value are coeval, it is in the system's interest to ignore other information.

As a Feed-based system seeking users, Facebook is radically indifferent to the concerns vocalized by Indian businesspeople, journalists, and academics. Facebook Inc., with Zuckerberg as its prosthetic voice, is similarly indifferent, for it relies on the success of the social media platform for its autopoiesis. Most Indians' concerns considered the potential outcomes or qualities of communication, whereas Facebook's feed system can only concern itself with quantities: connectivity is a good in itself not because it is humanitarian, but because it advances the autopoiesis of Facebook and Facebook Inc. The TRAI can consider futures in which Facebook does not exist, but it would be destructive for Facebook's rhetoric to consider such

futures. The principle of net-neutrality mandates that gatekeepers and regulators such as ISPs or governments do not discriminate with regard to access of any content on the Internet. The objection in this case was that if Internet.org and Free Basics wish to offer the Internet for free, they must offer the whole of the Internet equally, rather than offering its curated list of sites to guarantee a competitive advantage in the market of user attention. Facebook Inc. and Reliance, as competitive organisms in their respective ecologies, have no interest and indeed no criterion by which they could be interested in such an arrangement, as equal access would not increase their advantage. This conclusion does not require any cynicism, one only need look at the conditions by which each system is most likely to survive and thrive to understand the realities which their public-facing elements will present. If Facebook were actually interested in a humanitarian endeavour, it could offer all of the Internet for free, but as it is not, it will not.

This leads to the second article of debate: competition. One author called Free Basics an example of "crony connectivity"(Pai)[62] because it monopolizes the attention of its users. Any competition for a spot in Free Basics is adjudicated by an already-interested party. The Telecom Regulatory Authority of India judged, based on this criterion, that Free Basics was bad for Indians. As discussed, Facebook Inc. is by definition indifferent to national borders, for the market of user attention is global. Zuckerberg wilfully avoided any discussion of commercial interest, yet the ideology of connectivity blatantly serves to increase the value of Facebook and Facebook Inc. and their partners at their competitors' expense. Whether or not Zuckerberg wilfully misrepresented his position is actually irrelevant here, if we consider his communication from a systems theory perspective, as there is no need to introduce human will or motivation into the discussion at all (although we may, it adds nothing to the discussion). His communication

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[62] www.thehindu.com/opinion/lead/crony-connectivity-and-internet-for-us/article8042342.ece

sought to construct an interested reality, while another society, the TRAI, rejected that reality due to an observation based on different criteria. While the humanitarian vision of a fully connected world may overlap with Facebook's ideology, it yet aligns with the purposes of Facebook Inc.'s value and potential for autopoiesis. One billion Indians without Internet access are one billion sources of data that are not yet exploitable; or as Zuckerberg phrases it: their lack of access "deprive[s] all of us of the ideas and contributions of the two thirds of the world who are not connected."[63]

The ideology of connectivity is steered, maliciously or not (this criterion is irrelevant), by the subjective aim of user acquisition. Resistance to this aim emerges from numerous systems: the nuances of India's political national history and identity, the loss of competitive advantage for telecomm companies not partnered with Facebook, the loss of competitive advantage for Facebook's competitors in the attention economy, and a disruption of the social contract. Rights in the social contract are established by the agreement of signatories, not bestowed from outside. Simply put, declaring connectivity a human right does not make it so. Fundamentally, Facebook anticipates potential users as data sources or nodes for its proprietary information circuits. As a system, it is agnostic to any particular human subjects beyond their communication on the platform. Many of the arguments against Free Basics were opposition to foreign control and ownership in India, including joint letters to the TRAI from the CEOs of Indian startups, and another signed by 147 professors at the Indian Institute of Technology, which reads:

> the 'basic' digital services Indians will access using their own air waves will be
> decided by a private corporation, and that too one based on foreign soil….this is not
> an issue of elite Indians able to pay for the Internet versus poor Indians, as Facebook

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[63] https://www.facebook.com/zuck/posts/10102033678947881

is trying to portray. It is an issue of whether all Indians want to surrender their

digital freedom to Facebook.[64]

Like Zuckerberg's, this argument is couched in the language of freedom and social welfare, but

reaches a contradictory conclusion due to concerns which include different criteria. In particular,

the self-interest of an external entity, whose allegiances are acultural and anational. According to

this argument, the self-sovereignty of members of the social contract in India is at stake.

While Facebook exists in a borderless world of communication events, the joint letter

maintains the reality of national sovereignty by drawing attention to Facebook's interests on

"foreign soil." The debate is a rhetorical expression of a fundamental conflict between two

imaginaries: society as social contract and the society as a potential dataset. Because the users of

social media are non-local, Facebook operates in a different reality, and Zuckerberg comes off as

tone deaf in his inability to recognize this difference. For example, before the Telecom

Regulatory Authority of India's ruling, Facebook attempted to elicit public support for Free

Basics by encouraging users, through their app, to send pre-scripted messages to the TRAI—a

move later chastised as "crudely majoritarian" (quoted in *The Hindu*[65]). Apparently taken aback

after the ruling, Zuckerberg published an op-ed in the *Times of India* reiterating his position. In

the piece, he claimed that "there are certain basic services that are so important for people's

wellbeing that we expect everyone to be able to access them freely."[66] The history of the liberal

values of the social contract plays an important role here: in large part, the notion of "human

rights" evolved so as to limit the power of sovereigns (in early modern Europe, the powers of

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[64] "Joint statement rejecting Facebook's misleading and flawed 'Free Basics.'" *Google Docs*. proposaldocs.google.com/document/d/1iQ1F7-S4NCGqp1FyKiDcK2J1eV4VNqM2B1qC3O4OlfA/pub
[65] www.thehindu.com/todays-paper/tp-international/%E2%80%98Orchestrated-opinion-poll%E2%80%99/article14011671.ece
[66] blogs.timesofindia.indiatimes.com/toi-edit-page/free-basics-protects-net-neutrality/

monarchy and clergy). These (even according to those who wrote them) are artificially constructed, not natural tenets. Somewhat insidiously, Zuckerberg deployed this liberal vocabulary to suggest that the democratically elected government of India is violating of the rights of its citizens by not granting them the human right of "connectivity." He asserts that "everyone also deserves access to free basic internet services…Who could possibly be against this? Surprisingly, over the last year there's been a big debate about this in India."[67] Zuckerberg, however, is neither a signatory of India's social contract, nor, as is evinced by the ruling, can he irritate it enough to force it to change. As the counter-arguments suggested, the terms of the debate concern the degree of influence an unelected, private, non-Indian entity will irreversibly have over the media ecology of India henceforth; that is, an issue of national sovereignty. Yet Zuckerberg continuously insisted "there's no valid basis for denying people the choice to use Free Basics, and that's what thousands of people across India have chosen to tell TRAI over the last few weeks."[68] In spite of India's status as a democratic republic, Zuckerberg's op-ed equates banning Free Basics with a violation of the rights of its people. His incredulity reflects his status as an observer of India's institutions from the point of view of the connectivity ideology, an imaginary which cannot understand such histories or identities as relevant; the Feed is supposed to erase such histories (as was argued in the first chapter). However, the attempt to reintroduce rights is to reiterate the misrecognized equivalence of the social contract with the subjective aims of Feed-based systems; as I have argued up to this point, the two realities proved to be incommensurable.

The India case was settled in opposition to Facebook's offer to mediate "global community." The counterarguments emerge from a region of human concern—in particular,

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[67] Ibid.
[68] Ibid.

India's colonial history and foreign ownership of utilities and communication within its borders according to some who opposed it. Indians in this debate decided that this region of history and identity was relevant, and it was for this reason that Free Basics became a point of contention in the first place. In his public speeches, Zuckerberg was seemingly unable to process this, but an indignant comment from a Facebook shareholder made the confrontation of criteria jarringly explicit. Facebook shareholder and board member Marc Andreessen was decidedly less poised. One day after the ruling, Andreessen tweeted "Anti-colonialism has been economically catastrophic for the Indian people for decades. Why stop now?"[69] After the predictable backlash, he rescinded and deleted the tweet, although the suspicions of those who had opposed Free Basics were surely confirmed. Zuckerberg responded, forced into public relations damage control, that the tweet was "deeply upsetting," and that "to shape the future we need to understand the past. As our community in India has grown, I've gained a deeper appreciation for the need to understand India's history and culture."[70] This message stands in stark contrast to those veiled accusations Zuckerberg levelled at TRAI two months earlier, namely that the regulatory authority, the businesspeople, and the academics who opposed the Internet.org initiative were acting against the interests of the Indian people. In spite of Zuckerberg's newfound appreciation for Indian sovereignty, however, there was no effect on the operations of Facebook as a system, as decisions made based on from the point of view of human memory or identity are fundamentally incommensurable with the interests of Facebook Inc.

As far as Facebook is concerned, users are sources of input, and the status of citizen is largely irrelevant. Although national or cultural identities are attributes a user may assign to itself, to Facebook they are merely some variables among others. The Andreessen tweet

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[69] *Twitter.com.* Febrary 10, 2016. Tweet has since been removed.
[70] https://www.facebook.com/zuck/posts/10102645335962321

communicated explicitly what Zuckerberg had been implying throughout the Internet.org

campaign: "connectivity," i.e. a user's ability to submit one's data to Facebook, *should* be a

human right that transcends any merely local sovereignty. Human beings are, for this system,

either exploited informants or unexploited informants, and it has no use for the latter. This

reality results in system-wide behaviour: it steers local individuals toward *homogeneity* and is

most interested in a "crude majoritarianism," as the TRAI phrased it. This actively undermines

the local diversity it claims to defend by giving "voices to share their views in ways that can

spread around the world and grow into movements" (Zuckerberg 2016). The Telecom

Regulatory Authority of India demonstrated resistance to a reality which is interested in

"humanity" only as profiles reduced to the predictive variables of a dataset.

Two fundamentally opposed criteria of selection faced off in the case of TRAI vs. Free

Basics, confirming the differentiation of "reality" in Luhmann's schema: reality is contingently

constructed by the series of decisions by which various systems differentiate their operations

from that of their environment. We must expect systems to be interested in creating the

conditions for their future persistence. Furthermore, as Luhmann argues, there can never be *a*

final coalescence into a "reality as such" which could be evaluated independently of ongoing

observation. In the Internet.org case, the realities could not be reconciled. For Luhmann, *reality*

as such is a fantasy of "subject-based epistemologies" (*Mass Media* 91), which assume that the

object of all observations is ultimately coherent. According to this fantasy, disagreements in

observation are accidents, the result of incomplete information. In large part, this gives shape to

the incredulity of Facebook Inc.'s interested observers throughout the debate. Because

incompleteness is a necessary product of differential selection, which is irreducible—no observer

can observe what is relevant without distinguishing it from the irrelevant. Whitehead, in

agreement, declares that his theory is a "protest" against the bifurcation of reality from observation. He argues that "in the analysis of actuality the antithesis between publicity and privacy obtrudes itself at every stage" (289).[71] If we wish to understand how symbryos emerge from selective operations, we should observe the basic ways different systems make decisions, that is, their criterion of relevance. Indians rejected Zuckerberg's rhetoric, which is ultimately a human-faced mask over an inhuman criterion.

Incommensurability and Social Systems

As mass broadcast media renders untenable the underlying metaphysic of subject-centric epistemologies, then the Feed confirms Luhmann's hypothesis even more convincingly, particularly because of the mode of causality by decisions are made. The reality of the Feed and its incommensurability with the status quo it irritated in the India case is neither a difference in interpretation nor belief. Rather, the debate indicates that systems make decisions or observations, and these actions constitute changes to reality insofar as the system is concerned. Additionally, some events make no difference, or meanwhile, the same events may be relevant to other systems for different reasons. Because they construct the reality of communication in social media, algorithms must be seriously considered as some of the most influential social agents at work in today's ecologies, especially when considering the interpenetration between social media and what we consider to be regions of primarily human concern.

As with the audience of broadcast media, the audience of social media is a mass, or an aggregate userbase. However, social media = reconfigures the role of that mass. In a mass broadcast media ecology, such as one in which televisions in private homes are a dominant

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[71] Such a bifurcation is also challenged by the symbryotic theses of McLuhan, Stiegler, and others.

source of information—the most effective selector s are agents who regulate or own the means of distribution (in Canada, for example, these include both private and publicly owned broadcast networks, as well as the Canadian Radio-television and Telecommunications Commission [CRTC], a governmental body which regulates broadcast standards). Decisions about what shall be communicated can be made through relatively few direct comuniqués or orders by gatekeepers. As was the case with India's regulatory body, decisions are made based upon an interested criterion of relevance. Such criteria have the effect of filtering a multitude of actual events according to those which are newsworthy and which are not.

In a Feed ecology, the criterion is not provided by special gatekeepers like regulatory authorities, reporters, and their employers, but by each individual act of communication by each user on a platform. Every variable is calculated by a similar ranking algorithm. While the ranking algorithm is the ultimate gatekeeper of what is communicated, the influence of the mass upon this gatekeeper is direct and immediate; for example, in the emergence of viral content or trending tags. Millions of informants generate patterns, and these patterns generate an *index of seduction*, thereby affecting the system's criteria for the future. What is currently popular is more likely to be offered than what is unpopular, creating a feedback look tending towards the most seductive mean for the greatest number of users. While deviant or unseductive data does remain in the dataset, it is less likely to be seen, and thus is less likely to effect change in the system as a whole.

The evidence for steering and manipulation, by this definition, might be confused as a claim for technological determinism, yet this would be mistaken. The steering of social media aims to reduce the *likelihood* of norm-deviant behaviour; this criterion for visibility determines the distribution of associated data over time. As I have argued in accordance with the premise of

Luhmann's systems theory, observation is interested whether it is the act of a human or a nonhuman. The normalization of trends occur symbryonically as the techniques of the Feed reward users for participating in trends by making their communication more visible and by promoting decisions that are well received. That is, if a user's interactions are popular, they are more likely to be visible in others' feeds, while unpopular content is filtered out of visibility (thereby reducing the likelihood of associable content appearing in subsequent communication). The trend towards homogeneity does not mean that decisions are coerced as in the model of a Foucaultian disciplinary society, but they are controlled such that norm-deviant behaviour is less efficacious overall: a control society.

In the far flung communication circuits between datasets and users, lemniscatic loops generate feedback which is made immediately effective for future communication; the system, by encouraging homogeneity, makes the future increasingly predictable. From the inhuman operator's "experience," which Mark Hansen calls "predictive processing," new media virtually reformulate the selection patterns of the user, which then deploys them anew. A Feed-based reality is modulated moment by moment, in real-time. Hansen describes this as a shift in the potential for experience in general, at a radical level, from a phenomenological horizon to one of machinic predictability—from the human to the posthuman. In an application of Whitehead's process metaphysics, Hansen considers Recorded Future, a predictive search engine that

> A Whiteheadian explanation of Recorded Future thus reveals a 'positive' dimension
> of prediction: more than a mere extrapolation of the causal force of the present and
> the past to future possibility, prediction concerns the potentiality contained in the
> transition from present to future. ("Predictive Condition" Hansen 211)

This shift in causality is not merely conceptual or cosmetic, but metaphysical. Lemniscatically, the user adds to the Feed's agency by adding to the dataset to which they have been granted access. Meanwhile, the algorithms affect the potentiality of the user by organizing the dataset for *any* contingent interaction. Time-consciousness is steered towards actualizing the future it intends, and the accuracy of prediction increases with the number of actual occasions, leading once more to prediction—a self-fulfilling reality. A predictable reality is one which reinforces existing patterns through feedback. There is thus a modulation of reality itself; new media has the capacity to structure virtual experience in advance of any particular experience, for the region of sensibility *itself* is reconfigured by new media; according to Hansen, "it focuses questions concerning media's impact around their capacity to predict—and potentially, to modulate— future experience" (*FF* 208). In other words, these nonhuman agents are not merely techniques deployed at the whim of their creators, rather, the relationship between media and human concern lemniscatically reconfigures the possible futures of the other.

Although Hansen does not specifically discuss Feeds (as his scholarship is focused on the Recorded Future search engine) the same principles apply. The subjective aim of both is *predictable* results. Social media also subscribes to a "predictive condition." For example, the "myPersonality database" project by The Psychometrics Centre at Cambridge gathered user data from volunteers' Facebook "likes" (which were *explicitly* volunteered), and used to predict self-identified attributes. Some of these attributes such as religion, political views, or sexual orientation were predicted with over 80% accuracy from likes alone, while gender and race were predicted with over 90% accuracy (Kosinski et.al 2013). The inhuman actors of such systems come into play when matching users' associations with which data they are likely to respond to. This matching of target concepts with interaction is performed by supervised machine-learning

algorithms. Using a neural net (thus inhibiting the effects of human bias to some degree) a machine learning algorithm can automatically alter the weights of the variables associated with an informant to the classes of data to which they are most likely to respond, given the response of other users with similar attributes. From a training set, they are able to find patterns which are used to predict the classes of users whose data has not yet been processed. Such algorithms can process and predict large datasets very quickly, and projects like the myPersonality database depend upon the ownership of a dataset produced by user labour that is structurally identical to those belonging to the owners of the systems.

A notable distinction of the myPersonality database from Facebook itself or the Cambridge Analytica scandal is that the data are volunteered, explicitly and transparently by each individual user, and only includes *active* inputs (in this case "likes"). The precise value of the labour these users volunteer, then, is more easily measured. Yet the implications should be our focus here: if the myPersonality database can reach such a high success rate (>90%) of prediction with a relatively miniscule dataset, imagine the predictive potential of a dataset with billions of users that collects both active and passive inputs: Such a set could predict not only self-assigned attributes such as gender or race, but what time of the day we are most susceptible to advertising, which content appeals based on mood, secret fascinations (whether with friends, celebrities, or activities), our attitudes toward new products and which brands or vacation spots we prefer, and so on. The potential detail of these data profiles in part explains why the commodification of users' labour makes the companies who own these datasets so valuable. They not only predict the future, but perhaps even bring futures about by feeding users desires before they have desired them.

A desirable future can be bought, or brought about, by those who own user data. Five years before the Cambridge Analytica scandal, Kosinski et.al warned in a prophetic utterance that

> the predictability of individual attributes from digital records of behavior may have considerable negative implications, because it can easily be applied to large numbers of people without obtaining their individual consent and without them noticing. Commercial companies, governmental institutions, or even one's Facebook friends could use software to infer attributes such as intelligence, sexual orientation, or political views that an individual may not have intended to share. (Kosinski et.al 2013)

The point that both Hansen and Kosinski emphasize is not only that the future predicted by these nonhuman agents, but that *a* future is *brought about* by the possibilities inherent in the operations of algorithms and the variables therein.

Inhuman Agency and Societies of Control

While social media incorporate the participation of the mass to a greater degree than broadcast media, the Feed is a figure of inhuman control, for social agency is steered towards what the Feed deems relevant and profitable. Once more, if the mass judges an individual user's actions to be relevant, then they are quantitatively rendered so. Although the qualitative criteria of human concern are structurally coupled with users' actions, only the quantitative processing of these criteria, based on definite variables, has an effect on the Feed. The more quantified variables that are available for processing result in a greater predictability of future events that

fall into the same categories. With the aim of an increasing accuracy in prediction, the possibilities of feedback and social participation are best limited to as few options as possible. For example, on Reddit, the options are to upvote, downvote, or comment; on Twitter, the user may favourite, retweet, or comment—the limited range of action makes ranking more efficient, as disparate events can be reduced to fewer categories of relevance. It is only the *number* of positive reactions that increases the value of content, rather than their semantic value or meaning. Aggregate events, such as Twitter's trending hashtags, make user behaviour more predictable; Feed users are far more likely to respond what is made visible—a feedback loop of popularity offset by age.

Any interaction with the Feed is encouraged, but one's effective agency is valued more if it contributes to trends that are already currently popular. So, there is a paradox of agency in the social system[72]: in no previous media have activity and agency been so distributed among non-human processes, and yet, an average user has more *direct* input concerning the information system in total than ever before. As Wendy Chun articulates, the "feeling of freedom 'you' experience stems from an increase in productivity made possible by the match, or analog, between the machine's processes and your own" (*Crisis* 84). Instant feedback both increases the participatory value of individual decisions, yet disproportionally rewards predictable or "normal" behaviour. This is the central trait of a dividual in a control society, who is not disciplined into conformity, but steered towards it under the auspice of freedom.

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[72] Chun also notes, in *Control and Freedom*, the paradox of networks using users and users using networks: "to claim that users are an effect of software is not to claim that users, through their actions, have no effect. Everyone uses: some use as they are used by fibre-optic networks; some have no access to them and are still affected by them" (Control 30). Similarly, the users of social media do indeed use it, while they are at the same time used by it to generate datasets which will affect the behaviour of the system as a whole. Agency in this double sense must be considered as both freedom and control in the same movement.

Social media may be considered contiguous with the trends of previous mass media in some ways, but the participation of the mass is significantly changed by the ubiquity and immediacy of access, and the lack of public regulators such as the CRTC. When there are relatively few selectors of information, such as news networks, agents are far more easily regulated and held responsible. On the other hand, the seduction index of a social media dataset is extremely hard to regulate legislatively, as all users are in part responsible for its content, and all users are subject to different content. More than any other media, this opens the door to potentially nefarious influence from agents such as Russia's Internet Research Agency and their inhuman informants; those who game the system inorganically to serve particular interests—e.g. advertisers and political campaigns; and finally, the companies that own the algorithms. Still, because the userbase, the mass, is ultimately the membrane which makes decisions as to relevance for *any* other user, analysis of these media is no longer about sovereign choice, nor coercion, but a new understanding of the meaning of a control society and its capacity to steer behaviour.

The shift from disciplinary societies—which legislate—to societies of control—which modulate experience (as documented by Deleuze)—demonstrates the need for a change in the methodology of comparative media studies. Phenomenological methods of comparative media studies afford too much agency to the experience of media, and not enough agency to the modulation of that experience by the media itself over time—the emergence of a symbryo. Hansen made an excellent case for this in his analysis of twenty-first century media, and comparing this recent work to his early work (over a decade earlier) outlines his ongoing considerations of this problem. For example, in 2004, Hansen wrote that the body,

in conjunction with the various apparatuses for rendering information perceptible,
gives form to or in-forms information. In sum, the image can no longer be restricted to
the level of surface appearance, but must be extended to encompass the entire process
by which information is made perceivable through the embodied experience. This is
what I propose to call the *digital image*. (*New Philosophy for New Media* 10)

In *New Philosophy for New Media*, Hansen employs the philosophies of Merleau-Ponty and
Bergson to argue that a body is the primary selecting agent of digital images; to oversimplify, his
emphasis then was still the human body as the central subject of media. A decade later (2015),
however, he shifts from this phenomenal and prosthetic emphasis on embodiment, to a focus on
total situations (drawing upon the philosophy of Whitehead's *Process and Reality*). By this
approach, the

focus on the broad, or as Whitehead conceives it, the 'total' environmental situation
informing every actual occasion shifts the terrain on which media has long been
theorized; specifically, it displaces the prosthetic narrative that stretches from Plato
to McLuhan and most recently to Bernard Stiegler—in favor of a model of
technical distribution that *dislodges perceptual consciousness and embodiment*
from their privileged position as exclusive synthesizers of media's experiential
impact ("Our Predictive Condition" 117; emphasis added).

The body is not discarded, of course, but the emphasis shifts to the modulation of realities such
that they may be experienced. Hansen is emphatic that this shift does not amount to dispensing
with the human, but does constituted a decentering of human experience. Chun agrees that
privileging phenomenological affects in new media studies

ignores the significance of hardware and extramedial representation because it only

moves between software and interface. Also, this notion of transcoding perpetuates

the idea that software merely translates between what you see and what you cannot

see, effectively erasing the many ways in which they do not correspond (*Control*

and Freedom 18).

When considering both observation and interpenetration, the reality of the Feed and the

subjective aims of its algorithms, regions of human concern cannot be considered apart from the

realities within which they are communicated. The Feed's capacity to steer users' decisions by

controlling visible experience confirms the suppositions of Hansen and Chun's work. The

prosthetic and phenomenal methods that recur in previous comparative media studies lose some

significance, as they play a relatively minor role in the expression of much larger communication

circuits, one in which non-human agents, such as algorithms guide the behaviour of billions of

users according to their own, opaque subject aims.

The users of a specific social media system are implicated in the specific realities of

feeds, and where this implication is concerned, the concepts of "freedom" or "intention"—states

of a private individuality which supposedly precede any communication events—do not offer

much explanation of the behaviour of the Feed. Chun aptly reflects on the evolution of what are

usually understood as opposed terms: *control* and *freedom* in online environments. It is difficult

to determine whether social media render "us" more controlled or more free, because the

traditional definitions of these terms, relative to social efficacy, fall short. Chun argues that "to

claim that users are an effect of software is not to claim that users, through their actions, have no

effect. Everyone uses: some use as they are used by fibre-optic networks; some have no access to

them and are still affected by them" (*Control and Freedom* 30). As this is true of fibre-optic

networks themselves, which control communication, it is also true of ranking algorithms which indelibly affect communication and the other societies with which they are coupled. Users can utter what they will on social media for the most part, but for these utterances to be *communicated* they must be selected by the Feed. While this does not necessarily curtail freedom (defined as the potential for a decision among multiple options; in this case, for communication), it inevitably *steers* behaviour towards favourable ends. With enormous datasets and many users, certain events are more likely to be rewarded by being communicated. Others, however, are discouraged by their automatic repression from visibility. I agree with Chun, that condemning networked media "for misrepresenting 'reality' thus misses the point: namely, that cyberspace alters … reality" (43). As humans program social systems, these systems also program their users, and their particular valuations enacted in decisions over time facilitate the emergence of inhuman realities.

There is thus a tension between the sovereign individual and the modulated user. While the user emerges into a more fluid, deterritorialized sense of distributed identities, its potential for agency and action are steered and highly regulated even before they emerge into this late state. Rosi Braidotti correctly emphasizes the novelty of the posthuman condition as the potential for alter-subjectivities to be expressed. However, she also does not seem to account for the control that is a coeval product of that liberation:

The conditions for renewed political and ethical agency cannot be drawn from the immediate context or the current state of the terrain. They have to be generated affirmatively and creatively by efforts geared to creating possible futures, by mobilizing resources and visions that have been left untapped and by actualizing them in daily practices of interconnection with others. (191)

I argue that such sentiments yet place an inordinate amount of agency to what are typically human concerns. As I have shown, possible futures are at the same time contested by other subjectivities with their own interests. These often do not have ethical agency as a variable in their autopoietic distinctions. There may indeed be liberation from one set of restrictive tendencies, but if reality itself can be modulated in advance by machinatio, it remains an open question whether untapped visions of ethical agency can appear in systems that not only disregard them, but ensure they never appear.

Social media's irritation of the potential of experience and efficacy force a reconsideration of society, and the distinction between private and public. The paradox is strange, for while steering behaviour, social media also provide an increased efficacy for individuated action. The tendency towards steering is, in part, offset by users' capacity to deviate from the norm. No matter how miniscule the efficacy of an input such as a "like" or "favourite" may be, each remains consequential. As Ian Buchanan iterated, this distribution of selective agents may lead to the conclusion that networked digital media operates like a non-hierarchical, Deleuzian *rhizome* (although this perspective seems already to have become *passé*). Yet what the Feed offers with respect to participation, it negates by denying the efficacy of participation that does not accord with its particular subjective aims. Social media create patterns. Buchanan maintains that,

Many people do think of the internet as the realisation of the Deleuzian ideal of multiplicity. But the incredible proliferation and constantly expanding number of websites does not by itself mean that the Internet can be classed as a multiplicity in Deleuze's sense….The Internet exhibits arboreal [or hierarchical] tendencies as well

as rhizomatic tendencies and any balanced assessment would have to take these into

account too and weigh up their relative strength. (133-5)

On social media sites, both vectors are apparent. For example, "sponsored content" is displayed

alongside nodular (user-to-user) communication, yet with a special, guaranteed rank that is

unavailable to nodular, organic communication; the value of sponsored content is bought, not

generated by user interaction. Predictive tendencies are a resource that can be capitalized, so

while inorganic, interested advertisers are compelled to use the same channels as any other user

(which was not the case in broadcast media). At the same time, the value of their content in the

channel is much higher due to the interpentration of social media platforms with the financial

interests of the companies that own them. That is, to collect attention large companies and

individual users both must create profiles, submit links, garner views, and relate in a

"rhizomatic" or nodular mode, which does contrast with the "arboreal" mode of ownership and

regulatory authority that defines broadcast media. And yet, an increase in the "freedom" of

participation directly increases the "control" of predictive algorithms over possible actions. The

rhizomatic structure of the Internet itself may generate the possibilities for an unprecedented

level of control, for in the Feed there is only one gatekeeper—its ranking algorithm.

The relationship of user to selection that presides over communication is not unique to

social media. Before social media, and still today, arboreal broadcast media uses relatively

distant structural-couplings to incorporate consumer feedback into their programming. For

example, third parties gather ratings, analyze demographic sampling, and use polls to evaluate

their broadcasts *post hoc* to ascertain the relative value of their various programs and broadcasts.

This observation model requires multiple communication circuits which interact, but only

indirectly. Within Feed-based systems, because relations are nodular and concurrent, lemniscatic

feedback is wholly internal to the communication system: algorithms allow user input to affect users' experience *immediately* in one direct communication circuit. On social media sites we can observe this most conspicuously with user input options: The user can actively close ads it does do not want to see (which are then replaced by others) or block some users' content while responding positively to others by liking or favouriting. In tandem with active inputs, there are those that are less conspicuous, which are also gathered and mined. Passive data collection includes measurements of how long the user stayed on a particular page or how long they watched a video; other passive inputs include the distribution of frequency with which you interact with other nodes or nodes that share common attributes (such as age or location). Every input, active or passive, is recorded, thereby increasing the efficacy of contingent interactions between the user and the ever-evolving dataset; individual efficacy is exchanged for the implicit promise of acting predictably later. It is the freedom to decide, paradoxically, which constitutes the predictive control of *all* future decisions.

In principle *every* input event contributes to *all* contingent communication, including the ranking of visible content for each user. Paul Virilio analyzes glosses the inversion of action and agency, given the real-time revision of communication today. This creates a situation in which the human is little more than an energy source for communication itself, with immense consequences for the meaning of social space:

> 'telepresent' man no longer actually inhabits the energy of any machinery
> whatsoever. *It is energy that instantaneously inhabits and governs him*, whether
> he likes it or not. A radical reversal of the principle of least action [i.e. the
> efficiency of physical transport] that had till now shaped social history. (*Open Sky*
> 54)

Within social media, the blurred lemniscatic relationship between action and agent does not mean there is no distinction, for the human/user coupling *does* make decisions regarding its inputs. However, the potential range of such decisions is always already an output of the system; agency is (for the most part) restrained to *reacting* to trending content.

In conclusion, cause and effect are simultaneously the same event in the Feed, and the causal distinction between will and action dissipates, along with the distinction between freedom and control. This is the novelty of new media; here agents (only a portion of which are human) are simultaneously input and output, valued as probabilistic quantities. Theorizing the metaphysics of causality in new media and the realities they construct then demands a novel, *inhuman*, definition of agency, where the human being is implicated yet exceeded. Ranking algorithms at once predict and construct reality by selecting relevant aspects as discrete quantities: the value of information emerges according to such variables as time, popularity, and the nodular relations between particular informants. Possible regions of human concern are liquidated as systems run their courses. Each of these monadic variables relates to the dataset as a whole, and affects contingent decisions. In a Feed ecology experience and behaviour are steered, while unquantifiable human concerns simply dissipate as excesses, subsequently decreasing the range of effective public activity. The social media ecology constructs a reality, complicit with a Whiteheadian metaphysics, at odds with some of the basic assumptions of human freedom and its institutional legacy. It even alters the nature of causality itself, as Hansen argues. The constructivism of these selective processes means that other realities may not be reconcilable with that constructed by social media, as was demonstrated by the Free Basics debate. The relationship of the system to its informants complicates the definition of *affectivity* with a new measure of control. Inhuman informants rank aggregate data, feeding back both

other users' inputs as well as a user's own data recursively (for example, when content or products are recommended based on a user's surveilled history). Here, *most* of the informing events occur at speeds, scales, and distances that far exceed any possible correlate to anthropic perception or a phenomenological horizon, and these realities propagate virtually whether or not any user is there to account for them. The Feed-based system is predictable but indeterminate, and tends towards troughs of local homogeneity while undermining the possibility for individual social agency.

News: From Hermeneutics to Information Entropy

Communication and behaviour within a Feed-based system are steered towards the conditions it requires for autopoiesis; the generation of such conditions produce the reality of that system, which differentiates it from its environment and alternate realities. Therefore, for observers of communication processes, particular kinds of events are *informative* and others are not. Information is a measure of the relevance of an event, and the realities of social media emerge from the many particular decisions made by their informants. By the systems theory model, basic operations and their particular criteria of relevant information produce complexity. Identifying the criterion for information is important for understanding how decisions are made in algorithmic contexts in which nonhuman agents increasingly feature as informants. Consequently, as with the meanings of subject and society, the meaning of "information" should be generalized to account for its transgression of the non/human boundary. Increasingly, information processing exceeds human perceptual and hermeneutic capacities, and this is connoted in most uses of the word—but what does information in the Feed look like particularly? As I shall argue, comparing the criteria of information allows description and perhaps even prediction of the behaviours observed in social media systems. These include behaviours antithetical to humanist values: the exacerbation of polarity and tribalism, a diminution of veracity and consensus, and an emphasis on immediacy in place of anthropocentric hermeneutics.

Aperceptual communication technologies are media by which signals selected at rates, energies, or sizes that exceed the range of the human sensorium (such as electromagnetic or fibre-optic transmission). Before aperceptual media, information was understood as an

exclusively human territory for the most part, for it was closely associated with *meaning* in communication. In the 19th century, communications exceeded anthropic perception for the first time, and the definition of information could be for the first time be thought anew. In today's media ecologies the transmission of information is wholly opaque to embodied experience, in some cases even to those who engineer them (for example, in unsupervised machine learning or artificial general intelligence). In such a situation, past criteria of information become increasingly alien. In the Feed, a ranking algorithm does not interpret information by its quality, veracity, or benefit to human beings. Rather, social media systems as information processors enact an autopoietic program that functions by the *reduction of entropy*; high-information events are evaluated such that they can be reduced to lower entropy events over time, ultimately, all events are archived as a dataset.

Like "subject" and "society" in previous chapters, "information" evolves from an anthropocentric point of reference to one that is more generalized such that it can be applied across agents within inhuman media ecologies, as we are ever more reliant upon nonhuman agents, even to communicate with other humans. The advent of aperceptual communication technologies and inhuman systems led to the theorization of information generically; two such fields are cybernetics and information theory, which emerged hand-in-hand in the mid-20th century. At the Macy Conferences (New York, 1941-1960), particularly the Cybernetics Conferences from 1946-53 (American Society for Cybernetics), many of the prolific figures from both cybernetics and information theory attended, seeking to reimagine criteria of information generic enough to apply equally to organisms, minds, and machines.

Information can, of course, be variously defined. Colloquially, information is that which is conveyed in a communication event, the content of a message, as opposed to medium of its

delivery. By this view, information is the *eidos* of the *hulê*, the *special substance* as opposed to the *accidental assemblage of matter* by which it is conveyed—a hylomorphic distinction between form and content. Therefore, information can be translated from material to material (e.g. the telephone: from vibrations in the air, to electrical charges, back to vibrations in the air, then understood as speech) with no significant consequence to the information; from this vantage, information, as pure content, can be written, spoken, printed, or uploaded and yet remain unaffected, or the effects of such transitions can be downplayed.

As many contemporary theorists argue, completely bifurcating content and form is problematic, and this move has been roundly challenged by comparative media theorists in particular. Mark Hansen, in *Philosophy for New Media*, writes that "conceived in this way information was independent of context, a probability function with no dimensions, no materiality, and no necessary connection with meaning" (xvi). Friedrich Kittler calls for a more material understanding of information processing as opposed to unwarranted emphasis on software. Wendy Chun concurs that "the information travelling through computers is not 1s and 0s; beneath binary digits and logic lies a messy, noisy world of signals and interference. Information—if it exists—is always embodied, whether in a machine or an animal. To make information appear disembodied requires a lot of work" (*Programmed Visions* 139). And finally, Katherine Hayles argues that "the emphasis on information technologies foregrounds pattern/randomness and pushes presence/absence into the background…is a systematic devaluation of materiality and embodiment." (*How We Became Posthuman* 48). Each of these theorists appeal for a re-materilization in the way we consider information, and contend that the matter, or medium of communication, has subtle but always consequential effects upon the

societies and systems with which they are coimplicated; that is, information is part of, not extraneous to media/society symbryosis.

Many of the proponents of a material emphasis on information (including each of those cited above), shoulder Claude Shannon—the progenitor of information theory—with some responsibility for the *abstraction* of information from an embodied context. Hayles, for example, writes that a main impetus for disembodiment

> was a definition of information, formalized by Claude Shannon and Norbert Wiener, that conceptualized information as an entity distinct from the substrates carrying it. From this formulation, it was a small step to think of information as a kind of bodiless fluid that could flow between different substrates without loss of meaning or form" (*Posthuman* xi).[73]

I argue, in tandem with structural coupling, that Shannon's definition is employable for interpreting the communication events in a Feed-based social media system, and that this can occur without any pretence of denying materiality. Claude Shannon was an engineer after all, and while there may be a case against him, I argue we can clear him from the charge of dematerializing information by observing how computation systems are structurally coupled and that information systems and mechanical systems are interpenetrated and inseparable.

Since digital communication systems are always already interpenetrated, construing information as immaterial content is not possible. Dividing a materialist from immaterial emphases is no more than applying different criteria of relevance to events; yet, if material

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[73]Hayles does, we should note, lay most of the blame on interpreters of Shannon's theory rather than Shannon himself, for according to her Shannon "cautioned that the theory was meant to apply only to certain technical situations, not to communication in general" (19). The Feed is one such situation, I argue.

events cease, so does the process of differentiation, and there are no more occasions for which information could be evaluated. Without events there can be no information, as the latter is a relative quality of an event. Recall that, according to Luhmann, structural coupling means that certain events (such as the magnetic charge of a transistor), can be interpreted as relevant by more than one system at the same time. As computation systems sends modulated electrical charges from to transistors, this production of a difference also results in changes in a graphic user interface. Although physical changes in hardware can be rendered in the abstract by programs, for example as mathematical patterns, they are yet observations of the same events. When events stop, so do observations. When an event occurs in one system, the other system incorporates the change (if it is able). Similarly, some events cannot be adapted to,[74] but within properly functioning structurally coupled subsystems (like the servers, cables, radio signals, and devices over which a social network is distributed), a difference made in one system creates a difference in the other. The claim that theoretical abstraction dematerializes information is parallel to saying that maps dematerialize urban planning, yet the abstraction only functions insofar as it is enacted in the system with which it is coupled. In sum, the suggestion that information could ever be dematerialized is the result of an anthropocentric bias, based on the mistaken belief that because distinctions are made at scales that *make no difference* to humans, then they make no difference at all.

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[74]While it's more obvious that hardware failures will result in software failures, the converse can also be true: software can damage hardware, for example, by demanding too many calculations of a processor and causing it to overheat, or by rewriting the data on a hard-drive until it wears out and crashes

Information, Dehumanized

There is a different charge against Shannon's information theory that may be more

compelling: that he intentionally dehumanizes the meaning of information. Whereas becoming-

informed was once a process of exclusively human communication, in information theory, it is a

measure of entropy that is equally applicable to human and non-human communication. Entropy

generally "is a measure of disorder or uncertainty about the state of a system. The more

disordered a set of states is, the higher the entropy. The greatest disorder occurs when all states

are equally likely to occur. The greatest order occurs when one state is certain and others do not

occur at all" (Denning 47). Therefore, the reduction of entropy in a communication system can

be accomplished by constraining decisions by specific parameters such that certain outcomes are

more likely to occur. Social media systems reduce entropy by limiting possible inputs, and by

extrapolating predictive models from those inputs. Limiting the criteria for events reduces norm-

deviant communication, as entropy is the primary obstacle to prediction. According to Weaver—

a colleague of and co-author with Shannon—

> information in communication theory relates not so much to what you *do* say as to
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> what you *could* say. That is, information is a measure of one's freedom of choice
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> when sending a message….The concept of information applies not to the individual
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> messages (as the concept of meaning would), but rather to the situation as a whole.
>
> (8)

Lowering the number of relevant variables in a pattern of communication, such as the feedback

by which feeds present content to users, makes prediction more efficient. Information, as far as

the user-symbryo is concerned, walks a fine line: it must be *unexpected* enough to be interesting

but *expected* enough that it aligns with known desires (i.e. it must be adhere to the pattern of the user's interests and that which is likely to garner reaction). The Feed variables that rank content quantify and classify users' decisions based on gathered data to offer the content most likely to seduce interactions successfully.

Communication systems reduce entropy by being indifferent to the semantic content of messages. This indifference is the main reason it is so difficult for social media companies to prevent the spread of misinformation. Shannon—not unlike Luhmann—brackets human consciousness along with hermeneutic or semantic interpretations of messages, focusing instead on the patterns of communication itself. According to James Gleick, "Shannon needed, if he were to create a theory, to hijack the word information. 'Information here,' he wrote, 'although related to the everyday meaning of the word, should not be confused with it." … he wished to leave aside 'the psychological factors' and focus only on 'the physical'" (219). By this interpretation, Shannon's purpose is the opposite of the charges against him. He seeks only the quantifiable and empirically *measurable* differences that information produces, such as the modulated signal in a telephone line, with indifference to what that signal *means* to the human receiver. That is, rather than reifying a bifurcation between medium and message, he collapses the division and flattens *eidos* into signal, such that entropy can be quantifiably measured at various points in an act of communication (sender, signal, and receiver). The message is observed only as a series of stochastic, physical events in what Whitehead called the "settled world." Yet this does not mean that such events cannot be abstracted as patterns, for "any circuit is represented by a set of equations, the terms of the equations corresponding to the various relays and switches in the circuit" (Shannon, "Symbolic Analysis" 713). Although the term represents a level of abstraction in the *design* of the communication channel, the purpose of his

information theory is to simplify the definition of information such that errors, or noise, or undesired information could most efficiently *measured* when it leaves a source, while in a channel, and when it is received. The ability to measure entropy provides the *physical* (that is, not disembodied) requirements for the capacity of the channel (depending on its distance) and redundancy in a message to ensure that the receiver's signal is a precise duplicate of the sender's, even in a noisy physical channel. The success of his definition was due to the elimination, not an endorsement, of the bifurcation of form and substance.

Shannon's theory is not applicable to all contexts, but it is valuable for analysis of Feed-based communication. In *A Mathemetical Theory of Information*, Shannon uses "information" to describe the quantity of entropy—the deviation from established pattern—in a communication event. This quantity is known as information entropy, which is a measure of probability; the more improbable an event or message, the higher its information value.[75] Information is a measure of actualized material events: in this case, the modulation of electrical or light signals. Pattern, in this sense, is neither disembodied nor immaterial; it is a probabilistic measure based upon what has already occurred in the settled world. While each communiqué is unique, Shannon's definition is directly applicable to the efficient transfer and storage of digital data, for although each communication event is unique, the dataset used by predictive algorithms can specifically measure the amount of unexpectedness (or likelihood, which is inverse value of the same measurement) of future events. Feed-communication occurs in lemniscatic loops, and thus goes further than the simple cycle of Shannon's source-channel-receiver-feedback model; yet because information can be mathematically quantified irrespective of content, as Shannon

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[75]Entropy involves various aspects of the communication event, including the information source, the channel and the receiver; the channel must have a minimum capacity to deal both with the unlikeliness (information entropy) of the initial message plus the disruption from noise introduced into the channel in transmission—and the redundancy required to offset that noise—such that the receiver receives the same that was sent by the source.

demonstrates, then mathematical formulae, such as algorithms, can enact a reality trending towards less randomness, and thus become more predictive. That is, the Feed steers contingent communication cycles of the same information towards *lower* information-states, while always receiving new communiqués with higher information values.

Newsworthiness is a particularly important implication of Shannon's novel consideration of entropy for Feed-based systems. The relationship between expectedness and information permits us to think of the measurement of information as *news*—the more norm-deviant come content is, the more information it contains. Gautam Schroff makes the connection explicit between Shannon's understanding of entropy and what we call news, broadly defined: "Shannon quantified the amount of information in terms of the chance, or probability, of the event whose occurrences were being communicated….The rarer the news, the more likely it is to catch our interest, and it therefore makes the headlines" (41). While defining information as news is not useful for every context of communication, it is certainly helpful for analyzing trending content in the Feed, for ranking algorithms are also (mostly) indifferent to the semantic content of the information that is being communicated. The success of their predictions uses only the *quantifiable* aspects of communication, such as the age and number of positive reactions some content has received.[76]

Information value as a quantity of an event's improbability was not only technically applicable, but also enthusiastically adopted by Shannon's contemporaries, for example, Wiener and Bateson, who adopted the definition conceptually and used it to draw more speculative hypotheses concerning more complex systems. All, however, retain the associations with the concepts of *probability*, *redundancy*, and *selection*. Whereas Bateson defines information as

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[76] Although given the progress made in natural language processing, this is bound to change in the near future.

"any difference which makes a difference in some later event" (*Ecology* 381), Wiener writes that "information is a name for the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it. The process of receiving and of using information is the process of our adjusting to the contingencies of the outer environment" (*Cybernetics* 61); elsewhere he calls it the recording of a *decision*, terminology shared with Whitehead's process metaphysics. Both of these definitions involve the process of selection at a site where a difference is recorded. Notably, neither necessarily implies a distinction between material and immaterial, however they do imply a distinction between a system and an environment. Bateson's "difference," is a selection that irritates a pattern (needless to say, a pattern must exist for a difference to be different), while Wiener's is the content of an adaptation or a decision in an ongoing process. Both classify information as new events within a contingent series of events, and both imply a probabilistic, settled world that both precedes the event and continues differently after the event. The settled archive of these actualizations is data. Data can be informative, but this only occurs in the temporal process of communication within a system that deems it relevant.

Feed-based systems make constant, real-time judgements of information entropy. As a user interacts with the Feed over time, pattern of inputs become a data profile with stochastic distributions. The goal of algorithms is to rank content based upon existing patterns in the dataset. Therefore the agency of ranking algorithms is to gather enough data to predict the future from what is given, and are programmed to steer future interactions towards a *predictable future*. To become more predictable, the future must be less likely to deviate from existing normative distributions: that is, contingent communication cycles should have *less* information entropy than those that precede them.

Shannon's information entropy and the inhuman information of the social media Feed are interconnected. Furthermore, the meaning of information shifts depending on where content is found in the communication cycle at a moment of observation; that is, information entropy is measured differently in the various stages of transmission. Shannon's model, simplified to a linear relationship—from source, to channel, to receiver—is a precedent for social media, however, as I have argued previously, social media communication is lemniscatic and non-cyclical. To illustrate, when a bit of content is first introduced to the dataset, the Feed has no measure of its information value as content, so it must rank that content based solely upon preceding patterns of interaction (such as a higher rank for the users, channels, or pages with whom the current user interacts most often).[77] Once some content is communicated and users react, ranking algorithms can more accurately predict its seductive potential for other user-classes. Again, this prediction is based upon aggregate user behaviour rather than a linguistic or hermeneutic grasp of the content—a technical and inhuman evaluation. Yet on the other side of the user-lemniscate, those users that *are* human understand and interpret the same event semantically, based on their interests, desire and mood, but *qua* user each of these potential causes is absent from the decision. In order for these human states to become agentic, they must be levelled as quantifiable digital variables. Human concerns can never actually inform the Feed's communication unless the incommensurable gaps in realities can be converted. This is the purpose of external mediation, for this process requires nonhuman agents: devices and interfaces,

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[77] This is set to change in the future if social media companies decide to incorporate AI that recommends content based on what it is about after "reading" or crawling the text to understand what it's about. It is not yet clear whether or when such an undertaking would be efficient enough to be worthwhile, but some investment here could potentially solve some of the issues surrounding the propagation of fake news. As of now there are still technical obstacles, particularly surrounding natural language processing, which cannot reliably distinguish even simple hermeneutic positions, such as the difference between parody or irony from that which is intentionally misleading.

networks, servers, scripts and automated bots, each of which also reduces the information entropy from a variety of environments in order to inform the Feed.

Information Entropy and Time

The information value of content depends upon temporality being defined in a strictly computable sense. Individual user reactions will have more weight in decisions about newer content. *Eo ipso*, news always has a higher base-value in the Feed. In terms of information entropy, new content is operationally bestowed with a greater capacity to *make a difference*. Users, through liking, commenting, and clicking, train the algorithm how to react most effectively; while the status of new content is very uncertain (because it may or may not be valuable), the precise value becomes more certain over time as its information entropy decreases. Similarly, ranking algorithms' predictive capacity for feedback is refreshed with each interaction, another act by which high information entropy is decreased.

The reduction of information entropy can be illustrated by content "going viral." Viral content is that which exceeds normative rates of decay long enough to spread to a very large number of users' feeds. For content to become viral, it must garner many positive reactions in a short amount of time, and continue to receive positive reactions at a very high rate, even as it ages. The decrease in information entropy, or decay in visibility, follows a logarithmic function in the Feed. In effect, for content to go viral, the number of positive reactions must increase at a rate equal to or greater than an exponential function of time; obviously, increasing in popularity at a rate greater than an exponential function is very rare for any extended period of time. At the point that the rate increase (in views, likes, upvotes, retweets—depending on the feed in question) ceases to be equal to the exponential function, then that content disappears from

visibility, never to return. Virality is thus virtually impossible to predict in advance, for not only

must the content have a very high information value for human users and their particular

concerns when it is fed to them (which again, includes non-computable variables such as mood,

interest, and sense of humour), but it also must be reacted to by a sufficient number of users at

the required rate-of-increase as the content ages—whether these two factors happen to coincide

at any given time is impossible to predict because the human factors it depends upon cannot be

quantified. Still, a vast portion of the social media consulting industry, major marketing firms,

and the inorganic vote manipulation of "click farms" all serve to help make content go viral: they

can recommend the time of day to post for which audience, how to edit and title content to bait

interactions, and purchase inorganic votes. It is crucial that these actions are taken while the post

is new in order to propel the value of that content above its competition—and yet, going viral is

never guaranteed because the structural coupling of humans and users is asymmetrical and those

external factors are never guaranteed to offset the ranking algorithm's temporal decay, which

always aims to decrease content's information entropy.

The asymmetry of human temporality (specifically, the phenomenological notion of time-

consciousness) and Feed temporality, which is based on the reduction of entropy, makes sense of

conflicts over the events which inform inhuman systems. Johanna Drucker has articulated the

problems that arise from the attempt to understand time-consciousness from a computational

perspective. A problem for digital humanities scholarship, according to Drucker, is that the

cultural authority of digital technology remains in fields within which strictly quantitative

"processing techniques [that] preclude humanistic methods from their operations because of the

very assumptions on which they are designed" (86). The Feed's temporal decay is an instance of

such incongruence. From a systems theoretical perspective, this is to be expected, for systems

grow by incorporating and simplifying selected environmental elements (including humans behaviour, when they are quantifiable) as resources for their own autopoiesis.

Reddit's "Hot Sort"[78] is a Feed algorithm that values information within a computational temporality, Feed-time, and functional analysis shows not only that Drucker's generalization is correct, but also how the human/user asymmetry is expressed at the level of the most basic computational operations. This algorithm ranks content by two variables (or did, while it was still open-source; see n.6): popularity, measured by "score", and their age in "seconds." The popular is ranked higher than the unpopular, and the new is has a higher base ranking than anything older. A post's "seconds" variable is its UNIX timestamp, that is, the difference, in seconds, between the time it was posted and zero (the zero value—for a human observer— translates to January 1, 1970). In effect, because the "seconds" variable increases incrementally each second, a new post will always have a higher "seconds" value than any post before it— yielding a higher base value. The "order" of posts is determined by a logarithmic function of the change of their score relative to their age. Because of the logarithmic function, the rate of increase of the *y*-value, the "score" variable, is lesser for every increase of the *x*-value, the "seconds" or age variable. In the Hot Sort, the result is that the numerical value of a particular change in a post's score (which is changed by the inputs of upvotes or downvotes) is given weight according to the *moment at which it changes*: the act of upvoting or downvoting a young post will affect its rank much more than an upvote or a downvote on an older post. An intuitive way to think about the relationship is that the value of a post decays over time, while popularity can offset the rate of decay; however, since popular new posts are ranked higher than the popular old posts, the result of the logarithmic function is that the Feed is much more likely to be

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[78] At the time of this writing; although we can expect it may still be similar in terms of variables, Reddit's various ranking algorithms are no longer open-source as of September 2017.

populated by newer posts, while only the most popular older posts retain their staying power for more than a few hours.

Reddit's Hot Sort guarantees a particular Feed-time valuation from the outset, one which makes possible the subjective aims of the system as a whole. Precisely because trending information seduces more frequent return-traffic, and frequency of traffic can be monetized, the system's autopoiesis depends upon a rapidly passing temporality: the past is less valuable because old posts have less information entropy, so *any* new information has a higher base-value than *any* older content. This logic is wholly alien to other regions of human concern, wherein the past is valued for one's relative contingency to it (e.g. one's cultural or religious traditions, behavioral patterns, or psychological development). According to Drucker, it is precisely at this point where the humanities must challenge the authoritative discourse of digital technology. She writes that:

> The challenge is to shift humanistic study from attention to the effects of technology, to a humanistically informed theory of the making of technology (a humanistic computing at the level of design, modeling of information architecture, data types, interface, and protocols). To theorize humanities approaches to digital scholarship we need to consider the …the force of a constructivist approach to knowledge as knowing, observer dependent, emergent, and process driven. (87)

Drucker calls for a recognition of the differentiating role of observation, so as not to confuse constructed concepts, such as Feed-time, as definitive of *all* temporal value. As regards the Hot Sort, I argue, this requires recognizing time concepts that are not representable by this system—a UNIX timestamp only runs parallel to *one* human dimension of time, a calendar of seconds, yet

there are others it *discounts*, such as hermeneutic time-consciousness. The asymmetry of structural coupling between human and user defines this tension. For Drucker, "humanistic theory provides ways of thinking differently, otherwise, specific to the problems and precepts of interpretative knowing…. Our challenge is to take up these theoretical principles and engage them in the production of methods" (94). This calls for a method of observation that includes at least the traces of the human within inhuman processes such as Feed-based systems. We can answer such a challenge, initially, by identifying information that is uncountable in principle, and to which the system cannot operationally relate, that is nevertheless valuable in some way.

There are many examples of hermeneutic senses of temporality that exceed the computational temporality that serve Drucker's call. One particularly contrary example is Heidegger's phenomenological temporality in *Being and Time*. There are, for Heidegger, many aspects to human-being's relations to time that are revealed on a variety of levels, some are quite ordinary, while others require extensive philosophical nuance. These are not only particularly adverse to the Feed-time of the Hot Sort, but are overwritten if we confuse this particular temporality to be definitive of all interpretations. According to Heidegger, a being's relationship to temporality manifests in a variety of dispositions towards time, all of which have their basis in the notion of humans finding themselves "thrown" into a world. Phenomenologically, there is an implied "elemental historicality" that is carried along in the present (*BT* §6) and governs the horizon of future possibilities. In contrast, the Hot Sort uses news to replace history with an archive. On one hand, *Dasein* is always having "already got itself into definite possibilities…it has to let such possibilities pass by…or else it seizes upon them…. As thrown, Dasein is thrown into the kind of being which we call 'projecting'" (*BT* §31). The various projects to which *Dasein* applies itself are expressed in goals and plans as much as they are in the seemingly

mundane activity of using tools. On the other hand, Feed-time steers users into passing by possibilities, as new information is always on the way.

Reddit's Hot Sort and Heidegger's phenomenological analytic are antithetical, for while the temporality of the former is discrete and quantifiable, time in Heidegger's analytic is involves the superpositioning of non-linear experiences and active histories. In the former, time is computable by discrete mathematical integers, ushered along by logarithmic temporal decay. In the phenomenological analytic, the fundamental value of temporality is its affordance of the possibility of a particular being-there and subsequent intentionality towards a potential—our ontological relationship with time precedes all discrete breaks between "times" (whether these breaks occur between units, like seconds, or between the past and present). The past is carried along by potentiality, including the eventuality of death, and in difference *Dasein is* projecting itself from "there." The Hot Sort, on the other hand, serves a system that supplants *all* past-times with news. Unlike discrete UNIX timestamp, death is the *absent cause* of *Dasein*'s moods and dispositions. The Hot Sort has no equivalent value for such absence, for an absence is unquantifiable, it is an empty value, mathematically speaking. Death, at least in Heidegger's analysis, is the ultimate *partial* and *unquantifiable*. Drucker would agree with Heidegger where human-being is concerned: she states that "the problems and precepts of interpretative knowing [are] partial, situated, enunciative, subjective, and performative," and both agree that a technical, quantified temporality is at best alien-to and worst destructive-of what is exceptional in human experience.

I will make no such calls to renew the humanities by applying their methods to nonhuman systems here. Humanizing information in systems which are operationally closed to human concern is difficult, but the call itself shows the incommensurability between time-

consciousness and Feed-time. The point we can gather from this bid for relevance, however, is that these temporalities belong to fundamentally different realities when it comes to deciding upon the relevance of information. As concerns a computational paradigm of temporality we observe the machinic conversion of human behaviour to computable variables on massive scales, which enables the autopoiesis of social media systems and the social media companies which own them. The Hot Sort's time-as-count is a figure of a computational temporal paradigm that defines user experience inhumanly, where "information" is nothing but the inverse of decay over time, that is, *news*. News is not an unfamiliar form of information, yet it is extremely partial and specific relative to the multilinear temporal experience that *Being and Time* articulates, as only one example. Trending data algorithms only count news as information, based on the temporality according to which they function.

If we observe at the level of human psychic systems where the structural couplings with users exist, we can ask, as an open question, the degree to which these systems may be fundamentally filtering or limiting other horizons of human experience; this may amount to a symbryonic shift of cultural consciousness. Derrida voices such concerns. For him, computer systems are mere figures of a fundamental cultural shift opposed to temporal resistance, wherever it may be found: "now everything negative is drowned, deleted; it evaporates immediately, sometimes from one instant to the next. It's another kind of experience of what is called 'immediate' memory and of the transition from memory to archive" (*WP* 24). The archive is opposed to elemental historicality—data are archived so that they need not be remembered, a situations which uncannily represents Socrates' rejection of text in *Phaedrus*. The root of the immediate rendering of all information as news is the operators of the Feed, which radically depends upon the reduction of information entropy.

Algorithmic temporality is operationally antithetical to humanist hermeneutics, and the two paradigms also produce contrasting values regarding information. To explain the hermeneutic disposition I refer to Hans-Georg Gadamer, who develops Heidegger's concept of time-consciousness, particularly the ongoing process of "fore-understanding" by which we as humans, orient ourselves in a historical world. As with the definitions of Shannon, Weiner, and Bateson, the hermeneutic value of information is also vested in its unexpectedness, but for different reason. For Gadamer, information is *additive* to the relational context in which the hermeneutic consciousness develops: understanding the historical position of new situations relative to one's own position deepens one's understanding, and unexpected information is incorporated into a developmental context over time. However, relative to the Feed's count, the *purpose* of this development is entirely different, and Gadamer explicitly traces the emergence of existential hermeneutics to the humanism tradition. The hermeneutic project seeks to develop a more coherent understanding of the world, "to strive for a reasoned historical self-understanding" (9). *Bildung* (which he explains at length, pp. 9-19) describes this striving, which is an especially (although not exclusively) anthropic experience, "a task for man." (12) Schleiermacher, Heidegger, and Gadamer each emphasize human language in their theorizing as to general hermeneutics. The interpretive process is ongoing, and superior understanding requires the investment of time, experience, and consideration of information. Furthermore, the hermeneutic consciousness must also interpret its own context, so as to understand its presuppositions and biases. The goal is a human with a robust understanding of the relationship between self and world, and information plays a part in generating the grounds for this development.

Feeds, conversely, isolate events from context (for the sake of brevity, which allows more content, quantitatively) and clear away the past so as to make room for news, for no other reason than novelty itself. In Feed-based system, information is not intended to be additive; its purpose is to immediately and momentarily seduce, effectively inhibiting the development of the hermeneutic consciousness which Gadamer lauds as that which "seeks to confront [the will of man] with something of the truth of remembrance: with what is still and ever again real" (xxxviii). The Feed, antithetically, seeks not to confront one's will for some long-term developmental goal, but to seduce attention within the immediate present, the trending, and to forget it in short order. Value in Feed-time is radically opposed to the hermeneutic notion that historical distance has value for understanding, for the latter "not only lets local and limited prejudices dies away, but allows those that bring about genuine understanding to emerge clearly as such" (Gadamer 298). In a hermeneutic horizon, information is valued as a means to a particular anthropic end, whereas the Feed's information is the means to further means, *without* end: inhuman autopoiesis. Conversely, the Feed metabolizes history at an unprecedented rate. In the Feed, the present immediately becomes the future, while the subjective aim of a predictable future premediates decisions in the present.

Relevance Thresholds and Reduced Space

Non-human, computational temporality is one of the two main variables affecting the visible content of the Feed. As all feeds utilize the combined variables of age (or more specifically, the inverse of age) and popularity, the latter must also be computable such that the information entropy of some content can be measured. Information entropy is measured the same way first-order observations occur in general systems theory and Whitehead's metaphysics: the

initial information entropy of some content is *prehended*. If some event has too much information, in that it cannot be observed to be related to *any* existing pattern, it cannot be considered relevant. The limit of entropy in an event that can be processed is defined by a shifting relevance threshold: in order to make a difference to a system, events must be similar *enough* to previous events. The anticipatory state of a system—its prehensions—at a given time provides the criteria for the relevance of future irritations.

The Feed's relevance threshold is a mathematical formula generated by user interactions, and this operator decides upon the visibility of any new content. The variables in the algorithm are based on a user's archived history and which nodes of the system it interacts with frequently (as with all variables, if the user has a pattern of having interacted with some associated content often, it is likely to be seduced by more of the same). Although perhaps unintuitive at first glance, the measurement of "information" as *entropy* (Shannon's) and definition of "information" as *differentiating events* (Bateson and Wiener) both utilize relevance thresholds. In order to irritate a system, some information must be relevant enough to do so; if it is not relevant enough, it will be dismissed as noise.[79] In the context of social media feeds, the relevance threshold is uniquely personalized for each individual userbased on its interactive history. In effect, the same content may be news to one user and noise to another.

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[79] An organic example of the "relevance threshold" include viruses and poisons, which are able to irritate organisms' functioning precisely because their structures are *near enough* to what the organisms' selectors have evolved to anticipate. For example, a virus can disrupt cell transcription only because the structure of its information, RNA, closely resembles the structure. Similarly, neurotoxins are able to affect brain function precisely because their shape allows them to bind to the same receptors as some other anticipated neuromodulator. The capacity to irritate requires operational similarity relative to an established pattern, yet their information value depends on how disruptive the event of an irritant proves to be; because of their difference, they can make a difference, potentially even killing the organism. The informatic value (or difference-making capacity) of an infection event depends upon the degree to which the event irritates the redundancy of the living organism's systems. Healthy behaviours are called healthy precisely because they are events with low quantities of information. The event of a virus or toxin becomes informative only when the organism selects it as relevant and thus permits it to make a difference.

The relevance threshold of traditional media ecologies was always lowered by geographic space—Today's large social media systems span national boundaries over continents, and thereby completely reconfigure the relevance threshold of communication events (and subsequently, what constitutes information for their decisions). By whichever media news is communicated in a particular ecology, those technologies that most efficiently hurdle the friction of space quickly usurp previous technologies. From messengers, to post, to newspaper, to radio, television, and the internet, wherever the new exceeds the old by reducing the friction of space to communication it becomes a dominant symbryo for *news* specifically. Old media rarely becomes obsolete in all forms of communication, and may come to occupy some specific or niche part of the media ecology. Yet when it comes to news, efficiency is particularly important. Today, news is accessed at light-speed via the internet, and social media are increasingly fulfilling the role of communicating news.

Measuring trending content, i.e. information as news, is the purpose of Feed communication. News has always been valuable (from messengers on horseback to national television broadcasts), but the scope and speed of its distribution through social media are unprecedented. There is less resistance offered by space or resources today than in any preceding media ecology, as space was an obstacle that impeded and limited their distribution. Our ecology is relatively frictionless—a novel circumstance. Relevance thresholds today can be surpassed globally and immediately, exceeding friction of space, such that what would have been noise in previous ecologies might now become globally trending content.

Virtually all data are not globally relevant. Information is a measure of an event's deviation from a pattern of events, but those patterns' locally-determined criteria also depend upon the observer of an event—that criteria which differentiates relevant information from

irrelevant noise. There are innumerable variables that contribute to the relevant/irrelevant distinction of news and these variables are not exclusive to any medium, so viral content that spans all of these variables is rare. Consequently, it is unlikely that any content can be popular enough to offset its lack of proximity to a global audience, and such examples are few. Historically, for mass media—newspapers, radio, and television—irritations, to become news, must surmount the obstacle of personal proximity to be relevant, e.g. what counts as news for a city may not count as news on a national broadcast. As a rule, increasing the size of the audience decreases proximity, and therefore increases the minimum relevance-threshold which determines whether some event has a high enough information value to become newsworthy for the global network of a social media system. So while system-wide trending data are an extremely tiny fraction of the data, these data are extremely effective once they begin trending. Attention begets attention, and grows exponentially—this pattern is observed in activist movements originating in social media systems.

A phenomenon that demonstrates the lowering of the relevance threshold of news in geographic space is "hashtag activism." This pattern of behaviour is entirely unique to a Feed ecology. It exemplifies the conversion of high-information events to low-information events at the expense of context, detail, and what a hermeneutic consciousness would call "superior understanding." That is, relevant norm-deviance is reduced to what can be easily communicated and the requisite brevity is compensated by hashtags, images, and symbols. In accordance with information theory, and the requirements for the success of communiqués in social media ecosystems, lowering the information value of a message makes it more likely to propagate—a user can align itself with a global movement by the use of a hashtag.

"Hashtag activism" or "clicktivism" refers to viral campaigns or causes wherein users participate or show support with system-defined inputs. When these movements are diminutated, it is because clicktivism requires no risk, effort, or expense relative to offline activism. The success of these causes varies and is difficult to measure, and although they are predominantly constituted by digital communication, they may produce results in offline action or demonstration. Prominent examples of Twitter campaigns include the #idlenomore campaign in Canada, #bringbackourgirls in Nigeria, and #blacklivesmatter in the United States. Such campaigns take various forms on different platforms: on Facebook for example, users were able to transpose the French and British flags over their profile pictures to show support for these countries after terrorist attacks; similarly, users were able to transpose rainbow flags over their profiles when the US Supreme Court legalized gay-marriage in 2015. Each of these examples are communiqués that once had a very high aggregate information value and a relevance threshold that obliterated space as a variable in the judgment of relevance—they trended system-wide, seemingly indifferent to local boundaries or geographic distance.

Most clicktivist campaigns' virality is somewhat self-explanatory, but the #Kony2012 is a particularly strange example of an online movement that demonstrates the various means by which the obstacle of geographic space is obliterated. In terms of meeting a relevance threshold, no one could have predicted that a hashtag about an African militia leader whose organization and influence was already long in decline would become one of the most popular global Twitter trends of the year. The relevance threshold was not geographic, but psychic, and originated with a documentary/call to action made by Invisible Children (the third most watched YouTube video of 2012), a charity organization based in the United States. The Invisible Children YouTube video urged viewers to generate widespread political pressure on their governments to arrest

Joseph Kony for war crimes (he is still at large at the time of this writing). The call to action was simple and emotionally compelling, which was at least partially responsible for the virality of an otherwise non-proximate event. Additionally, as a way of making sense of this global phenomenon, *Forbes.com* made a list of lessons for "social media startups, and practitioners of social media of all sorts"[80] to learn from the movement's success. These lessons include "Make it personal," "pull the heartstrings," "make it simple/easy"; each of which can be considered a method of decreasing the relevance threshold of geographic space. The movement's virality even garnered response from legislators in the US. However, the hunt for Kony has long since ended, for "the LRA no longer poses a threat."[81] As may be expected from the reduction of information entropy, the Twitter user-base has long since forgotten about it.

The #Kony2012 campaign exemplifies the systematic reduction of entropy in communication. The Kony narrative—that of a self-proclaimed prophet, leader of the Lord's Resistance Army, and an abductor of women and children—is certainly norm-deviant, and thus has a high information value relative to the settled world, but it owed its trending status to the relevance threshold lowered by the emotional urgency of the Invisible Children video. While emotional appeal is a common means of seducing attention (and in this case, virality), it coincided with a great reduction of the actual context, a reduction for which it is often criticized. The video itself included virtually no context of the political situation in Uganda for decades prior, or previous negotiations between the Ugandan government and Kony, or the rapidly declining capabilities of the LRA—which had already left Uganda by the time the #Kony2012 hashtag went viral. Furthermore, the appeal video provided no context for the decisions,

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[80] https://www.forbes.com/sites/anthonykosner/2012/03/09/12-lessons-from-kony-2012-from-social-media-power-users/#4d8f13384328
[81] https://www.nytimes.com/2017/04/20/world/africa/uganda-joseph-kony-lra.html

cooperation, and resources that it would have taken to successfully apprehend him. Instead, the video focused on the filmmaker's son, abducted children, and the promised efficacy of political action while soliciting donations. The virality of the hashtag was in part a result of a fabricated urgency and emotional immediacy, which surprisingly overcame any friction of geographic space. At the same time, the video and viral campaign accomplished virtually nothing in terms of generating understanding of the nuances of the situation. Consequently, and because news feeds reward brevity and constantly supplant old content, the capacity of #Kony2012 to seduce attention faded rapidly.

The hermeneutic tradition's values of consideration, additive knowledge, and development of a worldview are quite alien to the brief explosions and subsequent forgetting of clicktivist campaigns. Feed information, conversely, rewards short-term reaction (e.g. outrage, scandal, and fear), at the expense of context, which require time, attention to detail, and nuance to establish. Clicktivist movements, enabled by Feed-time, literally do not have enough *time* to maintain a relevance threshold for details or nuance to remain seductive. In effect, it was not Kony who went viral, it was attention *itself* that was trending, which was enabled by a deftly lowered relevance threshold. Today, the unexpectedness of the Kony narrative remains the same as it did in 2012, as he is still at large. Yet this content has completely lost its value as information, for its relevance has been reduced by the negative feedback cycle of communication. Trending data therefore must meet two criteria, it must exceed a relevance threshold to trend, and it must deviate from established patterns. Global relevance thresholds are rarely reached in the way #Kony2012 did, for subsets of users (nodes), are usually based upon much more localized criteria. Yet, the #Kony2012 movement would never have been possible in any ecology before that of the Feed.

Information in Individuated Space

While today's social media systems render globally trending data possible for the first time, those same ranking algorithms also enable the inverse: localized communities which are made possible by the elimination of the friction of geographic space. For the most part, such communities are based on norm-deviant interests and ideas, including obscure or socially unacceptable interests or causes. Furthermore, as they are unified by associations of fringe content based on ideas, perceived grievances, or conflicts that norm-deviant; the vocabulary and imaginaries of these communities become isolated such that their communication may no longer make sense outside their boundaries. In some cases, ranking algorithms leads to echo chambers in which norm-deviant, or even outlandish interpretations of events become locally-valid communication.

The rank of some content is evaluated by algorithms that determine its relevance to both the current user, based on its data profile, and to the system's userbase in aggregate. Depending on the system, ranking algorithms weigh the balance of individual and aggregate differently. Some feeds, such as those of YouTube's recommended videos, the Twitter feed, and Facebook's News Feed are highly personalized, which stands in stark contrast to broadcast media or print media (collecting user feedback for broadcast media is extremely labourious, relative to social media). Personalized feeds will assign higher ranks to content from pages, users, or channels with which the user interacts frequently, and will have a high information value for nodular and associated content. In contrast, the information value of the data on Reddit's default front page in the Hot Sort must have a high information value in aggregate alone. For Reddit, the information value of some front-page content depends on its broad, system-wide relevance. Personalized

feeds, by contrast, rank nodular connections much more highly; these highly personalized Feeds facilitate the generation of communities that are relatively isolated from the general userbase.

Just as temporality is reconfigured, personalized feeds change the dynamic of spatiality as a variable in relevance thresholds. They permit the unprecedented confluence of norm-deviant communication. A result of overcoming the friction of space as an obstacle to communication is the creation of communities based on norm-deviant interests or opinions (from obscure book series to conspiracy theories). Both are enabled by nodular relevance thresholds in which space is no longer a limiting factor for communication. Furthermore, deviant communication circuits facilitated by individuated feeds permits the local drift of the vocabulary, opinions, and associations of such groups, such that their communication becomes increasingly distinct from the aggregate. Such circuits are commonly known as "filter bubbles" or "echo chambers," which are isolated communication circuits wherein the nodes of users' feeds increasingly render particular associations visible. As Pariser reflects in his book on the topic:

> In the filter bubble, there's less room for the chance encounters that bring insight and learning. Creativity is often sparked by the collision of ideas…. By definition, a world constructed from the familiar is a world in which there's nothing to learn. If personalization is too acute, it could prevent us from coming into contact with the mind-blowing, preconception-shattering experiences and ideas that change how we think about the world and ourselves. (13)

That is to say that the majority of communication on a system becomes "noise." The personalization of feeds is an operational factor that facilitates the polarization and tribalism evident on social media, and is another emergent behaviour for which social media companies

are scrutinized today. There is, for example, the question of whether social media platforms should permit the nodular communication of groups with hateful or extremist tendencies. These behaviours are troubling, and are currently stimulating public negotiation precisely because they have very few precedents in traditional media systems; they emerge with the disruption of nodular, personalized feedback loops.

Depending on how highly their algorithms value aggregate or personalized information values in their rankings, social media systems will behave predictably. For example, if some content's rank depends upon its relevance to a mass audience, we should expect "clickbait" to result as an emergent behaviour. At the same time, those feeds which weigh nodular communication more heavily, "filter bubbles" and polarity are more likely to emerge. One of the most powerful capacities of social media, and one which differentiates our media ecologies from those past, is social media can cover *any* level of proximity by reducing each to the archive of a user's behaviour. A user's Facebook News Feed may share the news of a terrorist attack a world away next to a former classmate's baby: both are equally counted as exceeding an information threshold, but each is based on completely different variables. Additionally, with access to user data, machine learning algorithms can target a user's particular relevance threshold directly. The capacity of individual targeting is by design, as it allows advertisers to make their content available to those associated classes who are most likely react.

Associating classes of users such that they can be targeted for seduction, either by advertisers or for political purposes, is another means of reducing information entropy by decreasing the chance that a user is presented irrelevant information. Schroff presents, in a discussion of Google's AdSense, that it is an "ideal scenario from the point of view of an advertiser would be to have to pay only when a consumer actually buys their product. In such a

model the mutual information between advertising and outcome would be very high indeed"
(49). This connection is made possible because user attention is quantified, and is unprecedented
in media ecologies. A potentially nefarious use of the same mechanism is targeting users with
seductive information for psychological manipulation—while we generally expect to be targeted
by advertising, as a sort of mutually beneficial exchange for access to a control system, the
attempt to steer the positions of political subjects is somewhat more alarming.

The Cambridge Analytica scandal (ongoing) has been something of a wakeup call
concerning the potential power of reducing entropy in communication between the user and the
Feed. Users' data was not gathered in hopes of predicting reactions to advertisements, but to
judge which users could be most efficiently manipulate by exposure to polarizing content.
Allegedly, this was intended to influence the outcome of the 2016 United States Presidential
Election. Researcher Aleksandr Kogan, of Cambridge University, used an app to procure data on
Facebook users. These data on users' decisions was sold to Cambridge Analytica, which was in
turn hired by political campaigns to target susceptible users with content intended to affect
decisions their voting decisions. Not only were those users who used Kogan's app targeted based
on what they as users had communicated to the app, but their passive data, including their
friends, rendered them viable targets. Although the direct efficacy of this approach is impossible
to measure across system lines (that of social media and the electoral process), the potential of
these inhuman processes are only beginning to be recognized. The user inadvertently teaches
their unique relevance-threshold to the system via their interactions, and the system predicts and
steers a user's relevance-threshold based on predictions made from the data it has collected from
other users with similar classifications. This is unprecedented for news, which, in most mass

media, had to be broadcasted blindly, and shows the capacity for the manipulation of communication.

 "Fake news," the American Dialect Society's word of the year in 2017, is another product of our media ecology's selective criteria. Even before social media, news organizations were incentivized to report news whether or not there is relevant news to report, as a form of infotainment. This tendency is exacerbated in the Feed ecology, due to the operational correlation between capitalized user-attention and relevance—if a system is to survive in such an environment, it must *create* relevance to be selected. The most noticeable systemic behaviour is the inflation of the information value of an event, thrusting it into hyperreality. The product is often referred to as "clickbait." This inflation occurs in several ways: either by either exaggerating an event's deviance from pattern—sensationalizing the ordinary—or by exaggerating an event's proximity—making an nonproximate event seem more relevant than it is, as was the case with the #Kony2012 campaign. Simply due to the fact that there is much more information in the proximal environment today, social media exacerbates both of these tendencies. Because communication in a social system has no necessary relation to the locality of the situation where the event is observed, only the observation of the event need change to artificially inflate its information value. Informants who communicate achieve this inflation by increasing the apparent unexpectedness of content. This can be accomplished with misleading headlines, unsubstantiated or quasi-substantiated speculation, or the conflict generated by inviting the input of deviant opinions, which are presented as if they represent aggregate criteria.

Communication itself generates a world with a greater information value than the realities they actually observe—a virtual excess. As Wendy Chun argues, as a result of its speed, the internet thrives on crises and the disruption of norms:

Crisis is new media's critical difference. In new media, crisis has found its medium, and in crisis, new media has found its value—its punctuating device…. crises are central to experiences of new media agency, to information as power: crises— moments that demand real-time response—make new media valuable and empowering by tying certain information to a decision, personal or political." ("Crisis" 144)

Due to its interactive nature, social media demand constant decisions. That which Chun interprets as the demand for decisions, or the exercise of "new agency," is not primarily the resolution of the condition of free will by humans, rather, it is the resolution of the values of variables required for ranking algorithms to operate and for feeds to propagate. In this context, crises are routinized by the invisible trending-data algorithms vying with one another for user-attention.

Sensationalism in traditional mass media was curbed by institutional journalistic standards, and the distinction that comes with being a credible source of information. Non-credible sources have always existed, but there were few enough to be a contained quantity. The standard of credibility approximates a *veracity* variable that, so far, has not been converted into Feed algorithms. A veracity variable has proven difficult to incorporate into the ranking systems of social media, which any user can inform with a handful of discrete options (liking, commenting, retweeting), not unlike the machines on which they run. Due to the patterned and probabilistic nature of systems, veracity more often than not *lowers* the information value of communicated events. Behaviourally, for trending data systems, veracity is inherently less desirable (desirable is again, based on frequency of return traffic).

Now forced to compete with the information value of social media systems, even established broadcast news corporations are forced to find ways to increase the information value of their content. They maintain a figurative veracity through the traditional tenets of journalistic integrity, while working around it with numerous strategies, such as hosting talking heads with deviant viewpoints to express their opinions—with the disclaimer that they do not reflect the viewpoints of the organization—op-eds, expert panels, and debates abound as hyperreal news. Yet, the debates and opinions themselves *are* now news. Broadcast media feeds off the hyperreal conflicts of nodular communication circuits only to again spread this deviant communication back onto social media (e.g. CNN's YouTube channel currently has almost 3 billion views). An attention economy encourages subverting the veracity variable as a matter of survival, for, in Feed rankings, information value has nothing necessarily to do with the veracity of the data. Credibility is no longer a relevant variable because of the sheer amount of available information, and feedback loops that steer return traffic better serve autopoiesis if they present users with what seduces them, not what is corroborated. Indeed, a lie is much more valuable than corroborated truth, as long as it is unexpected enough to exceed the current user's individual relevance threshold. This situation gives rise to another word-of-the-year, selected by Oxford Dictionaries: "post-truth,"[82] which they called a general characteristic of our age; more precisely, this term represents the particular relevance threshold of our media ecology.

Although the feed seems to be a great threat to what Gadamer could call that which "is still and ever again real" (Gadamer xxxviii), social media are not devoid of a veracity variable by definition; this is specifically an attribute of the Feeds. Alternatively, Wikipedia is an example of a social media system with a variable that resembles a veracity variable: *consensus*. That is, in

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[82] en.oxforddictionaries.com/word-of-the-year/word-of-the-year-2016

contrast to the valuation of information entropy, the intent of Wikipedia pages is to decrease deviation over time. Through the process of communication, deviant or extreme viewpoints approach the median through constant communal revision by a host of users. In effect, that which is communicated is irritated less frequently as time passes. Obviously, this does not mean every user must agree with the content of the data, only that the feedback loop of communication between users and the dataset is negative. Other sites, such as Reddit and Facebook, espouse some principle of veracity by permitting users or a class of users with permission to moderate the information either through direct control of the dataset, setting who has access to it, or by permitting users to flag data they believe to be untrue. Of course, in principle, moderation is far more *qualitative* than the *quantified* variables of age and popularity, which are easily processed, yet it has proven difficult for even the most resourced social media systems to maintain a veracity variable without the large expense of active human involvement.

The lack of a well-defined veracity variable is a major difference between the data of "democratized," social media and traditional journalism. The paradoxical reason for this difference is the *inhumanity* of the former. Both popularity and age are very simple variables for a ranking algorithm to incorporate because they are easily quantified attributes: UNIX time represents the number of seconds that have elapsed since January 1, 1970, and popularity is measured by how many users have liked, viewed, or reacted to some data. Veracity in communication is not so easily quantified, as it requires a hermeneutic that can interpret bias, intentional deceit, selective use of evidence, misrepresentation, credibility of the source, and so on—none of which is easily quantifiable. For the moment, it seems Gadamer was correct to call the development of hermeneutic conscious "a task for man" (12). Such a task, whether or not it

continues to be relevant, belongs to a society as symbryo, resulting in different perceptions of what counts as information.

Because users have a degree of influence over what is made visible to them, norm-deviant communication, including fake news and conspiracy theories, need not be corroborated or reconciled with contrary evidence. While the communication of most content spreads organically, inorganic influence can exploit the algorithmic ecology. The activity of Russian bots in advance of the 2016 United States Presidential Election, as well as the targeted dis/information campaign based on "psychographic profiling" by Cambridge Analytica, illustrate the fragility of social media feeds to the exploitation of information for goals outside the communication systems itself. As above, many events that cause concern or outcry are not unforeseeable errors or software bugs, they are rather effective uses of precisely the type of content that organically thrives on the Feed. Though exacerbated by the privilege given to sponsored content, fake news and clickbait have a higher information value and are thus more effective precisely because they are fake or exaggerated, and therefore more unexpected. Even without variables for veracity, social media has proven to be as definitive of the *dis*information age as the information age, as algorithms can make no distinction between the two.

While it is simple to compute the popularity of a post, i.e. by counting the inputs it solicits, or to assign mathematical values to other users' posts by adding up the current user's interactions with them, here is no simple way to compute the corroboration of content to another reality outside the system. Veracity in communication in inhuman situations would require a hermeneutic that can interpret and differentiate bias, satire, intentional deceit, selective use of evidence, misrepresentation, credibility of the source, and so on—none of which are quantifiable. As Solon argues, there is an "inevitability of Facebook acknowledging that it's no longer just a

technology company, but a media company—the media company." Critics, the United States Congress, and Facebook itself all hope for a solution to the problem of veracity and corroboration in the Feed, yet the operations of the Feed itself have a contrary subjective aim.

In the face of criticism after the 2016 presidential election, Facebook has suggested they will undertake the task of incorporating a veracity variable to their news feed algorithm, first (in an ironic anachronicity), by hiring journalists as fact-checkers, and by offering users the option to dispute links or content on their feeds that they suspect to be untrue.[83] Presumably, the sources of highly-contested content will be held suspect and receive ranking penalties. Whether or not these strategies are successful in approximating a veracity variable, the success of non-corroborated stories on Facebook and other social media is a direct result of the valuation of the recent and popular variables, which are financially beneficial to Facebook Inc. as a corporate entity.

There is a similar lack of incentive to fix the emergent (and sometimes toxic) behaviours of tribalism and polarization: by provoking conflict between opinions that deviate from the norm, information entropy trumps veracity in ranking algorithms. Polarity is propagated in such social systems as a means of seduction. Extreme viewpoints or polarizing content is more likely will have a higher information value upon input. In the end, their locally constructed realities differ greatly from other humanist-inclined hermeneutics. The reality of news is one of crisis and scandal, and other realities seem mundane in comparison. An NYU study showed that "adding a single moral-emotional word to a given tweet increased its expected retweet rate by 19%" (Brady et. al). The effect, as pertains to information entropy, is that phrasing content in the strongest possible language—selective rhetorical construction—is advantageous for content's propagation.

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[83] newsroom.fb.com/news/2016/12/news-feed-fyi-addressing-hoaxes-and-fake-news/

Norm-deviant communication is more likely to be effective and persist, and antagonism is both popular and profitable, a fact to which all manner of provocateurs can attest.

In parallel with the human/posthuman boundary, information entropy is in principle indifferent to the nuance and developmental philosophy maintained in a hermeneutic value of information as an aspect of a total world. The irritation of information on systems can be used to explain the behaviour of societies without direct reference to their specific semantic, qualitative content, or the intended purpose of that content. The unconscious, inconspicuous operators of social media—i.e. trending data ranking algorithms—trend towards certain emergent behaviours in predictable ways. This does not mean semantics of content are irrelevant, nor does it explain why particular sites or systems generate one environment or another in every case, yet it is an approach that demonstrates the indelible significance of the inhuman actors of these systems, and the dangers they present to corroborated truths.

The shift toward these new, inhuman purposes of information requires urgent consideration in the evolving media ecology. The problems are well-documented, but they are not mere symptoms of the age as much as the intentional design of Feed-based news. When information is no longer a human territory, we should expect that the behaviours that emerge from our communications systems no longer reflect humanist values. The polarity and tribalism evident on social media, as well as the diminution of veracity for attention, are behaviours encouraged by inhuman informants. The unexpectedness of information value, news, is no longer associated with humanist ends but with the autopoiesis of social media systems. The lack of temporal or spatial friction to communication makes global participation possible, but it simultaneously voids the value of context and development. With the phenomenal obstacles of space and time overcome, information of social media is more inhuman, drawing on the

structural coupling between users and humans for system-specific ends, rather than ends that

benefit the majority, and we should expect no less due to the vivid contrast of their selection

procedures

Conclusion

This effort began with a discussion of an outspoken group of journalists, intellectuals, and industry insiders (or former insiders) expressing a variety of concerns about the psychosocial effects of Feed-based social media. To address their points I have fleshed out the subject of the Feed symbryo, the user, through its disruptions of subjectivity, agency, sociability, and thought. The question remains: to what extent has Feed alarmism been validated? To be sure, many of the concerns they raise can be traced to the operators, incentives, and feedback loops of the Feed, yet one's answer to this question depends entirely on their estimation of pre-Feed symbryos. The most important comparison to the user is the literate subject, as many of the institutions, traditions, and ideas that are said to be undermined by the operation of Feed-based systems— including politics, education, and civil public discourse—were symbryos of linear, sequentially reasoned prose, and reflected the values of Enlightenment writers. While it is clear that our media ecologies are changing rapidly, and the meanings of notions such as identity, individuality, and knowledge are shifting with them, whether or not these changes are regressive is largely a value judgement as to what is considered good, as the liberal individual is prone to its own biases and exclusions. In any case, each of these shifts does demonstrate the emergence of more general definitions of many capacities and behaviours that were considered exclusively human, and paradoxes that reveal underlying tensions in humanist autobiographical narratives.

Tellingly, the advent of Feed-based social media systems is one of many aspects of a burgeoning posthuman situation—which I have called an imaginary. More and more frequently, in works of fiction, images, and the news, we are experiencing nonhuman agency in areas that were exclusively human domains: four decades ago, the humans who assembled cars were

replaced with robots, now nonhuman programs plan our routes and hail cabs—soon they will be driving them too. In the time since doctors began using software as a diagnostic aid, it is conceivable now that human diagnoses may become a mere redundancy in a more efficient, nonhuman process; and with genomics we can even imagine a world in which software proactively prevents health problems decades before they manifest. Algorithms can recommend stocks, music playlists, and sentencing for criminal offences (Brennan et al 22). Apps can order food and plan grocery lists—might they eventually cook it as well? Programs can have conversations and facilitate connections— now we imagine them forming relationships. Such questions, until relatively recently, were unthinkable, but now occupies the front pages of news sites and tops the box office—forefront on the screens of our social consciousness. Posthumanism is not only an academic discourse or a theoretical impulse—it is also the proclivity of our imagination to consider will, thought, and agency even in our absence. To be sure, alarm is an appropriate response to the anxiety produced by posthumanist imaginaries, and such imaginaries results from reflecting on experiences such as these. Through agencies, including the inhuman dance of the Feed, "we" are compelled to reimagine ourselves and our position in a world where communication is increasingly inhuman.

The ecological changes impelled by the widespread adoption of Feed-based media precede online networks, but the effects are now more pronounced and more concrete than ever before. These shifts began with the advent of aperceptual media, in which the processes of communication occur at speeds or scales that exceed human perception. In 1922, a letter to the editor of the N*ew York Times* described how "the high wires on the roof of a great powered radio plant, etched against the sky, give a sense of the infinite—the same sense that church spires somehow never fail to bring…A sense of the future is in these wires, too, a feeling that we are

upon the threshold of stranger things than either philosophy or physics ever dreamed of" ("Radio

Programs"). The author of this letter expressed the futurity of radio with quasi-religious awe, and

in hindsight, the threshold she is speaking about is the shift from perceptible to imperceptible

communication. With the emergence of each technology and technique since, we continue

towards this futurity and the increasing capacities of aperceptual agency. Today, this is figured in

large part by social media systems: the majority of our communication and access to information

relies on the nonhuman while the human position is now, more than ever, supervised, surveilled

and recorded by nonhuman agents.

Our position in the world, our relationships to the occasions therein, and our theories and

narratives about ourselves are in part shaped by behaviours reinforced by the technologies and

techniques by which positions, relationships, and theories are formed—media. Agency or

freedom is emergent, rather than an inborn faculty or gift. The steering of social media feeds not

only demonstrates this with respect to our current ecology, but hints that it has been the case all

along. Alarmists, like those at the Center for Human Technology claim that "No other media

redefined the terms of our social lives"[84], but this is patently false. Every medium redefines the

terms of our social lives as well as the list of values they posit as the basis for civil society—i.e.

mental health, individual self-worth, face-to-face community, and democracy—would be hardly

recognizable even a generation ago. For example, John F. Kennedy's inaugural speech

frequently mentions freedom, rights, and loyalty, but never mental health, individual self-worth,

or face-to-face community (indeed, the addition of face-to-face community would be considered

tautological).[85] These communal values would seem even more alien one more generation

removed, when Theodore Roosevelt exhorted his audience "we must show, not merely in great

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[84] humanetech.com/problem
[85] jfklibrary.org/learn/about-jfk/historic-speeches/inaugural-address

crises, but in the everyday affairs of life, the qualities of practical intelligence, of courage, of hardihood, and endurance, and above all the power of devotion to a lofty ideal."[86] This table of values seems much more collectivist and deontological, perhaps even hard-nosed, than those extoling individual health and value. Of course these differences in value statements are historically very complex and depend upon innumerable factors, and to what extent they involve media ecologies, or do not involve them, would be impossible to argue. Nevertheless, they do show that social welfare is not as universal or transhistorical as the alarmists suggest. If the Feed symbryo is indeed as novel as I have claimed, then we should expect at least as much disruption of these fundamental notions as expressions of value.

Social media systems are part of a larger ecology which impels the transformation of a number of connotations from human to posthuman emphases; explaining these shifts thoroughly has been the primary purpose of this work. Each of these shifts follows a similar vector as concerns the movement to the posthuman, in that their common use historically was exclusively and intentionally used to differentiate human from nonhuman being. For example, labour as the creation of value differentiates man from animal; intentional action differentiates humans from technology; and communication and observation are exclusively human behaviour. According to this humanist paradigm, humans are very unlike other processes in the world, and a different kind of decision making underlies these occasions. In each of these cases, I argue that definitions must now be generalized if they are to account for the capacities of the Feed as a communication system. Many of the contentions of cybernetics, information theory, and comparative media studies have independently suggested that we may have missed something in our self-definition, and together with the Feed they create a new, posthuman imaginary, one in which we are

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[86] avalon.law.yale.edu/20th_century/troos.asp

symbryos together with nonhuman agents: as we train, improve, and apply nonhuman techniques and technologies, they reciprocally steer ours.

First, and perhaps most central, is the understanding of agency insofar as it is connected to humanist notions of individuated free will—the *liberum arbitrium indifferentiae*—which transcends natural order and its contingency. This presumption falls short when it comes to describing user behaviour within Feed-based systems. Because of the incommensurability of these realities, governments around the world, including the European Union, India, and the United States, are being compelled to figure out what is going on, and who should be held responsible. The sense of having perfect private control over one's actions is encroached upon by the control of behaviour and the algorithmic feedback by which users become more predictable over time. We are in the midst of an irritation of our inherited reality. It was once a popular belief that cyberspace would save democracy; John Perry Barlow writes in his "Declaration of the Independence of Cyberspace"(1996) that

> We are creating a world where anyone, anywhere may express his or her beliefs, no
> matter how singular, without fear of being coerced into silence or conformity….In
> the United States, you have today created a law, the Telecommunications Reform
> Act, which repudiates your own Constitution and insults the dreams of Jefferson,
> Washington, Mill, Madison, DeToqueville, and Brandeis. These dreams must now be
> born anew in us.

According to Barlow, cyberspace would to save Enlightenment values and be the fullest expression of its ideals. Today, as tech company lawyers defend their platforms to congresses and parliaments, it seems now that many such ideals which were stillborn, rather than born anew.

A particular future is programmed into ranking algorithms, and the ongoing feedback between user and system makes this particular future more likely than others based on which information is made visible. Agency, therefore, cannot be considered an exceptional human territory. Instead of agency as a result of deliberation beyond the external manipulation of other actors, the future of a Feed space is *always* manipulated by nonhuman actors. Relative to previous media, the behaviour of users is recorded perfectly. Each act of communication is counted, along with innumerable variables, more than any previous medium was capable of recording. What is more, each of these variables is effective and makes a difference, however minute, in the system as a whole. No system has ever been able to so completely archive us—all previous formed of communication had to be represented by models, while today the dataset is *complete* with respect to history. It logs every sender, recipient, interaction, response, tag, class, as well as the location and time of every event. Furthermore, changes in any of these variables can be used to immediately reconfigure the ranking of content visible in the Feed.

This brings us to the first of several paradoxes when comparing our media ecologies to those previous: in the Feed every unique action is accounted for as a unique action, and made effective as feedback. However, the sheer size of the dataset ultimately means that any unique action is less effective. Now that every action is counted, each has less weight. On one hand, users have more *direct* agency over feedback than they did with previous media—e.g. which books or stories are printed, which series are renewed, which films are funded—and incorporating user feedback offers a very individualized Feed. Yet on the other hand, particular acts of communication are less likely to make any difference simply because of how much data these nonhuman algorithms can incorporate into their processing.

The asymmetry between the agency of human individuals in social systems and the agency of users is demonstrated in the actions they must perform in order to enter society. For example, labour was once considered *the* activity that differentiated man from nature, and the value and property generated by labour was the entry ticket to social participation. Now, agency is predicated on access and passwords—a feature of control societies. The unprecedented capacities of nonhuman actors, informants, and operations as concerns social systems in particular undermines the notion that society is the result of a consensual decision. Rather, one's belonging to a dataset—which is accomplished simply by adding data to it—is the immediate result of communicating with it. Nonhuman agents, such as algorithms, mediate the communication between users and they, rather than human agents, make decisions about the value of users' contributions to social systems. Human intention is no longer the glue that holds social systems together. In its place is a premediated, quantifiable drive towards a predictive future. The humanistic idea of ethical social behaviour is also affected, if not liquidated, as the intention that renders actions socially constructive is an unquantifiable absence.

In terms of the ethics of social participation, alarmists are understandably worried about the future these systems may produce. Ranking algorithms valorize conflict and scandal by design, as I have argued at length. A recent book on the online culture wars concludes that online discussions

> of recent years have become ugly beyond anything we could have possible imagined
> and it doesn't look like there is any easy way out of the mess that has been created.
> Suddenly, how far away the utopian Internet centric days of the leaderless digital
> revolution now seem…Now, one is almost more inclined to hope that the online

world can contain rather than further enable the festering undergrowth of

dehumanizing reactionary online politics. (Nagle 120)

Social media, and the Feed in particular, do not judge the ethical value of content. This is one result of the inhuman reality of communication. Variables which measure the ethical value or consensual veracity of posts cannot simply be added to fix the problem because they are incomputable, and incommensurable with the inhumanity of Feed-systems. The chasm between human and posthuman realities is perhaps more pronounced here than anywhere else, and while such media dominate our ecologies, there does indeed seem to be cause for alarm.

While the emotional impulses for reactivity, conflict, and scandal are fed by the Feed, these reactions are interpreted by ranking algorithms as beneficial, as *good*. Users *work for* their system by offering up the conditions in which they are more likely to be seduced. This introduces a paradox into what labour meant for political economy. Labour once was thought to be the contribution of individuals to the social body, as opposed to all of the other activities one undertakes. Yet labour becomes an inhuman category of action as ranking algorithms come to define value because for users *any* act of digital communication now counts as labour, whether or not such acts benefit the common good. For example, whereas consumption was once the opposite of labour, in that it reduces the value of a commodity, if one's consumption can be digitally recorded it generates value in the social network. We see this take place most conspicuously in the phenomena of influencers, who are sponsored for consuming products. The same definition of labour applies equally to video uploads of people's dogs, meals, hikes, or pregnancies: all of human life can now be considered labour if they are surrendered to the Feed. Labour includes any behaviour that can be digitally recorded, created, or communicated, such

that any communication in a social media system creates value. The paradox is that while labour is inhumanized on one hand, a vast array human activity counts as labour that previously did not.

Labour is one aspect among many that were once conceived in exclusively human terms that have become contentious in Feed ecologies. Social media systems disrupt inherited notions of cultural identity quite simply because personal identification with something as amorphous and qualitative as culture identity cannot be algorithmically parsed and quantified. The best example of this asymmetry is the debate between Facebook Inc. and the Telecom Regulatory Authority of India, in which both sides seemed to be arguing past each other due to incommensurable premises regarding the meaning of rights and sovereignty. Between them, shared common good proved elusive. Individual rights and national sovereignty are very important points in the theoretical constellation of constitutional democracy. For this reason, the social contract has served as an ecological foil throughout this work. Mark Zuckerberg's incredulity regarding the TRAI's decision to ban the Free Basics initiative is an indicator of the schism between the fundamental ahistoricity of Feed-based social media systems and existing institutions handed down previous ecologies. Furthermore, it illustrates the indifference of social media systems to regions of human concern, particularly the historicity of national identity, for in advance all populations are reduced to potential data inputs. The Facebook and TRAI debate brought many of the incommensurable premises regarding human identities to the fore.

If allegations are true, the 2016 Presidential Election in the United States is a perhaps *the* major event that illustrates the asymmetry of the fundamental operations of the Feed ecology with political institutions. Similarly, it is the moment at which we can declare the death of cyberspace-utopianism, as it offends so many of its goals—open communication and civil discourse, shared community and democracy, and freedom from external manipulation.

Inorganic demographic targeting, and the attempt to steer voter behaviour for political ends is a rallying point for Feed alarmists, and also demonstrates the potential of social systems to manipulate the vote—an act which we consider the most sacred symbol of free will. Foreign actors in Russia's Internet Research Agency Social demonstrated the inhuman potential of social media by creating profiles that intentionally misrepresented their identity on platforms, and used automated programs to manipulate the built-in capacity of feeds to value trending data, irrespective of its veracity. Although social media companies condemned these actions, the Internet Research Agency only actually used the platforms of Facebook, Twitter, and Reddit for what they are made to do, that is, target demographics, store data, and reward norm-deviant behaviour. The difference in this case was that inorganic content manipulation was used in a way the developers did not intend, yet none of the operators of the system had to be altered or hacked in order for this manipulation to occur. As advertising platforms, social media feeds are intended to steer user behaviour towards ends; the fact that the same mechanisms steered behaviour towards political ends is an unsurprising consequence.

Following the 2016 Presidential Election, the backlash against social media companies, both public and institutional, figures as a fundamental redefinition of privacy relative to the definition inherited from more humanistic societies. Although privacy is among the greatest concerns of Feed alarmists, its place in the political economy of the Enlightenment did not imply protection from surveillance as much as protection from the state; the government guarantees, under threat of violence, one's rights to own property as an individual. Privacy was to be outside the jurisdiction of the state, particularly in terms of ownership. The right to privacy, in the sense of defending one's property or person from arbitrary seizure or molestation was a legal limit that the state would both observe and enforce. The meaning of this term goes far beyond the word,

however, as state institutions are now attempting to delineate their responsibility for our privacy from private companies. Since then, Facebook in particular (Twitter and Google have also been asked to testify, depending on the instance) has be called to testify before both the US Congress and the EU Parliament, was fined by the UK Information Commissioner's Office, and will potentially face further fines for failing to comply with European privacy laws. Such institutional decisions requires new interpretations of what the state's role in defending users' privacy should be, given the threats that emerge as a product of the Feed ecology.

The final debate I have addressed, and probably the most significant, concerns the reconstitution of information and its value in the Feed system. Whereas privacy relates to the ownership of data, information relates to the proliferation of content. Feed-based systems are, as I have argued, interested in expending history for the sake of a future. Norm-deviant content, which has a greater information value, is more likely to succeed and spread in Feed systems. The issue at stake is truth, consensus in particular, which is notoriously difficult for computational systems to replicate. Instead, they prioritize norm-deviant content, which is then coupled with personalized feeds, a combination which leads to polarized filter-bubbles which develop increasingly specialized interpretations and meanings. Less communication with external feedback loops facilitates filter-bubbles as social groups no longer interact unless they actively choose to, making general consensus an improbable end.

Information in Feedspace is news, and exclusively valued as such. To be sure, previous media ecologies also valued information as news, but corporate news was (at least in part) offset by journalistic standards and the cultural prestige of particular publications that had earned public trust. Today, due to the sheer volume of new content, news now includes public updates on interpersonal relationships, conspiracy theories, fake news, old-fashioned news stories, and

ads—many of these are becoming increasingly hard to distinguish from one. YouTube's "autoplay" function in the recommended feed is notorious for making strange connections between videos if it runs through videos without human intervention. Consensus as a veracity variable is not fully reliable, however, it allows for discussion based on a shared interest in a shared reality. The bias towards trending and norm-deviant content programmed into social media feedback, which values attention, threatens the notion of discussion intended to arrive at consensus concerning reality. As long as consensual reality and shared goals are a considered a social aim, the concern of alarmists can certainly be attended to.

Responses to the social shifts of agency, labour, privacy and information from alarmists, institutions, and intellectuals today all are beginning to grasp the role of Feed-based systems in constitutional democracies. They represent the tensions within the development of new media ecologies; a tension which stresses the inheritance of history. These quandaries overlap with many of the shifts and paradoxes which I have raised in this work, such as: How do social media systems affect the possibilities of action? How shall we evaluate which changes should be embraced and which should be fought? Who is responsible for users' privacy today (in both the liberal and modern senses of the term)? Should the state regulate private entities in the public interest? If they should, are the up to the task? Ultimately, each shift and each question expresses uncertainty as to how the symbryos of the future *will* be. And furthermore questions whether the universal status of ourselves, as individuals or voters or citizens will be able to maintain these statuses despite the pressures emerging from our dominant communications media.

The tenets of our institutions and even the bases of our human experience will be reconfigured in the ongoing interaction between society and social media systems. A predictive future is the primary goal of Feed-based systems. For us, this means that our time

communicating with Feed-based systems is quantified by variables towards an intended future, continuously reinvented by nonhuman informants. Our imaginations of the future are changing. Where the nonhuman was once reduced to be a framing-motif, passive tools rather than symbryonic agents, they are now dominant agents in our social systems. While the most conspicuous consequences are those of images, commerce, and politics, there is yet a fundamental reconfiguration of the lived world. Time itself holds a tenuous meaning, with the promise of unprecedented futures where we as human beings can no longer consider ourselves the chosen protagonists in a cosmological narrative. Feed-based systems are not the cause of the decentering, but they are one of its most prolific expressions.

With the visible advent of the nonhuman in many of the regions we thought were our exclusive domain, our identity is in question. Anxiety over this posthuman situation is expressed in innumerable ways—from narrative in film and literature, to reactionary movements who respond with alarm, to attempts by civil institutions to maintain relevance in this future—yet no aesthetic can ignore the possibility of a posthuman world. The Feed is but one observer of a reality that maintains a certain indifference to and distance from human concern. With its proliferation are psychological, political, and even existential consequences. The possibilities of society have always been co-implicated with nonhuman actors, yet now more than ever this symbryosis cannot be ignored. The world is being processed differently in our ecologies today— not so much as a break from the past, but a reinterpretation of possibilities for the future. There is much that remains impossible to predict, and hidden consequences and crises will be upon us in the near future, yet there will also be many unimaginable opportunities for thought, and new realities to be constructed.

Works Cited

American Society for Cybernetics. "History of Cybernetics." Web. Sept 2018. <www.asc-cybernetics.org/foundations/history2.htm>.

Aristotle. *Politics*. Trans. Ernest Barker. Oxford: Oxford University Press, 2008. Print.

Augustine. *City of God I*. Trans.Marcus Dods. Edinburgh: T &T Clark, 1871. *Project Gutenberg*. Web. Mar 2018. <www.gutenberg.org/files/45304/45304-h/45304-h.htm>.

Baker, W.J. *A History of the Marconi Company 1874-1965*. Oxford: Routledge, 2002. Print.

Barlow, John Perry. "A Declaration of the Independence of Cyberspace." *Electronic Frontier Foundation*. 1996. Web. Dec 2018. <www.eff.org/cyberspace-independence>.

Bateson, Gregory. "Epistemology and Ecology." *Steps to an Ecology of Mind*. Toronto: Ballantine, 1972. 399-468. Print.

Baudrillard, Jean. *Simulacra and Simulation*. Trans.Sheila Faria Glaser. Ann Arbor: The University of Michigan Press, 1994. Print.

Baudrillard, Jean. *The Mirror of Production*. Trans. Mark Poster. St. Louis: Telos Press, 1975. Print.

Baudrillard, Jean. *The Spirit of Terrorism*. Trans. Chris Turner. New York: Verso Books, 2012. Print.

Bauman, Zygmunt. *Hermeneutics and Social Science.* London: Hutchinson and Co, 1978. Print.

Binkowski, Brooke. "I Was A Facebook Fact-Checker. It Was Like Playing A Doomed Game Of Whack-A-Mole." *Buzzfeed News*. February 8 2019. Accessed February 2019. < www.buzzfeednews.com/article/brookebinkowski/fact-checking-facebook-doomed>

Bishop, John Douglas. "Locke's Theory of Original Appropriation and the Right of Settlement in Iroquois Territory." *Canadian Journal of Philosophy* 27.3 (1997): 311–337. *JSTOR*. Web. January 2018. <www.jstor.org/stable/40231987>.

Bourdieu, Pierre. "The Forms of Capital." *Education: Culture, Economy, and Society*. Eds. Halsey et al. Trans. Richard Niece. New York: Oxford University Press, 1997. 46-58. Print.

Braidotti, Rosi. *The Posthuman*. Cambridge: Polity Press, 2013. Print.

Brady, William J. et al. "Emotion shapes the diffusion of moralized content in social networks." *National Academy of Sciences*114 (2017): 7313–7318. Web. Oct 2018. <https://doi.org/10.1073/pnas.1618923114>.

Brennan, Tim et al. "Evaluating the Predictive Validity Of The Compas Risk And Needs Assessment System." *Criminal Justice and Behavior* 36.1 (October 2008): 21-40. *Sage*. Web. Aug 2018. < https://doi.org/10.1177/0093854808326545 >.

Buchanan, Ian. "Deleuze and the Internet." *Deleuze and New Technology*. Eds. M. Poster and D. Savat. Edinburgh: Edinburgh University Press, 2009. 143-160. Print.

Bueno, Claudio Celis. *The Attention Economy: Labour, Time, and Power in Cognitive Capitalism*. New York: Rowman and Littlefield, 2017. Print.

Cavell, Richard. *McLuhan in Space*. Toronto: University of Toronto Press, 2003. Print.

Cecchetto, David. Humanesis: Sound and Technological Posthumanism. Minneapolis: University of Minnesota Press, 2013. Print.

Center for Humane Technology. "The Problem." Web. August 2018. <www.humanetech.com/problem>

Cesaratto, Todd. "Luhmann, All Too Luhmann: Nietzsche, Luhmann and the Human." *Luhmann Observed: Radical Theoretical Encounters*. Eds. A. La Cour and A. Philippopoulos-Mihalopoulos. New York: Palgrave Macmillan, 2013. 108-134. Print.

Chun, Wendy Hui Kyong. *Control and Freedom: Power and Paranoia in the Age of Fibre Optics*. Cambridge: The MIT Press, 2006. Print.

Chun, Wendy Hui Kyong. "Crisis, Crisis, Crisis; or, The Temporality of Networks." *The Nonhuman Turn*. Ed. Richard Grusin. Minneapolis: University of Minnesota Press, 2015. 139-166. Print.

Chun, Wendy Hui Kyong Chun. *Programmed Visions: Software and Memory*. Cambridge: MIT Press, 2011. Print.

De Beauvoir, Simone. *The Second Sex*. Trans. H.M. Parshley. New York: Random house, 1989. Print.

De Spinoza, Benedict. *Ethics*. Ed. and trans E. Curley. New York: Penguin Books, 1996. Print.

Debord, Guy. *Comments on the Society of the Spectacle*. Trans. Malcolm Imrie. New York: Verso Books, 1998. Print.

Deleuze, Gilles. *Difference and Repetition*. Trans. Paul Patton. New York: Columbia University Press, 1994. Print.

Deleuze, Gilles. "Postscript on Societies of Control." *October* 59 (1992): 3-7. MIT Press. Web. Jan 2018. *JSTOR*. <jstor.org/stable/778828>.

Della Mirandola, Giovanni Pico. *Oration on the Dignity of Man*. Trans. A. Robert Caponigri. Washington D.C.: Regnery Publishing, 1956. Print.

Denning, Peter J. and Craig H. Martell. *Great Principles of Computing*. Cambridge: The MIT Press, 2015. Print.

Derrida, Jacques. *Dissemination*. Trans. Barbara Johnson. Chicago: The University of Chicago Press, 1981.Print.

Derrida, Jacques. *Of Grammatology (Corrected Edition)*. Trans. Gayarti C. Spivak. Baltimore: John Hopkins University Press, 1997. Print.

Derrida, Jacques. "Word Processor." *Paper Machine*. Trans. R. Bowlby. Stanford: Stanford University Press, 2005. 19-32. Print.

Drucker, Johanna. "Humanistic Theory and Digital Scholarship." *Debates in the Digital Humanities*. Ed. M.K. Gold. Minneapolis: University of Minnesota Press, 2012. 85-95. Print.

Foucault, Michel. *The Order of Things: An Archaeology of the Human Sciences*. New York: Random House, 1994. Print.

Fuchs, Christian. *Digital Labour and Karl Marx*. New York: Routledge, 2014. Print.

Fuller, Matthew. *Behind the Blip: Essays on the Culture of Software*. New York: Autonomedia, 2003. Print.

Gadamer, Hans-Georg. *Truth and Method*. Trans. J. Weinsheimer and Donald G. Marshall. New York: Continuum, 1997. Print.

Gleick, James. *The Information: A History, A Theory, A Flood*. New York: Random House, 2011. Print.

Guattari, Félix. *Chaosmosis: An Ethico-Aesthetic Paradigm*. Trans. Paul Bains and Julian Pefanis. Indianapolis: Indiana University Press, 1995. Print.

Hansen, Mark B.N. *Feed-Forward: On the Future of Twenty-First-Century Media.* Chicago: University of Chicago Press, 2014. Print.

Hansen, Mark B. N. *New Philosophy for New Media*. Cambridge: MIT Press, 2004. Print.

Hansen, Mark B. N. "Our Predictive Condition." *The Nonhuman Turn*. Ed. Richard Grusin, Minneapolis: University of Minnesota Press, 2015. 101-138. Print.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press, 1999. Print.

Hayles, Katherine N. *How We Think: Digital Media and Contemporary Technogenesis*. Chicago: University of Chicago Press, 2012. Print.

Hafner, Katherine and John Markoff. *Cyberpunk: Outlaws and Hackers on the Computer Frontier*. New York: Touchstone, 1991. Print.

Haraway, Donna. *Simians, Cyborgs, and Women*. New York: Routledge, 1991. Print.

Heidegger, Martin. *Being and Time*. Trans. Macquarrie and Robinson. New York: Harper and Row, 1962. Print.

Heidegger, Martin. "The Question Concerning Technology" in *The Question Concerning Technology and Other Essays*. Ed. and Trans. William Lovitt. New York: Harper Perennial, 1977. 3-35. Print.

Hesmondhalgh, David. "User-Generated Content, Free Labour and the Cultural Industries." *Ephemera* 10. 3/4 (2010): 267-84. Web. Aug 2018. <www.ephemerajournal.org/contribution/user-generated-content-free-labour-and-cultural-industries>.

Hobbes, Thomas. *Leviathan*. Upper Saddle River: Prentice Hall, 1958. Print.

Hume, David. *A Treatise of Human Nature*. Oxford: Clarendon Press, 1896. Print.

Hume, David. *An Enquiry Concerning Human Understanding, 2nd Edition*. Ed. Eric Steinberg. Indianapolis: Hackett Publishing, 1977. Print.

Innis, Harold. *The Bias of Communication, 2nd Edition*. Toronto: University of Toronto Press, 1951. Print.

Jenkins, Henry. *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press, 2006. Print.

Kant, Immanuel. "Religion within the Limits of Reason Alone." Trans. Hudson and Greene. *Basic Writings of Kant*. Ed. Allen W. Wood. New York: Random House, 2001. 367-414. Print.

Keyes, Alison. "RADIO PROGRAMS: Plea for Those Who Balk at 'What Public Wants.'" *The New York Times* (June 3, 1922): 8. *TimesMachine*. Web. November 2018.

<www.nytimes.com/1922/06/03/archives/radio-programs-plea-for-those-who-balk-at-what-public-wants.html>.

Kirschenbaum, Matthew G. *Mechanisms: New Media and the Forensic Imagination*. Cambridge, MIT Press, 2008. Print.

Kittler, Friedrich (1995): "There is no Software." *CTheory.net*. October 18, 1995. Web. Oct 2016. <www.ctheory.net/articles.aspx?id=74>.

Kosinski, Michal, David Stillwell, and Thore Graepel. "Private traits and attributes are predictable from digital records of human behaviour." *National Academy of Sciences 110*.15 (2013). Web. July 2018. <www.pnas.org/content/110/15/5802>.

Kroker, Arthur. *Exits to the Posthuman Future*. Cambridge: Polity Press, 2014. Print.

Kücklich, Julian. "Precarious Playbour: Modders and the Digital Games Industry." *The Fibreculture Journal* 5 (2005). Web. August 2018. < http://five.fibreculturejournal.org/fcj-025-precarious-playbour-modders-and-the-digital-games-industry>.

Lapowsky, Issie. "Here's How Facebook Actually Won Trump the Presidency." *Wired* (November 15, 2016). Web. Jan 2017. <www.wired.com/2016/11/facebook-won-trump-election-not-just-fake-news>

Locke, John. *Second Treatise of Government*. Ed. C.B. Macpherson. Indianapolis: Hackett, 1980. Print.

Lewis, Paul. "'Our minds can be hijacked': the tech insiders who fear a smartphone dystopia." *The Guardian*, October 6 2017. Accessed August 2018. <www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia>

Luckerson, Victor. "The Rise of the Like Economy." *The Ringer*, February 15 2017. Accessed August 2018. <www.theringer.com/2017/2/15/16038024/how-the-like-button-took-over-the-internet-ebe778be2459>

Luhmann, Niklas. *Social Systems*. Trans. Bednarz and Baecker. Stanford: Stanford University
Press, 1995. Print.

MacKenzie, Donald. "Marx and the Machine." *Technology and Culture* 25.3 (July 1984): 473-
502. *JSTOR*. Web. December 2018.

Marvin, Carolyn. *When Old Technologies Were New: Thinking About Electric Communication
in the Late Nineteenth Century*. New York: Oxford University Press, 1988. Print.

Marx, Karl. *"Value, Price and Profit."* Ed. Eleanor Marx Aveling. *Marxists Internet Archive.*
Web. Aug 2018. <https://www.marxists.org/archive/marx/works/1865/value-price-
profit/index.htm>.

Marx, Karl and Friedrich Engels. *The German Ideology 1*. Trans. W. Lough. New York:
International publishers, 1970. Print.

McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man.* Toronto: Toronto
UP, 1962. Print.

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. New York: Mcgraw-Hill,
1964. Print.

Nagle, Angela. *Kill All Normies: Online Culture Wars from 4Chan and Tumblr to Trump and the
Alt-right*. Washington: Zero Books, 2017. Print.

Nayar, Pramod K. *"*Revisiting the Human: Critical Humanisms" *in Posthumanism.* Cambridge:
Polity Press, 2014. 1-34. Print.

Nietzsche, Friedrich. "Beyond Good and Evil." *Basic Writings of Nietzsche*. Trans. Walter
Kaufmann. New York: Random House, 2000. Print.

Nietzsche, Friedrich. *The Will to Power*. Trans.Walter Kaufmann. New York, Random House,
1967. Print.

Ong, Thuy. "Sean Parker on Facebook: 'God only knows what it's doing to our children's
brains.'" *The Verge*, November 9 2017. Accessed August 2018.

<www.theverge.com/2017/11/9/16627724/sean-parker-facebook-childrens-brains-feedback-loop>

Ong, Walter J. *Interface of the Word*. London: Cornell University Press, 1977. Print.

Palihapitiya, Chamath. "Money as an Instrument of Change." *YouTube*, uploaded by Stanford Graduate School of Business, November 13 2017. Accessed August 2018. <www.youtu.be/PMotykw0SIk>

Paine, Thomas. *Rights of Man, Common Sense and Other Political Writings*. Ed. Mark Philp. Oxford: Oxford University Press, 1998. Print.

Pariser, Eli. *The Filter Bubble: What the Internet is Hiding from You*. New York: The Penguin Press, 2011. Print.

Pickering, Andrew. "New Ontologies." *The Mangle in Practice: Science, Society, and Becoming*. Eds. Andrew Pickering and Keith Guzik. Durham: Duke University Press, 2008. 1-16. Print.

Plato. "Phaedrus." Trans. Benjamin Jowett. *Internet Classics Archive*. Web. Jan 2015. <http://classics.mit.edu/Plato/phaedrus.html>.

Ritzer, George and Nathan Jurgenson. "Production, Consumption, Prosumption: The Nature of Capitalism in the Age of the Digital 'Prosumer.'" *Journal of Consumer Culture* 10.1 (March 2010): 13-36. *Sage*. Web. Aug 2018.

Sartre, Jean Paul. "Existentialism is a Humanism." Trans. Philip Mairet. *Existentialism from Dostoyevsky to Sartre*. Ed. Walter Kaufman. New York: Meridian Publishing Company, 1956. Print.

Schopenhauer, Arthur. *Prize Essay on the Freedom of the Will*. Ed. Gunter Zoller. Trans. Eric F.J. Payne. Cambridge: Cambridge University Press, 1999. Print.

Serres, Michel. *The Parasite*. Trans. Lawrence R. Schehr. Baltimore: The John Hopkins University Press, 1982. Print.

Shannon, Claude. "A Mathematical Theory of Communication." *The Bell System Technical Journal* 27 (July, October 1948). 379-423. *Wiley Online Library*. Web. May 2016.

Shannon, Claude. "A Symbolic Analysis of Relay and Switching Circuits." *Electrical Engineering 57, Issue* 12. (December 1938): 713 – 723. *IEEE Xplore Digital Library*. Web. July 2016.

Shroff, Gautam. *The Intelligent Web: Search, Smart Algorithms, and Big Data*. New York: Oxford University Press, 2013. Print.

Simon, Herbert A. "Designing Organizations for an Information-Rich World." *Computers, Communication, and the Public Interest*. Ed.M. Greenberger. Maryland: John Hopkins University Press, 1971. Print.

Smith, Adam. *The Wealth of Nations*. Ed. by Edwin Cannan. New York: Modern Library, 2000. Print.

Solon, Olivia. "Facebook's failure: did fake news and polarized politics get Trump elected?" *The Guardian*. Web. November 10, 2016. <www.theguardian.com/technology/2016/nov/10/facebook-fake-news-election-conspiracy-theories>.

Stiegler, Bernard. *Technics and Time, I: The Fault of Epimetheus*. Trans. Beardsworth and Collins. Stanford: Stanford University press, 1998. Print.

Stiegler, Bernard. *Technics and Time II: Disorientation*. Trans. Stephen Barker. Stanford: Stanford University press, 2009.Print.

Taylor, Charles. *A Secular Age*. Cambridge: Belknap Press of Harvard University Press, 2007. Print.

Terranova, Tiziana. "Free Labor: Producing Culture for the Digital Economy." *Social Text* 18.2 (2000): 33-58. *JSTOR*. Web. Aug 2018.

Thompson, Nicholas. "Our Minds Have Been Hijacked by Our Phones. Tristan Harris Wants to Rescue Them." *Wired*, July 26 2017. Accessed August 2018. <www.wired.com/story/our-minds-have-been-hijacked-by-our-phones-tristan-harris-wants-to-rescue-them>

Virilio, Paul. *Open Sky.* Trans. Julie Rose. New York: Verso, 1997. Print.

Virilio, Paul. *Polar Inertia*. London: SAGE, 2000. Print.

Weaver, Warren. "Introduction." *The Mathematical Theory of Communication*. Urbana: University of Illinois Press, 1963. 1-28. Print.

Weedon, Jen, William Nuland and Alex Stamos. "Information Operations and Facebook." *Facebook Newsroom*. April 2017. Web. Oct 2017. <fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf>

Wiener, Norbert. *Cybernetics: Control and Communication in the Animal and the Machine. Second Edition.* Cambridge: MIT Press, 1948. Print.

Wiener, Norbert. *The Human Use of Human Beings: Cybernetics and Society*. New York: Avon Books, 1954.Print.

Wolfe, Cary. *What is Posthumanism?* Minneapolis: University of Minnesota Press, 2010. Print.

Whitehead, Alfred North. *Process and Reality: Corrected Edition*. David Ray Griffin and Donald W. Sherburne eds. New York: The Free Press, 1978. Print.

Whitehead, Alfred North. "The Concept of Nature." *Alfred North Whitehead: An Anthology*. Eds. S.C. Northrop and Mason W. Gross. Cambridge: Cambridge University Press, 1953. Print.

Williams, James. *Stand Out of Our Light: Freedom and Resistance in the Attention Economy*. Cambridge: Cambridge University Press, 2018. Print.

Zimmerman, Jens. *Humanism and Religion*. Oxford: Oxford University Press, 2012.Print.

Zuckerberg, Mark. "Building Global Community." *Facebook.com*. February 16, 2017. Web. July 2018. <www.facebook.com/notes/mark-zuckerberg/building-global-community/10154544292806634/>.