

TUTTI! - MUSIC COMPOSITION AS DIALOGUE

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## **Abstract**

As an engineer, when I could not comprehend a physical phenomenon, I turned to mathematics. As a mathematician, when I could not link sciences to humanity, I turned to music. As a music composer, I no longer see things, I see others.

The novel method of music composition presented herein is a first comprehensive framework, system and architectonic template relying on the ideologies of Mikhail Bakhtin's dialogism as well as on research in auditory perception and cognition to create music dialogue as a means of including and engaging participants in musical communication. Beyond immediate artistic intent, I strive to compose music that fosters inclusiveness and collaboration as a relational social gesture in hope that it might incite people and society to embrace their differences and collaborate with the 'others' around them.

After probing aesthetics, communication studies and sociology, I argue that dialogism reveals itself well-suited to the aims of the current research. With dialogism as a guiding philosophy, the chapters then look at the relationship between music and language, perception as authorship, intertextuality, the interplay of imagination and understanding, means of arousal in music, mimesis, motion in music and rhythmic entrainment. Employing findings from Gestalt psychology, psychoacoustics, auditory scene analysis, cognition and psychology of expectation, the remaining chapters propose a cognitively informed polyphonic music composition method capable of reproducing the different constituents of dialogic communication by creating and organizing melodic, harmonic, rhythmic and

structural elements. Music theory and principles of orchestration then move to music composition as examples demonstrate how dialogue scored between voice-parts provides opportunities for performers to interact with each other and, consequently, engage listeners experiencing the collaboration.

As dialogue can be identified in various works, I postulate that the presented Dialogical Music Composition Method can also serve as a method of music analysis. This personal method of composition also supplies tools that other musicians can opt to employ when endeavouring to build balanced dialogue in music.

If visibility is key to identity, then composing music that potentially enters into dialogue which each and every voice promotes 'humanity' through inclusivity, yielding a united *Tutti* !

*À mes parents Marie-Claire Dupuis et Ronald Désormeaux  
pour leur appui inlassable et éternel.*

*À mon frère Marc, son épouse Susan,  
mon neveu Alexandre et ma nièce Kristina  
pour les années d'encouragement et de soutien.*

*À ma famille choisie  
pour la confiance inébranlable.*

*To all those who see  
or are willing to see  
the true value of Art.*

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## Chapter 1 - Introduction, Rationale, Research Questions, Methodology

In art and nature alike our knowledge is based primarily on observation of existing phenomena. In art and nature alike first comes creation; then, second in sequence, comes theory trying to describe and to explain. However, this sequence does not preclude that theory, in putting together its observations and drawing conclusions, may also by way of speculation and development pave the way for new discoveries or anticipate future events.<sup>1</sup>

—Ernst Toch, *The Shaping Forces of Music*

### 1.1. Introduction

Observation, reflection and creation coexist and cooperate. As such, countless musicians and music scholars have devoted their efforts into discovering *What Makes Music Compelling?* This broad question was initially selected as a potential title for the dissertation at hand but, as the seemingly endless factors impacting music's reception harness entire fields of research, the present undertaking centres on one particular vehicle to enhance music's reach: dialogue. Why dialogue? What type of dialogue? How can one create dialogue in music? All these questions are probed in the following chapters.

In *The Anthropology of Music*, cultural anthropologist and ethnomusicologist Alan P. Merriam astutely states that “the major problem is that while we know music communicates something, we are not clear as to what, how, or to whom.”<sup>2</sup> The present research investigates the 'how' of music communication and builds upon this to create a composition method having the potential to make music more compelling by including and engaging performers and listeners alike.

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<sup>1</sup> Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form* (New York, NY: Criterion Music Corp, 1948. Reprint New York, NY: Dover Publications, Inc., 1977), xxii.

<sup>2</sup> Alan, P. Merriam, *The Anthropology of Music* (Evanston, IL: Northwestern University Press, 1964), 223.

Philip Alperson in “The Philosophy of Music: Formalism and Beyond” suggests that a new approach to philosophy of music should account for music's reception and to “the plurality of functions that music serves.”<sup>3</sup> Beyond expression, if the intent of the composer is to sustain interest or evoke ideas, emotions, concepts, political views, etc., the musical language may be crafted to elicit a participatory response. Consideration of the 'other' is primordial in sustaining spoken dialogue, so why should this differ when attempting to communicate through music? Nineteenth-century theorist and composer Moritz Hauptmann hints to the importance of reception when he declares, “Music is universally intelligible in its expression. It is not for the musician only; it is for the common perception of mankind.”<sup>4</sup> Music therapist Gary Ansdell's article “Being Who You Aren't; Doing What You Can't” offers the following thoughts on participatory music and on Christopher Small's *musicking*: “This new attitude towards performance [as social discourse] is perhaps most famously conveyed by Christopher Small's (1998) concept of *musicking* (and his book of this name), which is achieving a reorientation of thinking about music—towards activity and relationship.”<sup>5</sup> Accordingly, the method of composition proposed herein focuses on inclusiveness and engagement to promote participation and contribution. The artistic vision behind the composition method sees inclusiveness as a relational social gesture. As this concept resonates best through dialogism, its main tenets will motivate our compositional choices.

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<sup>3</sup> Philip Alperson, “The Philosophy of Music: Formalism and Beyond,” in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 272.

<sup>4</sup> Moritz Hauptmann, *Die Natur der Harmonik und der Metrik*, trans. and ed. by William Edward Heathcote (London, UK: Swan Sonnenschein & Co, 1888. ULAN Press Reprint, 2012), xxxix.

<sup>5</sup> Garry Ansdell, “Being Who You Aren't; Doing What You Can't: Community Music Therapy & the Paradoxes of Performance,” *Voices: A World Forum for Music Therapy*, Vol. 5, No. 3, 2005. <https://normt.uib.no/index.php/voices/article/view/229> (accessed 2016-11-09).

## 1.2. Rationale

With an interdisciplinary approach from fields as seemingly different as Communication Studies, Music Aesthetics, Philosophy of Music, Music Sociology, Music Therapy, Psychoacoustics, Reception Theory, Bioacoustics and others, contributing factors to listener engagement may be identified. The research herein aims to show that both inclusiveness and imagination represent two significant aspects of participative music reception.

How can you participate in a game if you are not invited/allowed to play, the rules/conventions/mechanisms are not shared, and your presence/contribution is disregarded? Likewise, how can you discuss/converse if you are not invited/allowed to speak, you don't know the language/conventions/inflexions, and your contribution is disregarded? Many more examples could be constructed but, essentially, interest, curiosity, enjoyment, understanding, captivation, engagement, collaboration, etc., speak of participation (active listening/playing) which requires inclusion and some form of interest/comprehension. If no concern exists for music's reception, then there is no element of inclusion and only the 'artistic object' (and not the 'aesthetic object')<sup>6</sup> is released/expressed/stated. If, on the other hand, the language employed has elements comprehensible to the listener/performer, the potential to engage increases.

Another analogy for listening to music lies in comparing it to a walk in the forest. If you are brought to a remote area in the woodland and asked to venture with no navigation tools and no indication of the duration of the activity, your enjoyment might be troubled by

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<sup>6</sup> See Marcia Muelder Eaton, "Art and the Aesthetic," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 63-77.

its unnerving character. If, instead, parameters are provided (e.g., the duration of the journey, key reference points, proposed routing, etc.), you are likely to direct your attention to a broader appreciation of the experience, noticing moss and leaves, comparing glistening reflections to subdued undertones, and sensing the crispness of the air or the warmth emanating from exposed rocks. Music can be enjoyed free from the constraints of guidance but this requires openness from the listener and a certain intrepidity. In contrast, the composer who leaves clues and markers intentionally suggests a listening path, upcoming vistas and points of interest. Some people seek boundless adventure while others prefer guided expeditions—it is a matter of choice and personality. Likewise, a composer should be free to select the approach they wish to take.

Composers from the Common Practice period etched musical paths by adhering to certain stylistic conventions, by repeating material (e.g., themes, motives, rhythmic gestures, etc.) and by uniting ideas through tonal relationships and overall form. Conversely, at a time of global political unrest and insurgency, Modernism brought upon a pursuit for innovation and, in many cases, a distancing from past methods and practices. In post-1920 Europe, the two main music composition ideologies were Neoclassicism and 'Modern' music. Neoclassicism, also known as *Neue Schlichkeit* (New Objectivity), is strongly associated with Igor Stravinsky and favoured a return to eighteenth-century objectivity and emotional reserve. Modern music, heavily tied to Arnold Schoenberg and his seminal *Harmonielehre* (1911), brought about a dilution of music's vertical organisation in favour of horizontal relationships. Both composition philosophies strove for innovation but, unlike Neoclassicism, Modern music was perceived as displacing or replacing past practices with completely new methodologies; as denounced by Stravinsky, “[Composers of Modern

music] spend all their time inventing a music of the future. Actually this is very presumptuous.”<sup>7</sup>

If one performs an extensive review of Schoenberg's *Harmonielehre* to compare it to its likely influences<sup>8</sup> such as Richter and Sechter, and going as far back as Jean-Philippe Rameau's *Traité de l'harmonie* (1722), it can be asserted that Schoenberg did not reject the past but, rather, chose to leave behind perceived sternness and 'rules' to design his own harmonic language. Schoenberg attempted to reconcile old methods with a freer vision favouring instinct and accounting for the functionality of tonal ambiguities and dissonances in the repertoire where, traditionally, these were treated as exceptions. Schoenberg describes his approach in the following:

A real system should have, above all, principles that embrace all the facts. Ideally, just as many facts as there actually are, no more, no less. Such principles are natural laws. And only such principles, which are not qualified by exceptions, would have the right to be regarded as generally valid. Such principles would share with natural laws this characteristic of unconditional validity. The laws of art, however, consist mainly of exceptions! . . . I should really be satisfied just with change, with a differently colored glass. The new will be found here, and even if it is no more right, essentially, than what was formerly found, *even so it is at least new*; and the new, even if it is not true, is at least the beautiful. . . . One must and may to a certain degree depend upon one's predecessors. Their experiences and observations they have recorded in part in . . . sciences; but another part . . . lies in the unconscious, in instinct.<sup>9</sup>

The abstraction of 'rules' within Modernism might delight listeners with novel soundscapes, freshness of relationships and ingenuity in craft but may also be deemed disorienting by those seeking clear goals and more readily apparent relationships.

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<sup>7</sup> Dorothy Lamb Crawford, *A Windfall of Musicians: Hitler's Émigrés and Exiles in Southern California* (New Haven and London: Yale University Press, 2009), 4, quoting Igor Stravinsky during a New York interview, as found in a German translation clipping that Schoenberg kept - See Lamb Crawford endnote 10.

<sup>8</sup> Ernst Friedrich Richter, Moritz Hauptmann, Simon Sechter, Jean-Philippe Rameau, Max Julius Loewengard (alt. spelling Loewengard), Nikolay Rimsky-Korsakov and Peter Ilyitch Tchaikovsky, and parallels with works by Arthur von Oettingen, Hugo Riemann and Hermann Helmholtz.

<sup>9</sup> Arnold Schoenberg, *Harmonielehre* (first ed., Vienna: Universal Edition, 1911), third ed. 1922, trans. Roy E. Carter as *Theory of Harmony* (Berkeley, CA: University of California Press, 1978, paperback 1983), 10; 326; 415-16.



In other words, requiring such openness to abstraction may appeal to some but, conversely, it may reduce opportunities for a truly dialogic exchange with others. When listening experiences present minimal stylistic consistency between them, it becomes difficult to anticipate the music's development. As will be seen, the satisfaction derived from successful anticipation sustains participatory listening. When large variances in style impede the creation of expectations, the composer can, nevertheless, foster active listening through repetition within the work itself (e.g., through recurring material)—this will also be discussed.

Fostering the creation of expectations features prominently in the music composition method proposed herein because it gives rise to opportunities for inclusiveness and engagement through imagination as active dialogue. It is hoped that such dialogue will render listening experiences more participatory and compelling.

### 1.3. Research Questions

*What makes music compelling?—A Look into the Selection and Structuring of Music Parameters to Create Inclusive, Engaging and Participatory Dialogue in Music Composition:*

1. What is the rationale for applying dialogism to music composition?
2. How can inclusive dialogue be created in music composition?

#### 1.4. Methodology

Key findings obtained via an inter-disciplinary approach (Communication Studies, Aesthetics, Sociology, Dialogism, Reception Theory, Music Therapy, Gestalt Psychology, Auditory Perception, Bioacoustics, Music Analysis, Music Theory, and Music Composition) are reviewed and brought together to yield a compositional method for the construction of inclusive and engaging music dialogue having the potential to render it more participatory and, thus, more compelling. In the quest for a compositional method best suited to this vision, novelty alone does not dictate our artistic choices; instead, past practice unites with freedom to innovate. With this in mind, conscious compositional decisions include, by choice, both simplicity and complexity in treatment of music parameters. 'By choice' was emphasized in this last sentence to implore respect for compositional preferences unbounded by period-based aesthetics. There are no valid and unbiased reasons to refute a composer's approach based solely on their applicability or relevance within the current era. Any segregation of 'old' vs. 'new' stemming from over-praising innovation fosters oppression, control and discrimination. A composer needs the freedom to create, unbounded by the aesthetic laws of the day. Accordingly, the proposed method of dialogic composition finds points of intersection bridging old and new compositional processes. To assist comprehension of this compositional method, musical passages are created where theory moves to practice.

It should be borne in mind that the personal method of composition described within these pages offers a toolbox of choices that other musicians may elect to refer to when attempting to increase music's communication potential. As such, the presented method of composition should not be misconstrued as prohibitive nor prescriptive.

Furthermore, it should be stressed that the approach undertaken in the following query is not dialectic in the Hegelian sense but, rather, dialogic, echoing this dissertation's general philosophy. Likewise, an effort is made to limit paraphrasing when deemed unnecessary—this stands as a visual gesture accounting for and honouring the viewpoints of individual contributors to this joint endeavour.

### 1.5. Chapter Conclusions

As music cannot be removed from the context in which it is produced, an interdisciplinary approach encompassing the complex interactions affecting its many functions lies within these pages. Alan P. Merriam specifies, “When we speak of the uses of music, we are referring to the ways in which music is employed in human society, to the habitual practice or customary exercise of music either as a thing in itself or in conjunction with other activities.”<sup>10</sup> Since one of the key functions of music is to communicate, an obvious first step in understanding how to best include and engage listeners starts with a deeper appreciation for what it means to communicate, in general and through music. Let us begin our enquiry.

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<sup>10</sup> Alan, P. Merriam, *The Anthropology of Music* (Evanston, IL: Northwestern University Press, 1964), 210.

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# PART ONE

## The Impetus

Chapter 2 - Music as Communication begins our query by looking at music *as* a means of communication. We open the matter with an examination into two main communication modes: dialogue and dissemination. We then move to discussions centering around music communication *as* society and community. Advocating for participatory music, we proceed to justify why we reject linear communication models in favour of reciprocal ones. After this rationalization, we suggest that there are opportunities for enhancing inclusiveness through collaboration and participation, and show that 'participation' can take various forms. The chapter ends by emphasizing that music offers opportunities for social change through the collaborative experiencing of art.

Chapter 3 - Inclusiveness via Dialogism and Intertextuality first lays out foundational thoughts in Aesthetic Theory that lead up to dialogism and then explicates why dialogism motivates our compositional choices. Emphasis is made on the inseparable nature of cognitive and sensory response. This directs us to the crucial role that imagination and appropriative authorship play in rendering music more inclusive and participatory.

## Chapter 2 - Music as Communication

### 2.1. Introduction

When investigating the communicative properties of music, the kinship between music and spoken dialogue offers bountiful research avenues. We know of early accounts by Bartolomé Ramos de Pareja with his *Musica* (1482) and Johann Andreas Herbst with *Musica practica* (1642) and *Musica poetica* (1644), to name but two authors. Three-hundred years later, in *Philosophy in a New Key* (1942), Susanne K. Langer writes, “The real power of music lies in the fact that it can be 'true' to the life of feeling in a way that language cannot; for its significant forms have the *ambivalence* of content which words cannot have.”<sup>1</sup> So, although not providing a true representation of language, music still remains a mechanism for communication and, as purported by Langer, song might have led speech in human evolution:

Voice-play, which as an instinct is lost after infancy, would be perpetuated in a group by the constant stimulation of response, as it is with us when we learn to speak. It is easy enough to imagine that young human beings would excite each other to shout, as two apes excite one another to jump, rotate and strike poses; and the shouting would soon be formalized into song. Once the vocal habits are utilized, as in speech or song, we know that they do not become lost, but are fixed as a life-long activity. . . . Song, the formalization of voice-play, probably preceded speech.<sup>2</sup>

Offering counter-arguments to the above, the neurologist (and contributor to musical therapy) Oliver Sacks mentions (in *Musicophilia*) the work of Steven Pinker, who suggests that speech preceded music, and of Aniruddh Patel, who believes that music might have

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<sup>1</sup> Susanne K. Langer, *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite and Art* (Cambridge, MA: Harvard University Press, 3rd edition, 1957), 243.

<sup>2</sup> *Ibid.*, 128.

evolved, altogether, independently from speech.<sup>3</sup> Either way, many useful parallels can still be drawn between speech and music as communicative devices. Consequently, today, there exist numerous fields of musicology, ethnomusicology, music sociology, cultural studies, etc., investigating relationships between music, society and language, but let us first look into the idea of communication, in general. From there, we shall discuss 'communication *as* society/community' and then move to notions of 'music communication *as* society/community' and finally to 'music communication as society/community through inclusiveness'.

## 2.2. Discussion

### Communication as Society/Community

Reading John Durham Peters' *Speaking into the Air: A History of the Idea of Communication* can prove to be a challenging task due to the breadth of this monogram; nevertheless, one can find stimulating arguments in this extensive review, where Peters tackles the methods of two well-known orators: Socrates and Jesus. The first chose direct involvement in sharing knowledge with select few, while the second's words were spread mostly by large-scale unidirectional broadcasting. Although in apparent opposition, these two approaches need not be mutually exclusive, as explained by Peters,

[D]issemination without dialogue can become stray scatter, and dialogue without dissemination can be interminable tyranny. The motto of communication theory ought to be: Dialogue with the self, dissemination with the other.<sup>4</sup>

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<sup>3</sup> See Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (Toronto, Canada: Alfred A. Knopf, 2007), 242-44.

<sup>4</sup> John Durham Peters, *Speaking into the Air: A History of the Idea of Communication* (Chicago, IL: University of Chicago Press, 1999), 57.

To grasp the significance of Peters' position, a brief examination of his book is warranted. In *Speaking into the Air*, Peters outlines diverse means of communication: partaking, transferring and exchanging. Viewing these as related rather than separate, Peters quotes Leo Lowenthal: "True communication entails a communion, a sharing of inner experience."<sup>5</sup> Experience is subjective. We have already posited that music is inseparable from society but now we see correspondence with communication theory, in general, since, as put by Peters, "communication theory becomes consubstantial with ethics, political philosophy, and social theory in its concern for relations between self and other, self and self, and closeness and distance in social organization."<sup>6</sup> We address these points later in this chapter; however, it may be beneficial to elaborate immediately upon a few key concepts.

Early in his book, Peters tallies an impressive list of sources including: Karl Jaspers, Ludwig Wittgenstein, Martin Buber, C. K. Ogden, John Dewey, Martin Heidegger, Sigmund Freud, Walter Lippmann, Georg Lukács, Theodor Adorno, Jürgen Habermas, Emmanuel Levinas and many more.<sup>7</sup> Peters toggles between authors in search of his own interpretation. To Peters, Heidegger views communication akin to "bearing oneself in such a way that one is open to hearing the other's otherness"<sup>8</sup> and thus removes from it the need to impart intent, meaning or any type of one-way exchange of information. This beckons notions of dialogue, dialogism and intertextuality, which we discuss in Chapter 3.

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<sup>5</sup> John Durham Peters, *Speaking into the Air*, 8.

<sup>6</sup> *Ibid.*, 10.

<sup>7</sup> See, in particular, Peters, *Speaking into the Air*, 10.

<sup>8</sup> Peters, *Speaking into the Air*, 16.



On Dewey, Peters expressly relates the importance of communication as “participation in the creation of a collective world.”<sup>9</sup> According to Peters, “Dewey took the disappearance or distortion of participatory interaction as the most alienating feature of the age [early twentieth century].”<sup>10</sup> Peters also suggests that Habermas expanded Dewey's approach to view communication as action towards the creation of a democratic community. As will be seen in the ensuing chapters, establishing such collaborative participation as a social impetus lies central to the compositional method herein. Autocratic replication of self-intent does not belong in a dialogic dialogue and, as Peters summons from Levinas, it is a “pogrom against the distinctness of human beings.”<sup>11</sup> Later, in *Speaking into the Air*, Peters focuses on Levinas' concern for communication as “an ethical obligation to the otherness of the other person.”<sup>12</sup> Again, concepts of dialogism like that of 'otherness' will be elaborated upon in the ensuing Chapter 3.

We sense increasingly the ties between communication and social theory. “Communication,' whatever it might mean, is not a matter of improved wiring or freer self-disclosure but involves a permanent kink in the human condition,” stresses Peters.<sup>13</sup> Peters continues with, “The ideal of communication, as Adorno said, would be a condition in which the only thing that survives the disgraceful fact of our mutual difference is the delight that difference makes possible.”<sup>14</sup>

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<sup>9</sup> Peters, *Speaking into the Air*, 19.

<sup>10</sup> *Ibid.*, 19.

<sup>11</sup> *Ibid.*, 21.

<sup>12</sup> *Ibid.*, 28.

<sup>13</sup> *Ibid.*, 29.

<sup>14</sup> *Ibid.*, 31.

## Music Communication as Society/Community

What we have just reviewed on communication as society can extend to music communication, and what more poignant an account of music's communication powers within worlds of differences than Oliver Sacks' *Musicophilia*.

In *Musicophilia*, Sacks reveals music's unleashing of cognitive and physical behaviours in individuals having compromised or peculiar brain activity. Sacks describes a man who could not name nor recognize ordinary objects (and mistook his wife for a hat!) but could perform daily tasks such as dressing, after objects had been outlined in a 'task-song'. Sacks also writes about how music has been seen to relieve (or exacerbate) episodes of Tourette Syndrome, restore flow of movement to people suffering from Parkinson's,<sup>15</sup> and, for post-encephalitic patients, awaken them “at every level: to alertness when they were lethargic, to normal movements when they were frozen, and, most uncannily, to vivid emotions and memories, fantasies, whole identities which were, for the most part, unavailable to them.”<sup>16</sup> Another beautiful rendition of music's imparted communication lies in *Musicophilia*'s last chapter: Dementia and Musical Therapy. Here, Sacks conveys the importance of music as 'togetherness' when he describes the isolation concurrent with dementia. Sacks has observed emotional response to music in individuals with cortical disease (such as Alzheimer's) who are otherwise unresponsive, and hypothesises that this entrainment might not only be cortical but shows subcortical activity. Sacks provides this account:

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<sup>15</sup> Also, see Michael H. Thaut, “Rhythm, human temporality, and brain function,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 171-91, esp. 184.

<sup>16</sup> Sacks, *Musicophilia*, 258.

I have seen deeply demented patients weep or shiver as they listen to music they have never heard before, and I think that they can experience the entire range of feelings the rest of us can, and that dementia, at least at these times, is no bar to emotional depth. Once one has seen such responses, one knows that there is still a self to be called upon, even if music, and only music, can do the calling.<sup>17</sup>

The perception, realization and recalling of self through music shows that the act of *musicking* extends in all directions. Participation in music cannot be trivialized and dismissed as it calls upon fundamental notions of being. Sacks aptly summarizes this, again when speaking of patients with dementia, “Music is no luxury to them, but a necessity, and can have a power beyond anything else to restore them to themselves, and to others, at least for a while.”<sup>18</sup>

The impetus to view music as 'togetherness' brings us to consider 'communication in society' as well as 'communication *as* society'. In his appreciation of Anthony Storr's *Music and the Mind*, Sacks further advocates for the role of music in community:

Anthony Storr, in his excellent book *Music and the Mind*, stresses that in all societies, a primary function of music is collective and communal, to bring and bind people together. People sing together and dance together in every culture, and one can imagine them having done so around the first fires, a hundred thousand years ago. This primal role of music is to some extent lost today, when we have a special class of composers and performers, with the rest of us often reduced to passive listening.<sup>19</sup>

Sacks also refers to the work of Aniruddh Patel, and provides these words from Patel: “in every culture there is some form of music with a regular beat, a periodic pulse that affords temporal coordination between performers, and elicits synchronized motor response from listeners.”<sup>20</sup> Furthermore, Sacks ties this notion to societal benefit and evolution:

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<sup>17</sup> Sacks, *Musicophilia*, 346.

<sup>18</sup> *Ibid.*, 347.

<sup>19</sup> *Ibid.*, 244.

<sup>20</sup> *Ibid.*, 239.

Rhythm and its entrainment of movement (and often emotion), its power to 'move' people, in both senses of the word, may well have had a crucial cultural and economic function in human evolution, bringing people together, producing a sense of collectivity and community.<sup>21</sup>

On the relationship between culture and music, Sacks reveals (based on the work of John Iversen, Aniruddh Patel and Kengo Ohgushi) that response to rhythmic patterns vary across cultures and shows bias to rhythms of speech heard in early childhood.<sup>22</sup> Sacks also discusses the work of Daniel Levitin and Perry Cook on the human capacity to remember tempo and rhythm.<sup>23</sup>

Throughout evolution, music's power has been harvested for its tremendous capacity to heal, unite, help establish and re-establish identity, create society and culture as well as community, hence bridging differences and even time. Music as dialogue is possibly the most potent communicator there is. On music *as* community, music therapist Rudy Garred, in his *Music as Therapy: A Dialogical Perspective* (2006), claims, "Music as a form of culture has to be listened to as a part of culture. There is no escaping this cultural dimension in the musical image-creation as humanly made."<sup>24</sup> In *Sound and Sentiment*, ethnomusicologist Steven Feld pioneered queries on such relationship between music, myth, social behavior and the environment. Many more examples can be drawn from the vast fields of enquiry surrounding music and society. An array of such valuable resources are pooled in *Musical Communication*, edited by Dorothy Miell, Raymond MacDonald and

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<sup>21</sup> Sacks, *Musicophilia*, 246.

<sup>22</sup> Sacks, *Musicophilia*, 243. See John R. Iversen, Aniruddh D. Patel, and Kengo Ohgushi, "Perception of non-linguistic rhythmic stimuli by American and Japanese listeners," in *Proceedings of the International Congress of Acoustics, Kyoto, 2004*.

<sup>23</sup> Sacks, *Musicophilia*, 240. See Daniel J. Levitin and Perry R. Cook, "Memory for musical tempo: Additional evidence that auditory memory is absolute," *Perception and Psychophysics* 58 (1996): 927-35.

<sup>24</sup> Rudy Garred, *Music as Therapy: A Dialogical Perspective* (New Braunfels, TX: Barcelona Publishers, 2006), 194. Note: 'image-creation' refers to Buber's conception (from Hanslick) of music as a 'formed image in sound'.

David J. Hargreaves. As this publication supplies wide-ranging views, it is advantageous to devote a few pages to its reading.

The foreword by Evelyn Glennie sets the tone of *Musical Communication*. As an accomplished percussionist, Glennie opens the discussion on performance as a shared experience; while, as a profoundly deaf musician, Glennie speaks of music not only as sound but as a language of the senses. Her observations tying speech and, in particular, sign-language, to music call to mind our earlier discussions:

Our speech is a form of music which overflows with inflection, phrasing, dynamics, rhythm, punctuation, tempo, expression, and emotion. Sign language is an even more enhanced form of music because the imagination plays a greater role in the process of direct observation, focus, and extreme concentration; one does not allow external distractions to 'visit' the experience but instead the whole body vibrates with infectious exaggerated expression, taking the dynamic of 'silence' in to the heaviest, the loudest, and certainly the most expressive dynamic of all.<sup>25</sup>

On music as socially inclusive, Glennie suggests that music “most definitely has a place as a living, breathing art form whereby we all must open ourselves up to share and learn from each other . . . no one has possession of the sounds because they are out there for us all to breathe.”<sup>26</sup> Glennie's metaphor of music as breath paints the image of a musically receptive organ breathing deeply within each of us. If skin is an organ, then perhaps the body's music receptors can also be viewed as such. On music as an evolutionary adaptation, Michael H. Thaut's chapter in *Musical Communication* also attests to the idea of music reception as biologically determined:

[M]usic is indeed related to core functions of the biology of the human nervous system and therefore serves adaptive evolutionary purposes beyond that of the functional interpretation of art. Music must be viewed as a biological fact, not just as a cultural phenomenon. In both arenas, the cultural and the biological, music is a powerful communicator.<sup>27</sup>

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<sup>25</sup> Evelyn Glennie in the foreword to *Musical Communication*, v.

<sup>26</sup> *Ibid.*, vi.

<sup>27</sup> Michael, H. Thaut, “Rhythm, human temporality, and brain function,” in *Musical Communication*, 184.

In their joint contribution to the same book, Gary Ansdell and Mercédès Pavlicevic express how 'music as communication' ties in with companionship (connectedness) and community, and propose *musical companionship* as a viable model of communication in music therapy:

'Music as communication' is, however, perhaps the key theme used by contemporary music therapists to describe and legitimate their work—linking it with much contemporary interdisciplinary work on the relationships between health and social interaction. . . . Consequently, music therapists emphasize how the idea of 'music as communication' within music therapy can embody and foster a humanistic value system of music dialogue as companionship and community—as ways of being musically with people in need.<sup>28</sup>

Furthermore, Ansdell and Pavlicevic consider that *musical companionship* “is a biologically grounded, but culturally directed form of human socialization articulated through the processes of communicative musicality.”<sup>29</sup> (This calls to mind the earlier words of Michael H. Thaut). They support their stance with the 1998 research of Lutz Neugebauer and David Aldridge, where an experiment was devised to study two individuals involved in a simulated music therapy session—the data comparing heart-beat variations to the music being produced showed both individuals responding in mutual synchronicity to the musical events they were creating:

Here is evidence that playing music together involves mutual physiological response ('two hearts beating as one' in the authors' words), and that musical dialogue emerges as a co-produced simultaneous effect—communication emerging as a mutual coordination of intentions and action within concrete events in real time.<sup>30</sup>

Ansdell and Pavlicevic also suggest that music dialogue improves the healing objectives of musical therapy through elements of authenticity, intersubjectivity and presence. They refer to influences from the following 'philosophers of dialogue': “Hegel,

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<sup>28</sup> Gary Ansdell and Mercédès Pavlicevic, “Musical companionship, musical community. Music therapy and the process and value of musical communication,” in *Musical Communication*, 194-95.

<sup>29</sup> Ansdell and Pavlicevic, “Musical companionship,” 206.

<sup>30</sup> *Ibid.*, 199.

Novalis, Jacobi, Freud, Dilthey, Husserl, Jaspers, Heidegger, Merleu-Ponty, Levinas, Buber, Gadamer, Wittgenstein, Adorno, Bakhtin, Bohm, Kristeva.”<sup>31</sup> We revisit many of these authors herein.

Later in their chapter, Ansdell and Pavlicevic oppose traditional communication models that favour one-way communication, such as the one proposed by Harold D. Lasswell in 1948, and encourage, instead, an enhanced regard for true dialogue. We construct similar arguments against a more recent communication model when our interest turns to 'music communication as society/community through inclusiveness'.

Before leaving Ansdell and Pavlicevic, their thoughts, once again, fuel our continuing enquiry:

Communicative musicality, musical companionship, and musical community all operate within the opportunity, appropriateness, and purposefulness of musical time as *kairos*. . . . 'musical companionship' and 'musical community' bring us close to the original function of a *therapeutes*—one who helps by accompanying.<sup>32</sup>

### Music Communication as Society/Community through Inclusiveness

We now go back to Peters' manuscript in order to grasp the interrelation, rather than the opposition, between dialogue and dissemination. To explicate these modes, let us give an example: When watching a movie, seemingly passive viewers might be perceived as being subjected to messages disseminated by the on-screen images; however, if the viewer's imagination is solicited, does this active act not qualify as dialogue? This framework generates similar questions surrounding recorded versus live performance: which one communicates better, to whom and how?

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<sup>31</sup> Ansdell and Pavlicevic, “Musical companionship,” 204.

<sup>32</sup> *Ibid.*, 211.

Applying these concepts to mass communication via diffusion, we may ask: can a truly dialogic communication exist in dissemination? Can an interactive music dialogue be created in the setting of the concert hall? On the radio? Through down-streaming? In Chapter 3, we reveal crucial components allowing for an answer in the affirmative, but before then, let us introduce a few notions on inclusiveness.

Peters observes that, with the advent of large-scale radio broadcasting came the necessity to compensate for the lack of physical presence by other means conveying personal contact, such as the radio performer using informal conversational speech and comedy shows complete with laugh tracks, applause, etc. Peters refers to the 1927 work of critic Gilbert Seldes,

Seldes was concerned, like other critics of dissemination, about the loss of 'strange vital fluids'. . . . His concerns—the unknown listeners, the lack of interaction, the speaking into the air—replicate the larger fears of solipsism and communication breakdown raging through the art, literature, and philosophy of the interwar years.<sup>33</sup>

Peters calls the creation of such artifices (bridging the abyss of the empty air), 'compensatory dialogism,' and insists that “The fostering of 'we-ness,' dialogical inclusion, and intimate address have remained at the core of broadcast discourse to this day.”<sup>34</sup> Dialogism, as will be seen in the next chapter, insists on the importance of 'each' within the collective 'one'. In this regard, Peters looks to the words of Rudolf Arnheim suggesting that a radio-speaker aiming for 'presence' “talks to everyone individually, not to everyone together. . . . the radio-speaker should proceed softly and as if 'à deux.’”<sup>35</sup>

Theodor W. Adorno had reservations about the artifices used in the recreation of personal contact; he believed that pretended authenticity in a commercialized culture could

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<sup>33</sup> Peters, *Speaking into the Air*, 213-14.

<sup>34</sup> *Ibid.*, 215.

<sup>35</sup> *Ibid.*, 216.



invite manipulation and “mass deception”. Such views feature prominently in Adorno's *Negative Dialectics* (1966).<sup>36</sup> How then can participatory communication prevail without recourse to 'artifices'? These concerns lie central to our pursuit of true dialogism within composition, performance and reception, and represent what the present study aims to identify.

Adorno is given greater attention below but, firstly, as participation takes various forms, let us give a few words to Paul Théberge. In *Any Sound You Can Imagine*, Théberge looks at the impact of technology on music and its practice. Music and technology consumption comprise major themes in his book. (Of note, Théberge employs Glenn Gould's terms *participant listener* and *listener-consumer-participant* when exposing the growing desire of listeners to partake in their musical experience).

Théberge exposes various means used by the consumer of music technology to affirm their participation and creativity—reclaiming or positioning their own voice through active consumption. Examples of devices facilitating such personal imprinting are dual cassette partial tape dubbing and remixing, the practice of karaoke, the advent of CD-ROM (Compact Disk - Read Only Memory) and CD-I (Compact Disk - Interactive) song versions from well-known artists such as David Bowie, Peter Gabriel and Todd Rundgren allowing for a personal reshaping, remixing and rearranging of material. Choice implies active selection and, thus, participation. Théberge even goes as far as referring to these as a form of “intimate relationship between user and machine.”<sup>37</sup> Even with the simple act of creating playlists, listeners can now shape their auditory repertoire from myriad artists, recordings,

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<sup>36</sup> See Peters, *Speaking into the Air*, 221-23.

<sup>37</sup> Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology* (Hanover, NH: University Press of New England, 1997), 255.

genres, etc. Théberge calls upon the work of Roland Barthes to explicate this renewal of inclusiveness within the music experience,

Roland Barthes lamented a form of 'musica practica' that had virtually disappeared at the end of the bourgeois period ('Who plays the piano today?'), the remnants of which can only be found today in the intimate relationship between popular music and amateur guitar playing (Barthes 1977: 149-150). He wished for a renewed form of musical practice that would invite textual collaboration: 'Not to give to hear but to give to write' (ibid.: 153).<sup>38</sup>

By virtue of this 'intimate relationship' with a 'machine', a personified entity, a pseudo-being, is brought to life through the vehicle of technology perhaps as an extension of oneself or as the offspring of collaboration. To participate in this context implies indirect connection but remains, no less, a connection that, perhaps, might be stronger for it. This is one step removed from our earlier example of the radio announcer's voice but shows yet again the insatiable yearning for community through connection—for participation within a forum greater than oneself.

One might argue that we have gone astray from our original concerns relating to music composition, but how better to include and elicit participation than to first understand what drives us all in our quest for communication as communion. To this end, it is now time to look more closely into music as community via inclusiveness.

Music extends not only to the concert-hall setting but to everyday life, as suggested by Tia DeNora in *After Adorno* and by the editors of *Musical Communication* when they preface their book with: "music fulfils many different cognitive, social, and emotive functions by demonstrating that it has the power to influence behaviour. . . . Our proposal is that people in contemporary society use music as a resource."<sup>39</sup> People consume music to

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<sup>38</sup> Théberge, *Any Sound You Can Imagine*, 253-54. See also Roland Barthes, "Musica Practica" in *Image-Music-Text*, essays selected and translated by Stephen Heath (New York: Hill and Wang, 1977), 149-154.

<sup>39</sup> David J. Hargreaves, Raymond MacDonald, and Dorothy Miell, "How do people communicate using music?," in *Musical Communication*, 11.

change their moods, to access certain emotions, to accompany tasks, to reclaim time in transit, etc. When music is listened to in order to evoke or alleviate certain feelings, the music dialogue must somehow become a conduit for expression. At times, a composer's work may draw out direct, indirect or even balancing responses. For example, even when interpretation induces sadness, the inherent association may bring about compassion, understanding, and perhaps a sense of shared hardship. Oliver Sacks suggests that this is why listening to sad music can be a catharsis:

Music, uniquely among the arts, is both completely abstract and profoundly emotional. It has no power to represent anything particular or external, but it has a unique power to express inner states or feelings. Music can pierce the heart directly; it needs no mediation. . . . And there is, finally, a deep and mysterious paradox here, for while such music [Dido's lament in *Dido and Aeneas*] makes one experience pain and grief more intensely, it brings solace and consolation at the same time.<sup>40</sup>

Echoing the words of Langer in our introduction to this chapter, Sacks deems that music brings “profound consolation, in a way that no words could ever have done.”<sup>41</sup> Patrik N. Juslin's chapter contribution to *Musical Communication* provides useful information on methods employed to elicit certain moods but the communication model of dissemination supporting a large portion of his *exposé* seems to lack in the important reciprocity of true dialogue stemming from the 'middle-ground' of communication. Juslin's concerns center around the composer's or performer's objective to communicate 'something' instead of simply allowing for communication to take place via the nature of the interaction itself. In this context of linear purpose, music has clear directionality but sameness in action-reaction should certainly not be a fixed constraint within which composers are required to create. It is one thing to consider word- or tone-painting or the creation of desired moods when writing for dance or film, for example, but in no way should the composer be bound by

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<sup>40</sup> Sacks, *Musicophilia*, 300.

<sup>41</sup> *Ibid.*, 300.

reciprocity of given cognitive or emotive responses—a composer's 'intent' may reside simply in having the music be a catalyst for interpretation. Interestingly, after his thorough analysis, Juslin concludes, “the symbols *themselves* rather than their interpretation may come to be the important part of the message.”<sup>42</sup>

Amongst the pages of *Musical Communication*, we find the 'reciprocal feedback model' proposed by the book's editors.<sup>43</sup> This model seems better adapted to the scope of our project as it situates musical communication as occurring in the interaction between parties.<sup>44</sup> The authors explain their vision as one where: “musical communication is conceived of as occurring at their [performance and response] interface, so that the critical link, or 'spark' of musical communication, exists when a specific performance event gives rise to a listener's response.”<sup>45</sup>

A recurring problem with many of the musical communication models resides in the assumption that the composer is either deceased, absent or unwilling to participate actively in constructive dialogue with all parties involved during the creation phase of a work; instead, the composition is almost always approached as a *fait accompli*. Examples for improvisation within the context of jazz are often cited as participatory but seldom (if ever) is the composer of contemporary Art-music seen as an active participant in the collective process. Likewise, although he presents compelling arguments for his choice, Christopher

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<sup>42</sup> Patrik N. Juslin, “From mimesis to catharsis: expression, perception, and induction of emotion in music,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 105.

<sup>43</sup> David Hargreaves, David J., Raymond MacDonald, and Dorothy Miell. “How do people communicate using music?,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves, (New York, NY: Oxford University, 2005), 7-8.

<sup>44</sup> See also Tia DeNora discussing the work of Robert Wuthnow in *After Adorno: Rethinking Music Sociology* (Cambridge, UK: Cambridge University Press, 2007), 46.

<sup>45</sup> David Hargreaves et al., “How do people communicate using music?” 7.

Small, in his oft-cited book *Musicking*, almost exclusively refers to the “dead composer.”<sup>46</sup> This leaves no room for seeing composition as a collaborative product. Small even suggests, “The composition is complete before a sound is actually heard.”<sup>47</sup> What of the great collaborations that have taken place between composers and performers? Such intense and intimate collaboration still exists today among a number of composer-performer relations. Additionally, in *Musicking*, Small does not mince words on the subjects of reverence to the score, the implied dynamics between conductor and orchestra, and the concert-hall archetype. Although some of Small's comments might seem inflammatory, others call for reflection.

Small launches an attack on the score with: “The moment the musicians feel the need to write down instructions for performance in order to preserve it and hold it steady, a change begins to take place in the nature of musicking and in the relationships between those taking part.”<sup>48</sup> Anyone having tried to improvise a melodic line with two (or more) people concurrently improvising on instruments with melodic capacities has quickly learned that certain parameters must be set forth. Guidelines, ideas, suggestions, notation, all serve to mediate choices in harmonic structure, tempo, dynamics, form, etc. There is a reason that jazz solos are solos with the other instruments adopting supportive roles—without some form of mediation, great ideas, when pooled together, can end up sounding chaotic. This subtends and subscribes the nature of the score: it is a road map, a cue-sheet, a game plan with parameters set to facilitate collaboration, not hinder it; nevertheless, Small's concerns

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<sup>46</sup> See Christopher Small, *Musicking: The meanings of performing and listening* (Middletown, CT: Wesleyan University Press, 1998), 87-93.

<sup>47</sup> Small, *Musicking*, 114.

<sup>48</sup> *Ibid.*, 115.

remain valid and deserve due consideration from the composer wishing to act as a mediator instead of a dictator.

Théberge goes even farther when he suggests, “If the advent of complex, multi-voiced music organized through notational art can be regarded as a critical step in the creation of the role of the composer in Western music, it can also be described as the first step toward the devaluation of the performer as well.”<sup>49</sup> Although scathing, there is some truth to this statement if the composer fails to value input from performers.

When a score is referred to, its strictness or openness to interpretation may be noted but, too often (perhaps for expediency), the score is studied with minimal involvement from the composer who produced it, even when the composer still lives. Either because ill-instructed to read and play without questioning, excessive domination from a conductor leaving no room for interpretation, the lack of familiarity with improvising and composing, fear of being criticized, exclusion from artistic decisions, or general boredom arising from the role of being perceived as an instrument instead of as a virtuosic instrument-player, performers often are not (or do not wish to be) involved in the process of creating a work or contributing ideas to the rendition of a piece.<sup>50</sup> Quite to the contrary, a masterful conductor, even when staying true to a score, can exfoliate life from its pores if there exists an 'intimate relation' with the object as 'machine', so to speak (re: Théberge).

The neglectful omission of the significance of the instrumentalist to music composition is reinforced by numerous manuscripts devoted to music's impact on the listener but bifurcating the crucial role of the performer, altogether. Profoundly implied by its title, *Musicking* takes quite a different approach—Small's 1998 text purports that:

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<sup>49</sup> Théberge, *Any Sound You Can Imagine*, 179.

<sup>50</sup> See Small, *Musicking*, 68-70.

It is rare indeed to find the act of musical performance thought of as possessing, much less creating, meanings in its own right. . . . What is valued is not the action of art, not the act of creating, and even less that of perceiving and responding, but the created art object itself.<sup>51</sup>

Many of Small's observations, such as his 'musicking as a human encounter,<sup>52</sup> can be tied to our earlier discussion pertaining to participatory music in and as community. Notions of music not only *in* but *from* a collective keep surfacing. This said, Small identifies a particular group who were culprits in distancing themselves from this collective: composers of the early twentieth century, who opposed the "'liberties' taken by performers who dare to interpose themselves, their personalities and their ideas between composer and listener."<sup>53</sup> This honour is not solely bequeathed to contemporary composers, as Small also suggests that Handel was notorious for his insistence on a rendition true to the written score.

In the context of market pressures for economies of time and capital (human and otherwise), how can composers, performers (instrumentalists and conductors) and listeners better collaborate in rendering music born from true partnership? Perhaps the impetus will come from smaller ensembles first and extend to the orchestra pit if players become disillusioned when rigidity of execution is demanded of them in the name of 'honouring' the reproduction of an inert score. Without going back to figured bass notation, much can still be accomplished within the score to enhance creative and collaborative interpretation. Moreover, working with performers *during* the compositional process might seem time-consuming but allows for better integration of the performers' contributions and fosters interactive dialogue from the onset.

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<sup>51</sup> Small, *Musicking*, 4.

<sup>52</sup> *Ibid.*, 10.

<sup>53</sup> *Ibid.*, 6.

Other than through direct collaboration between parties and openness to a score's malleability, another important aspect of inclusiveness centers around the definition of participation. Accordingly, there are many convincing points in Small's *Musicking* but one that beckons correction has to do with the perceived incompatibility of music participation within the context of the concert-hall. Music, even when 'consumed' in what appears to be an immobile state can be participative, not in dynamic action but rather through interpretation and imagination (in the Kantian sense). We explore extensively this form of participation in Chapter 3 but a few ideas warrant immediate presentation.

In *Musical Communication*, R. Keith Sawyer speaks of *collaborative emergence* to describe the collective approach to music creation as a 'shared product'. He emphasizes, "To explain musical communication, we have to focus on the interactional dynamics of the group, rather than the internal mental states of the performers."<sup>54</sup> This ties into our previous opposition to Juslin's use of a rather unidirectional model of communication. In addition, Sawyer presents John Dewey's concept of aesthetic experience (described in his *Art as Experience*) as the interaction between people and their environment that becomes active communication.<sup>55</sup> As one can see, Christopher Small was not the first author preoccupied with the 'practice' of art. Dewey saw communication not as intent but as a consequence of art. Another key contributor to the understanding of music relationships was Theodor W. Adorno. A few times already, Adorno's name has been inscribed within these pages, but a review of some of his contributions is now appropriate.

Tia DeNora's *After Adorno* glances backwards into Adorno's work not only to revisit but reshape his ideas into contemporary applications. DeNora prefaces her text by

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<sup>54</sup> R. Keith Sawyer, "Music and Conversation," in *Musical Communication*, 49.

<sup>55</sup> *Ibid.*, 48-9.



acknowledging the works of other Adorno scholars such as Richard Leppert, Robert Witkin, Susan Buck-Morss, Martin Jay, Rose Rosengard Subotnik, W. V. Blomster, Peter Martin, Michael Bull and Richard Middleton.<sup>56</sup>

The following remarks aim to identify a similitude between Adorno's views and the compositional method advanced in the current text.

A fitting citation by DeNora starts our exploration of Adorno: “Adorno used music *to think with*. He also devoted his thinking to the ways that music could, for better or worse, transform consciousness.”<sup>57</sup> Our attention turns to “for better or worse,” as this awakens concerns, especially in the context of Small's troubling account of the violence and domination sub-texting some of the most venerated repertoire of the Romantic period of Western Art-music. DeNora points to a redirection in socio-musical studies on “*what* music depicts or what it can be 'read' as saying 'about' society, to what it *makes possible*. And to speak of 'what music makes possible' is to speak of what music 'affords'.”<sup>58</sup> Here, DeNora refers to Antoine Hennion's 'affordance' as mediation of the social.

DeNora's use of Olivier Roueff's research implying that “aficionados of experimental jazz forms 'see in' those forms models for alternative social structures”<sup>59</sup> points to our earlier exploration of music *as* society. DeNora compares Roueff's stance to Adorno's because both suggest that music not only can be tied to political ideas but can shape their constitution.

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<sup>56</sup> See Tia DeNora, *After Adorno: Rethinking Music Sociology*, xv.

<sup>57</sup> DeNora, *After Adorno*, 3.

<sup>58</sup> *Ibid.*, 46.

<sup>59</sup> *Ibid.*, 57.

One important contradistinction between DeNora's work and Adorno's lies in DeNora's perception of music as dynamic agency existing in the interaction, the partaking, the *musicking* itself, rather than, as Adorno contended, an 'artistic object' existing apart from its reception. This preference for an interactive medium has already been broached when discussing Small and Juslin, but DeNora states it clearly, as follows:

Music comes to afford things when it is perceived as incorporating into itself and/or its performance some property of the extra-musical, so as to be perceived as 'doing' the thing to which it points. Music is active, in other words, as and when its perception is acted upon, and this circularity is precisely the topic for socio-musical research into music's power. Thus, music is much more than a structural 'reflection' of the social. Music is constitutive of the social.<sup>60</sup>

As we will discuss in Chapter 3, the delineation of *artistic* and *aesthetic object* has preoccupied the thoughts of many but an integrated approach can be taken through dialogism and interpretation; however, for interpretation to occur, some level of assimilation of material must take place. For Adorno, Modernist music such as that of Schoenberg, invited reflection rather than immediate assimilation:

Schoenberg's music did not afford stock responses, did not 'remind' listeners of existing phenomena but rather challenged listeners to attend to the world in new ways, to search for difference, non-identity, contradiction, dissonance, rather than similarity, harmony, repetition, and identity and the psychological comfort afforded by these properties.<sup>61</sup>

These were the ways of many of the Expressionist artists of the early twentieth-century who presented subjective expressions as an invitation to question and reinvent. Unfortunately, as music's rendition is temporally seeded, it becomes exceedingly arduous to decipher its expression, let alone its construction, unless parameters are clearly preempted. Deriving interest or pleasure from such complex music became impossible for many

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<sup>60</sup> DeNora, *After Adorno*, 57.

<sup>61</sup> *Ibid.*, 74.

listeners (and even also for some performers)<sup>62</sup> and, inevitably, they became left out of the process of musicking. This consequence justifies our search for a more collaborative middle-ground between familiarity and novelty, between structure and fantasy, between expression and reception, and between 'I', 'other' and 'us'. Adorno shared similar concerns in his attempt to understand the severing of Art-music and the public, and grieved the apparent disappearance of music as a cognitive process stimulating critical consciousness and social action, yet, in Adorno's mind, the attractiveness of 'popular music' (over Art-music) was to be discouraged because it was tied to mass consumption.<sup>63</sup>

In the 1920's, the German musicologist Heinrich Bessler classified music communication into two main genres: *Umgangsmusik* and *Darbietungsmusik*. In German, *Umgang* means 'contact' or, better yet, *Umgänglich* is the adjective for 'friendly' or 'social',

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<sup>62</sup> Robert Francès, in *La perception de la musique*, states, “the use of 12 tones in dodecaphonic atonalism, by avoiding any combination that could in any way recall a tonality, went to the limit in a way well-designed to disorient listeners accustomed to organizing sound patterns according to the hierarchical polarities [of tonality].” See Robert Francès, *La perception de la musique* (Paris: Université de Paris, Librairie Philosophique J. Vrin, 1958), trans. W. Jay Dowling as *The Perception of Music* (Hillsdale, NJ: Lawrence Erlbaum Associates Publishers 1988), 117. Equally, David Huron, in *Sweet Anticipation*, claims, “For listeners inexperienced with the modernist aesthetic, the psychological *qualia* evoked by such passages [here, of irregular metric organization] will be dominated by feelings of confusion and chaos.” See David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: Bradford Book, MIT Press, 2006, paperback ed., 2007), 346.

<sup>63</sup> Tina DeNora, in *After Adorno*, states, “According to Adorno, the music industry purveyed an endless parade of popular songs that were generically nearly identical . . . Though the superficial details of the songs varied, popular music fostered 'pseudo-individualisation' . . . Musically conceived, this shift was characterised in particular by the listener's susceptibility to music's effect on the body and the emotions . . . Here, then, music loses its status as dialectical praxis and as a resource for the instigation of critical consciousness . . . It is reduced to the status of a commodity, a commodity that subverts critical faculties and substitutes for knowledge a kind of compensatory affirmation.” See DeNora, *After Adorno*, 16-7.

Theodor Adorno, himself, in *Quasi una fantasia* stipulates, “The leverage of music—what they call its liberating aspect—is the opportunity to feel something, anything at all. But the content of the feeling is always that of privation. . . . In a sense it is a kind of psychoanalysis for the masses, but one which makes them, if anything, even more dependent than before.” See Theodor Adorno, *Quasi una fantasia: musikalische Schriften II*. (Frankfurt am Main: Suhrkamp Verlag, 1963), trans. by Rodney Livingstone as *Quasi Una Fantasia: Essays on Modern Music* (London: Verso, 1992. 2nd ed. Brooklyn, NY: Verso, 1998. Re-issue 2011), 50.

DeNora adds, “Adorno was concerned—in all of his socio-musical work—with the breach that had been effected between music producer (composer) and music consumer (listener—indeed, . . . Adorno had only disdain for the idea that music could be 'consumed'). . . . For Adorno, [the dwindling interest from 'good but unprofessional listening types'] was nothing less than tragic in so far as it signalled a waning of music's capacity as an aid to cognition and therefore critical consciousness.” See DeNora, *After Adorno*, 87.

while *Darbietung* means 'performance'. Doris Stockmann refers to the first as *interaktive GruppenKommunikation*, which she translates to mean “interactive musical communication within social groups”<sup>64</sup> and highlights the participative nature of this *Umgangsmusik* in mediums such as ceremonial or social dancing. As for *Darbietungsmusik*, Stockmann purports that it is “*presentational music making*, mainly by professionals, before a more or less passive audience. This we could label *stage-audience communication*, such as that typical of a Western concert situation,” which she believes might have “deep roots in mythical and epic narration.”<sup>65</sup> It would therefore seem that Adorno, with his exclusive lobbying for *Darbietungsmusik*, neglected to consider the power and benefits of the growingly popular *Umgangsmusik*. On such power of the subject, in the Foreward to *The Ecstasy of Communication* by sociologist Jean Baudrillard, Jean-Louis Violeau suggests,

Science is crude, life is subtle and the innocence of the Moderns, who separated power on one side and those who did not have it (yet) on the other, is definitely over. Language is worked by power: to speak is already to be subject. Language forces to speak.<sup>66</sup>

In the same way (and as we have now drawn multiple parallels between speech and music), to *musik* is thus to be subject, music *forces* to speak, and the power of music lies in the act of *musiking* . . . together.

Language is power and speaking commands it.

Music is power and *musiking* commands it.

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<sup>64</sup> Doris Stockmann, “Interdisciplinary Approaches to the Study of Musical Communication Structures,” in *Comparative Musicology and Anthropology of Music*, eds. Bruno Nettl and Philip V. Bohlman (Chicago, IL: University of Chicago Press, 1991), 331.

<sup>65</sup> Stockmann, “Interdisciplinary Approaches to the Study of Musical Communication Structures,” 331.

<sup>66</sup> Jean Baudrillard, *The Ecstasy of Communication*, originally published as *L'autre par lui-même* (Paris, France: Galilée, 1987) trans. Bernard Schütze and Caroline Schütze, forward by Jean-Louis Violeau trans. by Ames Hodges (Los Angeles, CA: Semiotext, 2012), 14.

### 2.3. Chapter Conclusions

Music communication extends well beyond the mere act of transmitting and receiving. Unveiling the power of music can only begin when seeing music as an integral part of identity and society. Speech and musical communication occur in the ever-evolving interface between parties involved. So, although the two main types of speech described by Peters as dialogue and dissemination, and their music counterparts: *Umgangsmusik* and *Darbietungsmusik* (to use Bessler's classification), have different modes of presentation, they both can communicate, and perhaps equally. Comparisons present themselves in the contrast between abstract and figurative painting, theatrical and participatory dance, poetry and novel, theatre and film, and many more diverse art forms that coexist and complement each other although their medium might differ. There are many ways to communicate but, for the dialogue to be inclusive and participatory, communication should entail multi-directional relationships between all parties. Music becomes society and community through inclusiveness. In the ensuing chapter, we explore how dialogism may prove to be well-suited to our objective of fostering inclusiveness within a music composition.

Toutes les fonctions abolies dans une seule dimension, celle de la communication : c'est l'extase.

(All functions abolished into one unique dimension, that of communication, is ecstasy.)<sup>67</sup>

—Jean Baudrillard, “L'Extase de la communication” dans  
*L'autre par lui-même*

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<sup>67</sup> Jean Baudrillard, “L'extase de la communication,” in *L'autre par lui-même* (Paris, France: Galilée, 1987), 21. Translation of citation by N. Dupuis-Désormeaux.

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## Chapter 3 - Inclusiveness via Dialogism and Intertextuality

### 3.1. Introduction

In speaking of music's importance, Alan P. Merriam in *The Anthropology of Music* claims, "There is probably no other human cultural activity which is so all-pervasive and which reaches into, shapes, and often controls so much of human behaviour."<sup>1</sup> These words make us ponder on how to evaluate music's value, effectiveness and scope. In his monogram, Merriam lists a range of uses and functions of music<sup>2</sup> but fails to detect that fundamental and essential to all of these is music's ability to communicate. We posit that music's communicative properties govern all of its functions since these will fail to materialize without successful communication. Furthermore, from our previous discussions, we know of the significance of inclusiveness for participative communication. This chapter endeavours to show how dialogism offers a framework to support our compositional goals of inclusiveness.

We begin by introducing aesthetic theory and the aesthetics of 'good' communication (i.e., rendering it engaging and inclusive). The chapter then offers an overview of main philosophies leading up to dialogism, followed by a presentation of dialogism's main tenets and their application to music. Lastly, we argue that imagination, interpretation and appropriative authorship can be viewed as active forms of participation.

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<sup>1</sup> Alan, P. Merriam, *The Anthropology of Music* (Evanston, IL: Northwestern University Press, 1964), 218.

<sup>2</sup> Ibid., 218-227. Merriam lists the functions of: *emotional expression, aesthetic enjoyment, entertainment, communication, symbolic representation, physical response, enforcing conformity to social norms, validation of social institutions and religious rituals, contribution to the continuity and stability of culture, and contribution to the integration of society.*



### 3.2. Discussion

In his essay "What is Good Music?", the composer Ernst Toch responds to his personal questioning with an answer that resonates as if sounded against the timpani of Earth:

Nearness to life, nearness to nature and humanity—who has it? I think the one who contains in himself an irrational, unconquerable bastion, untouched, for which I have no other word but *religiousness*. To be sure, this quality does not refer to any specific creed. . . . It has nothing to do with a man's interests and activities, nothing to do even with the conduct of a man's life. The word 'religion' derives from the Latin 'religare'-to tie, to tie fast, to tie back. Tie what to what? Tie man to the oneness of the Universe, to the creation of which he feels himself a part, to the will that willed his existence, to the law he can only divine. It is a fundamental human experience, dim in some, shining in others, rare in some, frequent in others, conscious in some, unconscious in others. But there is no great creation in either art or science which is not ultimately rooted in this climate of the soul, whatever the means of translation and substantiation.<sup>3</sup>

If, as eloquently phrased by Toch, the ability to tie humans to life, to nature and to humanity within a greater oneness defines 'good music', then examining how we create such ties is certainly not futile. As expressed in the previous chapter, communication occurs in the intersection between the parties involved; as such, it relies heavily on perception and reception.

Robert Francès, author of *La perception de la musique* (1958) describes the inseparable relationships subtending music, as follows:

Lalo (1939) who did so much to illuminate music with convergent light of all the sciences, concluded by according sociology the ultimate explanation of the aesthetic qualification of the facts of art. Physics, physiology, and psychology, he said, teach us what a chord or a progression is; but sociology teaches us which chords and progressions are preferred to others at some moment in the history of art. Only society confers aesthetic qualifications on a fact.<sup>4</sup>

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<sup>3</sup> See Lawrence Weschler quoting Toch in the Preface to Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form* (New York, NY: Criterion Music Corp, 1948). Reprint (New York, NY: Dover Publications, Inc., 1977), xii-xiii.

<sup>4</sup> Robert, Francès, *La perception de la musique* (Paris: Université de Paris, Librairie Philosophique J. Vrin, 1958), trans. W. Jay Dowling as *The Perception of Music* (Hillsdale, NJ: Lawrence Erlbaum Associates Publishers 1988), 344-45.

Again, in turning to *The Anthropology of Music*, we read that Merriam equally suggests that “the listener responds socially in different ways to music, depending both upon the situation and his role in it.”<sup>5</sup>

Musicology, music sociology and other fields of enquiry have come a long way since Merriam, Toch and Francès put their words to page. Increasingly, we see the benefits of our interdisciplinary approach. For example, Georgina Born's “For a Relational Musicology” suggests a 'new critical method' whereby 'value communities' are created.<sup>6</sup> In the same article, Born refers to Gary Tomlinson's neocomparativism as a means to study music within human experience of history and culture. Born sees the impact of 'relational musicology' as social, technological, temporal and ontological.

If, increasingly, it is thought that music and society cannot be dissociated, then valuation and evaluation of subjective response provide the music composer with avenues to enhance musical communication. Literature and music critic Peter J. Rabinowitz who self-describes as “a narrative theorist with a strong interest in music”<sup>7</sup> pre-empt's our research, as he sees the need to re-evaluate the musical experience as follows:

In order to understand the music of our times fully, then, we are going to need a new theory of how we listen—one which takes account of both programmatic and stylistic elements, but which is, in addition, alert to the relationship between the knowledge and experience of the audience.<sup>8</sup>

The contents of our chapter on music as communication and the observations above impart on us the need to query perception, reception and interpretation along with their

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<sup>5</sup> Merriam, *The Anthropology of Music*, 144.

<sup>6</sup> Georgina Born, “For a Relational Musicology: Music and Interdisciplinary, Beyond the Practice Turn,” *Journal of the Royal Musical Association*, 135:2 (2010): 205-43.

<sup>7</sup> <http://www.hamilton.edu/academics/departments/faculty?dept=Comparative%20Literature> (accessed 2016-11-16)

<sup>8</sup> Peter J., Rabinowitz, “Fictional Music: Toward a Theory of Listening,” in *Theories of Reading, Looking and Listening*, ed. Harry R. Garvin, Bucknell Review (Bucknell University Press, Associated University Presses, N.J., 1981), 196.

inherent subjectivity. Dialogism, put forward by the Russian literary critic and philosopher Mikhail Mikhaïlovich Bakhtin (1895-1975), centres on subjectivity and the multitude of relationships with the 'other'. Accordingly, dialogism informs our research, but prior to revealing its main constituents, earlier philosophies having contributed to its inception deserve a few pages.

### Aesthetic Theory Leading up to Dialogism

The concept of beauty (or 'goodness') in art has been debated since antiquity. Alexander Gottlieb Baumgarten (1714-1762) was the first to define the term *aesthetics*. Baumgarten described it as: “Aesthetics (the theory of the liberal arts, lower gnoseology, the art of thinking beautifully, the art of the analog of reason) is the science of sensitive cognition.”<sup>9</sup> In his *Aesthetica*, Baumgarten suggests that the beauty of a sensory representation lies in its heuristic (harmony/consensus of thoughts), methodological (order and sequence) and semiotic (meaning and expression) content. As put by Paul Guyer, in “The Origins of Modern Aesthetics,” Baumgarten “provided a conception of the imagination as a cognitive capacity, whose products, moreover, are marked by the richness and density of their contents rather than by logical criteria such as economy and simplicity.”<sup>10</sup>

Before Baumgarten, Jean-Baptiste Du Bos (1670-1742), Ashley Cooper-Third Earl of Shaftesbury (1671-1713), Joseph Addison (1672-1719) and Francis Hutcheson (1694-1746), all contributed to aesthetic theory. Du Bos united imagination and emotions through

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<sup>9</sup> Paul Guyer, “The Origins of Modern Aesthetics: 1711-1735,” in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Blackwell Publishing, Malden, MA, 2004), 15. (Reference to *Metaphysica* (1739), 533 and *Aesthetica* (1750), 1).

<sup>10</sup> *Ibid.*, 36.

representation. Similarly, Cooper (Shaftesbury) believed that creative intelligence, a cognitive event, allowed beauty to be found not necessarily in the object itself but rather in the order and proportions created in the imagination's representation of it (this recalls our earlier discussion on musical communication taking place through imagination—more to follow in this chapter). Addison also linked imagination to pleasure. Hutcheson, on the other hand, believed that aesthetic response was a sense in itself; as put by Guyer: “by inferring that this response can only be a sense precisely because of its distinction from any form of either cognition or volition.”<sup>11</sup>

The influential German philosopher Immanuel Kant (1724-1804) initially agreed with Hutcheson's division between what is sensory and what is cognitive; however, in his *Critique of Judgement* (1790), Kant amended his views on aesthetic response to account for cognition and saw it as the interplay (harmony or “free-play”) between imagination and understanding. In *Critique of Judgement*, Kant describes aesthetic response (“judgement of taste”) as follows:

As the subjective universal communicability of the mode of representation in a judgement of taste is to obtain [i.e. to receive] apart from the presupposition of any determinate concept, it can be nothing else than the state of the mind involved in the free play of imagination and understanding. . . . Now this purely subjective (aesthetic) judging of the object, or of the representation through which it is given, is antecedent to the pleasure in it, and is the basis of this pleasure in the harmony of the cognitive faculties.<sup>12</sup>

Fifty years prior to Immanuel Kant's *Critique of Judgement*, a correlation between sensory response to music and cognitive evaluation was proposed by the German composer

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<sup>11</sup> Guyer, “The Origins of Modern Aesthetics: 1711-1735,” 23.

<sup>12</sup> Immanuel Kant, *Kritik der Urteilskraft* (Frankfurt am Main: Wilhelm Weischedel, 1790), trans. James Creed Meredith as *Critique of Judgement* (Oxford, UK: Oxford University Press, 1952). Revised, edited and introduced by Nicholas Walker as *Critique of Judgement* (Oxford, UK: Oxford University Press, 2007), Re-issued 2008, 49.

and theorist Johann Mattheson (1681-1764) in his *Der vollkommene Kapellmeister* (1739).

Peter Kivy in *The Corded Shell* summarizes Mattheson's theory,

- i) Music is not primarily a stimulus; and its emotive expressiveness is not manifested in an emotional response.
- ii) Music, in its structure, bears a resemblance to the “emotive life”; and the primary aesthetic response is a cognitive response: a recognition of the emotive content present in it.<sup>13</sup>

Although we need to adapt Mattheson's theory to include content and sensory response other than emotions, its acknowledgment of the role of cognition is key. This ties directly into the notion of subjectivity.

As can be seen from the above, Mikhail Mikhaïlovich Bakhtin's rationalization that even 'objective' thoughts (or 'understanding') can be viewed as 'subjective' (because perception occurs through the mind) was preceded by many doctrines before Kant, by Kant, himself, in *Critique of Judgement*, and through to the thoughts of the Neo-Kantians of the Marburg School, founded by Hermann Cohen (1842-1918). Michael Holquist, in *Dialogism—Bakhtin and his World*, describes the impact of the Neo-Kantians,

By 1918, Neo-Kantianism had been the dominant school of philosophy in Germany for almost fifty-years. From roughly the 1870s until the 1920s, most professors of philosophy in Germany defined themselves by taking a position vis-à-vis Kant.<sup>14</sup>

Mikhail Bakhtin's exposure to the thoughts of the Marburg School came from Matvei Isaevich Kagan (1899-1937). Ironically (and sadly), Kagan went to study in Marburg to escape Russia's anti-Semitism but, when the war erupted in 1914, he was viewed as an enemy alien, confined for four years, and deported back to Russia in 1918.

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<sup>13</sup> Peter Kivy, *Sound Sentiment, An Essay on the Musical Emotions (including the complete text of The Corded Shell)* (Temple University Press, Philadelphia, 1989), 39.

<sup>14</sup> Michael Holquist, *Dialogism: Bakhtin and his World* (London, UK: Routledge, 1990), 3.

Germany's loss was Russia's gain as Kagan greatly helped Mikhail Bakhtin form his philosophical ideas. Holquist summarizes the influence of the Marburg School on Bakhtin and his distinction from it, as follows:

Two general aspects of Marburg Neo-Kantianism that played an important role in the composition of Bakhtin's early work should be emphasized. The first of these is the Neo-Kantian desire to relate traditional problems in philosophy to the great new discoveries about the world and nature being made in the exact and biological sciences on the cusp of the nineteenth and twentieth centuries. . . . A second aspect of the Marburg School's activity that proved to be important in Bakhtin's development was the emphasis of its founder [Cohen] on unity and oneness. . . . One of the most important ways he [Bakhtin] demonstrates his independence from Cohen, even at this early stage, is in his resistance to the idea of an all-encompassing oneness, or *Allheit*. In this, Bakhtin is perhaps best understood as a figure who is trying to get back to the other side of Kant's synthesis, the world, rather than the mind (and in particular the rational mind), the extreme to which Cohen tended.<sup>15</sup>

Of essence in this last passage: "the world, rather than the mind." Bakhtin's "world" extended past the mind to include the inseparable contributions of the 'other', of society and of history. This was a marked difference from Cohen's stance and was closer to Kant's views. As reports Holquist, "Bakhtin's understanding of perception as an act of *authoring* brings him closer to Kant himself than to Cohen, in so far as he rethinks the problem of wholeness in terms of what is an essentially aesthetic operation."<sup>16</sup> We will come back to the importance of "perception as an act of authoring" in the closing section of this chapter.

Bakhtin created thinking circles wherever he lived; these are known as Bakhtin Circles. Dialogism's foundations emerged from the thoughts of the very first of these Bakhtin Circles, in 1918, which at the time included not only Bakhtin and Kagan, but Valentin Voloshinov and P.N. Medvedev, who also became influential minds. The members of the Bakhtin Circles attempted to redefine subjectivity as they considered the existing ideologies of Formalism too strict, and Saussure's Structuralism neglectful of the

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<sup>15</sup> Holquist, *Dialogism: Bakhtin and his World*, 5;6.

<sup>16</sup> *Ibid.*, 7.

importance of historical and social relevance; this is explained by Michael Gardiner in *The Dialogics of Critique*,

[F]or the members of the Bakhtin Circle, consciousness (subjectivity, the ‘psyche’) is not a self-sufficient, pre-constituted entity, but is formed through the dialogic struggle between contending ‘voices’ or discourses.<sup>17</sup>

Holquist, in turn, describes dialogism as “a philosophy of the trees as opposed to a philosophy of the forest: it conceives society as a simultaneity of uniqueness.”<sup>18</sup> In his essay “Discourse in the Novel,” Bakhtin, underlines the inseparability of (literary) art from the social:

Form and content in discourse are one, once we understand that verbal discourse is a social phenomenon—social throughout its entire range and in each and every of its factors, from the sound image to the furthest reaches of abstract meaning.<sup>19</sup>

Having now introduced how dialogism evolved from philosophies concerned with aesthetic response, representation, freedom of the imagination and notions of subjectivity, details of its guiding principles follow.

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<sup>17</sup> Michael Gardiner, *The Dialogics of Critique – M. Bakhtin & the Theory of Ideology* (Routledge, London, 1992), 72.

<sup>18</sup> Holquist, *Dialogism: Bakhtin and his World*, 153.

<sup>19</sup> Mikhail Mikhailovich Bakhtin [Bachtin, Michail Michajlovič], “Discourse in the Novel” in *Voprosy literatury i estetiki: Issledovanija raznyh let* (first ed., Moscow: Chudožestvennaja literatura, 1975), translated as *The Dialogic Imagination: Four Essays* by Caryl Emerson and Michael Holquist, ed. Michael Holquist (Austin, TX: University of Texas Press, 1981, re-print 2008), 259.

## Dialogism and its Application to Music

Bakhtin's *Problems of Dostoevsky's Art* (1929) proved to be his first written thoughts on dialogism, but it was only after his death that the complete rendition of the concept of dialogism appeared under the title of *The Dialogic Imagination* (1975).<sup>20</sup> The following Table 3.1 summarizes the main ideas proposed within dialogism.

Table 3.1 – Dialogism's Main Tenets
<p>-‘I’ and ‘other’: the dialogue with oneself (transgression), with others, and with the relationship created between ‘I’ and ‘other’.</p>
<p>-unfinalizability: no ‘one’ and no ‘thing’ can ever be final or fully known because of constant change.</p>
<p>From the above, emerge the connected concepts of:</p> <p>-polyphony: the existence of different yet equal and unique voices within each individual or between individuals.</p> <p>-chronotope: the ‘prejudice’ of space and time in forming viewpoint (situatedness).</p> <p>-heteroglossia: the situation of having to choose a response from countless options (each framed differently according to the specifics of a given discourse).</p>

Key in dialogism is the dialogue with ‘oneself’ (termed *transgression*—the viewpoint of existence as seen from outside, or ‘I as ‘other’) and with ‘others’, as well as its ever-changing state (unfinalizability). Although central to Bakhtin's philosophy, he was not the originator of the notion of ‘one’ and ‘other’, nor was Cohen—this concept is attributed to Ludwig Feuerbach.<sup>21</sup> Likewise, Martin Buber (1878-1965) wrote extensively on the topic in *I and Thou* (1923); however, as claimed by Rudy Garred, “it is clear that for Buber the main

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<sup>20</sup> Michael Holquist contends that the term ‘dialogism’ was never explicitly used by Bakhtin. See Michael Holquist, *Dialogism: Bakhtin and his World*, 15.

<sup>21</sup> Rudy Garred, *Music as Therapy: A Dialogical Perspective* (Barcelona Publishers, 2006), 39.



motivation for writing I and Thou was deep concerns with religious themes.”<sup>22</sup> Referring to Table 3.1, we see that, in our method of composition, 'I' and 'other' pertains to the *music dialogue* with oneself and with others, and with the relationship created *in the ever-changing musical communication* happening between 'I' and 'other'.

From the concept of 'I' and 'other' stems that of 'polyphony' to account for the presence of the voice of others. In the words of Bakhtin, “Language is not a neutral medium that passes freely and easily into the private property of the speaker's intentions; it is populated—overpopulated— with the intentions of others.”<sup>23</sup> Likewise, dialogic music is infused and permeated by the experience of the 'other' through interpretation and aesthetic response. True music polyphony arises from a never-ending consideration for the uniqueness and distinctiveness of 'others'. Also, Bakhtin's concept of transgression applies equally well to the relationships between music composition, interpretation and reception: an instrumentalist 'speaks' on behalf of the composer; in turn, the listener re-conceives the music rendered by the performer, thus 'speaking' *for* them; and from the onset, the composer 'speaks' *for* the performer and the listener. Viewed through the mutually reflective and egalitarian inclusivity of dialogism, all parties 'speaking *for*' are 'speaking *with*'—here, the transgression of 'speaking *for*' should, therefore, not be taken in the pejorative sense. In *Emotion and Meaning in Music*, Leonard B. Meyer speaks of such transgression but only as it pertains to the composer's self-reflection,

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<sup>22</sup> Garred, *Music as Therapy: A Dialogical Perspective*, 52.

<sup>23</sup> Bakhtin, *The Dialogic Imagination: Four Essays*, 294.

It is precisely because he is continually taking the attitude of the listener that the composer becomes aware and conscious of his own self, his ego, in the process of creation. In this process of differentiation between himself as composer and himself as audience, the composer becomes self-conscious and objective.<sup>24</sup>

Unlike Meyer's position, our conception of transgression pertains to the composer-performer-audience relation, as constituted of separate and unique beings who equally re-author, re-compose and re-shape the dialogue—here lies a marked difference in ideology. Holquist delves deeper when he cautions, “transgression, when it is used well, results in art; when used badly, it results in totalitarianism.”<sup>25</sup> Hence, beyond the purview of a compositional method or an artistic vision, the impact of 'speaking *with*' affects society as a whole. The educator and philosopher Paulo Reglus Neves Freire had this to say: “Leaders who do not act dialogically, but insist on imposing their decisions, do not organize the people—they manipulate them. They do not liberate, nor are they liberated: they oppress.”<sup>26</sup> Beyond artistic or aesthetic value, moving away from an autocratic authoring position when creating works within a dialogic mind frame promotes inclusion and validation of all voices, not merely in the creative act but, reflectively, in society.

On transgression, its implicit relativity exemplifies how the Bakhtin Circles (and the Neo-Kantians) were influenced by the discoveries in the exact and natural sciences. The *chronotope* is another such example because it considers the observer's relative place in

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<sup>24</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, paperback ed. 1961), 41.

<sup>25</sup> Michael Holquist, *Dialogism: Bakhtin and his World*, 33.

<sup>26</sup> Paulo Reglus Neves Freire, *Pedagogia del oprimido*, trans. Myra Bergman Ramos *Pedagogy of the Oppressed*, (New York, NY: The Continuum International Publishing Group, 2005), 178.  
<http://libcom.org/files/FreirePedagogyoftheOppressed.pdf>

space and time *vis-à-vis* the event—here, 'space' can represent position (or viewpoint) just as it can imply geographic location, and time alludes to the relevance of historical context.<sup>27</sup>

Both the relativity of transgression and of the chronotope, of course, allude to Einstein's theory of relativity.<sup>28</sup> On the chronotope, Holquist notes,

Bakhtin's observer is also, simultaneously, an *active participant* in the relation of simultaneity. Conceiving [the notion of] being dialogically means that reality is always experienced, not just perceived, and further that it is experienced from a particular position.<sup>29</sup>

The above *active participant* ties in nicely with our earlier discussion on musical communication. Furthermore, as implied by the definition of what is *relative*, “Dialogism, like relativity, takes it for granted that nothing can be perceived except against the perspective of something else: dialogism's master assumption is that there is no figure without a ground,” says Holquist.<sup>30</sup> Music dynamics, tempi, interplay between players, harmonic progressions, etc., would all be lost if not for the constant meandering between ground and background in both time (music development) and space (melodic and harmonic texture). In our later chapters we will speak of music theorist and composer Heinrich Schenker (1868-1935) and his method of analysis but it is sufficient to say here that Schenker conceives music structure (of tonal and tonally-centred works) as co-existing on three levels: foreground, middle-ground and background.<sup>31</sup> Although the method of composition proposed herein differs from that of Schenker, prominence or presence of

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<sup>27</sup> Reception Theory and dialogism share many similarities. One such affiliation lies in the resemblance between the *chronotope* and the historical and social 'situatedness' and 'prejudice' seen in the 'fusion of horizon' proposed by Hans-Georg Gadamer who, as it turns out, also studied in Marburg. For details on Gadamer's 'fusion of horizon', see Robert C. Holub, *Reception Theory: A critical introduction* (New York, NY: New Accents-Methuen, 1984), 41-43.

<sup>28</sup> Michael Holquist, *Dialogism: Bakhtin and his World*, 20-23.

<sup>29</sup> *Ibid.*, 21.

<sup>30</sup> *Ibid.*, 22.

<sup>31</sup> See Heinrich Schenker, *Fünf Urfurien-Tafeln* (New York, NY: David Mannes Music School, 1933), trans. as *Five Graphic Music Analysis* (Mineola, NY: Dover Publications, inc., 1969. re-issue 2012), 14.

given voices in relation to others and to overall unity will constantly govern how we construct relational music dialogue—in other words, it relies heavily on the relativity of viewpoint, on situatedness in time and space, and on balancing the contributions of musical voices in the creation of textures of ground versus background.

Lastly, dialogism's *heteroglossia* follows from unfinalizability, transgression and the chronotope, Holquist defines it as

a situation, the situation of a subject surrounded by the myriad responses he or she might make at any particular point, but any one of which must be framed in a specific discourse selected from the teeming thousands available.<sup>32</sup>

A musically-relevant portrait of *heteroglossia* can be drawn from observing a performing ensemble—each performer reacts to the others according to *that* particular moment in time, and no two performances are ever alike. As such, each music performance is shaped by selecting a *musical response* from countless options (each framed differently according to the specifics of the given concert or collaborating performers). Our dialogic composition method should therefore leave flexibility of interpretation within the score to allow for such heteroglossia.

With our perusal into dialogism's main tenets (as shown in Table 3.1), we can now appreciate that dialogism upholds the ever-changing character of relationships created between an utterance and a reply, an expression and its response, a text and its rendition, a music composition, its performance and its reception, etc.; therefore, when adopting a compositional philosophy focused on inclusion and participation, dialogism offers a plenitude of valuable reflections and considerations for all parties involved in the art and act of music.

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<sup>32</sup> Holquist, *Dialogism: Bakhtin and his World*, 69.

We bring to a close this overview by turning to the last paragraph of Holquist's

*Dialogism: Bakhtin and his World*:

[Dialogism] is a way of looking at things that always insists on the presence of the other, on the inescapable necessity of outsideness and unfinalizability. If Bakhtin is right, then nothing exists in itself and we live lives of buzzing, overlapping, endlessly ramifying simultaneity.<sup>33</sup>

Because there exist several parallels between dialogism and Reception Theory, what follows serves as an informational synopsis of such equivalences.

## Parallels between Dialogism and Reception Theory

Robert C. Holub claims that by the time Reception Theory came to popularity in the 1960's, it had grown from "Russian Formalism, Prague structuralism [with Jan Mukařovský (1891-1975)], the phenomenology of Roman Ingarden, Hans-Georg Gadamer's hermeneutics, and the 'sociology of literature'."<sup>34</sup> Some of its main contributors are: Gadamer, Hans Robert Jauss (1921-1997), Wolfgang Iser (1926-2007), Paul Ricoeur (1913-2005) and, more recently, Gianni Vattimo (b. 1936).<sup>35</sup> Holub defines Reception Theory as:

a general shift in concern from the author and the work to the text and the reader. It is used, therefore, as an umbrella term and encompasses both Jauss's and Iser's projects as well as empirical research and the traditional occupation with influences.<sup>36</sup>

Holub warns that Reception Theory should not be confused with Reader-response Criticism, as the latter refers to the disparate views of Norman Holland, Stanley Fish and Jonathan Culler (and others) while Reception Theory presents a more "cohesive, conscious,

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<sup>33</sup> Holquist, *Dialogism: Bakhtin and his World*, 195.

<sup>34</sup> Robert C. Holub, *Reception Theory: A critical introduction* (New York, NY: New Accents- Methuen, Inc., 1984), 14.

<sup>35</sup> See Jeff Malpas, "Hans-Georg Gadamer," *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.), forthcoming. <http://plato.stanford.edu/archives/win2016/entries/gadamer/> (accessed 2016-11-18).

<sup>36</sup> Holub, *Reception Theory: A critical introduction*, xii.

and collective undertaking” with a school of thought mostly centered around the University of Konstanz (Constance School); also, Holub suggests that Reception Theory and Reader-response Criticism lack correspondence, other than through the work of Iser.<sup>37</sup>

In order to provide a bit of historical context, it is important to mention that Hans Georg Gadamer studied with and befriended Martin Heidegger (1889-1976) at the Freiburg University, and both later taught at the University of Marburg (Gadamer held a junior position in 1928 and then, in 1937, a lower-level professorship). Cohen's Marburg School helped Marburg develop into a centre of philosophical thought. The same is true of Frankfurt, with its Frankfurt School birthing great minds of Critical Theory, such as: Theodor W. Adorno, Herbert Marcuse (1898-1979) and Walter Benjamin (1892-1940).<sup>38</sup> Likewise, the Constance School of reception aesthetics also formed many influential minds.

Gadamer's *Truth and Method* (1960) laid many of the foundations of Reception Theory, and one such philosophy sees 'objectivity' as unattainable and proposes instead that meaning arises from intersubjective communication.<sup>39</sup> This notion resembles concepts belonging to dialogism's redefined subjectivity and will feature again in the ensuing section on 'appropriative authorship' and 'intertextuality'. Another similarity between the ideologies of Bakhtin and Gadamer resides in the latter's so-called *hermeneutic circle* that develops from the process of reflection—this evokes Bakhtin's concept of transgression ('I' as 'other'). Furthermore, recalling dialogism's chronotope, in *Truth and Method*, tradition is construed by Gadamer as a *structure of prejudices*; this, Gardiner explains as follows: “[To understand a text] requires that we form a conceptual bridge between the tradition within

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<sup>37</sup> Holub, *Reception Theory: A critical introduction*, xiii.

<sup>38</sup> <http://www.iep.utm.edu/frankfur/> (accessed 2016-11-18)

<sup>39</sup> [http://en.wikipedia.org/wiki/Truth\\_and\\_Method](http://en.wikipedia.org/wiki/Truth_and_Method) (accessed 2016-11-18)

which the text itself was generated and our own.”<sup>40</sup> Unlike its usual negative connotation, *prejudice*, here, delineates the bias inherent in one's beliefs. In explaining his views, Gadamer employs the metaphor of a *fusion of horizons*, borrowing terminology from phenomenologist Edmund Husserl (1859-1938). Robert C. Holub renders this explication of Gadamer's imagery:

Horizon thus describes our situatedness in the world, but it should not be thought of in terms of a fixed or closed standpoint; rather, it is “something into which we move and which moves with us” (p.271). It may also be defined with reference to the prejudices that we bring with us at any given time, since these represent a “horizon” over which we cannot see. The act of understanding is then described in one of Gadamer's most notorious metaphors as a fusion of one's own horizon with the historical horizon (*Horizontverschmelzung*).<sup>41</sup>

Similarly to dialogism's inherently relational purview, Holub ties Reception Theory to a larger mandate: “Reception Theory, one can easily conclude, must culminate in or be subsumed by a more general theory of communication,”<sup>42</sup> and, as can be appreciated from this short outline, rapprochements abound between Bakhtin's dialogism and Gadamer's Reception Theory. Gardiner claims,

'dialogism' is virtually a synonym for Gadamer's 'hermeneutic', and therefore both thinkers arguably follow Heidegger's shift from hermeneutics as 'method' to an ontology of understanding which stresses the communicative interaction between subjects in the context of the life-world or *Lebenswelt*.<sup>43</sup>

With dialogism (and Reception Theory) in mind and our previous discussion on music as communication, let us explore how 'appropriative authorship' or 'intertextuality' pertains to music reception and perception.

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<sup>40</sup> Gardiner, *The Dialogics of Critique*, 108.

<sup>41</sup> Holub, *Reception Theory: A critical introduction*, 42. Note: the page numbers in this citation refer to Gadamer's *Truth and Method* trans. Garrett Barden and John Cumming (New York: Continuum, 1975).

<sup>42</sup> Holub, *Reception Theory: A critical introduction*, 108.

<sup>43</sup> Gardiner, *The Dialogics of Critique*, 111.

## Appropriative Authoring/Intertextuality

Previously, we called attention to Holquist's choice of words in saying that Bakhtin saw "perception as an act of *authoring*."<sup>44</sup> Exploration of 'appropriative authoring' (and 'intertextuality') yields critical paths leading to a better understanding of how music can engage listeners.

A music composer often hears, simultaneously, three versions of the same work: the original version which lies in their mind, what is read off the score produced from it, and its rendition when played. Each transition brings with it inherent alterations due to semiotics, individual embellishments, changes in attack and release, phrasing, sensory assimilation, auditory reception and, of course, re-conception of the visible and audible work. The schizophrenic rendition of this incessant spiralling passage from composer to performer to listener and back to the composer state renders a complex (and exhausting) re-authoring where, in essence, a work is created anew through each realization. The very materiality of a piece across different mediums creates a polyphony within this 'hermeneutic circle'.

Involved as it seems, the above serves to illustrate how, at each transfer point, the work itself takes on a new life through interpretation, each time moving from *artistic object* to *aesthetic object* through the interface of reception. The italicized terms above have given rise to considerable reflection—a contemporary account comes from Marcia Muelder Eaton. In her article "Art and the Aesthetic," Muelder Eaton explores four scenarios for defining *artistic object* and *aesthetic object*. One such scenario considers that, instead of being discrete, the classes of objects defined as *artistic* and those considered *aesthetic* intersect.<sup>45</sup>

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<sup>44</sup> Holquist, *Dialogism: Bakhtin and his World*, 7.

<sup>45</sup> See Marcia Muelder Eaton, "Art and the Aesthetic," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 63-4.



From our earlier discussion on musical communication as well as from the above example of the composer-performer-listener triptych, Muelder Eaton's suggestion suits our purposes as we consider that the 'artistic object' and the 'aesthetic object' intersect *in time* through the act of interpretation. This argument can be solidified by considering that the dynamic and interactive nature of interpretation modifies the 'artistic object', itself, at each experiencing. As attested by the familiar adage *Art, like beauty, lies in the eye of the beholder*, the object of creation in music gets re-created at each transfer point. This ties back to Bakhtin's notions of unfinalizability and heteroglossia whereby, through each individual interpretation (from innumerable possibilities), the 'artistic object' becomes one of many possible 'aesthetic objects' hence changing the initial 'artistic object', itself. This endless passage from 'I' to 'other' implies that neither the 'artistic object' nor the 'aesthetic object' are ever finalized within this constant mediation.

In Chapter 2, we briefly mentioned that Adorno regarded the 'artistic object' apart from interactive elements of reception. Adorno sought formal properties intrinsic to the 'artistic object' that could render it of aesthetic value instead of considering the collaborative constitution of a musical experience as an unending artistic-aesthetic transfer. Formalists such as Edward Hanslick (1825-1904) also viewed aesthetic qualities separately from music's reception, as put by George Payzant,

For Hanslick the foundation of the science of musical aesthetics is an account of the essence of musical artworks, regarded objectively and not from the point of view of our physical and emotional responses to them.<sup>46</sup>

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<sup>46</sup> George Payzant, Translator's Preface to Eduard Hanslick *Vom Musikalisch-Schönen: ein Beitrag zur Revision der Ästhetik der Tonkunst* (Leipzig: JA Barth, 1854), trans. and ed. Geoffrey Payzant from the Eighth Edition (1891) as *On the Musically Beautiful - A Contribution towards the Revision of the Aesthetics of Music* (Indianapolis, IN: Hackett Publishing Company, 1986), xiv.

Monroe Beardsley (1915-1985) could also be seen as a formalist as he deemed that for an artwork to be considered as performing an aesthetic function, it had to evoke pleasure through form alone. This is communicated by Muelder Eaton, as follows:

While he holds that some aesthetic objects are not artworks, he nonetheless insists that if anything is truly an artwork it fulfills an aesthetic function—the function of evoking a pleasurable experience upon contemplating what he calls “regional properties” and ways in which they are unified (Beardsley 1958).<sup>47</sup>

In defense of the formalists, we see in later chapters that some structural properties of the 'artistic object' (music) can enhance its 'aesthetic value', not in themselves, but rather, as judged against our overarching goal and social impetus of including and engaging participants in musical communication. Recall from the previous chapter that Tia DeNora speaks of “what music affords,” i.e., what political or societal changes can occur through the interrelated webbing of music as society. We thus discover kinship with Adorno and DeNora for our valuation of music in terms of its communicative properties. Additional support for our view comes through Leo Tolstoy (1828-1910). Muelder Eaton, in her informative chapter contribution to *The Blackwell Guide to Aesthetics*, summarizes Tolstoy's position,

Tolstoy argued that art is important because it enables people to communicate emotionally with one another, and the consequence of this is that these people are so bonded together that they come to treat one another better—with greater kindness or respect, for instance. Thus Tolstoy substituted a *moral* theory of art for an *aesthetic* one.<sup>48</sup>

We can now return to the notion of the music triptych described at the beginning of this chapter. As explained above, at each interchange, the 'artistic object' is transformed via reception into an 'aesthetic object', and then through interpretation gets re-authored into

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<sup>47</sup> Muelder Eaton, “Art and the Aesthetic,” 68. She refers here to Monroe Beardsley, *Aesthetics* (New York: Harcourt Brace, 1958).

<sup>48</sup> Muelder Eaton, “Art and the Aesthetic,” 68.

another 'artistic object'; hence, each *participant* 'I' is at once composer, performer and listener. The emphasis on *participant* will be clarified later but, firstly, let us state that the French term *interprète* (which means 'interpreter') seems better aligned to the role of the performer within the context of a dialogic composition, as 'performer' tends to evoke notions of virtuosity and bravado which creates expectations of entertainment rather than of communication. So what, in fact, is meant by *interpretation* when we speak of the listener?

Nobel Laureate biologist Gerald M. Edelman considers that “Every act of perception is to some degree an act of creation, and every act of memory is to some degree an act of imagination.”<sup>49</sup> Crucial to our research, we argue (in Chapter 4) that enhanced participation in musical dialogue occurs when memory triggers imagination and when perception elicits re-creation of the 'artistic object' through appropriative authorship, which is termed *intertextuality* when it pertains to text. Linguistic anthropologist and folklorist Richard Bauman explores such *intertextuality* as communicative practice in *A World of Others' Words: Cross Cultural Perspectives on Intertextuality* (2004). The opening paragraph to Bauman's manuscript clarifies what *intertextuality* entails:

The relationship of texts to other texts has been an abiding concern of literary theorists since classical antiquity . . . Whether by the attribution of literary influence, or the identification of literary sources and analogues, or the ascription of traditionality, or the allegation of plagiarism or copyright violation . . . the recognition that the creation of literary texts depends in significant part on the alignment of texts to prior texts and the anticipation of future texts has drawn critical—and ideological—attention to this reflexive dimension of discursive practice.<sup>50</sup>

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<sup>49</sup> See Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (Toronto, Canada: Alfred A. Knopf, 2007), 148. Sacks quotes Edelman from Gerald M. Edelman, *Second Nature: Brain Science and Human Knowledge* (New Haven: Yale University Press, 2006), 100.

<sup>50</sup> Richard Bauman, *A World of Others' Words: Cross Cultural Perspectives on Intertextuality* (Malden, MA: Blackwell Publishing, 2004), 1.

Fittingly, Bauman's first pen marks divulge the inspiration for his title and orientation of his work, as he quotes Bakhtin: "I live in a world of others' words."<sup>51</sup> Bauman later explains how Bakhtin views dialogue as transcendental and formational to society and culture, "For Bakhtin, dialogue, the orientation of the now-said to the already-said and the to-be-said, is ubiquitous and foundational, comprehending all of the ways that utterances can resonate with other utterances and constitutive of consciousness, society and culture."<sup>52</sup> It is no coincidence that we have chosen to turn to Bauman to seek parallels between intertextuality and participative music reception.

In respect to dialogue (and dialogue in art, in particular), "resonate" stands out in the above citation as it implies correlation. This calls for an important distinction between mere reception and interpretation. One can receive information without being able to interpret it. As detailed in our review of dialogism and Reception Theory, reception carries historical, sociological, contextual and other situatedness. Appropriation, conversely, can only occur when associations can be made between what is presented (i.e., a statement, a music work, etc.) and one's own experience or knowledge. Intertextuality, when in the form of paraphrase, implies the recreation of material in *your* own words or in *your* mind. It is not only receptive but also interpretive and appropriative. If you are unable to 'associate', the material will not 'resonate', as you will not be able to 'appropriate'. For example, if you are attempting to read a literary text written in a language foreign to you, there is still an action of reception; however, intertextuality will be impossible due to the lack of knowledge of the language which renders interpretation impossible. You will be unable to 'put in your own

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<sup>51</sup> Bauman, *A World of Others' Words*, 1, quoted from Mikhail M., Bakhtin, *Speech Genres and Other Late Essays*, eds. Caryl Emerson and Michael Holquist, trans. Vern McGee (Austin: University of Texas Press, 1986), 143.

<sup>52</sup> Bauman, *A World of Others' Words*, 5.

words'. As such, interpretation seen as intertextuality goes one step beyond reception as it requires both association and appropriation, and thus solicits active 'participation'. One can argue that all reception is interpretive but we posit that the degree of 'active' versus 'passive' participation will depend upon the willingness and ability to interpret the work. Even with all the enthusiasm imaginable, if the receiver cannot identify elements apt to be appropriated (as in our earlier example of the novel written in a foreign language), there is little to interpret. We thus contend that the Kantian cognitive interplay of imagination and understanding is, in fact, what arouses and engages.

Oliver Sacks (in *Musicophilia*) emphasizes the crucial role of the imagination when he refers to the work of J.L. Chen, R.J. Zatorre and V.B. Penhune having demonstrated through brain imaging that the simple act of imagining music (and its rhythms) brings about the same neural responses in the motor cortex and subcortical motor systems as actually hearing it.<sup>53</sup> Inviting and allowing for interpretation to take place is key to a more inclusive and active participation by all parties involved in *musicking*. This way, music is not only played, it is made and re-made, created and re-created, together. With this said, even when alone, listening to music on the radio or through a personal listening device, community can be created since, as put by Peters, people are “united in imagination, not in location.”<sup>54</sup>

On imagination, French sociologist, cultural critic and philosopher Jean Baudrillard deplores what he perceives as the disappearance of imagination. He attributes this to consumerism and facility of access. As a mechanism to quell existential angst, people consume. Objects become desired not for their function but for what they represent in

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<sup>53</sup> Oliver Sacks, *Musicophilia*, 240. See Chen, J. L., R. J. Zatorre, and V.B. Penhune, “Interactions between auditory and dorsal premotor cortex during synchronization to musical rhythms,” *Neuro-Image* 32(2006): 1771-81

<sup>54</sup> John Durham Peters, *Speaking into the Air: A History of the Idea of Communication* (Chicago, IL: University of Chicago Press, 1999), 217.

relation to social classes and how one fits into them. Consumerism becomes a means of identity, of communication and an active mode of relationship.<sup>55</sup>

Baudrillard contends that the incessant search for external similitude as a representation of self creates an internal vertigo—“alienated to oneself,”<sup>56</sup> the centering on one's own existence precludes the very existence of others. Imagination of distinct 'others' becomes impossible. Likewise, for Baudrillard, imagination of faraway lands becomes irrelevant when high speed transportation can bring you there in mere hours. The same can be said of any form of imagination when self-centeredness combined with immediacy of things and of information interferes with or, altogether, halts the very capacity for imagination because it removes all possibility of being *seduced* (to use Baudrillard's terminology).

Attesting to the criticality of imagination, one simply needs to recognize that abstraction travels to places where reality cannot. Reading a book awakens imagination in different ways than watching a film. Conversely, film music contributes to the on-screen experience as it offers means for mental imagery through sound in addition to sight. Viewers can often recall which music accompanied which scene, and some such scenes are now famous for it. Would the above viewers listen to the same work, unaccompanied by visual stimuli? Perhaps not. What, then, has happened to the role of constructing one's own world through the sheer strength of imagination? Has an over-reliance on visual representation contributed to what Baudrillard considered the lack of seduction so vital to imagination? Have we begun an irreversible trend away from abstraction and towards figurative representation? Can minds still be stimulated without sight? Has sight become

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<sup>55</sup> See Jean Baudrillard, *Le système des objets* (Paris: Gallimard, 1968), 239; 275.

<sup>56</sup> Jean Baudrillard, “Les rituels de la transparence,” in *L'autre par lui-même* (Paris: Galilée, 1987), 37, trans. by N. Dupuis-Désormeaux.

such a praised sense that it has begun to thwart the other senses? Perhaps, but for the immediacy of this discussion, if on-screen visual displays lack, can the interaction within the music and between the composer, the performers and audience members compensate for frame-by-frame cues? Can listening to music alone, in a dark room, generate pleasure? Of course. So when and how does one's imagination get triggered to the point of interest and engagement? We posit that music becomes compelling when it lends itself to interpretation through appropriative authorship but, in order for this interplay to take place, there must be a regard for the subject's experience and knowledge. Music composer Paul Hindemith asserts "we must transform our musical impressions into a meaningful possession of our own."<sup>57</sup> We must author the musical experience.

Furthermore, enhancing cognitive solicitation of each unique and distinct participant engaged in a musical dialogue invites participation via inclusiveness. In the chapter that follows, we investigate how memory embodies experience, activates imagination and leads to intertextuality of the musical dialogue, which, consequently, leads to polyphony. Leonard B. Meyer phrases this phenomenon, as follows:

Our ability to perceive relationships depends in part upon what our past experiences has told us constitutes a relationship. In other words, meanings and relationships are functions not merely of what exists in the external world but of the habits, dispositions, and traditions which competent observers or listeners bring into play when they perceive and organize the world.<sup>58</sup>

Interpretation reframed as intertextuality, whereby information is rewritten according to each participant's experience (or 'prejudice') provides an optimum vehicle for inclusion,

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<sup>57</sup> Paul Hindemith, *A Composer's World* (Mainz, Germany: Schott Musik International, 1952, Reprint 2000), 2.

<sup>58</sup> Leonard B. Meyer, *Music, the Arts and Ideas - Patterns and Predictions in Twentieth-Century Culture* (University of Chicago Press, Chicago, 1967), 280.

because it allows the subject to have a voice—their own. Bauman extends this participation to its role in society,

The linked processes of decontextualizing and recontextualizing discourse—of extracting ready-made discourse from one context and fitting it to another—are ubiquitous in social life, essential mechanisms of social and cultural continuity.<sup>59</sup>

As can be appreciated by this point, the capacity of a given music work to engage its participants depends not only on the aptness to induce intertextuality from the performers interpreting the work but also from each individual receiving it. Due to the multi-tiered nature of relational music dialogue, many factors can either interfere with or enhance the fluidity of communication at the numerous transfer points within this complex lattice but without intent, the line can quickly get dropped. Bauman, advances that with performance comes a varying degree of acceptance of responsibility by the performer for the communicative success of the rendition,

[P]erformance resides in the assumption of responsibility to an audience for a display of communicative competence, subject to evaluation for the skill and efficacy with which the act of expression is accomplished. In these terms, performance is a variable quality, depending upon the degree to which a speaker assumes responsibility for such communicative display.<sup>60</sup>

In other words, each performer (composer, *interprète* or listener) has a choice in (and a responsibility in regards to) the level of their own participation and engagement towards the 'others'.

How does one engage others? In *After Adorno*, DeNora explores communicative vehicles to explain how music arouses affect. She lists: *materiality*, *iconicity*, *convention*, *temporality*, *expectancy*, and *non-representativeness* as examples of means through which

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<sup>59</sup> Bauman, *A World of Others' Words*, 8.

<sup>60</sup> *Ibid.*, 110.



music can awaken responses.<sup>61</sup> We attend to some of these means in discussing the tools available to our composition method; however, of immediate relevance is DeNora's observations on “*fluctuations of subjectivity*”:

Music is, in short, linked to the embodied features of experience and to the flux of their social organisation. In conjunction with other features of space, it may be linked to particular identifiable modes of action. Seen in this light, the study of music's links to emotion, situated within social settings, spaces, and scenes, moves consideration well on from the so-called 'private' realm of individual subjectivity. It highlights by contrast how the topic of music and emotion is, in turn, linked to a basic topic within sociology: how social reality, and with it forms and relations of feeling, is produced in real time and within specific social milieux.<sup>62</sup>

DeNora further emphasizes the place of music in society when she claims, “music may provide a mediator through which the social is formulated; it is, in short, nothing less than a medium of social construction and, conversely, much more than a socially constructed medium.”<sup>63</sup>

In closing, participation in such a social collective through music does not lie merely in music's capacity to engage but to include via an invitation to interpret. This is described by Ian Cross in *Musical Communication*:

The reinforcement of group identity or the instantiation of a form of intersubjectivity can function in collective musical behaviours not only because of the music's capacity to entrain but also because music allows each participant to interpret its significances individually and independently without the integrity of the collective musical behaviour being undermined.<sup>64</sup>

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<sup>61</sup> See Tia DeNora, *After Adorno: Rethinking Music Sociology* (Cambridge, UK: Cambridge University Press, 2003), 99-104.

<sup>62</sup> DeNora, *After Adorno: Rethinking Music Sociology*, 116.

<sup>63</sup> *Ibid.*, 148.

<sup>64</sup> Ian Cross, “Music and Meaning, Ambiguity and Evolution,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 36.

### 3.3. Chapter Conclusions

With our fruitful exploration into aesthetic theory and the world of linguistic anthropology, we have shown why dialogism lays a solid foundation on which the pillars of the artistic and social vision proposed herein can be erected. We also identified a key component to cultivate inclusiveness and participation: interpretation as intertextuality. Beyond mere reception, appropriative authorship through what Kant considered the “free-play between imagination and understanding” creates an active and relational dialogue. We mentioned that these crucial components of reception will be given further attention in the following chapters. Lastly, we stated the obvious: without intent, there is no discussion.

In our quest for a methodology, DeNora's revisiting of Adorno provided guiding philosophies for seeing music *as* society, Bakhtin helped form our concepts for inclusive and reflective dialogue inseparable of context, and Tolstoy urged us to see beyond the surface properties of aesthetic evaluation of objects and phenomena and towards the greater good of society, as a moral stance. The thoughts of Guyer, Meyer, Merriam, Small, Born, Muelder Eaton and others aided in the framing of our ideas; while Peters, Bauman and Holquist contributed to expanding our knowledge of the rapprochements between music, linguistics, folklore and literary critique.

Now that we have explained the impetus for our proposed method of composition, let us turn to the tools available in setting a dialogic musical communication within music because, as Baudrillard expresses,

Theory cannot simply describe and analyze, it must impact the universe that it describes. For this to occur, it must enter into the existing logic yet be a catalyst for change.<sup>65</sup>

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<sup>65</sup> Jean Baudrillard, “Pourquoi la théorie,” in *L'autre par lui-même* (Paris, France: Galilée, 1987), 85, trans. of citation by N. Dupuis-Désormeaux.

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## PART TWO

### The Tools

Part 1 presented the rationale for using dialogism as a foundational construct for the development of the composition method proposed within these pages. The current part of the document attempts to find tools that may enable the creation of engaging, participative, inclusive and collaborative dialogue.

At this point in our enquiry, we have insisted on the importance of intellectual arousal through imagination and appropriative authorship. Chapter 4 aims to reveal the many interrelated ways we experience music, not only through intellectual stimulation but also via sensory and emotive arousal, as well as by physical entrainment. Importantly, we then strive to demonstrate that the human quest for coherence and order in the perception of stimuli provides a powerful vehicle to render music more participatory.

As we have yet to discover the mechanisms governing auditory perception and associated structuring, Chapter 5 attempts to elucidate valuable concepts of psychoacoustics.

Chapter 6 argues the importance of memory, repeated exposure, expectation and surprise in increasing participation via cognitive solicitation and stimulation.

## Chapter 4 - Experiencing Music: Means of Arousal

### 4.1. Introduction

In the previous chapter, we identified the crucial role of imagination and appropriative authorship in rendering music more participatory. In the current chapter, we shall continue to look at key elements that enhance musical experiences. This work introduces the upcoming Chapters 5 and 6 where we present an overview of research findings centering around how music is organised in auditory perception, and how memory creates experience thereby enabling anticipatory responses. Both fields of enquiry yield important clues for the creation of music that piques interest, entrains and engages.

Beginning our discussion, an important remark by music critic and pianist Charles Rosen supports our research and deserves special mention. In his *Piano Notes - The World of the Pianist*, Rosen repeatedly insists on the multi-sensorial nature of music: “[it] is not limited to sentiment or to the intellect, to emotional commitment or to the critical sense, but engages, at the moment of performance, the whole being.”<sup>1</sup> These words evoke Christopher Small's *musicking* as participatory action.<sup>2</sup> Unveiling some of the ways in which music takes hold of us and incites participation provides the primary impetus for the present investigation.

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<sup>1</sup> Charles Rosen, *Piano Notes: The World of the Pianist* (New York, NY: Free Press, 2002), 61.

<sup>2</sup> See Christopher Small, *Musicking: The meanings of performing and listening* (Middletown, CT: Wesleyan University Press, 1998), 105.

## 4.2. Discussion

When composing, reading, practising, performing and listening to music, intellectual arousal, sensory stimulation, emotive response and motor entrainment influence and enhance the musical experience. Enumerating all possible contributors involved in music reception goes well beyond the scope of this research; however, some of these warrant attention and will be discussed in the current chapter.

Although Rosen, in *Piano Notes*, praises “the golden classical age of Western piano music, when conception, hearing, and touch all cooperate,”<sup>3</sup> his pessimism stings when he foresees that such “synthesis of tactile, aural, and intellectual experience would be difficult to repeat [today],”<sup>4</sup> yet, this is a feasible objective of this dissertation.

### Intellectual Arousal

We focused heavily on the importance of imagination in the previous pages but, since its power in sustaining interest cannot be dispelled, we reopen the subject here. This prompts a few words on Eduard Hanslick's 1854 monogram *Vom Musikalisch-Schönen* (*On the Musically Beautiful*). In discussing Theodor Adorno and Monroe Beardsley, we had mentioned in passing that Eduard Hanslick was another formalist. Hanslick's valuing of formalism, cognition and 'absolute' music over emotivism, sentiment and 'program' music ignited numerous debates over the years but also gave rise to great reflection from countless authors after him.

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<sup>3</sup> Rosen, *Piano Notes*, 230.

<sup>4</sup> Ibid.



In *Vom Musikalisch-Schönen*, Hanslick does not refute that listeners can experience a multitude of feelings upon hearing a work of music; however, he insists that, above all, music's aesthetic value should reside in the beauty inherent to the music itself. For Hanslick, appreciation of music consists foremost of intellectual contemplation and deliberation:

[I]f we are to treat music as an art, we must recognize that imagination and not feeling is always the aesthetical authority. . . . Once we grasp that the active imagination is the real organ of the beautiful, feeling will be admitted to be a secondary effect in each of the arts.<sup>5</sup>

Hanslick persists by emphasizing that “to take pleasure in one's own mental alertness is the worthiest, the wholesomest, and not the easiest manner of listening to music.”<sup>6</sup> Instead of attempting to resolve the dispute surrounding aesthetic evaluation of art by arguing for or against formalism and emotivism, we have, from the onset, focused on the communicative properties of the never-ending transfer between artistic and aesthetic object; therefore, intellectual, sensory, emotional and physical arousal, although appearing under different sections, feature in our ponderings as a combined response. Also (and contrary to our approach), although Hanslick recognizes the significance of social and historical situatedness, he considers that such matters belong to art-history and should not pertain to aesthetics.<sup>7</sup> Moreover, Hanslick contends that, for music to be considered pure art, it cannot serve external functions: “The most indispensable requirement if we are to hear music aesthetically is, however, that we hear the piece *for its own sake*, whichever it be and with whatever comprehension we hear it.”<sup>8</sup> Charles Rosen, in *Piano Notes*, views this reverence

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<sup>5</sup> Eduard Hanslick, *Vom Musikalisch-Schönen: ein Beitrag zur Revision der Ästhetik der Tonkunst* (Leipzig, GER: 1854) transl. and ed. by Geoffrey Payzant from the Eighth Edition (1891) as *On the Musically Beautiful: A Contribution towards the Revision of the Aesthetics of Music* (Indianapolis, IN: Hackett Publishing Company, 1986), 5.

<sup>6</sup> Hanslick, *On the Musically Beautiful*, 64.

<sup>7</sup> *Ibid.*, 38-39.

<sup>8</sup> Hanslick, *On the Musically Beautiful*, 66.

to the 'artistic object' somewhat contemptuously and relates it to the detached objectification that exists in the concert hall setting:

Playing in public not only isolates the pianist: it isolates and objectifies the work of music, and it turns the performance into an object as well. . . . A public performance cannot be withdrawn; it has become an object to be judged. . . . It is for this reason that the performance in public seems like the natural goal of the aesthetic philosophy that has dominated Western art and music since the eighteenth century. A work of art is supposed to have a value independent of its social function.<sup>9</sup>

Amongst the informative pages of *Piano Notes*, we find a passage where Rosen gives due consideration to the significance of intellectual arousal in listeners, not only from the internal properties of music but through their interpretation. When discussing how to perform Bach in concert, Rosen cautions against belittling the audience and suggests an interpretation that is “understandable for the listeners in a manner that neither insults their intelligence and the music itself . . . nor leaves them in the dark about the wonderful artistry of the work.”<sup>10</sup> Christopher Small complements this assertion by positing, “If everyone is born musical, then everyone's musical experience is valid.”<sup>11</sup> Ensuring that music works tend to the intellectual capacities of participants (performer and listener) acknowledges their presence by giving them a voice, even when this consists entirely of an internalized experience. This leads to increased participation through inclusiveness.

Pianist and composer Igor Stravinsky in his *Poétique musicale sous forme de six leçons* (delivered as part of the Charles Eliot Norton Lectures on Poetry at Harvard University) explains this phenomenon when he states, “But, over and beyond this passive enjoyment [of natural sounds] we shall discover music, music that will make us participate

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<sup>9</sup> Rosen, *Piano Notes*, 123.

<sup>10</sup> *Ibid.*, 200.

<sup>11</sup> Small, *Musicking*, 13.

actively in the working of a mind that orders, gives life, and creates.”<sup>12</sup> Stravinsky emphasizes the “working of a mind” when he defines music as “a form of speculation in terms of sound and time.”<sup>13</sup> Here, we note the word *speculation*, as this type of intellectual arousal surfaces from an awakened imagination. This process of accessing and stimulating imagination continues to govern our analysis.

To order, to organize, to decipher form, to create relationships, etc., all come from the fundamental desire to comprehend. Stravinsky claims, “we instinctively prefer coherence and its quiet strength to the restless powers of dispersion—that is, we prefer the realm of order to the realm of dissimilarity.”<sup>14</sup> Rosen expands this notion when he points out, “What we perceive, consciously or unconsciously, is pattern, an ordering of sound . . . the will to create order being the condition for the foundation of language or of culture and society.”<sup>15</sup> Christopher Small, in turn, refers to structural order present in all stories within Western art forms (not only in music):

Behind all Western storytelling for the past three hundred years or more, whether it be novel, play, film or piece of symphonic music, lies a kind of master narrative, a meta-narrative . . . [whereby,] order is established, order is disturbed, order is reestablished.<sup>16</sup>

Gustav Freytag's well-known pyramid-shaped model for structure of dramatic works comes to mind since it can be described as an ordered set of events according to: exposition, rising action (tension), tension's climax, falling action (resolution) and *dénouement* (conclusion).<sup>17</sup>

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<sup>12</sup> Igor Stravinsky, “Poétique musicale sous forme de six leçons” (Harvard University Charles Eliot Norton Lectures, Harvard University, Cambridge, MA, 1939-40), trans. by Arthur Knodel and Ingolf Dahl as *Poetics of Music* (Cambridge, MA: Harvard University Press, 1970, 16th reprint 2003), 24.

<sup>13</sup> Stravinsky, *Poetics of Music*, 16.

<sup>14</sup> *Ibid.*, 69-70.

<sup>15</sup> Charles Rosen, *Music and Sentiment* (New Haven, CT: Yale University Press, 2010), 14.

<sup>16</sup> Small, *Musicking*, 160.

<sup>17</sup> See [https://en.wikipedia.org/wiki/Dramatic\\_structure](https://en.wikipedia.org/wiki/Dramatic_structure), (accessed 2017-01-07).

Moving inwards toward the core role of order, we first had Stravinsky's and Rosen's *external* perception of order, then Small's construction of order *within* a work, and now Stravinsky's definition of music *as* order: “tonal elements become music only by virtue of their being organized, and that such organization presupposes a conscious human act.”<sup>18</sup> In other words, music is the *human ordering of sounds*. In Anthony Seeger's “Styles of Musical Ethnography,” a very similar concept is attributed to John Blacking's “music as humanly organized sound.”<sup>19</sup>

Rosen's comment tying music perception's ordering of sounds to the overarching primacy of order as foundational to language, culture and society, leads us to a brief excursion into the comparison between language and music. Since complete tomes have been written on the subject,<sup>20</sup> we shall turn to the insightful words of Susanne K. Langer in her *Philosophy in a New Key*:

Many attempts have been made to treat music as a language of emotions . . . Yet it is not, logically speaking, a language, for it has no vocabulary . . . tones lack the very thing that distinguishes a word from a mere vocable: fixed connotation, or “dictionary meaning.”<sup>21</sup>

In writing *Feeling and Form*, Langer further clarifies that music “lacks one of the basic characteristics of language—fixed association, and therewith a single, unequivocal reference. . . . it is not a language, because it has no vocabulary.”<sup>22</sup> Without crediting influences, critic and musicologist Deryck Cooke arrives at an oddly commutative verbiage when he claims

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<sup>18</sup> Stravinsky, *Poetics of Music*, 23.

<sup>19</sup> Anthony Seeger, “Styles of Musical Ethnography,” in *Comparative Musicology and Anthropology of Music: Essays on the History of Ethnomusicology*, eds. Bruno Nettl and Philip V. Bohlman (Chicago, IL: University of Chicago Press, 1991), 346.

<sup>20</sup> We also suggest a reading of Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, MA: The MIT Press, 1983).

<sup>21</sup> Susanne K. Langer, *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite and Art* (Cambridge, MA: Harvard University Press, first ed. 1942, 3rd ed. 1957), 218; 228.

<sup>22</sup> Susanne K. Langer, *Feeling and Form: A Theory of Art Developed from Philosophy in a New Key* (New York, NY: Charles Scribner's Sons, 1953), 31.

that “composers have consciously or unconsciously used music as a language, from at least 1400 onwards—a language never formulated in a dictionary, because by its very nature it is incapable of such treatment.”<sup>23</sup>

Even without a detailed quantitative analysis, it is safe to assume that the vast majority of humans communicate through language (spoken, signed, written, etc.) and to also state that, more often than otherwise, people listen to songs in languages that are at least partly familiar to them. When music does not contain words, order serves to quell and settle the brain's restless search for semiotic structure. In previous chapters, we introduced concepts of dialogism; here, we hypothesize that the creation of dialogue between voice-parts not only pacifies the quest for order but also engages via association, appropriation and mimesis. In music, we hear relationships and, when attending a live performance, we also see these as interaction and collaboration. Christopher Small proposes that “The act of musicking establishes in the place where it is happening a set of relationships, and it is in those relationships that the meaning of the act lies.”<sup>24</sup> We, therefore, experience the dialogue by virtue of witnessing, aurally and/or visually, its interactive and relational motion. We feel included in the conversation when invited to partake and re-author, and this invitation is tended to our mental faculties written on the materials of order, cohesion, familiarity, successful anticipation and, even, surprise. The musicians not only perceive and deliver the above invitation cards, they reword their content through the appropriative authorship of interpretation. Thus, to invite performers and listeners to the table of dialogue, the composer should leave material to the discretion of the performers. Deliberate openness

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<sup>23</sup> Deryck Cooke, *The Language of Music*, (New York, NY: Oxford University Press, 1959, reprint 2001), 13-14.

<sup>24</sup> Small, *Musicking*, 13.

to interpretation and purposeful ambiguity within a score speak of trust, validation, appreciation for 'otherness' and a desire for collaboration. Charles Rosen purports that it is this very ambiguity that has ensured the survival of many of the most esteemed music works.<sup>25</sup>

In one short paragraph of his influential book, Hanslick summarizes just how intellectual arousal from imagination, order and anticipation does, in fact, invite participation:

The most significant factor in the mental process which accompanies the comprehending of a musical work and makes it enjoyable will most frequently be overlooked. It is the mental satisfaction which the listener finds in continuously following and anticipating the composer's designs, here to be confirmed in his expectations, there to be agreeably led astray. It goes without saying that this mental streaming this way and that, this continual give and take, occurs unconsciously and at the speed of lightning. Only such music as brings about and rewards this mental pursuing, which could quite properly be called a musing (*Nachdenken*) of the imagination, will provide fully artistic satisfaction. Without mental activity, there can be no aesthetical pleasure whatever.<sup>26</sup>

Likewise, perusing again through *The Blackwell Guide to Aesthetics*, we encounter Alan Goldman's "Evaluating Art," where Goldman seems to return Hanslick's words to us:

[The] full engrossment of our mental faculties is of intrinsic value simply because we enjoy meeting challenges to our capacities, expanding and exercising them to their fullest extent. . . . And it is of instrumental value in the benefits that such expansion brings and in removing us, however briefly, from the real world of our practical affairs.<sup>27</sup>

As we now understand and acknowledge the importance of imagination, it seems pertinent and justified to ponder upon the last idea presented above by Goldman: that of absconding. Instead of serving to escape reality, Small sees art as instrumental to effect change—a powerful medium capable of reshaping our world and ourselves. Small affirms:

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<sup>25</sup> Charles Rosen, *Freedom and the Arts: Essays on Music and Literature* (Cambridge, MA: Harvard University Press, 2012), 34.

<sup>26</sup> Hanslick, *On the Musically Beautiful*, 64.

<sup>27</sup> Alan Goldman, "Evaluating Art," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 102.

Musicking is about relationships, not so much about those which actually exist in our lives as about those that we desire to exist and long to experience . . . How we like to music is who we are. . . . In musicking we have a tool by means of which our real concepts of ideal relationships can be articulated . . . and the integrity of the person affirmed, explored and celebrated.<sup>28</sup>

Our artistic vision of creating participatory and inclusive music through dialogism has this same intent: ameliorating how we relate, communicate, interact and, ultimately, how we treat each other. Additionally, Small gives credence to our objective when he petitions for performances “that expand our concepts of relationships, that present relationships in new and unfamiliar light, bring us to see our place in the world from a slightly different point of view.”<sup>29</sup> How quickly this recalls concepts of situatedness and Gadamer's *fusion of horizons*!

Our foray into intellectual arousal and the relationships inherent to music would be incomplete without referring once again to Jean Baudrillard's keen vision. The premise of Baudrillard's impactful *Le Système des Objets* lies in his conception that all objects behave as signifiers within a system and that their functionality does not refer to a separate goal but, rather, is adapted to an order or a system. Functionality, according to Baudrillard, is the ability to integrate within a system.<sup>30</sup> For our purposes, Baudrillard's ideas tie into how musical 'objects' function not of themselves but within the 'system' of interactions both intrinsic and extrinsic to the work. Our conception of music becomes 'functional' when we identify relations within a work and see these as part of a system—that which is comprised of relational dialogue.

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<sup>28</sup> Small, *Musicking*, 183; 220; 221.

<sup>29</sup> *Ibid.*, 216.

<sup>30</sup> See Jean Baudrillard, *Le système des objets* (Paris, France: Gallimard, 1968), 89-91.

## Sensory and Emotional Arousal

We now assert our impending departure from Hanslick by noting that the pleasure and satisfaction felt in intellectual arousal are both affects—case in point for Baumgarten's “sensitive cognition” and Kant's “free play of imagination and understanding.”<sup>31</sup> In *Emotion and Meaning*, Leonard B. Meyer ties cognition to emotions by remarking that, since intelligent cognition and affective experience both involve perception, they can be viewed as “different manifestations of a single psychological process.”<sup>32</sup> In *Freedom and the Arts*, Charles Rosen also renders the idea that music *speaks* to emotions when he quotes Denis Diderot's 1751 *Lettre sur les sourds et les muets*: “How does it happen . . . that of the three arts that imitate Nature, the one whose expression is the most arbitrary and the least precise speaks the most powerfully to the soul?”<sup>33</sup> Since the time of Diderot's words, volumes upon volumes arguing music's potential to arouse emotions have seen publication and it would be much too onerous to cite all impactful authors; however, some key concepts require consideration.

Contemporary philosophers, such as: Susanne K. Langer, Leonard B. Meyer, Deryck Cooke, Peter Kivy, Stephen Davies, Alan Goldman, Philip Alperson and others, have heavily questioned if music contains, denotes, expresses or evokes emotions, but before proceeding, a working definition of *emotion* may benefit our understanding. In “The Emotions in Art,” aesthetic theorist Jenefer Robinson proposes the following definition:

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<sup>31</sup> Paul Guyer, “The Origins of Modern Aesthetics: 1711-1735,” in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Blackwell Publishing, Malden, MA, 2004), 15; 17.

<sup>32</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, paperback ed. 1961), 39.

<sup>33</sup> Rosen, *Freedom and the Arts*, 11.



[An] emotion is a *response* by a person (I ignore other species in this chapter) to some particular situation or event in the environment, which is registered as significant to that person's wants, goals, and interests.<sup>34</sup>

Equipped with this definition, we turn to Philip Alperson's "The Philosophy of Music" where Alperson offers an informative synopsis of the many viewpoints surrounding emotions and music.<sup>35</sup> In his review, Alperson speaks not only of Hanslick and Langer, but also of Peter Kivy, a self-proclaimed "emotive formalist,"<sup>36</sup> and his work in deciphering if music is an *expression* of emotions or is *expressive of* emotions. Kivy, in *Sound Sentiment*, puts this succinctly, "music is recognized as expressive, where it is, in virtue of our hearing expressive qualities in it, not in virtue of having the emotions it is expressive of aroused in us."<sup>37</sup> Equally, in the introduction to *W. A. Mozart* by Hermann Abert, editor and Mozart scholar Cliff Eisen claims that Mozart constructed his art not for his own self-expression but "to allow us to express ourselves."<sup>38</sup>

In her dual publication *Philosophy in a New Key* and *Feeling and Form*, Langer methodically positions her ideas and presents a plausible reconciliation in deciding where music and emotions intersect. In these manuscripts, although Langer acknowledges music's effect on various physiological parameters (heart-rate, blood pressure, respiration, concentration, and its propensity to excite or relax, to elicit a desire to sing, tap, change walking cadence, dance, etc.), she dispels its direct concordance with emotions. Similarly as

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<sup>34</sup> Jenefer Robinson, "The Emotions in Art," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Blackwell Publishing, Malden, MA, 2004), 176.

<sup>35</sup> See Philip Alperson, "The Philosophy of Music: Formalism and Beyond," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Blackwell Publishing, Malden, MA, 2004), 254-275.

<sup>36</sup> Peter Kivy, *Sound Sentiment, An Essay on the Musical Emotions* (Temple University Press, Philadelphia, 1989), 256.

<sup>37</sup> *Ibid.*, 257.

<sup>38</sup> Cliff Eisen in the Editorial Note to Hermann Abert, *W.A. Mozart* (Leipzig: Breitkopf & Härtel, 1923-4), trans. Stewart Spencer and ed. Cliff Eisen (New Haven: Yale University Press, 2007), xi.

when Langer deduced that music was not a language of emotions, she suggests that music does not contain “meaning” because it lacks the “factor of conventional reference.”<sup>39</sup> Langer reasons, “Music has *import*, and this import is the pattern of sentience—the pattern of life itself, as it is felt and directly known.”<sup>40</sup>

It is timely now to return to Hanslick before closing *Vom Musikalisch-Schönen*, as his thoughts on the emotive properties of music funnel our discussion on music's relation to expressiveness:

There are ideas which can be perfectly represented by means of music and yet not occur as feeling, just as, conversely, a similar mixture of feelings could stir us emotionally but have no corresponding representation by means of a musically portrayable idea. What, then, from the feelings, can music present if not their content? Only that same dynamic mentioned above. It can reproduce the motion of a physical process according to the prevailing momentum: fast, slow, strong, weak, rising, falling. . . . Motion is the ingredient which music has in common with emotional states and which it is able to shape creatively in a thousand shades and contrasts.<sup>41</sup>

Hanslick's observation that it is the motion in music that resembles our displays of emotional states was visionary. Langer echoes this vital observation with her compelling and exacting words:

The tonal structures we call “music” bear a close logical similarity to the forms of human feeling—forms of growth and of attenuation, flowing and stowing, conflict and resolution, speed, arrest, terrific excitement, calm, or subtle activation and dreamy lapses—not joy and sorrow perhaps, but the poignancy of either and both—the greatness and brevity and eternal passing of everything vitally felt. . . . Music is a tonal analogue of emotive life.<sup>42</sup>

Langer's words therefore retrace Hanslick's idea that it is the *motion*, or here, the forms in music that create the associated sensory and emotional responses. We, in turn, suggest this catchy mnemonic phrase: *music's motion is what moves us!* ...but does it move us all in the same way? Langer, again, offers these eloquent observations:

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<sup>39</sup> Langer, *Feeling and Form*, 31.

<sup>40</sup> Ibid.

<sup>41</sup> Hanslick, *On the Musically Beautiful*, 10-11.

<sup>42</sup> Langer, *Feeling and Form*, 27.

If it [music] reveals the rationale of feelings, the rhythm and pattern of their rise and decline and intertwining, to our minds, then it is a force in our mental life, our awareness and understanding, and not only our affective experience. . . .The imagination that responds to music is personal and associative and logical, tinged with affect, tinged with bodily rhythm, tinged with dream, but *concerned* with a wealth of formulations for its wealth of wordless knowledge, its whole knowledge of emotional and organic experience, of vital impulse, balance, conflict, the *ways* of living and dying and feeling.<sup>43</sup>

Since Robinson's definition of *emotion* and Langer's words above speak of situatedness and subjectivity, it seems prudent to assume that each participant involved in a given musical event will experience emotions that belong to them. This is not to say that composers and performers cannot attempt to portray certain emotions, but it shows the limitations inherent to emotional response. Deryck Cooke's *The Language of Music*, a title that we mentioned in our earlier discussion on music and language—attempted to link musical parameters and structures directly to concordant emotions. Although his music analyses provide valuable comparisons within the Western Art-music repertoire, his treatise falls short because it fails to take into account the subjective nature of response. There is, nevertheless, merit in some of Cooke's arguments, notably, when a composer attempts to elicit a certain mood or where word- or tone-painting is concerned. In recent years, it has been shown that general moods may, in fact, be created and aptly recognized. Juslin refers to the 1992 work of Thompson and Robitaille where six emotions: “joy, sorrow, excitement, dullness, anger and peace” were crafted into melodies by composers and then played back to fourteen musically-trained listeners through a computer sequencer (without intonations) - all six emotions were successfully recognized.<sup>44</sup> Juslin also reports results from a meta-

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<sup>43</sup> Langer, *Philosophy in a New Key*, 238; 244.

<sup>44</sup> Patrik N. Juslin, “From mimesis to catharsis: expression, perception, and induction of emotion in music,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 94, making reference to W.F. Thompson and B. Robitaille, “Can composers express emotions through music?” in *Empirical Studies of the Arts* 10, 79-89.

analysis of 41 studies looking into emotional correspondence between material produced by performers and response from listeners. This large-scale study concluded that

[P]rofessional performers are able to communicate five emotions (happiness, anger, sadness, fear, tenderness) to listeners with an accuracy approximately as high as in facial and vocal expression of emotions. The overall decoding accuracy was equivalent to a raw accuracy score of  $p_c = .70$  in a forced-choice task with five response alternatives (i.e., the mean number of emotions included in studies thus far). . . . finer distinctions within these categories are difficult to communicate reliably without additional context provided by, for instance, lyrics, program notes, or visual impressions.<sup>45</sup>

Aside from matters of direct equivalency of emotions, we have suggested that it is music's motion that elicits subjective emotions. But *how* does motion affect us? From antiquity onward, we have heard that all art is mimetic. Cooke expressed this as follows: “all great art stimulates our own real emotional capacities to partake vicariously of the artist's experience, as we do of our friends' experiences when they speak to us of them.”<sup>46</sup> Kivy, in turn, credits eighteenth-century composer and music theorist Johann Mattheson for observing that music's motion structurally “resembles our expressive behaviour.”<sup>47</sup> (As seen earlier, Hanslick and Langer also noted this parallel). Kivy turns to speech patterns for comparison of music to its emotional response:

We hear sadness in the opening phrase of *Lamento d'Arianna* in that we hear the musical sounds as appropriate to the expression of sadness. And we hear them as [culturally] appropriate to the expression of sadness (in part) because we hear them as human utterances, and perceive the features of these utterances as structurally similar to our own voices when we express our own sadness in speech.<sup>48</sup>

Formulating an easy explanation of what is meant by Mattheson's 'expressive behaviour': Who has not been accused of being irritated if their words suddenly become slightly higher in pitch, more detached, more heavily punctuated and perhaps faster and louder than their

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<sup>45</sup> Juslin, “From mimesis to catharsis,” 94.

<sup>46</sup> Deryck Cooke, *The Language of Music*, 20.

<sup>47</sup> Kivy, *Sound Sentiment*, 52.

<sup>48</sup> *Ibid.*, 51.

usual presentation? Likewise, slowly enunciated and tied syllables and words tend to be associated with a certain flow or *aisance* conveying or perhaps conjecturing a state of comfort or low anxiety. Clearly, the preceding examples are culture-specific; however, they serve to illustrate how expressive behaviour can be displayed, and consequently imitated through manipulation of musical parameters such as pitch, rhythmic grouping, articulation, tempo, dynamics, attack, decay, etc.,—motion in music implies relationships and contrasts. As discussed above, it is difficult to convey specific emotions but some physical components of emotional behaviour can be imitated by both the music and how it is rendered by the performers. Juslin, likewise, purports that music performers often employ speech-specific patterns to enhance music expressiveness.<sup>49</sup>

In addition to the motion of speech patterns, Small suggests that we constantly obtain non-verbal clues from people we interact with and from those around us: “It is a commonplace of social interaction that it is those gestures that we make without intending them that are often the most significant clues to our real nature and to the ways in which we relate to others.”<sup>50</sup> We immediately think of the skills of actors, dancers and singers in using gestures, postures and facial expressions to display emotional attributes. Small explains this form of mimesis as follows:

[A]ctors do a service in playing a kind of game with relationships so that the spectators can imagine those relationships and the emotions to which they give rise and even possibly experience them, without having to commit themselves to them. . . . If the actor is representing the relationships adequately to the spectators, they will feel emotions in response: pity in response to the protagonist's suffering, pleasure in response to his or her joy, and so on; or if the actor is playing the antagonist or villain, the responses may be reversed.<sup>51</sup>

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<sup>49</sup> Juslin, “From mimesis to catharsis,” 95.

<sup>50</sup> Small, *Musicking*, 144.

<sup>51</sup> *Ibid.*, 145.

How does acting pertain to our real-life experiences of music? Through mimesis, we have sympathetic responses to the emotive behaviours we witness. Goldman attributes these to biology and the necessity of survival, and adds that we react more strongly to difficult plights rather than to the success of others.<sup>52</sup> Ian Cross, whose research views music as biocultural, lends support to the aforementioned association between mimesis and survival when he advances that the ability of infants to respond appropriately to facial expressions begins too early in child development to be attributed to a “general-purpose learning mechanism.”<sup>53</sup> In fact, research by neuroscientists Giacomo Rizzolatti and Marco Iacoboni have identified that *mirror neurons* are potentially responsible for the phenomenon of mimesis. These cells, located in the premotor cortex and inferior parietal cortex behave equally when we perform a certain act and when we observe someone performing this same act. The mirror neurons effectively “collapse the distinction between seeing and doing.”<sup>54</sup> In 2006, Iacoboni published a paper in *Nature Neuroscience* suggesting that there may be a link between autism and mirror neuron dysfunction. Iacoboni believes that mirror neurons are not only tied to imitation but to empathy, compassion and language skills:

Mirror neurons are the only brain cells we know of that seem specialized to code the actions of other people and also our own actions. They are obviously essential brain cells for social interactions. Without them, we would likely be blind to the actions, intentions and emotions of other people.<sup>55</sup>

Our capacity to adjust our reactions and emotions in accordance to what we witness may stem directly from this inherent need to form and sustain bonds within social interactions.

The informative article “Do mirror neurons explain misattribution of emotions in music?”

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<sup>52</sup> Goldman, “Evaluating Art,” 103.

<sup>53</sup> Ian Cross, “Music and Meaning, Ambiguity and Evolution,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 37.

<sup>54</sup> <https://www.scientificamerican.com/article/the-mirror-neuron-revolut/#> (accessed 2017-01-25).

<sup>55</sup> Ibid.

by Mark C. Gridley and Robert Hoff points, however, to the risk of misreading certain expressions, notably anger when witnessing high intensity playing—the authors caution that “the source of their [the listeners'] interpretation is their perception that to imitate such sounds corresponds to a strong automatic response to distress.”<sup>56</sup>

On the value of witnessing relations, misattributed or not, in “Music and Conversation,” R. Keith Sawyer explains John Dewey's conception of art (described in Dewey's *Art as Experience*), whereby art is defined through experiencing its interactions with people and the environment, and where this experiencing of art, as stated by Dewey, is “a transformation of interaction into participation and communication.”<sup>57</sup> From his reading of Dewey and others, Sawyer stipulates,

Musicians in an ensemble communicate with each other, and these interactional patterns replicate the essential interactional processes found in all human communication. As we listen to a performance, we are exposed to the distilled essence of human sociality.<sup>58</sup>

In other words, we enjoy music because, in it and through it, we find relations and communion essential to the nature of our species. When witnessing others engaged in music's interactions, we can imagine ourselves as participants in the exchange. Robinson provided our earlier working definition of *emotion* as a response to a situation or environment; of essence here, Robinson sees this “environment” as including not only our real world but also that which is fabricated by our thoughts and our imagination. Furthermore, she adds, “emotions do not require *beliefs* about anything, but only a

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<sup>56</sup> Mark C. Gridley and Robert Hoff, “Do mirror neurons explain misattribution of emotions in music?” *Perceptual and motor skills* 102, no. 2 (2006): 601.

<sup>57</sup> Keith Sawyer, “Music and Conversation,” in *Musical Communication*, 49, citing John Dewey's *Art as Experience* (New York: Perigree Books, 1934), 22.

<sup>58</sup> *Ibid.*, 47.

perspective on things, in terms of our own wants, interests, and values.”<sup>59</sup> Robinson supplements her compelling arguments by observing that we do not always empathize with what we witness, as sometimes we take a “third-person perspective.”<sup>60</sup> Moreover, our emotive response to a musical event might have nothing to do with the particularities of what is immediately at hand but, instead, refer to some other personal experience through association or by being triggered at that particular moment.

### Physical Arousal

We have seen that motion corresponding to speech patterns and physical displays leads to mimesis. We now turn to the importance of physicality and physical entrainment.

Charles Rosen, concludes his *Piano Notes* with, “it is the physical pleasure of playing as well as hearing the piano that holds the key to the future of the music written for it.”<sup>61</sup> This implies that compositions must appeal to the physicality of the experience for the performers and, through mimesis and entrainment, for the audience also. Sawyer purports, “In entrainment, one person's rhythms become attuned to another, almost like a tuning fork.”<sup>62</sup> The phenomenon of rhythmic entrainment has powerful outcomes and repercussions. Oliver Sacks in *Musicophilia* speaks of a case where an elderly woman had lost the ability to control her left leg—her mind had 'forgotten' how to direct commands to it. When Sacks asked the woman if she could identify a moment when her leg last moved, she answered that it had kept time “by itself” to an Irish jig played at the Christmas concert.

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<sup>59</sup> Robinson, “The Emotions in Art,” 185.

<sup>60</sup> Ibid., 186.

<sup>61</sup> Rosen, *Piano Notes*, 235.

<sup>62</sup> Sawyer, “Music and Conversation,” 52.



Sacks jumped on the opportunity, and within months of regular jig-listening sessions, motion to the leg was fully restored.<sup>63</sup>

Music (and specifically rhythm) has an inherent ability to activate and reactivate the mind's sensorimotor systems. This is confirmed by neurologic music therapy scientist Michael H. Taut,

Studies have shown impressively over the past 10 years that rhythmic entrainment of motor function can actively facilitate the recovery of movement in patients with stroke. . . . There is strong physiological evidence that rhythmic sounds act as sensory timers, entraining brain mechanisms that control the timing, sequencing and coordination of movement. . . . Thus the neuronal activation patterns that precisely code the perception of rhythm in the auditory system spread into adjacent motor areas and activate the firing patterns of motor tissue.<sup>64</sup>

In playing as in listening, we experience physicality through motion and rhythm. We dance, tap our feet, clap or silently savour the bond of rhythmic unison. Sacks summarizes this quite well with, “Rhythm turns listeners into participants, makes listening active and motoric and synchronizes the brains and minds (and, since emotion is always intertwined with music, the 'hearts') of all who participate.”<sup>65</sup>

Lastly and in closing this section, Rosen asserts that the music works chosen to be presented in concert are those that delight the performers who play them.<sup>66</sup> This critical remark demonstrates the importance of writing music having the potential to engage fully the performer not only through physical stimulation but also through intellectual, sensory and emotional arousal. Disappearance of opportunities for collaborative work between composer and performers has for consequence that the scoring of music often underutilizes the unique knowledge and skills performers bring to the creative process.

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<sup>63</sup> Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (Toronto, Canada: Alfred A. Knopf, 2007), 235.

<sup>64</sup> Michael, H. Thaut, “Rhythm, human temporality, and brain function,” in *Musical Communication*, 181-182; 185.

<sup>65</sup> Sacks, *Musicophilia*, 244-245.

<sup>66</sup> Rosen, *Freedom and the Arts*, 74.

### 4.3. Chapter Conclusion

With a multi-disciplinary approach, we have confirmed the inseparable nature of intellectual, sensory, emotional and physical response to music. Such findings should not surprise as similar concepts appeared as early as Augustine's *De musica libri sex*, where it is argued that a 'genuine musical experience' takes place on five levels: physical, physiological, through imagination, via musical memory, and by intellectual evaluation— to which music composer Paul Hindemith added a sixth level: spiritual enhancement.<sup>67</sup>

In this chapter, we were reminded of our mind's preference for order over disorder and noted that this tendency could be utilized by enabling the formation of relationships between musical constituents within a composition. We also drew comparisons between music and language, and clarified that, although music is not a language, it's motion can mimic that of speech. Furthermore, after defining *emotion*, we argued that music does not contain emotions but can be constructed to convey general moods and elicit subjective emotional responses. In addition, emotive arousal was shown to occur when motion inherent to the music and created by the performers parallels expressive displays such as facial expressions, posture, gestures and behaviour. Dewey's conception of art as the experiencing of its relations facilitated our understanding of the power behind such witnessing of music's interactions. Furthermore, we focused on the physicality of music and how rhythm can entrain even those with compromised neurological functions.

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<sup>67</sup> See Magnar Breivik, *Musical Functionalism: The Musical Thoughts of Arnold Schoenberg and Paul Hindemith* (Interplay: Music in Interdisciplinary Dialogue; No.8), ed. Siglind Bruhn (Hillsdale, NY: Pendragon Press, 2011), 381; as well as Paul Hindemith, *A Composer's World* (Mainz, Germany: Schott Musik International, 1952, reprint 2000), 4.

In closing, we suggested that increased collaboration between composer and performers could render works that provide greater satisfaction for everyone. For the performers, having their music received with attentiveness and enthusiasm not only spurs their interpretation but also garners the sense of completeness and closure that reciprocity brings. This further accentuates positive responses in listeners. For the composer, knowing that a work succeeds in engaging its participants sustains them through the many periods of doubt where one questions the very purpose of writing.

We conclude that, because we prefer order over chaos and respond to speech-like structure, patterns and inflections, the creation of dialogic relationships across voice-parts invites participation and enhances inclusiveness. Furthermore, witnessing the dynamics and emotive displays of interactive dialogue elicits emotional arousal through mimesis and, thus, keeps participants engaged.

In partaking in the musical experience, we generate our own narrative as a separate but interrelated story. Music extends beyond the realm of our individual daily lives by connecting us through sound. Now to understand just how such sound moves from physical perception to imagination, we turn to the following chapter.

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## Chapter 5 - Auditory Perception

The concept of artistic value depends on comprehensibility, which thus becomes the underpinning of both intellectual and emotional satisfaction.<sup>1</sup>

—Magnar Breivik, *Musical Functionalism*

### 5.1. Introduction

In the last chapter, we explored how our mind's search for order and structure arises from a fundamental need to comprehend, make associations and build relationships, and we posit that, as humans, this predisposition shapes perception and permeates cognition. We therefore present a brief yet informative glance into psychophysics, Gestalt psychology and psychoacoustics, in an attempt to show how perceptual organization takes place when we are subjected to stimuli. We then focus specifically on music perception by examining pertinent sections of Robert Francès' *La perception de la musique* and Albert S. Bregman's *Auditory Scene Analysis*.

### 5.2. Discussion

Let us begin by recalling Baudrillard's suggestion that objects act as signifiers within a system. In addition, we reiterate dialogism's assumption that “nothing can be perceived except against the perspective of something else: dialogism's master assumption is that there is no figure without a ground.”<sup>2</sup> Both of these concepts tie into our appreciation for how music perception and reception depend not only on the interactive lattice between

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<sup>1</sup> Magnar Breivik, *Musical Functionalism: The Musical Thoughts of Arnold Schoenberg and Paul Hindemith* (Interplay: Music in Interdisciplinary Dialogue; No.8), ed. Siglind Bruhn (Hillsdale, NY: Pendragon Press, 2011), 216.

<sup>2</sup> Michael Holquist, *Dialogism: Bakhtin and his World* (London, UK: Routledge, 1990), 22.

participants but also upon the order and relationships inherent to the music itself. Each parameter of a music composition influences not only the punctual event but also what has just been heard and what will follow; thus, the establishment of order, cohesion and clarity when creating a work potentially facilitates its reception. Although the chosen means and mechanisms for construction are as varied as the composers themselves, when music contains identifiable structures and relationships spanning the entire work, mental arousal is more likely to ensue upon experiencing the piece.

These notions were, seemingly, familiar to music composers throughout vastly different periods. Systematic structuring of elements adhering to general conventions of style is readily apparent in music from the Baroque through to the Romantic periods. Modern composers, in pursuit of enhanced comprehensibility whilst in absence of period-based conventions, developed their own style and approach in treating the music material as part of a logical and cohesive work. For example, in *Musical Functionalism*, Magnar Breivik insists, “The view that a conception of an artistic whole is the basis of a creative process pervades Schoenberg's texts on composition.”<sup>3</sup> Breivik stipulates that “creating musical coherence is the most important ingredient in Schoenberg's logic-based concept of compositional construction.”<sup>4</sup> Although recognizing that comprehensibility is inherently subjective, Schoenberg aimed to enhance intellectual understanding through musical logic.<sup>5</sup>

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<sup>3</sup> Breivik, *Musical Functionalism*, 207.

<sup>4</sup> *Ibid.*, 223.

<sup>5</sup> See Breivik, *Musical Functionalism*, 217.

Schoenberg's tool of choice in creating coherence lies in the motive, as he states, "I consider the motive as the *building material* that can assume and realize all forms."<sup>6</sup>

Pointing to our earlier emphasis on the importance of authoritative authorship, Schoenberg saw the unravelling of logic in musical construction as representative of personal experiences,

Through its relationship, analogy with, similarity to other things we think, feel and sense, we are able to grasp it [the artistic product] as similar to us, appropriate to us, and related to us. So one must show how the material, against or in accordance with its own aim, is forced by art—by fulfilling the demands of comprehensibility—to adapt itself to such conditions.<sup>7</sup>

Even when we account for individual composition methods and styles, music composers as different as Béla Bartók<sup>8</sup>, Paul Hindemith and Arnold Schoenberg shared a similar concern for form, structure and order. Hindemith used intervallic relationships<sup>9</sup> between tones whereas Bartók and Schoenberg focused more heavily on motivic structure, but common to their methods is the overarching concern for construction.<sup>10</sup> Of Hindemith, Breivik suggests,

He [Hindemith] is convinced that a crucial precondition of musical perception is the human capacity for construction. Whereas any experience of music may have a purely emotional aspect, Hindemith believes that the mental parallel construction belongs to the conscious and intellectual domains of that experience.<sup>11</sup>

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<sup>6</sup> Breivik, *Musical Functionalism*, 205 citing Schoenberg, *The Musical Idea and the Logic, Technique, and Art of Its Presentation*, P. Carpenter and S. Neff, eds./trans. (New York, NY: Columbia University Press, 1978), note on page 151.

<sup>7</sup> Breivik, *Musical Functionalism*, 217 citing Schoenberg, "Theory and Form," in *Style and Idea: Selected writings of Arnold Schoenberg*, L. Stein, ed., L. Black, trans. (Berkeley, CA: University of California Press, 1975), 253.

<sup>8</sup> See Malcolm Gillies, "Pitch Notations and Tonality: Bartók," in *Models of Musical Analysis: Early Twentieth-Century Musical Analysis*, ed. Jonathan Dunsby (Oxford, UK: Blackwell Publishers, 1993). See also Larry J. Solomon, "The Principle of Compound Variation in Bartók's Second String Quartet," 2004. [http://solomonsmusic.net/Bartok2Q\\_compound\\_var.htm](http://solomonsmusic.net/Bartok2Q_compound_var.htm) (accessed 2017-03-14).

<sup>9</sup> Refer to Hindemith's *The Craft of Musical Composition* and, for a fine example of treatment of tonal relationships, his cycle of twelve fugues for piano *Ludus Tonalis*.

<sup>10</sup> See Breivik, *Musical Functionalism*, 160.

<sup>11</sup> Breivik, *Musical Functionalism*, 278.



We recall that intellectual arousal forms an integral but indelible part of the multi-factorial nature of music response; its importance cannot be understated, as is emphasized in the concluding pages to *Musical Functionalism*:

The real function of music is to activate a process of recognition. Schoenberg believes that comprehensibility, logic, and coherence are of fundamental importance. Their relevance presupposes conscious human recognition and an active, recognizing subject. His understanding of material and form is based on his belief in mental activity as a presupposition for musical recognition. He also looks for concrete ways of activating the listener or of preparing the ground for active recognition.<sup>12</sup>

Not only do order, structure and coherence facilitate understanding, cognitive psychology experiments have shown that they also aid memory, which further enhances the musical experience. For example, music psychologist Annabel J. Cohen claims that early experimentation on absolute judgement of tones revealed that listeners could only retain in memory up to five tones (and, likewise, only five degrees of loudness) but this limitation could be countered by structuring items and by adding other identifiable parameters (e.g., providing a reference tone).<sup>13</sup> Cohen also refers to a later study<sup>14</sup> where listeners were exposed to a section of music by Olivier Messiaen and then asked to identify from six different excerpts which ones were taken either from the section they had heard or from another (yet unheard) section of the piece. Messiaen had structured his composition in such a way that all twelve chromatic tones were present between three voices, and each specific tone was associated to a given duration and loudness. High concordance was achieved in this experiment and showed that, when offered a coherent structure, listeners can assimilate a new style. In other words, when parameters are ordered, the added logic and coherence

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<sup>12</sup> Breivik, *Musical Functionalism*, 396.

<sup>13</sup> See Annabel J. Cohen, "Music cognition: defining constraints on musical communication," in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 68-70. Cohen, in particular, mentions G.A. Miller, "The magical number seven plus or minus two: Some limits on our capacity for processing information," *Psychological Review*, 63 (1956): 81-97.

<sup>14</sup> See Cohen, "Music cognition: defining constraints on musical communication," 70-71, where Cohen refers to C.L. Krumhansl, "Memory for musical surface," *Memory and Cognition*, 19 (1991): 401-11.

assist in identification and retention of like events. Leonard Meyer had also noted this fact as revealed in these words: “well-organized processes of themes and melodies are better remembered than the more or less irregular parts of a musical work.”<sup>15</sup> It thus seems that our desire to seek relationships and our mind's preference for order and organization steer the perception of stimuli. Let us now look at mechanisms at work in perception.

## Music Cognition and the Psychology of Perception

In *Musical Communication*, Cohen offers an informative chapter on the history of music cognition where she proceeds from experimental psychology to behaviourism and through to contemporary research in the field.<sup>16</sup> Cohen begins her article by acknowledging the work of Gustav Fechner on the psychophysics (mind/body relation) of tone which predated cognitive psychology, and notes his contributions in investigating sensory limitations. Cohen then recognizes the important research of Hermann von Helmholtz compiled in his *On the Sensations of Tone as the Physiological Basis of the Theory of Music*, and credits him for his observation that expectancy (his notion of *unconscious inference*) influences perception. This crucial insight informed the work of Leonard Meyer, Eugene Narmour and countless others, as the comprehensive treatment of this phenomenon in Chapter 6 confirms.

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<sup>15</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, 1961 paperback ed.), 89.

<sup>16</sup> See Cohen, “Music cognition,” 61-84.

The sheer breadth of *On the Sensations of Tone* is impressive, to say the least, and represents “a magnum opus of one of the last great universalists of science.”<sup>17</sup> With its extensive research findings, *On the Sensations of Tone* became an essential read for anyone interested in physiological acoustics. Without detailing its entire contents, it suffices to mention that *On the Sensations of Tone* covers topics as diverse as composition of vibrations, frequency analysis of tones, upper partials, ratios of perfect intervals, ambiguity of minor chords, relative and absolute character of keys, resolution of dissonance, calculation of cents, etc. Cohen speaks also, albeit briefly, of Wilhelm Wundt's studies on perception<sup>18</sup> and then alleges, “The nineteenth century scientists encouraged the analysis of the mental representation of music and its components. Their insight remains relevant.”<sup>19</sup> Although not mentioned in Cohen's article, Franz Brentano, another contributor to early thoughts in psychoacoustics, was one of the first to recognize that pitch cannot be reduced to a one-dimensional linear scale, which explains why it is very difficult to perceive and quantify.<sup>20</sup> Offering a more modern viewpoint, Albrecht Schneider, in “Psychological Theory and Comparative Musicology,” describes the phenomenon of pitch for bells and instruments other than vibrating strings and columns, as follows:

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<sup>17</sup> See the first page of the introduction by Henry Margenau to Hermann L.F. Helmholtz, *Die Lehre von den Tonempfindungen*, (Braunschweig: Vieweg & Sohn, 1862, 4th ed., 1877), trans. Alexander J. Ellis as *On the Sensations of Tone as a physiological basis for the theory of music* (Longmans & Co: 1885, 2nd ed., New York, NY: 1954, Dover, re-issue, n.d.).

<sup>18</sup> Cited in monographs on experimental aesthetics, the Wundt Curve describes the relationship between music complexity and listener response as an inverted 'U'. In other words, there is an increase in listener enjoyment of music with mounting complexity, up to a point; beyond this critical point, enjoyment diminishes if complexity keeps increasing.

<sup>19</sup> Cohen, “Music cognition,” 62.

<sup>20</sup> See Albrecht Schneider, “Psychological Theory and Comparative Musicology,” in *Comparative Musicology and Anthropology of Music*, eds. Bruno Nettl and Philip V. Bohlman (Chicago, IL: University of Chicago Press, 1991), 298.

[T]he analysis of “pitch” is far from easy, for, unlike conventional sounds—those produced by strings or vibrating columns of air—there is no clearly marked “fundamental” with an adjunct series of partials whose frequencies would be integer multiples of the lowest component like 1:2:3:4:5: . . . :n. Because there is no clearly discernible “fundamental,” it is usually not possible to obtain a “frequency” by measurement and then equate this with “pitch.” . . . The actual “pitch” the listener perceives, however, has little if anything to do with the lowest component in such complex spectra as those produced by slabs and bells . . . Sounds from such instruments quite often cause significant “uncertainty” in pitch perception, a fact only recently demonstrated in experiments undertaken on Balinese *genderwayang* metallophones (Deutsch and Födermayr 1986).<sup>21</sup>

Brentano's observations gave rise to the experimental psychology studies of Carl Stumpf and the latter's *theory of relations* found in his *Tonpsychologie*, where phenomena of sensory arousal from tones and intervals are investigated.<sup>22</sup> To support his research, Stumpf required data from various cultures. In “Erich M. von Hornbostel, Carl Stumpf, and the Institutionalization of Comparative Musicology,” Dieter Christensen describes Stumpf's pivotal findings,

For his psychological interest in the sensual experience of tones and intervals and their ordering into tone systems, and for the testing of his hypothesis of perceived fusion of tones (*Verschmelzungstheorie*), he needed data ideally from all cultures. His famous Bellakula essay (Stumpf 1886) and his “Tonsystem und Musik der Siamesen” (Stumpf 1901) were two of his own attempts to broaden the empirical basis for his psychological studies.<sup>23</sup>

From the 1920's onward, behaviourism held a solid position in psychology. This trend gave rise to increased scientific rigor in experimentation, advances in statistical sampling and numerous researches into stimulus-response phenomena but, as stated by

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<sup>21</sup> Schneider, “Psychological Theory and Comparative Musicology,” 303.

<sup>22</sup> See Schneider, “Psychological Theory and Comparative Musicology,” 294.

<sup>23</sup> Dieter Christensen, “Erich M. von Hornbostel, Carl Stumpf, and the Institutionalization of Comparative Musicology,” in *Comparative Musicology and Anthropology of Music*, eds. Bruno Nettl and Philip V. Bohlman (Chicago, IL: University of Chicago Press, 1991), 204. Reference to Stumpf (1886) “Lieder der Bellakula-Indianer,” *Vierteljahrsschrift für Musikwissenschaft* 2: 405-26; and to Stumpf (1901) “Tonsystem und Musik des Siamesen,” *Beiträge zur Akustik und Musikwissenschaft* 3: 69-138.

Cohen, tended to veer away from investigating the “topics of mind, thought, creativity, beauty, and imagery.”<sup>24</sup>

Unlike the behaviourists' avoidance of the mental, some psychologists researched the mechanisms involved in how we perceive and organize stimuli. Cohen alleges that Christian von Ehrenfels pioneered this field of enquiry known as *Gestalt* (loosely defined as 'structure') psychology with his 1890 article “On Gestalt Theory.” In this paper, von Ehrenfels offers melodic transposition as an obvious example of organizational structuring—when the same melody starts on different pitches, the mind can quite readily recognize intervallic relations and patterns, and judge both occurrences as equivalent.<sup>25</sup> In support of Cohen's assertion, one of the names most often associated with Gestalt Theory is that of Max Wertheimer and, in his 1924 address before the Kant Society in Berlin, Wertheimer explicitly gave credit to this same work by von Ehrenfels:

Historically the most important impulse came from v. Ehrenfels who raised the following problem. Psychology had said that experience is a compound of elements: we hear a melody and then, upon hearing it again, memory enables us to recognize it. But what is it that enables us to recognize the melody when it is played in a new key? The sum of the elements is different, yet the melody is the same; indeed, one is often not even aware that a transposition has been made.<sup>26</sup>

The above citation resides amongst other noteworthy contributions to Gestalt Theory compiled within *A Source Book of Gestalt Psychology* which gathers vital articles not only by Max Wertheimer, but also by prominent authors such as: Kurt Koffka, Wolfgang Köhler, Wilhelm Fuchs, Erich von Hornbostel and others.

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<sup>24</sup> Cohen, “Music cognition,” 64.

<sup>25</sup> See Cohen, “Music cognition,” 65.

<sup>26</sup> Max Wertheimer, *Über Gestalttheorie* [an address before the Kant Society, Berlin, 17th December, 1924], Erlangen, 1925. Trans. by Willis D. Ellis, “General Problems,” in *A Source Book of Gestalt Psychology*, 1-11, (London: Routledge & Kegan Paul, 1938), 4.

## Gestalt Theory

The first entry in *A Source Book of Gestalt Psychology* consists of the translation of Max Wertheimer's 1924 address mentioned above. Within it, we find:

The fundamental “formula” of Gestalt theory might be expressed in this way: There are wholes, the behaviour of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. It is the hope of Gestalt theory to determine the nature of such wholes.<sup>27</sup>

Later in the compendium, Wertheimer justifies the impetus behind Gestalt psychology as a repudiation of “the piecewise handling of psychological data.”<sup>28</sup>

Deeper in *A Source Book of Gestalt Psychology*, we find Wertheimer's seminal “Laws of Organization in Perceptual Forms,”<sup>29</sup> where he identifies key grouping principles of Gestalt psychology as: proximity, similarity, common fate, *Pragnänzstufen*, objective set, direction (or continuity), closure, good curve, and good Gestalt (inner coherence). In addition, Wertheimer speaks of the influence of past experience or habit, and the effect of stimulus differentiation (ground vs. background). The above grouping factors result from the human disposition to organize and, consequently, to influence perception by seeking order, symmetry and simplicity. Since understanding Gestalt grouping principles will aid in grasping the concepts of auditory perception research presented later in this chapter, a brief review follows. Also, although Gestalt psychology focuses mostly on visual perception, we shall provide examples applicable to music.

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<sup>27</sup> Max Wertheimer, “Über Gestalttheorie” [an address before the Kant Society, Berlin, 17th December, 1924], Erlangen, 1925. Trans. by Willis D. Ellis as “General Problems,” in *A Source Book of Gestalt Psychology* (London: Routledge & Kegan Paul, 1938), 2.

<sup>28</sup> Max Wertheimer, “Untersuchungen zur Lehre von der Gestalt I,” in *Psychologische Forschung*, 1 (1922): 47-53. Trans. by Willis D. Ellis as “The General Theoretical Situation,” in *A Source Book of Gestalt Psychology* (London: Routledge & Kegan Paul, 1938), 15.

<sup>29</sup> See Max Wertheimer, “Untersuchungen zur Lehre von der Gestalt II,” in *Psychologische Forschung*, 4 (1923): 301-350. Trans. by Willis D. Ellis as “Laws of organization in perceptual forms,” in *A Source Book of Gestalt Psychology* (London: Routledge & Kegan Paul, 1938), 71-88.

*The Factor of Proximity* refers to our mind's ability to distinguish the separation space (as distance, time, pitch, etc.) between stimuli, and group together elements that are closest to each other. For example, it is almost effortless to perceive the totality of a rapid chromatic ascension (made up of distinct yet proximal notes) when it is played against larger intervals.

*The Factor of Similarity* refers to the tendency to perceive items lacking differentiation as belonging to a same group. For instance, tones coming from a trumpet can be heard unambiguously against those of strings because the timbres of these instruments are dissimilar. This results in the perceptual grouping of notes according to timbre. As can be imagined, the distinction fades when the trumpet is played alongside other brass instruments. When this same trumpet delivers a melodic line that is doubled in another instrument, both may be perceived as one unit due to the similarity in melodic or motivic contours.

*The Factor of Common Fate* relates to similarity and can be thought of as the perception of retained cohesiveness when a group is subjected to motion, manipulation, treatment or development not altering the individual constituents of the group. The melodic transpositions of Christian von Ehrenfels illustrate such organizational partiality.

Although translation of the German *Pragnänzstufen* appears inapt,<sup>30</sup> *pragnänz* may be understood as 'conciseness' and *stufen* as steps, degrees or hierarchy. In French, *prégnance* refers to salience or vividness. The grouping principle of *Pragnänzstufen*, as

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<sup>30</sup> See Max Wertheimer "Untersuchungen zur Lehre von der Gestalt II," trans. by Willis D. Ellis as "Laws of organization in perceptual forms," in *A Source Book of Gestalt Psychology*, 71-88, (London: Routledge & Kegan Paul, 1938), translator's footnote on page 79.

elaborated by Wertheimer, can be viewed as best fit approximation or relation to closest match or simplest interpretation. Examples abound when thinking of how easily we associate slightly off pitches or stretched durations to the nearest perceived grouping.

Similarly, *The Factor of Objective Set* extends the idea of closest fit to likelihood of ensuing events and directionality of sequences. In other words, this grouping phenomenon develops from anticipation and relies on learning or past knowledge. Take for example, Béla Bartók's shrinking motivic structure in the first eighteen bars of his String Quartet No.2, Op.17. In the opening bars (mm.2-3), Bartók states a seven note phrase in the first violin. The same contour repeats in the cello (m.7) and again in the first violin (m.8); then it begins to compress as a five note pattern, then four, three, two...? Yes, one—Bartók's chosen tonal centre of G.<sup>31</sup> This G, taken out of context would not have had the same effect. It is impactful because Bartók preserved the motivic contour throughout the reduction. One can begin to experience the intricately meandering border between immediate perception (as a primitive process) and higher levels of conscious choice or judgement.

*The Factor of Direction*, as its name implies, explains how the mind tends to group together items sharing commonalities according to continuity. Say that a given passage of music has long arched phrases in the oboe and clarinet against chromatic rises in the violins. Should the cellos prolong the wind phrasing with equally bowed inflections, these will likely be associated to the oboe and clarinet instead of the violins, although the latter share similar timbre. This composition device of 'finishing each other's sentences' across instrument groups abounds in Common Practice repertoire.

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<sup>31</sup> See Larry J. Solomon, "The Principle of Compound Variation in Bartók's Second String Quartet," 2004, accessible at [http://solomonsmusic.net/Bartok2Q\\_compound\\_var.htm](http://solomonsmusic.net/Bartok2Q_compound_var.htm) (accessed 2017-03-14).



Just as how one attempts to rebalance when unsettled by a conversation with too many open parentheses, *The Factor of Closure* reflects our desire for completeness, and it will influence perception such that we may find or allocate a closing element. Composers seem all too aware of the satisfaction provided by the appearance of the missing link.

*The Factor of Good Curve* and *The Factor of Good Gestalt* derive from the interaction of the grouping principles discussed beforehand and can be understood as the partiality towards simplest outcome. The descriptions proposed by Wertheimer exude notions of formalism, subjectivity and aesthetic judgement. In this section of his 1923 article, we find wording such as 'inner coherence', 'inner necessity', 'logically demanded', 'unity', 'simplicity', etc.<sup>32</sup> French cognitive psychologist Robert Francès supports our view that 'good' or 'bad' *Gestalt* are aesthetic judgements inseparable from historical context and experience. Francès cautions,

The immediacy of the sensation of “good form” of a musical passage or work is relative, usually, to a system of connections already established in the listener from contact with other works. Beyond that, in the central works of a particular period or school, symmetry, regularity, and continuity are not necessarily the only criteria for coherence (not to mention aesthetic value).<sup>33</sup>

The highly subjective evaluation of what consists closure and 'good' continuation prompted Leonard Meyer to investigate how perception is influenced by past experience and learning.

Meyer warns,

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<sup>32</sup> See Max Wertheimer, “Untersuchungen zur Lehre von der Gestalt II,” in *Psychologische Forschung*, 4 (1923): 301-350. Trans. by Willis D. Ellis as “Laws of organization in perceptual forms,” in *A Source Book of Gestalt Psychology* (London: Routledge & Kegan Paul, 1938) , 83.

<sup>33</sup> Robert Francès, *La perception de la musique* (Paris: Université de Paris, Librairie Philosophique J. Vrin, 1958), trans. W. Jay Dowling as *The Perception of Music* (Hillsdale, NJ: Lawrence Erlbaum Associates Publishers, 1988), 15.

What we know and hence expect influences what we perceive, that is, the way in which the mind groups and organizes the sense data presented to it. . . . Knowledge and experience often color or modify our opinion about what is heard. . . . [This knowledge] conditions not only what is perceived but also the speed of perception and hence of response.<sup>34</sup>

As with Francès, Meyer further insists on the cultural bias inherent to perception,

[T]he mind organizes and groups the stimuli it perceives into the simplest possible shapes or the most satisfactory and complete figures possible, what is, in fact, the most satisfactory organization in any given case is a product of cultural experience.<sup>35</sup>

Interestingly, near the end of “Laws of Organization in Perceptual Forms”, Wertheimer recognizes the power of “past experience or habit” but rejects the possibility that it might tint all perception. Wertheimer then closes his article by suggesting that stimulus differentiation or contrast (i.e., figure vs. ground) also impacts upon perception.

Experimental psychology has expanded greatly since the 1938 publication of *A Source Book of Gestalt Psychology* but the manuscript remains an essential and relevant read. Notwithstanding the reservations above, Leonard Meyer had this to say,

[The] more general laws of pattern-perception, discovered by the Gestalt psychologists [tell] us that regular, symmetrical, simple shapes will be more readily perceived, appear more stable, and be better remembered than those which are not. Thus, for instance, conjunct pitch sequences (the law of proximity), continuing timbres (the law of similarity), cyclic formal structures (the law of return) - all help to facilitate perception, learning, and understanding.<sup>36</sup>

Exploring the various avenues of cognitive psychology will not serve our immediate needs and we focus instead on matters of auditory perception relating to music. Since music weaves its textured tapestry over the span of time elapsed in hearing it, both experience (as knowledge and memory) and contrast represent critical and fundamental elements of the art. Chapter 6 converges on experience acquired through exposure, repetition and memory and reveals its relationship to expectation. As for studying how contrast in combination with

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<sup>34</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, 1961 paperback ed.), 77; 78; 79.

<sup>35</sup> *Ibid.*, 85.

<sup>36</sup> Leonard B. Meyer, *Music the Arts and Ideas - Patterns and Predictions in Twentieth-Century Culture* (Chicago: University of Chicago Press, 1967), 289.

Gestalt grouping principles affects auditory perception, comprehensive resources lie in *La perception de la musique* by Robert Francès and Albert S. Bregman's *Auditory Scene Analysis*, which we now examine.

## Auditory Perception and Music Perception

Dispelling the exclusivity of a formulaic stimulus-response model of music perception, Robert Francès, in the first few pages of his *La perception de la musique*, asserts that, if music is perceived, it is because it is both an adaptable reflex mechanism and a learned process; as such, music perception can only be conceived as a “*processus en développement*.”<sup>37</sup>

First published in Paris in 1958,<sup>38</sup> Francès' manuscript documents his research in experimental and social psychology as complementary to the efforts of Hermann von Helmholtz in physiology and of Carl Stumpf in phenomenology. Francès justifies his approach by remarking that there exist civilizations having musical systems unbounded by the resonance phenomenon, and believes that resonance alone cannot be the basis of music perception analysis.

As remarked when we hinted to the subjectivity of *The Factor of Good Curve* and *The Factor of Good Gestalt*, Francès considers Gestalt Theory useful in explaining perception phenomena but in need of revision to factor in socio-cultural, historical and

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<sup>37</sup> Francès, *La perception de la musique* (Paris: Université de Paris-Librairie Philosophique J. Vrin, 1958), 2<sup>nd</sup> ed. 1984, revised edition, 2002, 9.

<sup>38</sup> It is astounding that this book ever materialized considering that Robert Francès was sent to Auschwitz in October of 1943.

personal contexts. Francès hints to acculturation (incidental learning) and education (purposive learning) as principle factors affecting how we respond to music. Francès supports this by observing that, although subjects afflicted by *amusia* (impossibility to appreciate or recognize music)<sup>39</sup> can differentiate sounds, their ability to make tonal relations is completely lost or inexistent; in fact, these individuals seem unable to identify intervallic direction, size and quality. Francès concludes that the perception of intervals and harmonies must rely on memory and, therefore, is a learned process.<sup>40</sup> Clearly, this also implies subjectivity. Likewise, Annabel Cohen's "Music cognition: defining constraints on musical communication," cautions the reader as to the transmission losses that occur due to the subjective nature of perception,

From the peripheral hearing mechanisms to the higher cortical mechanisms, musical information is transformed from the real world into mental representations. Each stage limits the to-be-transmitted information.<sup>41</sup>

Conversely, Jay Rahn, in *A Theory for All Music*, presents cogent arguments showing the limitations of psychology in explaining music perception. Rahn states, "psychology cannot dictate interpretations of music, it can only suggest boundaries for interpretation."<sup>42</sup> In his explanation, Rahn refers to the difficulties in perceiving pitch arising from how it is affected by intensity, register, duration and simultaneity, and affirms that the interpretation of acoustic data alone does not suffice in understanding sensations of music stimuli.<sup>43</sup> Similarly, Francès observed that vibrato over the duration of a note and fundamental

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<sup>39</sup> For more recent research on amusia, please refer to the work of Isabelle Peretz. Of note, see Julia Ayotte, Isabelle Peretz, and Krista Hyde, "Congenital Amusia: a group study of adults afflicted with a music-specific disorder," *Brain* 125 (2002): 238-51.

<sup>40</sup> See Part I, Chapter II of Robert Francès' *La perception de la musique*.

<sup>41</sup> Cohen, "Music cognition: defining constraints on musical communication," 67.

<sup>42</sup> Jay Rahn, *A Theory for All Music: Problems and Solutions in the Analysis of Non-Western Forms* (Toronto: University of Toronto Press, 1983), 202.

<sup>43</sup> Rahn, *A Theory for All Music*, 199.

frequency irregularities at attack or transitions hinder the establishment of fixed values for perceived pitch<sup>44</sup> yet these variations typically go unnoticed by the majority of listeners. Francès considers that, rather than hearing specific pitches, listeners hear the relationships between musical events, and proposes that “the basic perceptual process in music is as a kind of abstraction starting from rough auditory stimuli and ending in *notes* which appear to the listener as simple and even, in spite of their physical complexity and unevenness.”<sup>45</sup>

We thus proceed, aware of the benefits and limitations of Gestalt Theory and of experimental psychology, in general. As advised by Rahn, we shall consider such findings as an indication of “what *can* be heard” rather than “what *must* be heard.”<sup>46</sup>

The experiments contained in Francès' *La perception de la musique* range from sensory perception of tones, dissonances, intervals, chords and transpositions to melodic parsing across various harmonic bases and within polyphonic structures. Francès also investigates the perception of dodecaphonic series. Additionally, in the last section of *La perception de la musique*, Francès attempts to elucidate the relationships between motion in music, general moods and expressive behaviour—this evokes Hanslick and Langer, and revives our extensive account of the matter found in the previous chapter.

A complete summary of Francès' findings will not appear herein but we expose selected results showing relevance to Gestalt Theory and our impending perusal of Alan Bregman's *Auditory Scene Analysis*; however, one additional topic educes consideration: *signalisation harmonique* (harmonic signaling). Due to its strong correlation with the

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<sup>44</sup> Experiments confirming the above findings are found in Part I, Chapter I of Robert Francès' *La perception de la musique*.

<sup>45</sup> Francès, *La perception de la musique*, 403.

<sup>46</sup> Rahn, *A Theory for All Music*, 202.

method presented herein, it imports to note that Francès recognizes the implicit covariance between harmonic significance and melodic gestures. Francès speaks of *signalisation harmonique* within horizontal monodies as well as through polyphonic textures. Tonal relations and tonality, Francès considers, are starting points of psychological conditioning. Harmonically significant tones, when emphasized through rhythmic delays, repetition, dynamic swells, placement within contours, etc., recall or lead the listener to, respectively, remember or anticipate central tonalities. Francès believes that, in absence of definite tonal centres, other mechanisms such as preparations, developments and rhythmically strong inflexions can achieve similar coherence.<sup>47</sup> We will return to these concepts in later chapters, as our proposed technique of melodic and harmonic construction relies heavily on the power of such suggestion and signaling. Stressed by Francès, “dans la perception d'une mélodie est impliquée comme une potentialité d'harmonies probables (in the perception of melody is implied a potentiality of probable harmonies).”<sup>48</sup> This statement rings of dialogism's heteroglossia.

Early in *La perception de la musique*, Francès shows that when tones in a melody are altered so as to be slightly off pitch, listeners tend to 'tolerate' the deviations if these conform to the general direction of motion; i.e., lowered tones in a descending pattern are accepted as correct, whereas these same tones in an ascending pattern are quickly identified as being altered.<sup>49</sup> These findings seem consistent with the Gestalt Factor of *Pragnänz*, *Factor of Direction* and the *Factor of 'Good' Curve*.

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<sup>47</sup> See Francès, *La perception de la musique*, 187-190.

<sup>48</sup> Francès, *La perception de la musique*, 180. Translation of citation by N. Dupuis-Désormeaux.

<sup>49</sup> See Part I, Chapter III of Robert Francès' *La perception de la musique*.

Supporting the significance of learning on perception, Francès notes that musically trained individuals can more readily recognize transpositions of tonal material than subjects with no musical education; however, when the material presented is devoid of a strong tonal center, both groups have similar difficulty in recognizing the material. From these results, we observe that the applicability of the *Factor of Common Fate* to tonal material seems to depend upon musical education. Furthermore, Francès suggests that the identification of transpositions and imitations of a model is invariant to distal/proximal tonality changes but heavily correlated to pitch proximity. Francès claims that transpositions are quickly detected when presented in a different register yet imitations are more easily perceptible when in the same register as the original model.<sup>50</sup>

Wertheimer spoke of how stimulus differentiation (ground vs. background) affects perception. Similarly, when listening to music, sounds in both horizontal and vertical planes are constantly blending and separating. Francès refers to a process of *centration* and *decentration* to describe how perceptual attention can focus in on an event (such as melody) while ignoring other parameters, and then span out (de-centre) to grasp an underlying harmony. When a melody is played against fixed chords, figure vs. ground seems straightforward but when there are multiple melodies, such as in polyphonic works, attention focuses in and out according to perceptual proclivities; and the speed of this aperture change is linked to musical training. Francès explains this as follows:

In polyphonic perception several simultaneous auditory fields are scanned. In each centration a group of tones is grasped and then decentration occurs, which allows another group to be grasped, etc. Musical training results in a development of grasping richness and speed of decentration.<sup>51</sup>

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<sup>50</sup> See Part II, Chapter II of Robert Francès' *La perception de la musique*; and more specifically, see 200.

<sup>51</sup> Francès, *La perception de la musique*, 409.

Centration calls upon the interactions between *The Factor of Proximity* and *The Factor of Similarity*. According to Francès, centration takes place when relative pitches, loudness and rhythm coincide and fuse elements into a group (figure), while decentration takes place in the opposite circumstances and allows parameters to be heard more globally (figure against ground). Francès offers this explanation of centration:

Centration depends upon 1) stimulus variables: relative pitch, loudness, rhythmic [*sic.*] differentiation of the shape; 2) a subject variable: voluntary reduction of the above mentioned variables, which is largely developed by musical training.<sup>52</sup>

To Francès' list of stimulus variables, we may add motion and direction since he notes that when polyphonic melodies move in different directions, their independence of motion aids in perceiving them as separate entities.<sup>53</sup>

As the notions of centration and decentration resemble Alan Bregman's concept of *Auditory Scene Analysis*, this beckons a look into his book of the same name.<sup>54</sup> To begin our exploration, we turn to the words of Roger Scruton in *Philosophers on Music*:

I argue [that] sounds become music when organized rhythmically, melodically or harmonically—with the implication that each form of organization is sufficient to provide an experience of music. But I also suggest that these forms of organization pertain to the intentional rather than the material object of perception. Melody is something that we hear in a sequence of sounds, and is not something that would be mentioned in a description, however complete, of the sounds themselves, judged as items in the material world.<sup>55</sup>

In other words, all musical sounds exist within relationships to what was heard and what will be heard, and as stressed by Meyer, “before the perceptual processes are brought into

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<sup>52</sup> Francès, *La perception de la musique*, 409.

<sup>53</sup> *Ibid.*, 226.

<sup>54</sup> Bregman's bibliography does not include Francès' *La perception de la musique* (1958) although its first translation into English appeared in 1988, and was translated by W. Jay Dowling. Journal contributions by Dowling do appear in Bregman's bibliography and Bregman acknowledges Dowling personally in his preface to *Auditory Scene Analysis* (see xii), so perhaps Bregman knew of Francès' work through Dowling.

<sup>55</sup> Roger Scruton, “Thoughts on Rhythm,” in *Philosophers on Music: Experience, Meaning and Work*, ed. Kathleen Stock (Oxford University Press, Oxford, 2007), 226-27.



play, before the music begins to sound, the listener prepares to attend.”<sup>56</sup> While Meyer's work focuses on the role of expectation (which we will study in Chapter 6), the rearrangement of musical components according to perceptual grouping lies central to Alan S. Bregman's research on auditory perception.

Bregman's *Auditory Scene Analysis* compiles over twenty years of experimental research in auditory perception and combines Bregman's research to that of his coworkers at McGill University's Auditory Research Laboratory as well as to that of numerous others.<sup>57</sup> As stated by David Huron: “This massive tome is the culmination of more than two decades of research by one of the leading figures in auditory perception – Albert Bregman.”<sup>58</sup>

Bregman draws from computer modeling, syntactic theory and physiology to complement the concepts of Gestalt psychology.<sup>59</sup> He stipulates that this difference in approach stems from the fact that “The Gestalt explanation sees the principles of grouping as phenomena in themselves, a self-sufficient system whose business it is to organize things”<sup>60</sup> whereas his (Bregman's) concept of *auditory scene analysis* views auditory perception as occurring within an environmental whole—“the ecology of the world of sound.”<sup>61</sup>

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<sup>56</sup> Meyer, *Emotion and Meaning in Music*, 73.

<sup>57</sup> Bregman's *Auditory Scene Analysis* (1990, paperback ed. 1994) spans a total of 773 pages (in the paperback ed.), of which the bibliography alone occupies 25 pages.

<sup>58</sup> David Huron, “*Auditory Scene Analysis: The Perceptual Organization of Sound*, by Albert S. Bregman,” *Psychology of Music*, Vol. 19, No.1 (1991): 77. Also available at <http://www.music-cog.ohio-state.edu/Huron/Publications/huron.Bregman.review.html> (accessed 2017-02-04) .

<sup>59</sup> See Albert, S. Bregman, *Auditory Scene Analysis: The Perceptual Organization of Sound* (Cambridge, MA: The MIT Press, 1990. Paperback ed. 1994), 32.

<sup>60</sup> Bregman, *Auditory Scene Analysis*, 28.

<sup>61</sup> *Ibid.*, 44.

In justifying the slight departure from the methods used by Gestalt psychologists in studying visual perception, Bregman asserts that vision in humans functions by processing reflected light while audition relies on sound emitted by one or many sources. Bregman stipulates that, in seeing, we derive properties such as size and shape of distinct objects while, in sound, all we have for information consists of time information and spectral frequency (and amplitude) of the sound source(s); therefore the perceptual systems of sight and hearing likely differ.<sup>62</sup> It is worthwhile to note that Bregman thinks that visual and auditory perception can mutually influence each other and even “use each sense to correct the scene-analysis decisions of the other one.”<sup>63</sup> This evokes our earlier discussions on mirror neurons, whereby seeing movement might, in fact, influence how we hear musical motion.

Even with such scant information as onset, duration and spectral frequency, our brains can discern between chirping birds, a passing car and an interesting conversation. If all sounds arrive at once upon our eardrums, how then are the emitting sources differentiated? Such perceptual demarcation occurs through what Bregman calls *auditory scene analysis* where, as stipulated by him, “the goal of scene analysis is the recovery of

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<sup>62</sup> Oliver Sacks in *An Anthropologist on Mars* tells the story of a painter who, after an accident, could only see in black and white (total cerebral achromatopsia). Evaluation of this individual corroborated research by Semir Zeki showing that color is not merely in a one-to-one relation between objects and the retina's cones and rods, as previously thought. Rather, wavelengths are sensed by these spectrally sensitive cone cells but color assignment only occurs after this information gets sent onward to a multi-stage process in distinct areas of the brain. Firstly, the differential output from the retina reaches cells located in the back of the primary visual cortex (in a zone called V1) that respond to wavelengths; secondly, information then goes through the V2 area of the visual cortex before these signals get sent to an area (called V4) of the medial association cortex, where colors are assigned in comparison with the total image data. [See Sacks, *An Anthropologist on Mars*, 24-30]. It is now thought that from V4, signals proceed to the inferior temporal cortex (IT), where further associations with shape and form take place. In other words, color is not seen (as a direct correlate of wavelength imprinted on the retinal cones) but, rather, it is deduced in the brain through comparison and association and, as such, is subjective and thus potentially influenced by learning and expectation. These research findings on color assignment seem to imply that visual and auditory perception potentially function according to similar processes of streaming where association, comparison and learning take place. See Oliver Sacks, *An Anthropologist on Mars* (New York, NY: Vintage Books, 1996).

<sup>63</sup> Bregman, *Auditory Scene Analysis*, 181.

separate descriptions of each separate thing in the environment.”<sup>64</sup> Bregman proposes that “there is an auditory stream-forming process that is responsible for a number of phenomena such as the streaming effects and the illusion of continuity, as well as for the everyday problems of grouping components correctly.”<sup>65</sup> Bregman refers to *auditory streaming* and *stream formation* to describe how we parse sound events from masses of mixed sounds (i.e., from the co-occurring mixture of many individual acoustic events) and regroup them together to form perceptual events called *auditory streams*. In other words, proximal sounds or those sharing similar qualities are perceptually grouped together and treated as if they emanated from the same source, and this perceptually constructed *auditory stream* then appears as separate from other sound stimuli. An *auditory stream*, as defined by Bregman, “[is] a perceptual unit that represents a single happening.”<sup>66</sup> Bregman adds, “our auditory streams are ways of putting the sensory information together.”<sup>67</sup>

*Auditory stream segregation* occurs when a mass of combined sounds divides into two or more perceptual streams. *Auditory stream fusion*, on the other hand, refers to the perceptual union of sounds from real or virtual (i.e., perceptual) sources. Properties of such a combined (also called chimeric or virtual) sound source can alter how the individual sounds are perceived. For example, the merging of sounds might produce a new timbre, melodic pattern or rhythm, and can even alter perceived loudness or spatial positioning. Bregman's research illustrates how acoustic events constantly compete in either segregating from or fusing with other sounds in the acoustic tapestry, and attributes these mechanisms to both primitive and schema-based processes. Primitive grouping encompasses constructions

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<sup>64</sup> Bregman, *Auditory Scene Analysis*, 9.

<sup>65</sup> *Ibid.*, 43.

<sup>66</sup> *Ibid.*, 10.

<sup>67</sup> *Ibid.*, 11.

deemed likely to be innate and require little (if any) voluntary attention, such as some of the Gestalt grouping principles, which are also applicable to auditory scene analysis. Schema-based associations arise from learned and expected events and outcomes - these were briefly presented in reviewing Francès' and Meyer's work but will receive attention in Chapter 6.

As did Francès, with his concept of *centration* and *decentration*, Bregman argues that we cannot attend to more than one perceptual stream at a time, even when our perception has created more than one such stream.<sup>68</sup> Bregman compares this constantly changing yet centered focus to the phenomenon of background and foreground put forward by the Gestalt psychologists, and states, “This 'foregrounding' of auditory experiences is not restricted to the streaming effect but exists whenever we select one of a set of concurrent sounds to listen to.”<sup>69</sup> An interesting discovery pointed out by Bregman stipulates that events in the foreground become clearer when the background playing is precise.<sup>70</sup> Although this is not the place to discuss Schenkerian analysis, individuals familiar with the method will seize the relevance of this constant meandering between foreground, middle-ground and background to Schenker's technique. At this point, it can be further explicated that auditory streams form through constantly competing processes of *sequential integration* and *simultaneous integration*, promoting either segregation from or fusion with other streams.

*Sequential integration* (or *sequential grouping*) arises when sounds attributed to a single source (real or virtual) produce a linear sequence of sound events following one and other in time. In musical terms, this represents horizontal relationships such as melody and

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<sup>68</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 192-194.

<sup>69</sup> *Ibid.*, 199.

<sup>70</sup> *Ibid.*, 493.

rhythm. *Simultaneous integration* (or *simultaneous grouping*) takes place when sounds coalesce at a given point in time and, according to Bregman, “It is the process that takes acoustic inputs that occur at the same time, but at different places in the spectrum or in space, and treats them as properties of a single sound.”<sup>71</sup> In music, *simultaneous integration* can be regarded as the vertical fusing of voices occurring at any given moment of shared time giving rise to such elements as harmony and timbre.

The perceptual devices involved in arranging sounds into streams behave principally according to the Gestalt grouping principles of proximity, similarity and continuity. Relational similarities and differences in pitch, timbre, intensity/dynamics, temporal placement (onset, rests, repetition, rhythm, etc.), location (spatial origin), harmonic relations, melodic contours, direction and evolution of motion, etc., all influence if sounds from different streams will fuse together or segregate from each other. Also, gradual or rapid changes in these parameters will impact upon their grouping. Likewise, repetition of tones, motives or sequences, as well as directional continuation can induce schema-based expectations and lead to the grouping of certain tones over others. Culturally or stylistically normative practices can also have this effect.

The concept of continuation warrants additional attention.<sup>72</sup> Thinking in terms of music, one can quickly summon examples of melodies shared between voices by virtue of shaping their respective contours. As will be seen in later chapters, this perceptual and compositional tool proves vital to the construction of music dialogue. Bregman's studies on masking show that perceptual continuation of strongly bound tones ensures that contours

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<sup>71</sup> Bregman, *Auditory Scene Analysis*, 31.

<sup>72</sup> Bregman believes that, based on the illusion of continuity, the default condition of auditory perception is one of integration. See *Auditory Scene Analysis*, 378.

can persist in being heard even when these get interrupted by interfering sounds. This perceptual property akin to the Gestalt *Factor of Closure* and *Factor of Good Continuation* depends on the strength of continuity in the auditory stream's contour (pitch and rhythmic similarity and proximity, motion, tendency, etc.) before and after the masking event.

Parallel motion in music illustrates another type of continuation that enforces fusion between voices and treats them as emanating from the same origin because, as added by Bregman, “If different parts of the spectrum change in the same way at the same time, they probably belong to the same environmental sound.”<sup>73</sup> This is analogous to the Gestalt *Factor of Common Fate*.

Bregman also found that a perceptual stream can alter another's cohesion by capturing one or more of its components into its own stream. This can occur harmonically and melodically; therefore, the determination of which factors dominate the stream formation process poses difficult challenges. For example, tones proximal in time relative to neighboring notes may compete with those of similar pitch. Bregman reports a 1947 experiment by George Miller and George Heise showing that trills have a tendency to be heard as separate streams if the frequency difference between two alternating pure tones is greater than a certain threshold, and this separation distance diminishes as frequencies of the two tones get higher.<sup>74</sup> Although the experiment was done on pure tones (i.e., each tone contains only one frequency component), this result applies, albeit to a lesser extent, to pitches.<sup>75</sup> Additionally, when tempo increases, it becomes more and more difficult to hear

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<sup>73</sup> Bregman, *Auditory Scene Analysis*, 249.

<sup>74</sup> *Ibid.*, 51-52.

<sup>75</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 462 and 464, where Bregman states that “there is some evidence that the fundamental frequencies of complex tones act like the frequencies of pure tones in grouping sequences of tones. . . . [However, the] techniques that are used to produce compound melodic lines in music do not give as strong a segregation between high and low streams as the laboratory examples.”

tones having different frequencies as members of a single stream—this turning point was termed *temporal coherence boundary* by Leo van Noorden.<sup>76</sup> Bregman explains the combined effect of frequency separation and tempo as follows: “It is this kind of relationship that has prompted the hypothesis that the stream integration mechanism fails when it has to cross a large frequency gap in too short a period of time.”<sup>77</sup> Bregman, moreover, stipulates that, at fast tempo, frequency plays a bigger role in separating streams than loudness does.<sup>78</sup>

Segregation into many perceptual streams causes a conundrum for pattern recognition. Clearly, the impact of this problem to music cannot be ignored. Bregman observes that patterns taking place within a given stream are easier to recognize than those having to be identified across different streams.<sup>79</sup> Such within-stream melodic cohesion not only aids pattern recognition, it also facilitates their imprinting into memory, especially when they are contained in a well-integrated stream having related units.<sup>80</sup> Concerns for polyphonic writing come to mind and it seems that this phenomenon might have been understood empirically by past composers since counterpoint methods focus on the creation of strong horizontal cohesion. The discovery of this perceptual tendency implies that, should a composer desire to split a pattern (such as a motive) between voices, they may wish to reduce interference from notes adjacent to the motivic structure to facilitate its emergence from the rest of the texture.

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<sup>76</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 58-60.

<sup>77</sup> Bregman, *Auditory Scene Analysis*, 61.

<sup>78</sup> *Ibid.*, 64.

<sup>79</sup> *Ibid.*, 56.

<sup>80</sup> Bregman, *Auditory Scene Analysis*, 467.

It can be appreciated from the examples above that the study of auditory perception phenomena yields valuable insight for the construction of musical structures; as such, Bregman devotes an entire chapter of *Auditory Scene Analysis* to Auditory Organization in Music, where he observes how changes in musical parameters influence grouping priority in ways that constantly fool our auditory perception into thinking that combined instruments represent a distinct sound-emitting source.<sup>81</sup> In a bid to answer French composer Pierre Boulez's call for a method of polyphony and homophony re-conceived in a way as to enhance relationships between musical events in contemporary art-music, Bregman states his wishes for someone to find "universal principles of perception that can be converted to knowledge about orchestration."<sup>82</sup> Although the attempt to discover "universal" principles might represent an unattainable goal, we have accepted the more modest challenge of constructing melodic, rhythmic and harmonic structures that rely on auditory perception phenomena and can serve to guide composers in their choices. It is now opportune to look more closely into how specific music parameters impact upon the primitive perceptual grouping process. Examples are shown in Table 5.1 and additional details follow in the same order as they appear in the table.

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<sup>81</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 457.

<sup>82</sup> *Ibid.*, 458.



<b>Table 5.1 - Main Sensory Elements and Auditory Streaming of Music</b>			
<b>Sensory Element↓</b>	<b>Horizontal coherence Sequential organization</b>		<b>Vertical coherence Simultaneous organization</b>
	<i>Within-stream integration i.e., cohesion within ONE stream or voice-part</i>	<i>SEPARATION into different streams</i>	<i>Between-stream fusion i.e., FUSION between voices /parts</i>
Frequency or Pitch	Small steps (pitch proximity) within a voice creates horizontal cohesion	Large successive pitch differences within a stream will segregate it into distinct streams	Notes within similar pitch ranges will tend to fuse together and blend across the streams/voices
Overlap in Pitch or Frequency			Allowing voices to overlap in pitch or cross over creates vertical blurring and thus promotes vertical fusion
Timbre		Differences in timbre encourage segregation	Similar timbre in different voices promotes vertical fusion
Harmonic relations	Functionally related tones will tend to be heard as part of the same linear stream, e.g., when a leading note precedes a tonic, it can be in a different voice but still function as if in the same voice as the tonic	A prominent note not functionally related to a given tonal centre may seem as if it belongs to another stream	Notes with fundamental frequencies being simple integer ratios of one another tend to fuse vertically. Notes with non-integer ratios are perceived as non-consonant and therefore break down vertical grouping
Onset/Offset		Onset and offset asynchrony increases segregation	Onset and offset synchrony promotes vertical fusion
Rhythm	Notes in rhythmic proximity within a voice promote horizontal cohesion	Different rhythms within a stream will tend to reduce cohesion	Similarity of rhythms in different voices fuses them vertically
Motion	Step-wise motion favours horizontal cohesion	Different motion/direction will tend to create segregation	Parallel motion favours vertical fusion
Contour	Consistent/repeated contours within a voice helps horizontal coherence	Different contours within a voice-part will tend to reduce cohesion	Similar contours between voices will favour vertical cohesion
Dynamics	Constant dynamics within a voice enhance horizontal integration	Changes in dynamics within a voice breaks down linear coherence	When dynamics are similar between voices, this promotes fusion
Spatial location			When sound sources are close, this increases fusion

Pitch: Simultaneous sounds are more likely to fuse together if they have the same fundamental frequency or perceived pitch. As seen earlier, for successive tones, the rate of change and the pitch separation determine if the stream will remain together; as frequency separation increases, the sound sequence must be slowed to maintain horizontal cohesion. This implies that interval spacing should be kept small (no leaps) to encourage sequential integration. Bregman mentions an interesting finding<sup>83</sup> by Otto Ortman: the segregation due to pitch differences will occur even when the sequential tones are harmonically related; in other words, when tones separated by large intervals are played sequentially, these notes will tend to pull away into individual streams even when the distance in tones is an octave or a fifth, etc. This phenomenon allows different melodic lines to be created by the same instrument playing high and low tones in alternation. Bregman reports that Bach and Telemann employed this method to create the illusion of polyphony.<sup>84</sup>

Also familiar to composers and performers is the change in perceived pitch that occurs due to resonating harmonies of successive tones. We spoke of this effect when reviewing Robert Francès' experiment linking perceived deviation in pitch and direction of motion. This influence should be borne in mind as it may prompt small changes in attack or in tempo in given sections of a work to either emphasize or diminish the phenomenon.

Pitch Overlap: Bregman refers to the work of W.J. Dowling who found that if two known melodies have pitches that overlap, when these melodies are heard together, they are very difficult to differentiate. Dowling also observed that if the melodies are separated by at

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<sup>83</sup> Bregman, *Auditory Scene Analysis*, 466.

<sup>84</sup> *Ibid.*, 464.

least one semi-tone, they can be identified more readily.<sup>85</sup> In addition, we discover in *Auditory Scene Analysis* that it is easier to hear partial pitches from an inharmonic complex than from a harmonic one<sup>86</sup> and that “small fluctuations in pitch can serve to segregate subsets of partials that have different patterns of fluctuation.”<sup>87</sup> Some performers know this effect intuitively, and faintly raise the pitch of their contribution to enhance its prominence by virtue of it having a subset of partials slightly differing from that of the rest of the ensemble.

Timbre: Although timbre is ill-defined and multi-dimensional, parameters affecting timbre are loudness, global and partial pitch frequency, spectral balance or brightness, 'bite' or attack, and resonance.<sup>88</sup> Tones that appear bright have more energy in the upper frequencies, whereas duller tones see a concentration in the lower frequencies. Bregman suggests that, “There is some evidence that we group sounds together when they have energy in the same part of the spectrum.”<sup>89</sup> In other words, sounds with similar timbres join perceptually, and this can either reinforce or compete with the melodic line. When voices of different timbres combine, a new timbre can emerge from the mixture. Bregman sees these effects as powerful compositional tools, and paraphrases Boulez stating that Anton Webern and Edgard Varèse employed “the 'contradictions' between timbre and pitch to create musical forms.”<sup>90</sup> To increase the likelihood that an emergent timbre will, in fact, be heard,

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<sup>85</sup> See Bregman, *Auditory Scene Analysis*, 140; 466.

<sup>86</sup> *Ibid.*, 245; 254.

<sup>87</sup> Bregman, *Auditory Scene Analysis*, 257.

<sup>88</sup> See Bregman, *Auditory Scene Analysis*, 481.

<sup>89</sup> Bregman, *Auditory Scene Analysis*, 99.

<sup>90</sup> Bregman, *Auditory Scene Analysis*, 470 paraphrasing Pierre Boulez from his presentation "Le timbre dans la littérature instrumentale du XX<sup>ième</sup> siècle," presented at the Seminar on Timbre, Institut de Recherche et Coordination Acoustique/Musique, Paris, April 13-17, 1985.

Bregman suggests reducing the loudness of the upper voices in order to allow the fundamental and lower partials of the complex tone to stand out.<sup>91</sup> Bregman explains this competitive process as follows: “The perception of the high tone as a separate entity is traded off against hearing its contribution to the global tone; the stronger one interpretation is, the weaker is the other.”<sup>92</sup>

Harmonic relations: As is well-known to musicians, tones sharing many harmonics (i.e., partial frequencies) will blend more readily than those having fewer in common.<sup>93</sup> This implies that simple fundamental frequency integer ratios such as 2:1 (the octave), 3:2 (the fifth), 5:4 (the third), etc., tend to combine by simultaneous organization. Bregman summarizes harmonic fusion as follows:

[It] appears that many factors in complex spectra affect the ability of the auditory system to parse them and uncover the individual acoustic sources that gave rise to them. These include the density of the spectra (how closely partials are spaced), the relative intensities of the partials, the match in the perceived intensity of the partials to the intensities of earlier sounds, as well as the harmonic relations between the partials.<sup>94</sup>

Another aspect of harmonic relations is that of phenomenal dependency: a note can be a simple ornament or a structural anchor depending upon its relationship to the other sounds nearby. Ornaments are typically notes of shorter duration associated with stable, dominant or important tones (e.g., grace note, acciaccatura, gruppetto, mordent). Functionally directed tones, in turn, 'reach' ahead towards a target tone or create delays or focal points to sustain or emphasize relationships. A leading tone placed immediately before its tonic yields an obvious example of a functional tone. Even when located in a different

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<sup>91</sup> See Bregman, *Auditory Scene Analysis*, 521.

<sup>92</sup> Bregman, *Auditory Scene Analysis*, 335.

<sup>93</sup> See Bregman, *Auditory Scene Analysis*, 246; 656.

<sup>94</sup> Bregman, *Auditory Scene Analysis*, 248.

voice, a leading tone can still function as if in the same stream as the tonic—it then becomes 'captured' in it, to use Bregman's expression. Both ornamental and functional tones increase the cogency of a linear stream, and as we demonstrate in later chapters, become vital pointers (to use Francès' concept of *signalisation harmonique*) in emphasizing, establishing and redefining harmonic relations and structure.

Another type of phenomenal dependency relates to continuation of motion within a stream; here, strong linear cohesion can create a powerful driving force capable of overriding the roughness of dissonances created harmonically against other voices.<sup>95</sup> The perception of a *dissonance* is thus relative to the context in which it occurs. Bregman, reminds us that dissonances are heard as beats or periodic fluctuations in intensity created by the summation of two partials when they are “too close in frequency for the auditory system to resolve them. . . . Therefore the frequencies of the beats that we hear will depend on the relations between the partials of the two tones.”<sup>96</sup> He also refers to the research of Hermann von Helmholtz on *difference tones*, which are dissonances caused by distortions in the middle and inner ear created by complex relations existing between two fundamentals. Bregman offers the following explanation:

[S]imultaneous tones give rise to an interaction between partials that is more complex and irregular when the ratio of their fundamental frequencies is not close to a simple ratio of integers.<sup>97</sup>

In order to dispel potential misperceptions around fusion, Bregman briefly mentions the research of Carl Stumpf who considered 'consonance' as a *measure* of the tendency to fuse and dissonance as the resistance to fusion. Although the research of Lucinda DeWitt

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<sup>95</sup> See Bregman, *Auditory Scene Analysis*, 513-514.

<sup>96</sup> Bregman, *Auditory Scene Analysis*, 504.

<sup>97</sup> *Ibid.*, 507. Also see *Tartini tones* or *combination tones*.

and Robert Crowder found that the more consonant intervals do have a greater power of fusion,<sup>98</sup> Bregman cautions that fusion relates instead to the ability to fool the auditory scene analysis process into thinking that sounds come from a same source, while the *perceived roughness* of dissonances stems from a complex mixture of partial frequencies. Fusion, therefore, relies on many relational factors and not solely upon integration of partial or fundamental frequencies, as implied by Stumpf. *Potential* dissonance is different from *perceived* dissonance, warns Bregman.<sup>99</sup> Should a composer wish to attenuate the perceived roughness of a dissonance, stream segregation should be enhanced, sequential integration emphasized and vertical integration reduced.<sup>100</sup>

Onset/Offset and Rhythm: Onset and offset asynchrony contribute to segregation of streams or parts. In polyphonic pieces, a melody is often presented separately from others by introducing it at a point where other notes are held. To further emphasize the distinctness of a voice, it can be left unaccompanied or subtly supported by sustained tones in the other voices; however, longer durations of notes tend to give them prominence, so a balance must be struck.<sup>101</sup> Bregman suggests, that onset plays a key role in stream segregation not only because it turns attention towards the new event but also because it allows the auditory scene analysis to determine which partials start at that time. Additionally, synchronizing micromodulations or vibrato rate enhances vertical fusion.<sup>102</sup> Conversely, using a different

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<sup>98</sup> See Bregman, *Auditory Scene Analysis*, 507. Bregman refers to L.A., DeWitt and R.G. Crowder, "Tonal fusion of consonant musical intervals," *Perception & Psychophysics*, 41 (1987): 73-84.

<sup>99</sup> See Bregman, *Auditory Scene Analysis*, 509.

<sup>100</sup> *Ibid.*, 508-509.

<sup>101</sup> *Ibid.*, 465.

<sup>102</sup> See Bregman, *Auditory Scene Analysis*, 657.

vibrato rate promotes its segregation from the other voices. Singers experience this percept when they alter their vibrato rate in order to be heard distinctly over a full orchestra.

Rhythm: When notes in a same stream (or voice) are kept close together in time, this promotes horizontal cohesion and thus segregation from the other streams (or parts), but this may also cause the notes to group away from others in the same stream. Specific rhythms within a polyrhythmic construction are more easily perceived if they can be heard as contained within a separate and well-segregated stream. In this case, differences in frequency or timbre may assist in isolating individual rhythms.<sup>103</sup> Repetition of a tone associates it to a unique source and encourages sequential integration.<sup>104</sup> Functional dependency can also bind temporal events. For example, if a tone is found within a motive and repeated immediately after the group, because it has just been heard, the tone will functionally associate with the motive unless the ensuing tones compete to capture it. By placing a rest immediately after the motive, the tone can detach from its perceptual unit.<sup>105</sup> Although notes that follow each other in close succession tend to be associated together, the uniqueness of each situation of perceptual grouping priority prevents the formulation of exact guidelines for temporal relations; however, Bregman reports, “The auditory system seems to form clusters by demanding that the within-cluster separations in pitch and timbre be smaller than the between-cluster separations.”<sup>106</sup>

Motion and Contour: Step-wise motion within a stream keeps it bound, while jumps increase the probability that the stream will break apart. Correlated changes between voices

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<sup>103</sup> See Bregman, *Auditory Scene Analysis*, 158; 164; 494; 497; 683.

<sup>104</sup> *Ibid.*, 473.

<sup>105</sup> *Ibid.*, 472.

<sup>106</sup> See Bregman, *Auditory Scene Analysis*, 473.

akin to the Gestalt *Factor of Common Fate* increase the tendency towards simultaneous integration (fusion); e.g., matching contours, parallel motion, etc.<sup>107</sup> In contradistinction to this, salient notes emphasize segregation. For example, the placement of a note at the peak or valley of a melodic contour will increase the likelihood that it will stand out. For similar reasons, changes in direction promote stream segregation and breakdown of linear integration.

Dynamics: Having similar loudness in separate voices or coordinated amplitude changes enhances fusion, but intensity, by itself, is not a highly determinant factor in streaming.<sup>108</sup>

Spatial location: When players or sound sources are physically separated, this tends to enhance an already existent stream segregation phenomenon. As with dynamics, this factor does not seem strongly decisive on its own; however, when placing competing sound sources distant from one and other, their voices can be made to come closer in pitch, timbre or rhythm yet they will continue to be heard as distinct.<sup>109</sup>

Gradual changes in any of the above musical parameters promote integration while sudden changes tend to cause segregation. Taking parameters in combination, we see that, in general, differences in pitch, onsets, timbre, rhythms, motion, contours, direction, location, loudness, harmonics and rate of change will cause streams and sub-streams to separate from each other. Simultaneous integration (between voices), on the contrary, will

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<sup>107</sup> See Bregman, *Auditory Scene Analysis*, 467.

<sup>108</sup> *Ibid.*, 127.

<sup>109</sup> *Ibid.*, 75; 501.



experience enhanced binding through similarities. This implies that sequential integration of a real or virtual stream will be enhanced through similarities and directionality existing within it and by the contrast this stream exhibits against other voices of the texture.

One can quickly recognize, as Bregman did, that some of Baroque counterpoint's rules are no other than healthy guidelines designed to assist segregation or fusion of voices. Without access to spectrum analyzers or pure tone generators, musicians since Palestrina amassed valuable information on how to encourage sounds to either develop distinct lines or unite into larger perceptual units. With the preponderance of harmonic triads to encourage fusion at desired locations, and with stylistic restrictions to foster voice independence such as guidelines pertaining to onset, note value, motion, voice-crossing, treatment of dissonances,<sup>110</sup> etc., it is clear that Baroque composers of polyphonic music recognized the role of auditory percepts.

To reiterate, the manipulation of the above musical parameters allows sound events to be united through commonalities or separated by differences. Bregman sees these grouping tendencies as relying mostly on primitive processes (requiring little attention) akin to the Gestalt grouping principles but, as stipulated at the beginning of our review of *Auditory Scene Analysis*, both primitive and schema-based auditory perception processes coexist. For example, pattern recognition, motion and continuity rely not only on primitive processes but also on some form of knowledge.<sup>111</sup> Bregman suggests that “A predictable

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<sup>110</sup> For example, by increasing linear relationships (through passing notes, neighbor tones, anticipations, suspensions, etc.), by reducing vertical integration (via asynchronous onsets, etc.), and by placing dissonances at points of minimal vertical bonding.

<sup>111</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 395-453.

sequence allows its components to be caught in the net of attention, while unpredictable elements may be lost.”<sup>112</sup>

In earlier chapters we spoke of the importance of intellectual arousal through the interplay between imagination and understanding, and even alluded to Baudrillard's concept of 'seduction' to enhance participative listening. Now we argue that knowledge acquired through short- and long-term memory aided by the creation of expectations, not only shapes schema-based auditory perception, it actively stimulates and engages the mind. We now turn to the exploration of such experiential learning.

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<sup>112</sup> See Albert, S. Bregman, *Auditory Scene Analysis*, 412.

### 5.3. Conclusion

In this chapter, we have seen how coherence in music can appease the human need for order. We spoke of the presence and importance of comprehensibility in older works as well as in those of contemporary composers such as Béla Bartók, Paul Hindemith and Arnold Schoenberg. The chapter then introduced concepts of music cognition and psychoacoustics before rendering an overview of the valuable contributions of Gestalt psychologist Max Wertheimer.

Motivated by the relevance of Gestalt grouping principles to music perception, we turned to the research of Robert Francès and Albert Bregman on auditory perception. The significance of these findings on auditory perception cannot be emphasized enough as they are central to the composition method put forward. By manipulating and shaping music parameters, auditory streams can join or separate in perception such that specific elements of narration appear enhanced or subdued in the unfinalizable dialogism of music's conversation—where individuality and collectivity seek balance.

Given the role that coherence plays in music perception, it seems fitting to close this chapter by quoting Wertheimer:

To comprehend an inner coherence is meaningful; it is meaningful to sense an inner necessity. . . . Whether there is such a thing as meaningfulness or not is simply a question of fact.<sup>113</sup>

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<sup>113</sup> Max Wertheimer, “Untersuchungen zur Lehre von der Gestalt I.” In *Psychologische Forschung*, 1 (1922): 47-53. Trans. by Willis D. Ellis as “The General Theoretical Situation,” in *A Source Book of Gestalt Psychology*, 12-16, (London: Routledge & Kegan Paul, 1938), 16.

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## Chapter 6 - Stability, Variety and Closure: Theory of Expectation

In music, as in the art of oratory, to fail to move one's listener is to miss the whole point. But even before moving them come pleasing them and engaging their interest; and to achieve this, the subject must be well chosen.<sup>1</sup>

—Jérôme-Joseph de Momigny, 1805

### 6.1. Introduction

Now that we appreciate that the human desire for order and cohesion shapes primitive perception, we embark on the task of revealing how memory and expectation influence schema-based perception and, subsequently, music appreciation.

We have discovered that pre-attentive primitive grouping occurs by attribution of similarities (or differences) to sound events. This seems to follow from the need for clarity, order and structure, and yields outcomes consistent with the Gestalt factors of similarity and proximity. As for the other Gestalt factors, Albert S. Bregman in *Auditory Scene Analysis* conjectured that these rely on attentive hearing and some form of experiential learning. Schema-based perception thus arises from having an expected outcome in mind.

In addition to its role in biasing perception, Leonard B. Meyer stipulates that the creation of such expectations engages listeners through high-order mental activity. Recall from Alan Goldman's "Evaluating Art" in *The Blackwell Guide to Aesthetics* that we derive fulfillment in successfully meeting challenges.<sup>2</sup> Attempting to anticipate correctly how music develops yields a persuasive challenge.

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<sup>1</sup> Ian Bent ed., *Music Analysis in the Nineteenth Century, vol. 1* (Cambridge, MA: Cambridge University Press, 1994), 35. The passage is from Jérôme-Joseph de Momigny, "De la Fugue à deux Sujets," in *Cours complet d'harmonie et de composition, d'après une théorie nouvelle et générale de la musique, vol.II* (Paris: Momigny, 1805), 535-43; vol.III (Paris: Momigny, 1803-05), 198-204 (Plate 39 I).

<sup>2</sup> See Alan Goldman, "Evaluating Art," in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 102.

It is opportune to stress anew the role of intertextuality in soliciting imagination, and remember that for interpretation's decontextualizing and recontextualizing to take place, it is necessary to account for a subject's experience. The predisposition to anticipate and interpret therefore hinges on individual experience. In essence, knowledge acquired through long-term and short-term memory creates expectations.

Since the composition method proposed herein aims to increase participation, let us now investigate how the creation of expectation not only impacts upon perception but also enhances the listening experience by posing the challenge of anticipation.

## 6.2. Discussion

Our desire to comprehend seeps into our listening experiences, as our mind constantly seeks stability, variety and closure. Stability can be found in such things as predictability and lack of tension. Predictability, in turn, arises both from tendency and from the familiarity inherent to repeated exposure, either immediate or acquired through time and stored in memory. In contrast, variety stimulates the mind and prevents boredom from overt acquaintance and hinges upon ambiguity and surprise. Lastly, when the mind is left confused by or unsatisfied with given stimuli, this gives rise to tension and the subsequent pursuit of resolution. Closure thus offers the satisfaction of fulfilled expectations. Likewise, the yearning for continuation, completeness and closure can enhance music reception through what Meyer calls the “central thesis of the psychological theory of emotions.”<sup>3</sup> Meyer claims, “Emotion or affect is aroused when a tendency to respond is arrested or

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<sup>3</sup> Leonard B., Meyer, *Emotion and Meaning in Music*, (Chicago: University of Chicago Press, 1956, paperback ed. 1961), 14.



inhibited.”<sup>4</sup> This implies that participative listening may be increased by creating temporal interruptions through ornamentation, figuration, extension of scales, prolongation of note durations, etc., as well as by scoring harmonic delays in the form of developmental modulations, ambiguity and dissonance. Meyer also indicates that “a situation which is structurally weak and doubtful in organization may directly create tendencies toward clarification.”<sup>5</sup>

Evidently, one of the tasks of the dialogically diligent composer lies in striking the right balance between similarity and contrast, tension and release, and variety and unity.<sup>6</sup> The composer and theorist Paul Hindemith considers that tension between tones provides the basic material of music composition,

No musical effect can be obtained unless the tension between at least two different single tones has been perceived. This tension may exist either between the two adjacent tones of melodic progressions or in the harmonic minimum of two tones sounded simultaneously. . . . Since this tension is demonstrated by imagined distances in space and lapses of time, that is, intervals, considered both as spatial distances and as temporal stretches, we may take such intervals as the basic musical material.<sup>7</sup>

This obvious yet important observation that tones are separated from each other not only by frequency but also by time opens up the discussion on the fluidity of temporal events. In the previous chapter, we discovered that, when an auditory stream is strongly bound, the perceived dissonances created against other streams may be lessened. Equally, the spacing in time of musically correlated events, such as those that create tension and their corresponding elements of release, may garner a subjective interpretation of time.

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<sup>4</sup> Meyer, *Emotion and Meaning in Music*, 14.

<sup>5</sup> *Ibid.*, 16.

<sup>6</sup> The aesthetic importance of “uniformity amidst variety” dates back to Francis Hutcheson's *An Inquiry into the Original of our Ideas of Beauty and Virtue* (1738). Refer to Paul Guyer, “The Origins of Modern Aesthetics: 1711-1735,” in *The Blackwell Guide to Aesthetics*, ed. Peter Kivy (Malden, MA: Blackwell Publishing, 2004), 24.

<sup>7</sup> Paul Hindemith, *A Composer's World* (Mainz, Germany: Schott Musik International, 1952, Reprint 2000), 68; 69.

Igor Stravinsky, in *Poetics of Music*, articulates how such affects can alter the perception of musical temporality and explicitly states the value of contrast in music as well as in other art forms,

Everyone knows that time passes at a rate which varies according to the inner dispositions of the subject and to the events that come to affect his consciousness. Expectation, boredom, anguish, pleasure and pain, contemplation—all of these thus come to appear as different categories in the midst of which our life unfolds, and each of these determines a special psychological process, a particular tempo. . . . All music, whether it submits to the normal flow of time, or whether it disassociates itself therefrom, establishes a particular relationship, a sort of counterpoint between the passing of time, the music's own duration, and the material and technical means through which the music is made manifest. . . . Music that is based on ontological time is generally dominated by the principle of similarity. The music that adheres to psychological time likes to proceed by contrast. To these two principles which dominate the creative process correspond the fundamental concepts of variety and unity. All the arts have recourse to this principle.<sup>8</sup>

Returning to the thoughts expressed at the beginning of this discussion, expectation can refer to the prospect of continuation as well as to that of resolve. In the first case, we merely have to think of the draw felt from repeated notes, contours, patterns, rhythms, etc., in eliciting the delights of familiarity, and as put by David Huron in *Sweet Anticipation: Music and the Psychology of Expectation*, “familiarity is the path to contentment.”<sup>9</sup> As for completeness or resolve, the discomfort of tension or ambiguity summons the elation of resolution or release. In *Freedom and the Arts*, pianist Charles Rosen discusses how, after the middle of the eighteenth-century, composers created harmonic tension in an effort to delay the arrival of the home key by extending the length of cadential material from a few sequential chords to entire phrases consisting of arabesques of scales and arpeggios.<sup>10</sup>

Creating tension by postponing tonal stability then became a common tool for composers of

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<sup>8</sup> Igor Stravinsky, “Poétique musicale sous forme de six leçons” (Harvard University Charles Eliot Norton Lectures, Harvard University, Cambridge, MA, 1939-40), trans. by Arthur Knodel and Ingolf Dahl as *Poetics of Music* (Cambridge, MA: Harvard University Press, 1970, 16th reprint 2003), 30; 31.

<sup>9</sup> David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: Bradford Book, MIT Press, 2006, paperback ed., 2007), 135.

<sup>10</sup> Charles Rosen, *Freedom and the Arts: Essays on Music and Literature* (Cambridge, MA: Harvard University Press, 2012), 137.

the Romantic Period. Rosen, in *Music and Sentiment*, speaks of Chopin's "immensely long slurs" which intensify the material through delay, and of the composer's use of "expressive and extravagant decoration" to produce "density that transforms the affective powers of music."<sup>11</sup> Examples abound of other techniques to elicit anticipation through delay such as the appearance of long introductions to main themes, thwarted cadences, or even the mere shifting of the start of a melody to a weak beat. The role of arousal in music is expressed quite colloquially by Christopher Small in this assertion:

The ability to play the game of arousing, frustrating or teasing, and finally satisfying the listener's expectation is a major element of the skills of composers in the Western concert tradition. The more the tension can be screwed up before resolving it, the better, it seems, the listener will like it.<sup>12</sup>

Rosen observes that composers after the 1830's had, furthermore, turned to the "dramatic effect" of intensity aided by "rhythm, harmony, range, dynamics, dissonance, texture, and any or all of these combined, or even by static iteration that implied the imminence of action."<sup>13</sup> He calls attention to how increased tonal colour in later periods (e.g., in the music of Brahms, and Debussy) provided for another way to enhance ambiguity and tension through added textural density, but argues that this might show detrimental to tonal goals. Additionally, in *Music and Sentiment*, Rosen points to another way to influence affect: "working on the nerves" and gives as examples the unrelenting tension of the beheading scene in *Salome* by Richard Strauss and the elusive prelude to *Tristan und Isolde* by Wagner.<sup>14</sup>

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<sup>11</sup> Charles Rosen, *Music and Sentiment* (New Haven, CT: Yale University Press, 2010), 100; 104.

<sup>12</sup> Christopher Small, *Musicking: The meanings of performing and listening* (Middletown, CT: Wesleyan University Press, 1998), 123.

<sup>13</sup> Rosen, *Music and Sentiment*, 114.

<sup>14</sup> *Ibid.*, 123.

Having shown the prevalence and arousal potential of expectation in music, we embark on the detailed review of the correlation between schema-based perception, memory and expectation. Our exploration focuses on Leonard B. Meyer's *Emotion and Meaning in Music* and David Huron's *Sweet Anticipation: Music and the Psychology of Expectation*.

## Expectation Theory

We have spoken extensively of how musical events cannot be dissociated from those taking place before, with and after them. The relativity of this Bakhtinian chronotope precedes Eugene Narmour's *Implication-Realization* theory which is summarized by Annabel J. Cohen as follows:

[L]isteners unconsciously generate implications or inferences after each tone they hear. Notes that match a preceding implication are *realized*; notes that violate the implication create surprise.<sup>15</sup>

The concept above lies at the core of Huron's *Sweet Anticipation* which complements Meyer's extensive research and adds recent experimental findings. In *Emotion and Meaning in Music*, Meyer ties music events to the past and future. He implies that, when we listen to music, because we alter our opinions of the past based on what we are hearing in the present, we continually adjust our expectations as to future events.<sup>16</sup> In the same book, Meyer reveals the many ways in which the desire for continuation and closure gives rise to the creation of various types of expectations. For example, Meyer looks at expectations of continuation in terms of melody, rhythm, meter, harmonic progression, etc. As well, Meyer discusses the yearning for completion as it pertains to phrasing, section structure and

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<sup>15</sup> Annabel J. Cohen, "Music cognition: defining constraints on musical communication," in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 63.

<sup>16</sup> See Meyer, *Emotion and Meaning in Music*, 49.

harmony, overall tonal goals, form, etc. Meyer's manuscript also emphasizes how tension and ambiguity can enhance interest by creating a need for resolution; in this case, closure ensues with a return to stability or predictability.

In fact, the above supports our opening premise that the mind seeks stability, variety and closure. There is, therefore, an expectation or a search for: stability expressed through unity, similarity, continuation and familiarity; variety as found in tension, dissonance, ambiguity and delay; and closure corresponding to clarity, release and resolution. In *Sweet Anticipation*, Huron claims that “Expectation serves at least three functions: *motivation*, *preparation* and *representation*.”<sup>17</sup> *Motivation* signifies the impetus to anticipate successfully future events; *preparation* readies for success or failure of an expected event; and *representation* denotes the manifestation of the stimulus as a mental image. As a timely observation on imagery, Oliver Sacks contends that mental representation of music has no equivalent capacity in other primates:

Our susceptibility to musical imagery indeed requires exceedingly sensitive and refined systems for perceiving and remembering music, systems far beyond anything in any nonhuman primate. These systems, it seems, are as sensitive to stimulation from internal sources—memories, emotions, associations—as to external music. A tendency to spontaneous activity and repetition seems to be built into them in a way that has no analogue in other perceptual systems.<sup>18</sup>

Although it appears that music imagery may be reserved for humans, expectation, on the other hand, likely results from general evolutionary adaptation, as described by Huron:

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<sup>17</sup> Huron, *Sweet Anticipation*, 109.

<sup>18</sup> Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (Toronto, Canada: Alfred A. Knopf, 2007), 39.

From an evolutionary perspective, the capacity to form accurate expectations about future events confers significant biological advantages. Those who can predict the future are better prepared to take advantage of opportunities and sidestep dangers. Over the past 500 million years or so, natural selection has favored the development of perceptual and cognitive systems that help organisms to anticipate future events. Like other animals, humans come equipped with a variety of mental capacities that help us form expectations about what is likely to happen. Accurate expectations are adaptive mental functions that allow organisms to prepare for appropriate action and perception.<sup>19</sup>

Furthermore, it seems that neural circuits implicated in accurate predictions become reinforced while inaccurate predictors atrophy.<sup>20</sup> Predictive behaviour, therefore, is refined through learning.

Huron ties expectations to associated emotional response systems via his ITPRA Theory of Expectation, which centres on: Imagination, Tension, Prediction, Reaction and Appraisal, where each element serves a specific biological function.<sup>21</sup> These responses behave in consort to maximize the probability of predictive success—Huron pens this as follows:

The overall feeling state evoked by events arises from a combination of the imagination, tension, prediction, reaction, and appraisal responses. These responses may all be positively valenced, or they may all be negatively valenced. But most experiences involve a complex mix of positively and negatively valenced responses.<sup>22</sup>

Huron claims that his ITPRA Theory aims to provide a general theory of expectation that “attempts to explain how expectations evoke various feeling states, and why these evoked feelings might be biologically useful.”<sup>23</sup> The theory's applicability to music is found in Huron's words:

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<sup>19</sup> Huron, *Sweet Anticipation*, 3.

<sup>20</sup> *Ibid.*, 127.

<sup>21</sup> An account of these functions appears in Huron's Table 1.1. See Huron, *Sweet Anticipation*, 16.

<sup>22</sup> Huron, *Sweet Anticipation*, 359. Note 11 to Summary of the ITPRA Theory.

<sup>23</sup> Huron, *Sweet Anticipation*, 3.

The story of emotion is intertwined with the psychology of behavioural motivation. Emotions are motivational amplifiers. Emotions encourage organisms to pursue behaviors that are normally adaptive, and to avoid behaviors that are normally maladaptive. . . . the emotions accompanying expectations are intended to reinforce accurate prediction, promote appropriate event-readiness, and increase the likelihood of future positive outcomes. . . . music-making taps into these primordial functions to produce a wealth of compelling emotional experiences. In this way, musicians are able to create a number of pleasurable emotional experiences, including surprise, awe, "chills," comfort, and even laughter.<sup>24</sup>

*Sweet Anticipation* yields extensive information on expectation ranging from evolutionary and biological perspectives to descriptions of mental representation and types of memory. The manuscript also explains sources of expectation stemming from the knowledge captured in memory. Also contained in Huron's book are analyses of data from auditory learning experiments and a detailed account of the main responses to surprise (awe, laughter and frisson which are linked respectively to the freeze, flight and fight instincts). As the sheer magnitude of Huron's contribution prohibits a thorough review from appearing within these pages, select information will inform pertinent topics below. The primary message we derive from Huron's work lies in the ability to enhance the musical experience by tapping into the potential offered by the creation of expectations and the associated reward of successful prediction. Huron sends this invitation:

If a musician wishes to evoke a predictive reward, then musical events must be made predictable. The most straightforward way of creating predictable events is to follow existing musical conventions such as relying on traditional scales, meters, timbres, harmonies, genres, and styles. . . . A second way to make events predictable is to use repetition within musical works. . . . using repeated figures, ostinatos, motives, themes, and rhythmic patterns will increase the likelihood of predictive success for listeners.<sup>25</sup>

Accordingly, exposure and familiarity subtend both schema-based perception and expectation. Sacks points to the research of David J. M. Kraemer, C. Neil Macrae, Adam E. Green, and William M. Kelley, indicating that when masking was performed on familiar

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<sup>24</sup> Huron, *Sweet Anticipation*, 4.

<sup>25</sup> *Ibid.*, 367.

and unfamiliar songs, the listeners did not consciously notice the missing elements, but MRI scans picked up greater activation in portions of the brain responding to auditory associations when the songs played were familiar.<sup>26</sup> Similarly, Bregman discusses the research of Jay Dowling who found that familiar melodies can more easily be extracted from background noise than unfamiliar ones.<sup>27</sup> Bregman also reports that repeated exposure to a stimulus increases trajectory-based organization.<sup>28</sup> More evidence of experiential learning can be found in the recognition of patterns. Bregman claims that temporal regularity (or other types of regularity) may affect this detection.<sup>29</sup> Let us remember that continuity pertains not only to pitch, motion and contours but equally applies to pulse, meter and rhythmic grouping. In *Emotion and Meaning in Music*, Meyer precedes Bregman's experimental results when noting that once a rhythmic grouping has been established, it tends to set up the expectation for its continued appearance.<sup>30</sup> Clearly, any sense of temporal regularity also begins with an impression of continuation. As with any unfolding narrative, expectations not only drive where one places emphasis but also govern structural pace.

Meyer applies a similar rationale to the desire for replication of thematic material and suggests that 'good' continuation, completeness and closure often go hand in hand.<sup>31</sup> He stipulates that there are essentially two types of incompleteness: interruptions (structural gaps) and delays (expectations of closure). Returning to the masking experiments, it can be

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<sup>26</sup> Oliver Sacks, *Musophilia*, 33. See David J. M. Kraemer, C. Neil Macrae, Adam E. Green, and William M. Kelley, "Sound of silence activates auditory cortex," *Nature* 434 (2005): 158.

<sup>27</sup> See Albert, S. Bregman, *Auditory Scene Analysis: The Perceptual Organization of Sound* (Cambridge, MA: The MIT Press, 1990. Paperback ed. 1994), 401. The referenced research is that of J. W. Dowling, Rhythmic groups and subjective chunks in memory for melodies. *Perception & Psychophysics*, 14 (1973): 37-40.

<sup>28</sup> See Bregman, *Auditory Scene Analysis*, 672.

<sup>29</sup> *Ibid.*, 673.

<sup>30</sup> See Meyer, *Emotion and Meaning in Music*, 109.

<sup>31</sup> *Ibid.*, 129.



understood that expectations significantly impact upon perceived continuation, completeness and closure. When faced with ambiguity, melodic, rhythmic and harmonic continuation and development will be inferred from resources acquired through experiential learning and adaptive prediction.

In *Emotion and Meaning in Music*, Meyer claims, “Memory tends to improve shapes in the direction of regularity, symmetry, and completion. . . . the mind, governed by the law of *Pragnanz*, is continually striving for completeness, stability, and rest.”<sup>32</sup> This holds true up to a point of saturation, where the need for stability is replaced by a longing for variety before a return to stability closes the loop. Meyer infers this as follows:

Process continuation is the norm of musical progression, and disturbances in continuation are points of deviation. . . . our expectations as to continuation are to some extent subject to our expectations as to change and logic; that is, we expect continuation only so long as it appears significant and meaningful in the sense that it can be understood as motion towards a goal. If meaning becomes obscured, then change will be expected.<sup>33</sup>

This leads us to an introductory interjection on saturation. We will soon investigate how tension and surprise enhance the listening experience by preventing boredom but suffice to say here that excessive repetition inhibits 'good' continuation by creating a situation of stagnation.

Given that knowledge gained from immediate and long-term acculturation to style, norm and repetition reinforces expectations, a review of mental representation and types of memory awaits.

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<sup>32</sup> Meyer, *Emotion and Meaning in Music*, 91; 128.

<sup>33</sup> *Ibid.*, 93.

## Representation, Types of Memory and Related Expectations

In *Sweet Anticipation*, David Huron suggests that the way in which the brain processes musical information affects how music is retained in memory and how it associates with other material, and adds “music-related representations exist as real biological patterns in individual brains. They aren't just formal abstractions.”<sup>34</sup> Huron refers to the magnetic resonance imaging work of Petr Janata and colleagues replicating the toroidal three-dimensional model of Western music's tonality relationships first proposed in 1982 by Krumhansl and Kessler.<sup>35</sup> Huron emphasizes that these torus-like topographies forming in the rostromedial prefrontal cortex pertain specifically to Western music's tonality system and, although the toroidal pitch-class structure remains similar, it varies in its organization from listener to listener. The uniqueness of these toroidal structures incites Huron to claim that they “provide direct evidence of neurological adaptations to a particular musical environment.”<sup>36</sup> Huron likens these adaptations to house floor plans where each house has the same rooms but different layouts. From this, Huron infers, “These differences imply a unique learning path for each listener—consistent with the theory of neural Darwinism.”<sup>37</sup>

Acknowledging that auditory experiences (such as those in music) depend on learning through exposure, it is fundamental to understand the underlying mechanisms involved in committing information to memory. As the following remark renders, Huron contends that the main function of memory is "preparation" not "recall":

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<sup>34</sup> Huron, *Sweet Anticipation*, 128.

<sup>35</sup> See Huron, *Sweet Anticipation*, 128-9. Examples of Janata's dynamic imaging results can be viewed at: <http://www.dartmouth.edu/~news/releases/2002/dec/121202.html> (accessed 2017-05-02).

<sup>36</sup> Huron, *Sweet Anticipation*, 128.

<sup>37</sup> *Ibid.*, 129.

Memory of past events is biologically useful only to the extent that these memories inform future actions. Memory exists not to allow us to relish past successes or regret past failures, but to allow us to repeat our successes and avoid future failures.<sup>38</sup>

As a general comment on preparation, expected style and even anticipated significance of a work can alter its reception. Meyer notes, “the attention given to a work of art is a direct product of the belief in the significance and vitality of aesthetic experience.”<sup>39</sup> Meyer even ties in journalistic criticism and marketing in the grasp of expectations.<sup>40</sup>

Bregman uses the terms “schema-based segregation and integration” as well as “schema-based organization”<sup>41</sup> to describe the perceptual proclivities tied to learning and expectation. Huron's terminology refines the kind of expectation according to the type of memory.<sup>42</sup> Although there are many sub-categories for short- and long-term memory, we focus mainly on the three most linked to expectation: episodic, semantic and short-term. These types of memory and associated expectations are shown in the following Table 6.1.

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<sup>38</sup> Huron, *Sweet Anticipation*, 219.

<sup>39</sup> Meyer, *Emotion and Meaning in Music*, 74.

<sup>40</sup> *Ibid.*, 76.

<sup>41</sup> See Bregman, *Auditory Scene Analysis*, 395-453 .

<sup>42</sup> See Huron, *Sweet Anticipation*, 220.

Table 6.1 – Types of Memory and Associated Expectation			
Type of Memory	Description	Type of Expectation	Description of Expectation
<i>Episodic Memory</i> (Long-term)	Memory of autobiographic events - i.e., personal history as recorded by oneself	<i>Veridical</i>	Comes from many exposures to the same work
<i>Semantic Memory</i> (Long-term)	Concept-based recollection of factual and general information gathered from various episodic memories	<i>Schematic</i>	Generalizations based on exposure to many similar/familiar experiences Enculturated patterns of events - i.e., dependent on exposure to a style or genre
<i>Short-term Memory</i> (but with repetition information gets stored in intermediate-term and long-term memory)	Committed rapidly to memory but can also be forgotten quickly	<i>Dynamic</i>	Volatile - stemming from brief exposures to patterns or repetition. Develop as a piece progresses

*Episodic memory* consists of the autobiographical recounting of events; i.e., personal tale-telling. It pertains to how events relate directly to oneself and are easily distorted at each recollection.<sup>43</sup> Unlike personal recounting of tales, music recall retains much of its accuracy, and this reliability increases with exposure to the same work. This is described by Huron in the following passage:

Memories for well-known pieces resemble episodic memories that have been recalled many times. After a while, they can become episodic memories that are no longer tethered to a specific past moment. . . . [But] our memories for familiar musical works are episodic memories that have lost most of their autobiographical history, while retaining their accuracy or fidelity. With sufficient exposure, a listener can become highly familiar with any given musical work.<sup>44</sup>

<sup>43</sup> See Huron, *Sweet Anticipation*, 221.

<sup>44</sup> *Ibid.*, 222.

While individual music works get stored in episodic memory, exposure to various works involves *semantic memory*, where information on genre and style accumulates. In turn, *short-term memory* serves to retain immediate musical occurrences. Episodic memory yields *veridical expectations*<sup>45</sup> as to development of a specific (i.e., known) work; semantic memory governs *schematic expectations* stemming from acculturation to a given style;<sup>46</sup> and expectations arising from the immediate presentation of successive musical material are termed *dynamic expectations*.

Huron's *Sweet Anticipation* contains findings gathered from extensive research, old and new, obtained when evaluating listener expectations and comparing against frequency of occurrence of various musical parameters. Some of these statistical findings are culture-specific or style-specific yet others appear to emerge across various types of music. Select research observations appear in the attached appendices but, considering that examples may aid our discussion, a few follow in the section below.

Of importance, schema-based experiential learning may be impeded if critical windows of childhood pliability are missed. This is identified by Huron<sup>47</sup> but also by Annabel J. Cohen in her “Music cognition: defining constraints on musical communication.” Cohen reveals that “greater adult literacy of musical styles will follow from greater exposure early in life.”<sup>48</sup> Oliver Sacks also notes the importance of childhood exposure,

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<sup>45</sup> See Huron, *Sweet Anticipation*, 224. Huron attributes the term to Jamshed Bharucha, and uses it to differentiate between episodic memory and the expectation that comes with it.

<sup>46</sup> Huron views schematic expectations akin to “auditory generalizations.” See Huron, *Sweet Anticipation*, 225.

<sup>47</sup> See Huron, *Sweet Anticipation*, 122.

<sup>48</sup> Cohen, “Music cognition,” 77.

The imagining of music, even in relatively non musical people, tends to be remarkably faithful not only to the tune and feeling of the original but to its pitch and tempo. Underlying this is the extraordinary tenacity of musical memory, so that much of what is heard during one's early years may be "engraved" on the brain for the rest of one's life.<sup>49</sup>

In *Freedom and the Arts*, Charles Rosen suggests that learning to play an instrument offers irreplaceable opportunities for experiential learning via assimilation of musical material. He insists that, not only does this increase familiarity with the musical repertoire, it also enhances its understanding and appreciation. Rosen ties this critical awareness to the sustainability of a music culture as follows:

For serious music to play an important role in a culture requires not only a significant number of professionals who can be hired to perform it, but a dedicated body of amateurs who take active but occasional part in its production. . . . The transcriptions of string quartets and symphonies for two or four hands was a common way of getting acquainted with the most important works that one would hear in the concert hall. . . . Learning to sing and learning to play the piano have been supplanted today by collecting records. This is a disquieting development that is already affecting the future. The audience for serious music has become increasingly passive, and there is no longer an important body of educated listeners experienced in the making of music that can act as a bridge between the general public and the professional.<sup>50</sup>

Similarly, Composer Paul Hindemith believed that inciting individuals to take an active part in the music-making process, such as through group/choral singing, would not only benefit music culture but also result in a more humane society, one sharing a mutual understanding of the values of harmony and community.<sup>51</sup> Perhaps the passivity that Rosen refers to above can turn to active participation when referential devices exist within a work. This is where short-term memory has a part to play in the listening experience.

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<sup>49</sup> Oliver Sacks, *Musicophilia*, xi.

<sup>50</sup> Charles Rosen, *Freedom and the Arts*, 34; 35.

<sup>51</sup> For a good discussion on music functionalism and the thoughts of Hindemith, see Magnar Breivik, *Musical Functionalism: The Musical Thoughts of Arnold Schoenberg and Paul Hindemith* (Interplay: Music in Interdisciplinary Dialogue; No.8), ed. Siglind Bruhn (Hillsdale, NY: Pendragon Press, 2011), more specifically, 349-388.

Short-term memory is where in-progress events etch impressions. Repetition, tonal anchoring, rhythmic grounding, event signaling, etc., offer opportunities to elicit short-term memory and create dynamic expectations, and hopefully, result in intellectual arousal and enhanced participation. This vision is key to the method of composition proposed in the research at hand and must be emphasized before we embark on detailing compositional choices attempting to invite and engage participants. Huron's suggestion to create predictive rewards by utilizing experiential learning acquired through exposure leads us to supplement our exploration for each type of memory and related expectation.

## Veridical Expectations - Repeated Exposure to a Given Work

In *Freedom and the Arts*, Rosen states,

How is a convention established? Clearly by repetition. . . . Perhaps the most profound aspect of serious music today is its disdain for repetition. . . . In the music of Luciano Berio, Karl-Heinz Stockhausen, Pierre Boulez, Elliott Carter, and others, we come upon the return of textures and even the return of certain kinds of harmonic configurations, but there is never a return of a theme and even no simple recurrence of a motif.<sup>52</sup>

Rosen's objection pertains to the lack of reiteration within modern works. We shall discuss these matters when unveiling the potential that dynamic expectations afford. For now, however, we simply recall that appreciation and knowledge tend to increase with familiarity, hence with exposure. Rosen, in *Freedom and the Arts*, tells the story of how the Paris Conservatoire had to practise Beethoven's ninth symphony for an entire year before it was considered ready to be shown.<sup>53</sup> Within the same passage, Rosen recounts how Pierre Boulez, before conducting the first production of Alan Berg's *Lulu* at the Opéra de Paris,

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<sup>52</sup> Charles Rosen, *Freedom and the Arts*, 168.

<sup>53</sup> *Ibid.*, 184.

worked the orchestra through forty-five recording sessions. Repeated exposure not only helps musicians master a work but may also enhance their appreciation of it (through accurate prediction). Of note, Boulez considered internal repetition within a work unnecessary because recording permits repeated hearing. Rosen claims, “With the second half of the twentieth century, the avant-garde foreswore even the repetition of a theme.”<sup>54</sup> Arnold Schoenberg knew that repeated exposure to a given work would not only increase its accessibility but would also contribute to assimilation of its style through “guided accustomization” - a term used by Heinrich Schenker.<sup>55</sup> Schoenberg's *Verein für musikalische Privataufführungen* (Society for Private Music Performances) first started with a handful of students and friends but quickly grew to more than three-hundred members. It had for objective a withdrawal from the unhealthy competition and marketing pressures of the concert business but more importantly, it offered a venue for the repetitive presentation of contemporary works to “an assembly of sincere music listeners,” as put by Magnar Breivik in *Music Functionalism*.<sup>56</sup> Breivik's book quotes Schoenberg sharing his vision as follows: “One is not familiar with music after listening to it just once. The music lover, and particularly the artist who is to reproduce the music, must hear it often.”<sup>57</sup> Breivik also refers to Schenker's article “Das Hören in der Musik,” published in 1894 in *Neue Revue*. Schenker's article specifically emphasizes the importance of hearing works of music multiple times over in order to become acquainted with them.<sup>58</sup>

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<sup>54</sup> Charles Rosen, *Freedom and the Arts*, 168.

<sup>55</sup> See Magnar Breivik, *Musical Functionalism*, 341.

<sup>56</sup> Breivik, *Musical Functionalism*, 343.

<sup>57</sup> *Ibid.*, 343. Breivik cites Arnold Schönberg from Willi Reich, *Arnold Schönberg, oder Der konservative Revolutionär* (Vienna: Fritz Molden, 1968).

<sup>58</sup> See Magnar Breivik, *Musical Functionalism*, 337.



Veridical expectations can thus develop once acculturation is achieved through the familiarity of repeated exposure to the same work. Huron remarks, “the more listeners hear a piece of music, the more they like it.”<sup>59</sup> In fact, it is not familiarity *per se* that imparts pleasure, but the ability to correctly predict future developments.<sup>60</sup>

We leave this section with a caveat on repeated exposure. Huron claims,

A single exposure has the greatest impact on whether participants will prefer that stimulus over other stimuli. Each additional repetition tends to increase the preference, but the amount of increase gets progressively smaller. After about thirty repetitions, the increase in preference can become very small. Nevertheless, continuing to present the stimulus still results in an increased liking.<sup>61</sup>

## Schematic Expectations - Style and Genre

We promised to review a few examples of schematic expectations—these appear herewith but, firstly, we should recall a few limitations and particularities.

In Chapter 5, we learned from Annabel Cohen's article “Music cognition: defining constraints on musical communication” that, typically, listeners can only retain five tones if these are not anchored by a given structure, placement, dynamic, duration, harmonic relevance, or other.<sup>62</sup> Huron alleges that, on average, sound sequences between three to five seconds in duration can be retained in short-term memory<sup>63</sup> (incidentally, a segment of five seconds at 96 beats/min corresponds to eight beats, or two bars in 4/4 time, and matches the

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<sup>59</sup> Huron, *Sweet Anticipation*, 131.

<sup>60</sup> *Ibid.*, 139.

<sup>61</sup> *Ibid.*, 135.

<sup>62</sup> See Cohen, “Music cognition,” 68. Cohen refers to the work of Miller (1956), Cuddy (1968, 1971, 1973), Oram and Cuddy (1995), Eerola *et al.* (2001), Krumhansl (1991) and herself, Cohen (1994, 2000).

<sup>63</sup> Huron, *Sweet Anticipation*, 228.

typical length of a musical phrase's *basic idea* in the Classical style).<sup>64</sup> This represents approximately ten sound events (i.e., different notes). As Cohen suggested, Huron also claims that structure can enhance retention and stipulates that these numbers can reach 10-12 seconds for the sound sequences and 25 individual notes.<sup>65</sup> This difference illustrates how interdependence due to relationship and context affects the results of experiments evaluating listeners' abilities and responses.<sup>66</sup> Evidently, with increased frequency of exposure, more sound events can be retained as these move from short- to intermediate- and then to long-term memory. Furthermore, the work of James Carlsen, Pierre Divenyi and Jack Taylor on melodic continuation identifies cultural bias in the responses offered by subjects.<sup>67</sup> This result does not surprise, as we have amply accentuated that familiarity comes from repeated exposure.

Musical proficiency, vocal range, shyness, notational literacy, etc. also present challenges to researchers although some methods are better suited to circumvent these limitations. For instance, Huron declares, "Without question, the best-known experimental method for testing musical expectations is the probe-tone method pioneered by Roger Shepard and Carol Krumhansl."<sup>68</sup>

With statistical controls in place, researchers have been able to infer valuable information concerning expectations for melody, harmony and rhythm. A sample of these

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<sup>64</sup> See William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001).

<sup>65</sup> See Huron, *Sweet Anticipation*, 228.

<sup>66</sup> *Ibid.*, 55-57.

<sup>67</sup> *Ibid.*, 43. See J.C. Carlsen, P.L. Divenyi, and J. A. Taylor, "A preliminary study of perceptual expectancy in melodic configurations," *Council for Research in Music Education Bulletin* 22 (1970): 4-12.

<sup>68</sup> *Ibid.*, 45. See C. Krumhansl and R. N. Shepard, "Quantification of the hierarchy of tonal functions within a diatonic context," *Journal of Experimental Psychology: Human Perception and Performance* 5 no.4 (1979): 579-594

follow but more examples can be found in the attached Appendices A, B and C. (When details on specific experiments, researchers and related publications are not specifically listed, these can be found in Huron's manuscript at the page indicated.)

General: There is better detection of a tone in the presence of a noise disturbance if the given tone of specific pitch occurs at a particular moment, i.e., perception is facilitated by accurate expectation of placement.<sup>69</sup> Some pitches are more quickly identified by people who have absolute pitch—these correspond to the tones that recur most often in many types of music.<sup>70</sup> Asked to imagine an isolated tone as a specific scale degree, the fastest response times correspond to the most frequently occurring scale degrees.<sup>71</sup> When guessing movement as up/down/same pitch of an ensuing note, listeners react faster for the most common scale degrees, irrespective of melodic contour.<sup>72</sup> The average pitch height most often imagined by test subjects lies near F4. The average pitch height, statistically obtained from extensive music data, is E<sup>b</sup>4.<sup>73</sup> Asked to conceive a chord, subjects most often picture a major chord in root position—a highly recurring chord position in Western Art-music repertoire.<sup>74</sup>

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<sup>69</sup> See Huron, *Sweet Anticipation*, 42; 176. See G. Z. Greenberg and W. D. Larkin, “Frequency-response characteristic of auditory observers detecting signals of a single frequency in noise: The probe-signal method,” *Journal of the Acoustical Society of America* 44, no.6 (1968): 1513-1523.

<sup>70</sup> See Huron, *Sweet Anticipation*, 64.

<sup>71</sup> *Ibid.*, 66.

<sup>72</sup> *Ibid.*, 150.

<sup>73</sup> *Ibid.*, 66.

<sup>74</sup> *Ibid.*, 66.

Melody: Since mental processing speed is faster with increased exposure to a particular stimulus,<sup>75</sup> cultural background plays an important role in a listener's expectation of melodic continuation.<sup>76</sup> This being said, in 1978, Diana Deutsch found that response time for processing tones was faster when these were preceded by small intervals and, conversely, was longer when pitch distance was large. The result corresponds with data accumulated in 1979 by Boomsalter and Creel on frequency of occurrence of successive intervals taken from melodies of various cultures. The authors found that small intervals between successive notes are more frequent than large ones; i.e., melodies are built using sequences of tones that are close together. This result seems almost universal except when it comes to Swiss yodelling and Scandinavian “yoiks.”<sup>77</sup> In other words, the successful anticipation of pitch succession increases with exposure, and the expectation of adjacent tones in a melody is tied to their transitional probabilities.<sup>78</sup>

Since melodic material mostly involves small intervals, what happens when large intervals are encountered? In 1989, Piet Vos and Jim Troost gathered data from Albanian, Bulgarian, Iberian, Irish, Macedonian, Norwegian, and African-American folk songs as well as from repertoire taken from Western Art-music.<sup>79</sup> The researchers found that, for all types of music surveyed, successive notes separated by a distance no greater than four semitones most often descend. For intervals greater than four semitones, the results depend on the type

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<sup>75</sup> See Huron, *Sweet Anticipation*, 63.

<sup>76</sup> *Ibid.*, 43.

<sup>77</sup> *Ibid.*, 74-75. See Huron's Table 5.1 showing data obtained by Boomsalter and Creel (1979) for music of Africa, America, Asia and Europe.

<sup>78</sup> *Ibid.*, 71.

<sup>79</sup> *Ibid.*, 75-76. Vos and Troost gathered data from Albanian, Bulgarian, Iberian, Irish, Macedonian, Norwegian, and African-American folk songs as well as from repertoire taken from Western Art-music. Huron supplemented this research with data from Australian aboriginal, Chinese folk, traditional Korean, Ojibway, Pondo, Venda and Zulu songs.

of music sampled. In the folk music analyzed, leaps predominantly ascend, while for the data taken from Western Art-music, interval size determines motion. For example, leaps of five semitones (perfect fourth) and those of a full octave primarily occur as upward motion, while intervals of a perfect fifth most often descend. Although not mentioned by Huron, the heavy use of various cadential schemes in Western Art-music might partly explain this result. Likewise, depending on which period of Western Art-music was sampled, the results may be skewed from adherence to counterpoint rules dating back to Johann Joseph Fux's 1725 *Gradus ad Parnassum* which prohibit melodic intervals greater than a perfect fifth, except in the case of the minor sixth, if upward, and the octave (in any direction). Additionally, the data gathered by the researchers from their sample of Western Art-music indicate an almost equal probability of motion for eight, ten and eleven semitone jumps. Considering the above counterpoint rules, we again suggest that period-related bias may have seeped into the findings.

What tone do listeners anticipate to follow a large interval? Paul von Hippel established that listeners trained in the Western Art-music tradition expect a large interval to be followed by motion in the opposite direction, irrespective of the median pitch of the melody, and listeners with no formal music training show no marked preference.<sup>80</sup> Again, this is not surprising when one accounts for knowledge of counterpoint rules recommending that all skips greater than a major third be followed by motion in the opposite direction. Therefore, listeners trained in the Western Art-music tradition, through knowledge of theory and exposure to the style, will expect motion reversal after a leap. Despite this particularity, findings obtained by Huron and von Hippel from data sets of different music genres

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<sup>80</sup> See Huron, *Sweet Anticipation*, 85.

(including from the Western Art-music repertoire) demonstrate that pitches following large intervals behave according to regression towards the mean. In other words, when leaps move away from the average pitch of the melodic line, motion returns the melody towards its mean, and when leaps approach this mean, tones continue in the same direction.<sup>81</sup> Cognizant of the post-skip reversal rule of counterpoint, the results seemed puzzling to Huron and von Hippel. Von Hippel decided to perform an extensive review of Western Art-music and found that the only composer who almost exclusively observed the post-skip reversal rule was Palestrina. All other music leaps surveyed behaved according to regression to the mean.<sup>82</sup> In another study, von Hippel queried listeners regarding expectation of continuation for small melodic intervals. He found that listeners with formal music education predict descending steps to be followed by descending steps, and they also suppose that ascending steps will continue to ascend in step-wise motion. Subjects with no (formal) music training show no marked preference.<sup>83</sup> Interestingly, von Hippel outlines that, in the music data he studied, 70% of descending steps do follow other descending steps, but no obvious trend can be seen for ascending steps.<sup>84</sup>

Shape represents another feature of melody. Ethnomusicologist Curt Sachs and others after him found that certain cultures have melodies that tend to leap upwards then tumble downward (Native American Lakota-Sioux music, Russian laments, Australian Aboriginal music).<sup>85</sup> Huron, in turn, found that 40% of melodic phrases from a survey of 6000 European folk songs had the shape of an arch, while 50% were either strictly

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<sup>81</sup> See Huron, *Sweet Anticipation*, 80. Data was obtained from European, Chinese, South African and Native American folk songs as well as from Schubert pieces.

<sup>82</sup> See Huron, *Sweet Anticipation*, 80-84.

<sup>83</sup> *Ibid.*, 78-79.

<sup>84</sup> *Ibid.*, 77-78; 95.

<sup>85</sup> *Ibid.*, 76; 86.

ascending or descending phrases.<sup>86</sup> Additionally, ascending phrases were often followed by descending phrases, creating a shape akin to that of an arch with a triangular peak. No such trend could be seen for descending phrases.<sup>87</sup> Huron also reports that convex shapes are common when the phrases are constructed of seven notes or fewer, but there tends to be the formation of two arches separated by a central dip in pitch when patterns are made of 12-notes or more.<sup>88</sup>

These findings emphasize the culture-specificity of melodic form and lead to question if this holds true for expectations of melodic motion. Bret Aarden studied these expectations and demonstrated that listeners musically-trained in Western Art-music anticipate descending intervals in the closing half of phrases but they do not expect ascending intervals in its first half.<sup>89</sup> Assuming that most students trained in the Western Art-music tradition are familiar (either through direct knowledge or through exposure) with counterpoint rules specifying that the *Cantus Firmus* must always end by movement from (what we now call) the second to the first degree, the results do not surprise. Additionally, if these same musically-trained students were exposed to Schenkerian analysis and its *Urlinie*, then the search for descending endings to phrases seems relevant. Huron describes Schenker's *Urlinie* in musical foreground as “an elaboration of one of three structural templates or scaffolds [of descending pitches].”<sup>90</sup> The first scaffold consists of three notes

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<sup>86</sup> See Huron, *Sweet Anticipation*, 86. Huron performed an extensive survey of more than 6 000 European folk songs and found that 40% of the 10 000 phrases studied had a convex contour.

<sup>87</sup> *Ibid.*, 86.

<sup>88</sup> *Ibid.*, 87.

<sup>89</sup> *Ibid.*, 77-78; 94-98. Huron provides an explanation by way of Narmour's Theory of Melodic Organization.

<sup>90</sup> Huron, *Sweet Anticipation*, 97.

(median to tonic), the second of five notes (dominant to tonic), and the last is a scaffold of the eight diatonic pitches moving downward from the octave to the tonic.<sup>91</sup>

Another element linked to melodic structure is that of phrase symmetry. Yuet-Hon Ng showed that, although listeners had no preference for the length of a first phrase, they favoured symmetric lengths in successive phrases.<sup>92</sup> The existence of and the desire for repetition in music likely accounts for this result. In a later section, we dedicate many pages to the role of repetition in forming dynamic expectations—the topic of symmetry will resurface there. (Also see Appendix D for Dynamic Expectations and Tension in Classical Style).

To summarize, by keeping successive tones close in pitch, ensuring that jumps continue their motion towards a melody's mean, using symmetric phrase lengths, following downward steps with others in the same direction, employing patterns no longer than 3-5 seconds in duration, closing phrases by descending motion, etc., all these compositional choices have the opportunity to engage participants by appealing to schematic expectations for melody.

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<sup>91</sup> See Huron, *Sweet Anticipation*, 97-8.

<sup>92</sup> *Ibid.*, 229.



Tonality and Harmony: Expectations of tonality, harmony, harmonic stability and motion also shape the listening experience. Huron's compilation mentions recognition of scale degrees, *qualia*<sup>93</sup> associated with scale degrees, goodness of fit within a tonality, and expectations tied to cadential closure.

We already discussed the findings on identification of scale degree and remarked that the fastest response times corresponded to the degrees with highest occurrence rate. As for *qualia* evoked by the different scale degrees, the small sample size (10 subjects) in Huron's study limits its purview. Further, in Chapter 4, we mentioned Deryck Cooke's *The Language of Music* which attempts to join music and emotions, and we also spoke of Patrick Juslin who pointed us to the work of Thompson and Robitaille.<sup>94</sup> We shall therefore abstain from commenting on *qualia* due to the inherent subjectivity of emotional categorization. We can, however, concur with Huron's classification of *qualia* into categories of expectations tied to certainty/uncertainty, tendency, completion, mobility and stability.<sup>95</sup> For example, and as seen previously, listeners' expectations of scale degrees match those having the highest probability of occurrence; thus, we would imagine *qualia* described as 'certainty' to correspond with the most frequently occurring degrees.<sup>96</sup>

Using data from German folks songs in a major key, Huron found that the most frequently encountered motion between scale degrees arises between tones in close

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<sup>93</sup> See Huron, *Sweet Anticipation*, 144. Huron describes *qualia* as the subjective experiences that “accompany all consciously experienced sensations, including the sensation of sound.”

<sup>94</sup> See Patrik N. Juslin, “From mimesis to catharsis: expression, perception, and induction of emotion in music,” in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 94, making reference to W.F. Thompson and B. Robitaille, “Can composers express emotions through music?” in *Empirical Studies of the Arts* 10, 79-89.

<sup>95</sup> See Huron, *Sweet Anticipation*, 145-6.

<sup>96</sup> *Ibid.*, 148-9. Bret Aarden identified that the most frequently occurring degrees in major key melodies are, in order, 5, 3, 1, 2, 4, 6, 7; for minor melodies, the order is 5, 1, 3b, 4/2, 7b, 6b, 6 and then 7.

proximity. The motion between  $\hat{3}$  and  $\hat{2}$ , as well as  $\hat{2}$  and  $\hat{1}$  feature prominently.<sup>97</sup> This data reminds us of that obtained by Boomsliter and Creel suggesting that melodies are built largely from step-wise motion.<sup>98</sup> Likewise, Huron's survey shows statistically supported directionality of tendency tones such as ( $\hat{7}$  to  $\hat{1}$ ) and ( $\# \hat{4}$  to  $\hat{5}$ ).<sup>99</sup> The pointing power of tendency tones proves vital in the compositional technique suggested here. The above findings should therefore be borne in mind for our future discussion on dynamic expectations and harmonic signifiers.

We mentioned earlier that melodic shape was culture-dependent. Research by Christa and Putra Hansen established that the determination of goodness of fit of notes within a tonality scheme depends on acculturation to the style.<sup>100</sup> Huron conveys the discovery as follows:

These results support two conclusions. First, naive listeners are sensitive to the frequency of occurrence of various tones and rate the most frequent tones [in a given melodic sequence] as best fitting. Second, listeners who are enculturated to an appropriate pitch schema experience pitch sequences as evoking some preexisting schema and judge the various tones on the basis of their frequency of occurrence in the totality of their past listening exposure rather than the frequency of occurrence in a given tone sequence.<sup>101</sup>

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<sup>97</sup> See Huron, *Sweet Anticipation*, 158-9.

<sup>98</sup> Ibid., 74-75. See Huron's Table 5.1 showing data obtained by Boomsliter and Creel (1979) for music of Africa, America, Asia and Europe.

<sup>99</sup> Ibid., 158-9.

<sup>100</sup> Ibid., 168-9.

<sup>101</sup> Huron, *Sweet Anticipation*, 169-70.

When it comes to typical chord progressions, Huron calculated statistical regularity of harmonic motion in choral works by J.S. Bach and in seventy popular songs.<sup>102</sup> Key findings in Bach's choral works show a propensity for movement from V-I, I-V and I-IV, as would be expected for works written in the Baroque period. For popular music, the most numerous chord progressions are V-I, IV-I, I-IV or IV-V, and I-V. Huron's data indicates the presence of a greater variety of chords in the pop music repertoire as compared to the Baroque sample; however, within any given pop song, fewer chords are used, and 90% of these appear in root position, while in the Baroque data, approximately two-thirds of the chords share this latter feature.<sup>103</sup> (Also see Appendix E for details on Harmonic Symmetries in Classical Style).

We have spoken of the preference for proximity. We posit that the prominence of the above harmonic progressions can be explained by way of both harmonic interrelatedness and pitch proximity. This can be understood by observing not only the motion of the roots but of what we could call *phantom motion* (i.e., perceptually induced impression of motion) in the first partials.<sup>104</sup> The creation of chords from overtones dates back well before Jean-Philippe Rameau's 1722 *Traité de l'Harmonie réduite à ses Principes naturels; divisé en quatre livres*.<sup>105</sup> In his *Traité de l'Harmonie* and his subsequent *Nouveau Système de*

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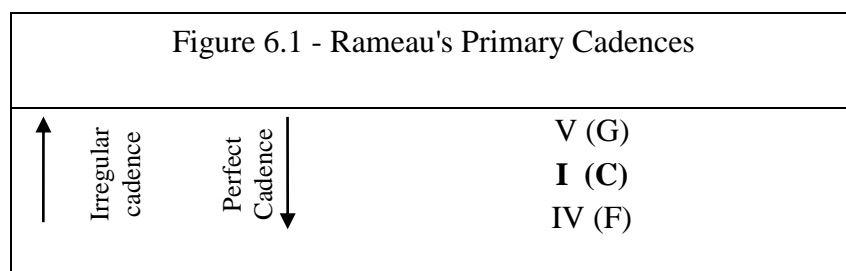
<sup>102</sup> Huron, *Sweet Anticipation*, 251; 253.

<sup>103</sup> *Ibid.*, 252.

<sup>104</sup> The fundamental together with the overtones are referred to as the *partials* or partial frequencies. The first overtone (i.e., the second harmonic or partial) is the octave, the 2nd is the perfect fifth above this octave, the 3rd is the second octave, the 4th is the major third above this second octave, the 5th is the perfect fifth above the second octave, and the 6th overtone is the minor seventh above the second octave.

<sup>105</sup> See Jean-Philippe Rameau, *Traité de l'Harmonie réduite à ses Principes naturels; divisé en quatre livres* (Paris: Imprimerie de Jean-Baptiste-Christophe Ballard, 1722), in particular 14-17. Here, Rameau corrects incorrect assumptions made by Zarlino and René Descartes.

*Musique Théorique*,<sup>106</sup> Rameau not only explicates chord formation but also motion between fundamentals. Rameau considers that a *perfect cadence* results from lowering a root by a perfect fifth, as occurs from V to I and from I to IV.<sup>107</sup> Of interest, Rameau explicitly mentions that the progression I-IV is one where the tonic is now acting as a dominant to the cadential end tone.<sup>108</sup> We are thus introduced to the concept of *harmonic function*.<sup>109</sup> Rameau calls *irregular cadence* the harmonic succession arising from upward motion of roots by a fifth, i.e., IV-I and I-V. Together, these cadences are referred to, by Rameau, as the “*cadences principales*” or *primary cadences*.<sup>110</sup>



Rameau not only describes how to construct major (and V<sup>7</sup>) chords from overtones, his *Traité de l'harmonie* also illustrates the concept of harmonic neighbours and resolution by pitch proximity.<sup>111</sup> This thought materializes when Rameau shows the overtones involved in the perfect cadence V-I (his example is G descending to C). Rameau's depiction

<sup>106</sup> See Jean-Philippe Rameau, *Nouveau Système de Musique Théorique, Où l'on découvre le Principe de toutes les Règles nécessaires à la Pratique, pour servir d'Introduction au Traité de l'Harmonie* (Paris: Imprimerie de Jean-Baptiste-Christophe Ballard, 1726), in particular 54-63 on perfect cadences.

<sup>107</sup> See Jean-Philippe Rameau, *Nouveau Système de Musique Théorique*, 38-39.

<sup>108</sup> *Ibid.*, 39.

<sup>109</sup> The concept of chord formation is also emphasized in Moritz Hauptmann's 1853 *Die Natur der Harmonik und der Metrik: Zur Theorie der Musik*, Hermann L.F. Helmholtz' 1862 *Die Lehre von den Tonempfindungen*; and tonal functions appear in Hugo Riemann's 1893 *Vereinfachte Harmonielehre oder die Lehre von den tonalen Funktionen der Akkorde*.

<sup>110</sup> Rameau, *Nouveau Système de Musique Théorique*, 38.

<sup>111</sup> Jean-Philippe Rameau, *Traité de l'Harmonie réduite à ses Principes naturels; divisé en quatre livres* (Paris: Imprimerie de Jean-Baptiste-Christophe Ballard, 1722), 57.

of this harmonic progression in *Traité de l'harmonie* resembles our Figure 6.2 below but the overtones appear as notes on staves.

For example, we see from Figure 6.2 that the mere root motion in the harmonic progression V-I results in *phantom motion* of the scale-degrees (of the tonic) going from  $\hat{4}$  to  $\hat{5}$ ,  $\hat{2}$  to  $\hat{3}$ ,  $\hat{7}$  to  $\hat{1}$ ,  $\hat{5}$  to  $\hat{5}$  and  $\hat{2}$  to  $\hat{1}$ .<sup>112</sup> Since major chords are constructed from their overtones, it is not surprising that this *phantom motion* correlates with Huron's findings for most-frequently observed successions of scale degrees when in a major key,<sup>113</sup> especially when we also compare against Huron's findings for most frequently occurring scale progressions (V-I, I-V and I-IV in Baroque music and V-I, IV-I, I-IV, IV-V and I-V in popular music).<sup>114</sup> We can also observe that, with the root motion in the V-I harmonic progression comes a reinforcement of overtones and their perceived shifting to the closest diatonic neighbor (in this case, they all lie on another octave). We thus experience perceptual motion of scale degrees even when these have not explicitly been played. Furthermore, the perception of motion between these overtones corresponds to how one would resolve the two successive root-position triads V-I.

Although motion between roots of triads that are harmonically contiguous (such as I, IV and V) can give rise to the perception of pitch proximities in their overtones, such concordance does not take place when the roots are separated by other intervals. For example, as seen in Figure 6.3, II brings with it F#, and moving roots from I-II not only fails

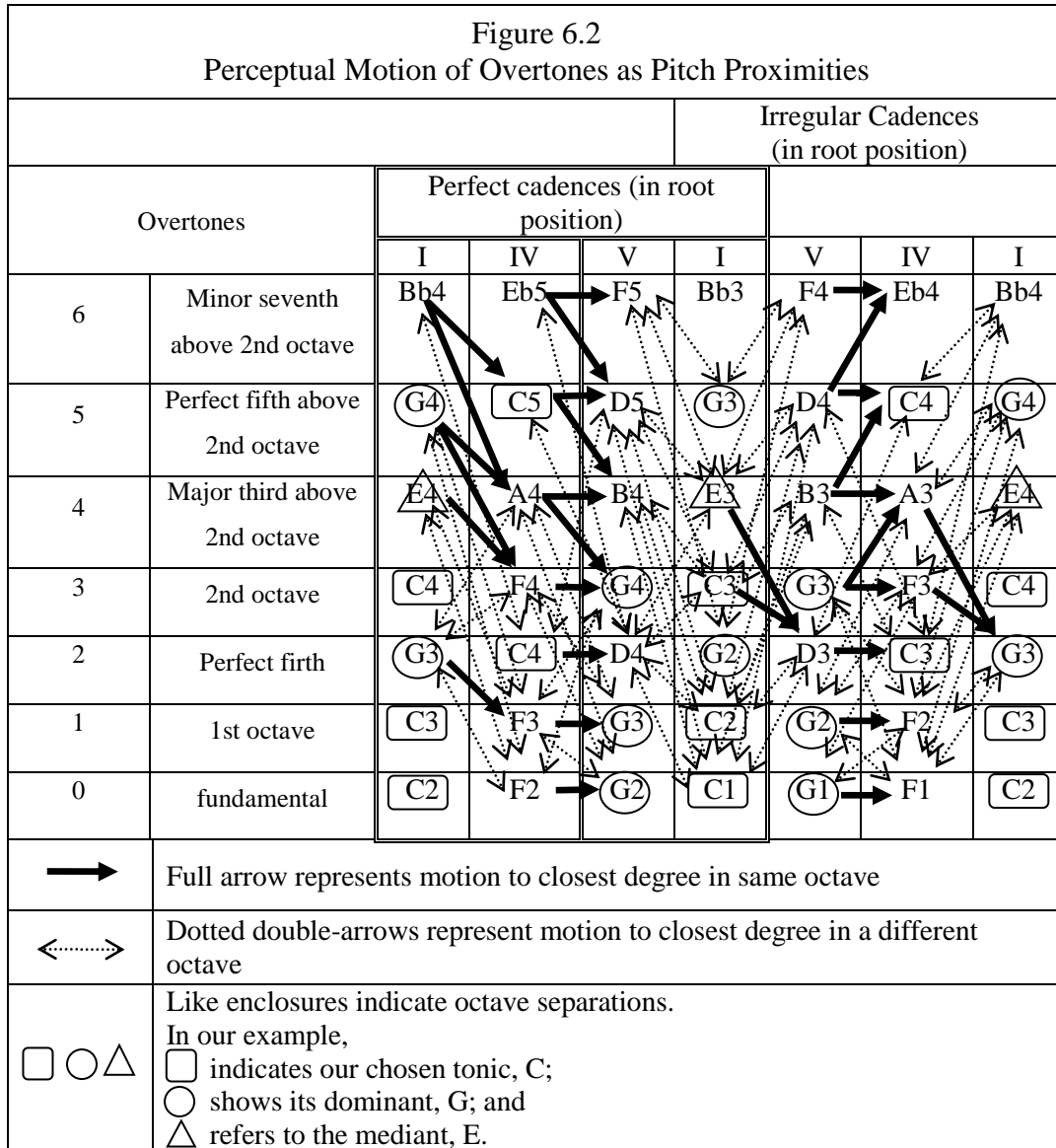
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<sup>112</sup> The correspondences are understood as approximations between just scale and equal temperament and apply to instruments with strings or wind columns, not for bells nor drums.

<sup>113</sup> Huron, *Sweet Anticipation*, 158-9. From a data set of thousands of Germanic folk songs in major keys, Huron calculated the number of appearances of melodic continuations in successive tones. The highest frequencies of occurrence correspond to motion from  $\hat{3}$  to  $\hat{2}$ ,  $\hat{5}$  to  $\hat{4}$ ,  $\hat{2}$  to  $\hat{1}$  and  $\hat{7}$  to  $\hat{1}$ , but the data also shows high occurrence of scale degree motion from  $\hat{2}$  to  $\hat{3}$ ,  $\hat{1}$  to  $\hat{2}$  and  $\hat{1}$  to  $\hat{7}$ .

<sup>114</sup> Huron, *Sweet Anticipation*, 251. Data shows that, from total number of progressions, V-I and its converse I-V are most numerous. When data is normalized for probability of its successor, the order is V-I, vii<sup>0</sup>-I, ii-V, iii-vi, IV-V, I-V, iii-IV, I-IV, IV-I, vi-V, ii-I.

to reinforce the overtones (until the sixth overtone), it creates an augmented fourth (C to F#).



This is true also for I-III because, although it reinforces one overtone, it unfortunately creates an augmented fifth. This last problem can be avoided by going into the minor mode and using iii instead of III, which produces a much smoother transition between overtones. To show concurrence with our examples, we direct to Walter Piston's Table of Usual Root

Progressions taken from his textbook *Harmony*, where Piston claims that, when in major mode, “I is followed by IV or V, sometimes VI, less often II or III.”<sup>115</sup>

Figure 6.3 - Harmonic Motion  
from I-II, I-III and I-iii

Overtones		I	II	I	III	I	iii
6	Minor seventh above 2nd octave	Bb4	C5	Bb4	D5	Bb4	D5
5	Perfect fifth above 2nd octave	G4	A4	G4	B4	G4	B4
4	Major third above 2nd octave	E4	F#4	E4	G#4	E4	G4
3	2nd octave	C4	D4	C4	E4	C4	E4
2	Perfect fifth	G3	A3	G3	B3	G3	B3
1	1st octave	C3	D3	C3	E3	C3	E3
0	fundamental	C2	D2	C2	E2	C2	E2

The residual or anticipatory motion of overtones was essential to the methods of composition of both Schoenberg and Hindemith, although their treatment of the material differs. Schoenberg's *Structural Functions of Harmony* and Hindemith's *The Craft of Musical Composition* abound with explanations as to their respective methodology. Schoenberg insisted on the strength of the tone and pitch motion, while Hindemith saw the triad as central to all music. On the importance of overtones, Hindemith writes,

Music, as long as it exists, will always take its departure from the major triad and return to it. The musicians cannot escape it any more than the painter his primary colors, or the architect his three dimensions. In composition, the triad or its direct extensions can never be avoided for more than a short time without completely confusing the listener.<sup>116</sup>

<sup>115</sup> Walter Piston, *Harmony* (New York, NY: W.W. Norton & Company, 1st ed., 1941; 5th ed. revised and expanded by Mark DeVoto, New York, NY: W.W. Norton & Company, 1987), 23.

<sup>116</sup> Paul Hindemith, *The Craft of Musical Composition - Book 1: Theory*, transl. Arthur Mendel (London: Schott & Co., Ltd., 1942. 4th ed. 1970. Copyright renewed by B. Schott's Söhne, Mainz, 1970), 22.

Ernst Toch's compositional approach, as described in his *The Shaping Forces of Music*, appears as a middle ground between the views of Schoenberg and Hindemith and more closely resembles the method presented here. Toch's reasoning is reflected in this thought:

The principle of linear writing advocates melodic independence, which involves *movement* of voices. The principle of traditional harmonic writing, by assigning each voice its predetermined place, above all by making it sustain common tones of neighboring harmonies, suppresses melodic independence. It actually enslaves the voices, especially the middle voices, into the unconditional service of the task-master, harmony; whereas recognition of their inborn urge to move makes for a healthy democracy among all voices in which harmony thrives as well as melody.<sup>117</sup>

In speaking of traditional harmony, it seems pertinent to add that in the 14th- and 15th-century, the intervals P1, P5 and P8 were deemed perfect consonances while the imperfect consonances were major and minor thirds and sixths. In first-species counterpoint, a cadential close takes place in one of two ways: with the *Cantus Firmus* below, the second-to-last interval forms a M6 with the *Counterpoint*; whereas when above, the leading-tone interval forms a m3 (Note: the *Cantus Firmus* and *Counterpoint* were to be in the same mode). In today's scale degree notation, we would say that the *Cantus Firmus* always moved from  $\hat{2}$  to  $\hat{1}$ , while the *Counterpoint* went from  $\hat{7}$  to  $\hat{1}$ . Outside of this context, however, neither  $\hat{2}$  nor  $\hat{7}$  were ever considered as 'leading' tones.<sup>118</sup> We begin to understand how tone tendencies and harmonic functions help in extending tonality as well as pointing or 'leading' to another.

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<sup>117</sup> Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form* (New York, NY: Criterion Music Corp, 1948). Reprint (New York, NY: Dover Publications, Inc., 1977), 10.

<sup>118</sup> See Johann Joseph Fux, *Gradus ad Parnassum* (Vienna: Johann Peter van Ghelen, 1725. Translated by Alfred Mann with the collaboration of John Edmunds as *The study of counterpoint from Johann Joseph Fux's Gradus ad Parnassum*. No. 277. New York, NY: W.W. Norton & Company, 1943, 2nd ed. 1965, re-issue 1971).



Continuing this discussion on cadences, we focus on the nine studies performed by Roland Eberlein and Jobst Fricke to evaluate the degree of closure associated with typical cadential material employed in different periods of Western Art-music. The researchers found that familiarity with the specific cadential formulae governs the listener's experience of closure.<sup>119</sup>

Concluding our foray into harmonic expectations, we highlight Huron's three suggested questions that guide (based on experiential learning) the decision-making process as it pertains to the tonal function of given tones and scale degrees:

(1) How frequently does this tone appear in music?

(2) How frequently does this tone complete a phrase or terminate a work? and

(3) How commonly does this tone tend to be followed by some [specific] other tone?<sup>120</sup>

To this we could add: (4) *How often does this tone appear in a prominent position of motivic and phrase contours?* Tonality and harmony can thus be imagined and compositionally constructed from pitch-based expectations in much the same way that tonality can be inferred from the goodness of fit of tones within a given pitch scheme.<sup>121</sup>

We reiterate that it is not the familiarity of an event that makes it pleasurable but the reward of having successfully guessed its arrival—"Pleasantness is directly correlated with predictability."<sup>122</sup> Consequently, to better engage listeners, a composer can opt to structure the harmonic evolution of a work according to any given stylistic norm and follow

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<sup>119</sup> See Huron, *Sweet Anticipation*, 157. Huron refers to R. Eberlein and J. P. Fricke, *Kadenzwahrnehmung und Kadenzgeschichte: ein Beitrag zu einer Grammatik der Musik* (Frankfurt am Main: Verlag Peter Lang, 1992).

<sup>120</sup> Huron, *Sweet Anticipation*, 173.

<sup>121</sup> See Huron, *Sweet Anticipation*, 174.

<sup>122</sup> Huron, *Sweet Anticipation*, 173.

customary deployment of phrases, periods, sections and movements. In absence of genre regularity, the composer can rely on tonal signaling and anchoring to create familiarity within small, medium and large sections of the work—we come back to the concept of *signalisation harmonique*. Again, this will be addressed under dynamic expectations but a revealing observation pertaining to Sonata Form deserves mention. By nature of its construction, Sonata Form actually replicates the three phases of expectation: 'motivation,' 'preparation' and 'representation/resolution.' The Exposition 'motivates' the listener to create expectations by presenting the main ideas that will be treated; the Development creates tension and instability by modifying the main thematic material through the variation of motives and harmonies, and 'prepares' the listener to expect a restoration of stability; and, closing the loop, by re-stating the main thematic ideas in their original form or in an adjusted tonality, the Recapitulation serves to fulfil the quest for 'resolution.' Equally, the typical format of many popular songs contains sections for verse, bridge and chorus, each having distinct harmonic cycles.<sup>123</sup>

As seen, composers can decide to rely on inter-opus norms for tonality and harmony or create internal repetition and anchoring as a means to generate familiarity and tap into the power of memory as an evolutionarily adaptive phenomenon of anticipation and knowledge accretion. Prior to exploring the formation of dynamic expectations, we must turn to the role of temporal schemata.

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<sup>123</sup> See Huron, *Sweet Anticipation*, 253.

Rhythm: In music, *beats* refer to equal divisions of time. Research by Herbert Woodrow, Paul Fraisse, Dirk-Jan Povel and Peter Essen established that the speed at which most people are able to keep a steady beat corresponds to a tempo of 80-100 beats per minute. When asked to produce a tempo faster than this rate, subjects decelerate towards optimal tempo. The converse also shows true.<sup>124</sup> *Tactus* is the point of maximum momentum, where the biggest drive forward exists. Usually, the *tactus* corresponds to the first beat of each bar. In comparison, *rhythm* is an intrinsic property of note grouping, harmony and texture; as such, its emphasized beats do not necessarily concord with the bar line.

Periodic rhythms are most easily felt and anticipated.<sup>125</sup> It is no surprise that Western Art-music written prior to the twentieth century and most world music is periodic, with the exception of Japanese Gagaku, Tibetan monastic music, *Aksak* meters in Bulgarian dances, and a few others.<sup>126</sup> Using Barlow and Morgenstern's *Dictionary of Musical Themes*, Huron studied data for 8356 themes taken from the Western Art-music tradition.<sup>127</sup> Time signatures for these themes clearly showed metered periodicity. Of import, two-thirds of the themes presented duple or quadruple meters, while triple or irregular meters appeared approximately one-third of the time. Also, simple meters seemed highly preponderant in comparison to compound meters (by a ratio of 6:1).<sup>128</sup>

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<sup>124</sup> See Huron, *Sweet Anticipation*, 175-6. The researchers established an optimum period length between 0.6s and 0.75s which corresponds to 80-100 bpm.

<sup>125</sup> See Huron, *Sweet Anticipation*, 175.

<sup>126</sup> *Ibid.*, 187.

<sup>127</sup> *Ibid.*, 195; 397. See Huron's chapter endnote 26.

<sup>128</sup> *Ibid.*, 195.

Although music periodicity appears in the majority of cultures, research has established that periodicity alone does not represent the most important determinant for rhythmic familiarity. Experiential learning of rhythm through exposure seems to hold that role.<sup>129</sup> For example, if dancing a waltz, a samba or a tango, knowledge of characteristic rhythmic structures will differentiate when to take each step. Successful temporal expectations of both meter and rhythm ensure fluidity of each dance. In the same way, listeners best process the most frequently encountered rhythmic patterns.<sup>130</sup> This said, for listeners trained in the Western Art-music tradition, expectations of duple or quadruple meters were, in fact, observed<sup>131</sup>

In previous chapters, we saw that music could not be separated from culture and society. It was also conjectured that language may influence motion in musical gestures. Studies have shown that long-term familiarity with the rhythmic patterns of a given language shape temporal expectations of music accordingly.<sup>132</sup> Huron sees this concordance as possibly due to the attentiveness of composers writing melodies or to acculturation by repeated exposure to the rhythmic patterns of the language:

[C]omposers of vocal music pay close attention to creating melodies that preserve the prosody of the language. This facilitates singing as well as comprehension of the vocal text. Over time, this vocal tradition establishes stylistic habits that influence the purely instrumental music as well so that all music in a given culture tends to echo the rhythmic properties of the musicians' native language. . . . A second theory is that the common rhythmic patterns evident in some language become broadly learned as a statistical auditory pattern learned by all people within that linguistic community. These patterns then influence directly all rhythmic phenomena generated by members of that community.<sup>133</sup>

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<sup>129</sup> See Huron, *Sweet Anticipation*, 190.

<sup>130</sup> *Ibid.*, 191-4. Research performed by Peter Desain, Henkjan Honing, Makiko Sadakata.

<sup>131</sup> *Ibid.*, 195. This research was the product of Renaud Brochard, Donna Abecasis, Doug Potter, Richard Ragot and Carolyn Drake.

<sup>132</sup> *Ibid.*, 189. William Malm observed relationships between Japanese speech patterns and Japanese traditional music. Aniruddh Patel and Joseph Daniele found correlations between 300 French and English instrumental melodies and their respective languages.

<sup>133</sup> Huron, *Sweet Anticipation*, 190.

As for timing of rhythmic events, recall from previous discussions that heightened alertness coincides with expected downbeats.<sup>134</sup> Huron claims,

[A]ccurate expectation facilitates action and perception. In the case of perception, accurate expectations about *when* a stimulus might occur helps the listener in resolving the *what* of perception.<sup>135</sup>

*Onset* refers to the time at which a stimulus begins. Although not explicitly performed to establish listener expectation of onset Caroline Palmer and Carol Krumhansl determined that judgement related to goodness of fit showed results biased towards those tones lying at the most prominent beats in the measure.<sup>136</sup> Also, in 1940, Maria Cadilla de Martinez collected data on Puerto Rican infant songs. From this data, Huron looked at those songs that were in 2/4 time, and discovered that the highest probability of onset coincides with the first metric position and the second highest happens at mid-measure.<sup>137</sup>

In *Emotion and Meaning in Music*, Leonard Meyer also remarks that, in Western Art-music, intensified attacks typically begin rhythmic groups while long durations tend to indicate closure.<sup>138</sup> These longer durations at the close of phrases or sections clearly affect the pace of the harmonic changes, and thus we observe a case of harmonic rhythm differing from the meter. Similarly, in “Tonal Function and Metrical Accent,” William E. Caplin reports that many past and current theorists consider that tonal functions impart a sense of structural rhythm,

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<sup>134</sup> See Huron, *Sweet Anticipation*, 177. Refer to the research by Mari Riess Jones, Heather Moynihan, Noah Mackenzie and Jennifer Puente. They presented listeners with an initial tone, eight interference tones and then a second tone. Their findings show that listeners can more accurately predict the pitch of the second tone when it matches the *tactus*.

<sup>135</sup> *Ibid.*, 177-8.

<sup>136</sup> *Ibid.*, 179.

<sup>137</sup> *Ibid.*, 178.

<sup>138</sup> See Meyer, *Emotion and Meaning in Music*, 107. Also see Huron, *Sweet Anticipation*, 197. Huron attributes this finding to Herbert Woodrow and also mentions supplemental research by F. Lerdahl and R. Jackendoff.

One of the most interesting and contentious issues in modern music theory concerns the way in which functional harmonic progressions relate to the metrical organization of music. . . . An investigation into the history of this controversial problem reveals that a number of prominent theorists in the eighteenth and nineteenth centuries also believed that tonal function and meter directly interrelate. Within the writings of Jean-Philippe Rameau, Georg Joseph (Abbé) Vogler, Simon Sechter, Moritz Hauptmann, and Hugo Riemann, we can find important statements positing a definite connection between tonic harmony and metrical accent.<sup>139</sup>

In the same article, Caplin says that Rameau considers chords on the metric downbeat to be most often associated with the role of the tonic, while those on the upbeat are perceived as having a dominant (or subdominant) function, and adds that Rameau recommends placing the chords that correspond to the target tonality directly on the metric downbeat. Caplin also notes that Georg Joseph (Abbé) Vogler, similarly to Rameau, suggested that harmonic strength and weakness should match metric strong and weak beats, respectively. Riemann, alternately, tied metric accent to dynamics. Caplin describes Riemann's concept with these words: "the metrical motive contains a fluctuation in tonal intensity characterized by a crescendo to a 'dynamic climax' and a subsequent decrescendo."<sup>140</sup> Caplin concludes his article by sharing that, although no consensus was reached by these past theorists and the issue is still debated today, the fact remains that a causal link between harmonic functions and metric accent does exist, even if elusive. Therefore, recalling the research findings of Eberlein and Fricke who determined that acquaintance with cadential endings dictates schematic experience of closure,<sup>141</sup> we can well imagine that these expectations also include an associated rhythmic structure.

For Arnold Schoenberg, harmonic placement contributes greatly to the effectiveness of the cadential function, but the indescribable nature of the association pushes him to state,

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<sup>139</sup> William E. Caplin, "Tonal function and metrical accent: A historical perspective," *Music Theory Spectrum*, Vol. 5 (Spring 1983), 1; 2.

<sup>140</sup> Caplin, "Tonal function and metrical accent," 11.

<sup>141</sup> Huron, *Sweet Anticipation*, 157.

“One could at most only attempt to organize according to general features the numerous, the countless ways in which harmony and rhythm relate to each other. I doubt whether any unifying principle could result from such an attempt.”<sup>142</sup>

Schoenberg considers that melody and rhythm are sufficient to yield a sense of cadential close, whereas harmony alone is ill-suited to the task. In fact, there are innumerable ways in which musicians can shape rhythmic relations. Jan LaRue in his *Guideline for Style Analysis* speaks of the “layers of rhythm” as “three layers of action: the *continuum* or metrical hierarchy, the duration arrangements or *surface rhythm*, and the interactions with Sound, Harmony and Melody.”<sup>143</sup> Contributing elements may be found in the attached Appendix F - Jan LaRue's Guidelines for Style Analysis: SHMeRG, but to list a few, we suggest that stretches in tempo, ostinatos, interfering patterns of dissimilar rhythms, timing between significant harmonic events, duration between chord changes, harmonic direction and modulation in sections or between movements, stability or contrast, etc., all impart temporal influence. The last two elements remind us of Stravinsky's quote on temporal stretching found at the beginning of this chapter and inspire us to pursue our exploration on the importance of expectations.

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<sup>142</sup> Arnold Schoenberg, *Harmonielehre* (Vienna: Universal Edition, 1911; 3rd ed. 1922, translated by Roy E. Carter as *Theory of Harmony* (Berkeley, CA: University of California Press, 1978, paperback ed. 1983), 202.

<sup>143</sup> Jan LaRue, *Guidelines for Style Analysis* (New York, NY: W.W. Norton & Company, 1970; expanded 2nd ed. with *Models for Style Analysis, A Companion Text*, Marian Green LaRue ed., Sterling Heights, MI: Harmonie Park Press, 2011), 90.

As with melody and harmony, the composer and performers can take advantage of schematic expectations for temporal relations, both localized and on hypermetric dimensions. Such anticipatory rewards can be fostered through periodic rhythms created from sound sequences no longer than 5s, the use of a conventional meter, the presence of sections at optimal tempo (80 bpm), the synchrony of rhythmic gestures with a given language, the placement of significant melodic and harmonic events on strong beats, the adjustment of pace prior to an important statement, etc.

Having illustrated that long-term memory shapes the musical experience, we turn to the discovery of how short-term memory accounts for the creation of expectations.

### Dynamic Expectation - Repetition as Norm, Anchor and Signifier

Memory is experience, and with experiential learning comes expectation. Veridical expectations, it was seen, materialize with repeated exposure to a given work, whereas schematic expectations originate from inter-opus acculturation. How can we tap into short-term memory's dynamic expectations, and why?

In *Emotion and Meaning in Music*, Meyer claims,

[W]ithout a set of gestures common to the social group, and without common habit responses to those gestures, no communication whatsoever would be possible. Communication depends upon, presupposes, and arises out of the universe of discourse which in the aesthetics of music is called style.<sup>144</sup>

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<sup>144</sup> Meyer, *Emotion and Meaning in Music*, 42.



In absence of stylistic familiarity, every listening experience becomes a separate and novel event. For some, the lack of similitude with other works and the void left from not being able to anticipate can rapidly progress to detachment from the material presented while, for others, the innovations may awaken curiosity, interest and bewilderment. For example, because no single style unites serial or transcendental music, many people encounter difficulties listening to such works. Meyer argues that “Each piece of serial music essentially established its own set of grammatical-syntactic rules and operations.”<sup>145</sup> That, in itself, does not present a problem but it sidesteps schematic expectations and allows only for veridical and dynamic ones. Recall from our earlier discussion that veridical expectations come from repeated exposure to a given work. We spoke of private concerts, increased rehearsals and other means to enhance the “guided accustomization” referred to by Schenker. Other than through these veridical expectations, and in absence of inter-opus schematic expectations, how do we incite the formation or intensification of expectations within a piece? Oliver Sacks suggests a very promising avenue, “We are attracted to repetition, even as adults; we want the stimulus and the reward again and again, and in music we get it.”<sup>146</sup>

In Chapter 5, we saw from Cohen's article how listeners could create their own internal references of style when musical events are ordered and repeated, as in the highly complex work of Olivier Messiaen used in the study. This implies that, in the absence of generalized styles or conventions, a punctual stylistic norm can be established through structure and repeated exposure.

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<sup>145</sup> Meyer, Leonard B., *Music, the Arts and Ideas: Patterns and Predictions in Twentieth-Century Culture* (University of Chicago Press, Chicago, 1967), 279.

<sup>146</sup> Oliver Sacks, *Musophilia*, 47.

A composer's continued adherence to their chosen compositional methods becomes their normalized style. Said differently, with additional works composed using similar norms, a style develops. If many composers adopt the same tools, stylistic referencing between them becomes possible. In both cases (one composer or many), the creation of schematic expectations can ensue from the repeated exposure to the same stylistic norms.

Huron purports,

Few musical works exist that don't follow some important musical conventions. The vast majority of works employ familiar instruments, use a familiar scale, follow a familiar meter, play familiar harmonies, and conform to a familiar style.<sup>147</sup>

Now, since LaRue's informative *Guideline for Style Analysis* will provide structure to our approach, his definition of *style* merits consideration:

[T]he style of a piece consists of the predominant choices of elements and procedures a composer makes in developing movement and shape (or perhaps, more recently, in denying movement or shape). By extension, we can perceive a distinguishing style in a group of pieces from the recurrent use of similar choices; and a composer's style as a whole can be described in terms of consistent and changing preferences in his use of musical elements and procedures. Even more broadly, common characteristics may individualize a whole school or chronological period.<sup>148</sup>

A more concise version of this thought appears in Magnar Breivik's *Musical Functionalism*:

“What began as a procedure, usually in refreshing opposition to yesterday's conventions, becomes a style.”<sup>149</sup>

Chapter 7 delves into the specifics of how to create intra-opus norms which, when sufficiently utilized, may lead to an eventual style. For now, we revisit Sacks' assertion that the reward of repetition appears to be a potent intrinsic desire. This brings us to the fascinating book *Repeating Ourselves* by Robert Fink.

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<sup>147</sup> Huron, *Sweet Anticipation*, 242.

<sup>148</sup> LaRue, *Guidelines for Style Analysis*, xxv.

<sup>149</sup> Magnar Breivik, *Musical Functionalism*, xiv.

Fink's multi-disciplinary manuscript presents cogent arguments linking repetition in minimalistic contemporary music to consumerism. Fink describes his central thesis as follows:

[T]he most recognizably “minimal” contemporary music is actually maximally *repetitive* music, and that as a cultural practice, this excess of repetition is inseparable from the colorful repetitive excess of postindustrial, mass-mediated consumer society.<sup>150</sup>

We cannot render justice to *Repeating Ourselves* within these pages but its reading has prompted many reflections and even our exploration into the works of Jean Baudrillard. Although Fink's research takes a different orientation from ours, what interests us for the topic at hand is the need for this (sometimes incessant) repetition as both a driving force and a pacifier.

Fink alleges that overt availability and redundancy of capitalist modernity timed with 1950's technological advances such as techno-music's feedback loop contributed to shaping the desire for excessive replication and creating what Fink terms “the culture of repetition.”<sup>151</sup> More pointedly, Fink articulates his main argument by proposing that “The mercantile sublime is a structuralist postmodern sublime, and in late-twentieth-century music it is the unique province of pulse-pattern minimalism.”<sup>152</sup> Fink builds his case by comparing the advertising method of media “pulsing” to the repetitive pulsing found in minimalist music.<sup>153</sup> In this association, Fink finds the element he was striving to discover

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<sup>150</sup> Robert Fink, *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley, CA: University of California Press, Ltd., 2005), x.

<sup>151</sup> *Ibid.*, 4.

<sup>152</sup> *Ibid.*, 103.

<sup>153</sup> *Ibid.*, 142-3. “Pulsing” is created in media when a base-line level of repetitive advertisement is done in cycles (i.e., with periods of absence between stimuli) and where bursts of additional exposures are added to create a slowly increasing baseline.

and states, “*Pulsed repetition turns out to be the key structural trope of both process music and modern advertising campaigns.*”<sup>154</sup> (Italicized emphasis by the author)

The last item we unfurl from Fink's insightful pages suffices in supporting our justification for tapping into the powers of repetition. Fink argues,

The clear patterning and predictable cycles of minimalism can have a mood-regulating effect that goes far beyond the simple warding off of distraction; often there is a strong positive emotional charge.<sup>155</sup>

Fink evokes the words of Susan McClary and Elisabeth LeGuin to illustrate this point. In describing Janika Vandervelde's *Genesis II*, McClary renders this impression: “the completion of each cycle yields a sense of satisfaction and security.”<sup>156</sup> Similarly, Elisabeth LeGuin considers that minimalist mood regulation “provides a sense of comfort and safety.” She adds,

With the sense of safety can come pleasure, of the mild diffuse variety—intense pleasure being just as disruptive as fear—and relaxation of mental focus. . . . So: a safe 'place' to be; a 'place' where one is pleasantly relieved of the necessity of having to focus.<sup>157</sup>

We have only to think of the soothing continuation of meditational drones or of the comfort the infant finds in being rocked or in fixating on a rotating mobile to see how the evolutionarily adaptive mechanism of predictability arising from repetition (and cyclical events) brings repose through familiarity. This notion should now ring 'familiar' from our review of Huron's extensive work.

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<sup>154</sup> Fink, *Repeating Ourselves*, 143.

<sup>155</sup> *Ibid.*, 204.

<sup>156</sup> *Ibid.* Fink quotes McClary from Susan McClary, *Feminine Endings: Music, Gender, and Sexuality* (Minneapolis: University of Minnesota Press, 1991), 118-19.

<sup>157</sup> *Ibid.* Fink quotes LeGuin from Elisabeth LeGuin, “Uneasy Listening,” *repercussions* 3, no.1 (Spring 1994): 6.

Repetition as Norm: In presence of a wide number of genres and styles and the conceivable dilution of folkloric tales, we posit that repetition embodies the comfort of familiarity. We have explicitly stated that frequency of exposure facilitates comprehension by helping listeners memorize and recognize clues left along the way. Repetition encompasses any symmetry or reoccurrence of material, either melodic, motivic, thematic, rhythmic, harmonic, structural, etc. It does not need to be exact for an impression to be held in memory since associations are easily formed through similarities.

Statistically speaking, repetition augments the probability of occurrence of an event; therefore, it increases the likelihood of its successful anticipation and of the ensuing satisfaction. Meyer declares that “probability is one of the central facts of style.”<sup>158</sup> Relying on information-theory, Annabel J. Cohen, in turn, remarks that the limited choices offered by the diatonic scale increase redundancy and, hence, predictive success:

In applying the concept of information measurement to music, notice first that most music compositions typically contain only a few discrete tones (or chroma) in an octave—only seven in the major scale, twelve in the chromatic scale—compared to the infinite continuum of available frequencies. Secondly, for any typical piece of music, tones are not equiprobable. Some tones occur more frequently or for longer than others. Therefore, theoretically, musical sets of sounds have relatively less uncertainty than if there were (a) more notes in the scale and (b) equal-probability of presentation of the notes. In short, music is redundant and listeners can take advantage of this redundancy.<sup>159</sup>

If probability of occurrence lies central to style, then one can easily appreciate Meyer's suggestion that “Tonality is probably the most important single facet of style.”<sup>160</sup> In other words, emphasis or repetition of tones or tonally relevant material aids in the establishment or acculturation to a style.

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<sup>158</sup> Meyer, *Emotion and Meaning in Music*, 55.

<sup>159</sup> Cohen, “Music cognition,” 70.

<sup>160</sup> Meyer, *Emotion and Meaning in Music*, 138.

Anchors and Signifiers: Anchors create repetition through hovering and compel by an effect comparable to periodicity's allure. Signifiers point ahead and generate dynamic expectations of continuation.

Anchoring can serve to enhance stability through the comfort of familiarity. In this case, hubs or *repères* can serve as reference points. Cohen's article in *Musical Communication* directs to research on absolute pitch indicating that, when a reference tone is provided, memory of subsequent pitches is greatly enhanced. Anchoring, it seems, facilitates memory. Cohen perspicaciously infers, "Tonality could then well be a prominent feature of music because it is adaptive to the memory constraints of [the] mind."<sup>161</sup>

On anchors, Meyer cautions nonetheless against taking a static approach in understanding the music process. For example, Meyer contends that Schenkerian analysis tends to put too much emphasis on local or static events to the detriment of musical relationships evolving over time:

The criticisms of the disciples of Schenker should by no means be understood as a wholesale condemnation. . . . The criticisms are directed merely against those aspects of the theory that tend to treat a musical composition as a thing instead of as a process which gives rise to a dynamic experience.<sup>162</sup>

Likewise, Meyer rejects the notion of chord prolongations and prefers instead to treat these as anticipations.<sup>163</sup> Although Meyer's approach has merit, there are cases where a composer will wish to extend a harmonic palette as an anchor, yet others where pointing to an upcoming modulation or focal area gives direction to a gesture—this is what we call a *signifier*, to return to Baudrillard's terminology introduced in Chapter 4.

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<sup>161</sup> Cohen, "Music cognition," 78.

<sup>162</sup> Meyer, *Emotion and Meaning in Music*, 54.

<sup>163</sup> See Meyer, *Emotion and Meaning in Music*, 52-3.

Robert Francès' *signalisation harmonique* offers a close comparison to how signifiers are viewed in the current compositional method. Signaling can be achieved by emphasizing tones, climactic points, motives, phrases, complete voices, rhythmic kernels and even underlying harmonies. As such, the knowledge gained in studying primitive perception and auditory streaming proves crucial to our undertaking.

These anchors and signifiers solidify a composition's architectonic structure. As early as the Baroque period, composers readily utilized such devices in the form of basso continuo, inverted pedal points, ostinato, sequences, long-range rhythmic and harmonic periodicity, etc.

Now that we have surveyed the three types of expectations (veridical, schematic and dynamic) and seen the underlying mechanisms contributing to stability via familiarity and predictability, when does repetition simply become too much? In *Repeating Ourselves*, Fink informs us that, in the early 1970s, Herbert Krugman investigated advertising efficiency and determined that the optimal number of times an advertisement should be repeated was three (3); Fink also shares that later studies identified an optimal exposure frequency of 3-5 repetitions before centering on the approach of pulsing discussed previously.<sup>164</sup> Without attempting to determine an exact figure, we remain aware of the risk of saturation leading to boredom. As explicitly stated by Francis Hutcheson in 1725, “The figures which excite in us the ideas of beauty seem to be those in which there is uniformity amidst variety.”<sup>165</sup>

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<sup>164</sup> Fink, *Repeating Ourselves*, 138-9.

<sup>165</sup> Ian Bent, *Music Analysis in the Nineteenth Century*, vol. 1 (Cambridge University Press, Cambridge, 1994), 12. Bent quotes Hutcheson from Francis Hutcheson, *An Inquiry into the Original of our Ideas of Beauty and Virtue* (London: J. Darby, 1725, 4/1738), Treatise I, section 2, in Le Huray/Day, 24.

We have returned to this chapter's main premise—the mind's incessant need for stability, variety and closure. We now investigate tension and contrast in the form of ambiguity, delay and surprise before proceeding to a few words on closure.

## Tension and Surprise

Meyer suggests that affective response can be heightened after temporarily being arrested. This tension, or tension response in Huron's ITPRA Theory of Expectation model, is described as the “pre-outcome limbic reaction that arises from changes in arousal and attention, in preparation for some expected event.”<sup>166</sup>

We know from our previous discussions that when predictive anticipation concurs with outcome, good or bad, this yields expectation's reward. Predictive uncertainty or failure, on the other hand, temporarily or completely inhibits affect. In other words, when expectations get delayed or confused, tension builds, and when expectations get derailed completely, there is surprise. If tension turns to delayed gratification, all is good in the world of anticipation but, if left unmet, it meets disappointment or frustration.

Surprise, although a predictive failure, can result in a 'pleasant surprise' or, unfortunately, fall in the category of those that make us frown, pout or scramble for salvation. The psychological effect behind happy surprises comes from *contrastive valence* or limbic contrast. Huron explains the concept this way,

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<sup>166</sup> Huron, *Sweet Anticipation*, 305.



How we ultimately feel about an event is not simply tied to an appraisal of some absolute benefit or penalty associated with that event. Our feelings also seem to depend on limbic contrast. . . .Throughout history, sages have recognized that pleasure is enhanced by contrast: happiness is not so much a state of being as it is a state of becoming.<sup>167</sup>

For the purpose of facilitating this exploration into predictive delay and failure, we differentiate tension from surprise. We begin with tension.

Tension in Ambiguity and Delay: At the beginning of Chapter 5, we stressed the human mind's need for structure and order. Confusion, ambiguity and conflict run contrary to this predisposition, as they unsettle and create tension. Any obstruction of veridical, schematic or dynamic expectations a listener brings to the musical experience will result in tension. Huron maintains that, the stronger these expectations and the longer the duration of tension, the greater the pleasure when tension is released; this is especially true when the music is stereotypical.<sup>168</sup>

Expectations of repetition, symmetry or periodicity in either motivic, thematic, harmonic or rhythmic material, as well as in any relationship across texture and structure can lead to tension when these are made ambiguous. Also, any deviation from long-term accustomization to pitch proximity, end-phrase melodic descent, typical harmonies, onset matching meter, etc., will diminish predictive confidence. Equally, this will occur with an inconsistent rendition of a known work.

An obvious way to compose tonal ambiguity is by the addition of long chromatic passages. Increasing the total number of tones presented reduces the probability of predictive success and thus obscures the location of a tonal centre. The same can be said of

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<sup>167</sup> Huron, *Sweet Anticipation*, 25.

<sup>168</sup> *Ibid.*, 365.

the increased palette of the minor mode. Minor modes sound ambivalent because they, in fact, offer a greater number of possible tonalities.<sup>169</sup> Perhaps the instability, pull or yearning that so often accompanies music written in the minor mode not only arises from the increased tension due to the greater disparity in harmonic partials<sup>170</sup> but also from the plurality of choices. Deryck Cooke in the *Language of Music* speaks of the minor mode's ambiguity and yearning as follows:

[T]he *degree* of emotion expressed by a particular note depends on volume, time, and intervallic tensions. Hence, if the minor third 'looks on the darker side of things' this may function as tragedy, as stoic acceptance, as sternness; or to a lesser degree, as gravity, soberness, seriousness. No one would deny that it is possible to experience a grave, sober, or serious pleasure; and herein enters the ambiguity. . . . Serenades are very often in the minor system and . . . may be taken as expressing the lover's pangs, the desire which is a pain to him until it is satisfied. . . a composer does not express pleasure or pain simply by using the major or minor system, but by bringing forward and emphasizing certain tensions in these systems, in certain ways. This emphasis and these ways derive entirely from the use of the vitalizing agents—volume, time and intervallic tensions.<sup>171</sup>

Augmented and diminished chords present another anticipatory challenge. Because they involve equidistant intervals, they remove any sense of triadic anchoring by means of the dominant.

Ambiguity can also reside in a lack of rhythmic, harmonic and melodic distinction or in an intentional interference with continuity. Bregman's research found that polytonality, for example, can give rise to a virtual "counterpoint of keys" (an expression used by Walter Piston and picked up by Bregman)<sup>172</sup> or turn into a compound sound. Of import, Piston devotes a section of *Harmony* to a discussion on the construction and effects of polychords

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<sup>169</sup> See Cohen, "Music cognition," 70.

<sup>170</sup> When in major mode, the third degree corresponds to one of the lowest harmonic partials, as the major third is the 5th partial. The minor third and the lowered sixth occur much later in the harmonic series, as the minor sixth is the 13th partial and the minor third occurs as the 19th partial.

<sup>171</sup> Deryck Cooke, *The Language of Music* (New York, NY: Oxford University Press, 1959, reprint 2001), 90-91; 93; 94.

<sup>172</sup> Bregman, *Auditory Scene Analysis*, 524. (See Piston, *Harmony*, 512.)

and polytonality in the works of Mahler, Stravinsky, Wagner, Poulenc, Ravel, and others.<sup>173</sup> Bregman also remarks that asynchrony of onsets and offsets in a polyrhythmic passage can encourage the formation of a composite rhythm or result in stream segregation.<sup>174</sup> Piston suggests that the composers' use of staggered onsets of tonal areas as well as tonal anchoring by means of a pedal, an ostinato or a point of accentuation aid in the aural separation of polytonal events.<sup>175</sup> (We have suggested that similar devices be utilized in the composition method under study). Piston's observations predate Bregman's findings on pre-conditioning, preparation and expectation of continuation through masking.<sup>176</sup> On the use of ostinato, Bregman remarks that "The repetition has the effect of perceptually unifying the repeated sequence;"<sup>177</sup> he calls upon the work of music theorist C.W. Fox where the latter explains,

A prepared ostinato, some or all of the notes of which conflict harmonically with the other voices, is the clearest example in modern music of a prepared melodic unit. . . . If a melody, short or long, is repeated immediately even only once, it may be segregated as an independent line against the other voices.<sup>178</sup>

In both harmonic and rhythmic differentiating of individual parts, tension will ensue, as opportunities for simultaneity will be sought. We understand from this that both under-differentiating and over-differentiating can increase tension. As with dialogism's central concept of ground vs. background and Gestalt psychology's stimulus differentiation, pattern perception in music depends on a balance of individual and group delineation. On this, Meyer insists,

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<sup>173</sup> See Piston, *Harmony*, 509-526.

<sup>174</sup> See Bregman, *Auditory Scene Analysis*, 523.

<sup>175</sup> See Piston, *Harmony*, 512-3; 531.

<sup>176</sup> See also Bregman, *Auditory Scene Analysis*, 516.

<sup>177</sup> Bregman, *Auditory Scene Analysis*, 514.

<sup>178</sup> Bregman, *Auditory Scene Analysis*, 515. Bregman quotes C. W. Fox, "Modern counterpoint: A phenomenological approach," *Notes*, 6 (1948), 52.

One of the absolute and necessary conditions for the apprehension of shape, for the perception of any relationships at all, no matter what the style, is the existence of both similarities and differences among the several stimuli which constitute the series under consideration. If the stimuli comprising the series cannot be perceived as being similar in any respect whatsoever, then they will fail to cohere, to form a group or unit, and will be perceived as separate, isolated, and discrete sounds, "signifying nothing." . . . Complete similarity, proximity, and equality of stimulation, on the other hand, will create an undifferentiated homogeneity out of which no relationships can arise because there are no separable, individual identities to be contrasted, compared, or otherwise related. . . . it is not enough that differentiation and unification simply exist. The articulation must be sufficiently marked and salient relative to the context in which it appears to be noticed.<sup>179</sup>

From the above we infer that, by purposefully blurring the boundaries between voices, musical events and tonal areas, we can instill ambiguity leading to tension. Meyer praises the benefits of the tension brought upon by such ambiguity when he exclaims,

[S]ome of the greatest music is great precisely because the composer has not feared to let his music tremble on the brink of chaos, thus inspiring the listener's awe, apprehension, and anxiety and, at the same time, exciting his emotions and his intellect.<sup>180</sup>

Meyer perceptively alludes to complex texture as “the co-existence of several independent, well-articulated figures.”<sup>181</sup> This calls to mind the premise of a dialogical composition, where balanced dialogue is achieved through the continuous exchange between strong individuality and unity, between distinctness and cohesion. As such, sections of disjoint music dialogue create necessary tension expanding the boundaries of the common voice. Deborah Stein's informative article “Introduction to Musical Ambiguity,” in her compendium *Engaging Music*, looks at such tonal, pitch and rhythmic-metric ambiguities in the works of Schumann, Brahms and Bartók. She also alludes to another form of ambiguity—that which lies in contrasting moods or conflicting affective qualities. Stein begins her discussion with,

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<sup>179</sup> Meyer, *Emotion and Meaning*, 157-58; 158-59.

<sup>180</sup> *Ibid.*, 161.

<sup>181</sup> *Ibid.*, 185.

Composers embrace musical ambiguity in every domain of musical structure and for all sorts of reasons. Sometimes a non-musical element such as a poetic text (in an art song) or a drama (in an opera or ballet) suggests a need to express conflict or ambivalence or some sort of struggle or confusion. Other times, in music not associated with any external element (what is called “absolute” music), a composer wants to create tension and drama for its own sake: for heightened expressivity and musical intensity.<sup>182</sup>

Meyer, in turn, recognizes that John Dewey, R.P. Angier and psychoanalysts such as J.T.

MacCurdy found that such ambivalence and conflict can arouse tension response,

[T]he concept of conflict through the opposition of simultaneously aroused conflicting tendencies may be regarded as a special and more complicated case of the arrest of a tendency. . . . Furthermore, it should be noted that uncertainty and lack of clarity may be products not only of conflicting tendencies but also of a situation which itself is structurally confused and ambiguous. This is of capital importance because it indicates that a situation which is structurally weak and doubtful in organization may directly create tendencies toward clarification.<sup>183</sup>

In *Music and Sentiment*, Rosen shares that Haydn (and others after him) created “dramatic contrast” by stating thematic material in “two different realizations with opposed affective significance.”<sup>184</sup> This method of differentiation became so prominent that, with the myopia of a gendered approach, first and second subject (or principal and subordinate themes) became known as 'male' and 'female'. Christopher Small cynically describes this meta-narrative as the domination of the “strong” (male) over the “aberrant” (female) key,

[O]rder is established, order is disturbed, and a new order is established that grows out of the old. Typically, in a symphony the initial order is established with a strong, perhaps aggressive, even heroic gesture that establishes strongly the tonic key. It is this order that is disturbed by the establishment of an aberrant key, presented generally in the form of a softer, more lyrical gesture (older analysts often actually called them the masculine and feminine subjects). . . . The climax of the piece comes with a powerful restatement of the initial theme, which restores also the tonic key. The more lyrical theme comes dragged after it, now also in the tonic key. Order is restored, the aberrant safely contained, if not totally vanquished, by the logical.<sup>185</sup>

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<sup>182</sup> Deborah Stein, ed., “Introduction to Musical Ambiguity,” in *Engaging Music: Essays in Music Analysis* (New York, NY: Oxford University Press, Inc. 2005), 78.

<sup>183</sup> Meyer, *Emotion and Meaning*, 15; 16.

<sup>184</sup> Rosen, *Music and Sentiment*, 60.

<sup>185</sup> Christopher Small, *Musicking*, 164.

Scott Burnham exposes these dynamics in his “A.B. Marx and the gendering of sonata form.” Burnham has the displeasure of attributing this horrid approach to a treatise on musical composition by A.B. Marx. Burnham cites the exact passage where descriptions of main and subordinate themes are shown, and then asserts,

These sentences describe, in metaphorical terms, the relation of first and second themes in sonata form. . . . Priority is definitely granted to the first thematic formation, the masculine, which is said to lead and determine. From this it is but a small step to understanding the sonata-form plot as one of subjugation and repression, whereby a feminine element is targeted as the Other and then predictably assimilated (to use only the most euphemistic term) into the world order of the masculine subject.<sup>186</sup>

Small extends this critique to opera,

From its beginnings opera has concerned itself primarily with two intertwined themes. The first is that intractable mixture of the sexual and social that today we call the relations of gender, and the second is the fate of heroic and often aberrant individuals who threaten to disrupt the social fabric. These two themes are intertwined, since those who step out of their socially assigned sexual role, whether they be male or female, are always taken to constitute a threat to social order.<sup>187</sup>

Both Burnham and Small direct to Susan McClary's *Feminine Endings* for a thorough look into gender relations in music.

If *musicking* is, indeed, about expressing relationships and how one wishes to see the world, then these power dynamics have no place in a dialogic composition. Tension can certainly be crafted as a *dénouement* of excitement and discovery instead of one of violence or dominance.

With this thorough look at ambiguity, we proceed to investigating how delay also features as a type of tension. In our categorization of delay, we include both anticipatory

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<sup>186</sup> Scott Burnham, “A.B. Marx and the gendering of sonata form,” in *Music Theory in the age of Romanticism*, ed. by Ian Bent (Cambridge, MA: Cambridge University Press, 1996), 163-64.

<sup>187</sup> Christopher Small, *Musicking*, 148.

contracting and stretching. To explicate the first category we need only think of the evocative tension in the aptly named *anticipation*.

An *anticipation*—the musical gesture not the feeling of expectation—is a type of signifier (to refer to our earlier discussion) that is placed before its expected and 'official' arrival. It serves as a pre-emptory announcement, teasing or leading into an event. The *anticipation* in Western Art-music can often be found as part of an authentic cadence V-I where the tonic is played on a weak beat against the dominant harmony. By playing the tonic against the V-chord, this creates a dissonance (especially prominent when V is in its second inversion) that invites both the reoccurrence of the tonic and its consonant resolution as the cadential end. Similarly, a *suspension* creates a dissonance that seeks to be resolved but it begins on a strong beat as a consonance, it then becomes dissonant because of underlying harmonic motion, and resolves into a consonance.

Another example of delayed action is the placement of a silence where a significant event was expected to occur. Huron gives the example of a “pop fill” where a drummer interrupts all (or nearly all) action before returning to the established rhythm. Huron compares this sustained action to the V-I anticipation and declares, “In effect, the pop fill is the hypermetric equivalent to the melodic anticipation.”<sup>188</sup>

We lump anticipatory signifiers and delays together because we consider both as temporal contractions, shifts or stretches into the previous or subsequent beat, bar or section. It's only a matter of relativity or perspective. The tone, harmonic or rhythmic event is heard as an anticipation but the lagging resolution seems like a delay. Upbeats, grace notes,

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<sup>188</sup> Huron, *Sweet Anticipation*, 249.

appoggiatura, acciaccatura, glissandi, trills, turns, etc., all induce similar tension-building temporal manipulations.

Huron claims that the *anticipation* “is the quintessential expectation-related embellishment.”<sup>189</sup> This statement motivates an interjection on terminology such as *embellishment*. Schoenberg vehemently opposes the term *non-harmonic tone* because he views all tones as derived from the totality of partials, not merely the first ones. He states, “Non-harmonic tones are merely those that the theorists could not fit into their system of harmony.”<sup>190</sup> In the same way, we would prefer discarding the terms *embellishment* and *ornamentation* because we do not consider them ancillary. For example, neighbor tones and trills add ambiguity by hovering, anticipations and suspensions contribute to temporal shifting, and passing tones can, at times, carry a structural function. These so-called 'ornaments' are no mere decoration, they occupy an essential role in a work's structure and sense of direction. Meyer professes,

Since the affective quality of the whole is conditioned by that of its parts, the smaller delays in continuity must also be examined. These take the form of those devices that are generally discussed under the subject of ornamentation. . . . Ornaments are of the essence of music.<sup>191</sup>

Unfortunately, twentieth-century functionalism might have encouraged the disappearance of ornamentation because it failed to recognize the structural functionality of such tones. Magnar Breivik in *Musical Functionalism* proclaims that functionalism's motto is “Form must follow function.”<sup>192</sup> He proceeds this in later pages with,

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<sup>189</sup> Huron, *Sweet Anticipation*, 308.

<sup>190</sup> Arnold Schoenberg, *Harmonielehre* (Vienna: Universal Edition, 1911), third ed. 1922, trans. Roy E. Carter as *Theory of Harmony* (Berkeley, CA: University of California Press, 1978, paperback 1983), 318.

<sup>191</sup> Meyer, *Emotion and Meaning*, 100; 205.

<sup>192</sup> Breivik, *Musical Functionalism*, 2.



When ornamentation is removed, one approaches the basic form, the fundamental, strictly necessary *gestalt*. From this point it is not far until the basic form becomes an end in itself. . . . There is much evidence of the functionalist belief that outer varnish and artificial facades hide the truth of the specific material.<sup>193</sup>

Strong evidence that functionalism might very well have encouraged the disuse of embellishments lies in these words from one of the main figures of functionalism, the architect Adolf Loos: “ornamentlessness is a sign of spiritual power.”<sup>194</sup> Furthermore, Loos penned a seminal essay that he titled “Ornament und verbrechen,” which translates to “Ornament and crime.”<sup>195</sup> As we have explicitly argued, embellishments and ornaments are not disposable nor are they “a crime,” they serve functions—those of creating ambiguity and temporal contracting/stretching through delaying and pointing. These words by Meyer support our position once again,

Cadenzas and other embellishments have an aesthetic function, delaying an expected resolution, deviating from the normative melodic curve, or otherwise creating psychological tension. . . . comparative musicologists who treat auxiliary notes as unimportant and incidental have misunderstood their function in the total musical process. The error is serious because an understanding and adequate description of style depends upon the recognition and examination of the relationship between the structural tones and the tendency tones belonging to the style.<sup>196</sup>

Here, we need to say a few words on dissonance as delay. In *Auditory Scene Analysis*, Bregman alleges, “One of the goals in early counterpoint was the control of dissonance.”<sup>197</sup> We saw in Chapter 5 that perception of a dissonance (i.e., a psychoacoustic dissonance) depends upon context. At times, dissonances disappear in a melodic line's continuity, at others, they create textural color and complexity that contribute to a sense of ambiguity in the compound sound. Equally, if a perceived dissonance yearns to move to a

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<sup>193</sup> Breivik, *Musical Functionalism*, 47; 99

<sup>194</sup> Ibid., 98. Breivik takes this quote from B. Rukschcio and R. Schabel, Adolf Loos. *Leben und Werk* (Salzburg: Residenz, 1982), 101.

<sup>195</sup> Breivik, *Musical Functionalism*, 1.

<sup>196</sup> Meyer, *Emotion and Meaning in Music*, 206; 216.

<sup>197</sup> Bregman, *Auditory Scene Analysis*, 502.

zone of stability, it will be experienced as tension or delayed affect. This distinction allows a clarification between what consists of a textural element and what suggests structural pointing. Other types of delays include evaded cadences, tempo reductions, reduced action, change in melodic direction or continuity, modal shifts, harmonic modulations and explorations, etc.

Lastly, tension can mount on the way to a structurally significant climactic point in the music. Such a build-up may be emphasized through an increase in dynamics, an acceleration in harmonic pace, a quick ascent in pitches, etc. The key to achieving a climactic effect lies in successfully amassing tension in the moments that precede it. Since tension precedes the arrival of a predicted musical event and surprise happens after the fact. We now investigate how music reception can be enhanced through the 'element of surprise.'

Surprise: We have claimed that surprise stems from predictive failure. Huron warns that “From a biological perspective, surprise is *always* a bad thing.”<sup>198</sup> Nevertheless, as previously explained, limbic contrast can give rise to powerfully pleasant sensations. When a negatively valenced emotion such as stress, fear or the thought of impending pain arises, the body releases analgesic opiates (e.g., endorphins). When the danger is real, the opiates serve to calm the mind and dull the pain. When the situation is one of false-alarm (i.e., no real danger), the fear response stops but not its release of opiates. This gives rise to a sensory 'high'. The stress-fear-elation mechanism explains the appeal of thrill-seeking adrenaline rushes as much as it does the sensation of enhanced affect when expectations turn into unexpected, yet pleasant, surprises. Charles Rosen, when speaking of E.T.A.

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<sup>198</sup> Huron, *Sweet Anticipation*, 21.

Hoffmann's description of Bach's counterpoint as awakening “an inner terror,” relates to this fear,

This terror is a form of delight, a physical response to musical relations. It is not a sentiment to which one normally gives a name if one is analysing a response to the experience of music. Nevertheless, admiration of technical virtuosity, either of composition or of performance, is not simply an intellectual reaction but an emotion felt bodily.<sup>199</sup>

Huron purports that surprise has three states: awe, laughter and frisson, where all three derive from, respectively, the fear instincts of freeze, flight or fight. Huron supports this claim by comparing the evoked affects to the physiological manifestations of fear. For example, holding one's breath when in awe concurs with the 'freeze' survival instinct. Likewise, in displaying submissive social behaviour or in preparing to flee ('flight' instinct), animals pant. Laughter is akin to panting and seems to derive from an insecurity related to social hierarchy.<sup>200</sup> Huron adds, “the principal function of laughter seems to be to dissipate social fears.”<sup>201</sup> In comparing awe and laughter, Huron offers this beneficial elucidation,

The freeze response is most probable when the danger remains fixed. The danger associated with [standing at a cliff's edge, for example] remains as long as we are near the edge. The danger associated with encountering a snake remains as long as the snake is nearby. Laughter, by contrast, is more likely to occur when an apparent or actual danger rapidly dissolves.<sup>202</sup>

Lastly, when an animal is cold or when it prepares to fight, it exhibits piloerection (hair-raising). In the first case, this provides an insulating layer, while in the second, it makes the animal look bigger in its display of aggression. Humans also experience piloerection, i.e., chills or *frissons*, when cold and when surprised.

The following explanation on the effects of contrastive valence solidifies Huron's linkage of fear to surprise in the music listening context:

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<sup>199</sup> Rosen, *Music and Sentiment*, 23.

<sup>200</sup> See Huron, *Sweet Anticipation*, 27.

<sup>201</sup> Huron, *Sweet Anticipation*, 27.

<sup>202</sup> *Ibid.*, 32.

It might seem odd that the experiences of frisson, laughter and awe rely on the evocation of fear. But this fear appears and disappears with great rapidity and does not involve conscious awareness. The appraisal response follows quickly on the heels of these reaction responses, and the neutral or positive appraisal quickly extinguishes the initial negative reaction. As listeners, we are left with the contrast in valence between reaction/prediction and appraisal responses—a favorable contrast that leaves us with the sort of warm glow that contributes significantly to the attractiveness of music. In effect, when music evokes one of these strong emotions, the brain is simply realizing that the situation is very much better than first impressions might suggest. In this regard, music is similar to other forms of pleasurable risk-taking, such as hand gliding, skydiving, riding roller coasters, or eating chili peppers.<sup>203</sup>

Since surprise ensues from faulty prediction, any violation in veridical, schematic or dynamic expectation will elicit a sense of astonishment. The greater the magnitude or quantity of outliers from expected norm, the greater the surprise. The skilled composer employing this effect can either turn it into delayed gratification (as seen in discussing tension) or generate enough momentum in the unexpected direction to leave the impression that a 'better' solution has been found.

Humor in music is most often achieved by violating the veridical expectations of a known work or from overt breaches in expected style or norm. Huron suggests that laughter can ensue from incongruous sounds, mixed genres, drifting tonalities, metric disruptions, implausible delays, excessive repetitions, displays of incompetence, and misquotations.<sup>204</sup>

Although most individuals likely have experienced awe in listening to music, there are no reproducible combinations of music parameters that generate awe. Awe is difficult to create because, as put by Huron, it “combines mystery, wonder, and reverence with a touch of dread. . . . The freeze response is most indicative of helplessness.”<sup>205</sup>

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<sup>203</sup> Huron, *Sweet Anticipation*, 36.

<sup>204</sup> See Huron, *Sweet Anticipation*, 285-6.

<sup>205</sup> Huron, *Sweet Anticipation*, 288; 293.

In contrast to the vulnerability associated with awe, the fight response speaks of empowerment and readiness, whereas the flight response represents a middle-ground. An extensive study by John Sloboda has identified elements in music that consistently yield chills.<sup>206</sup> He found that melodic appoggiaturas and harmonic sequences can bring about tears. Sloboda also discovered that sudden changes in harmony or abrupt changes in dynamic levels can produce frissons. Jaak Panksepp reports similar findings.<sup>207</sup> There is sufficient evidence to suggest that sudden dynamic, rhythmic and harmonic violations from expected continuation cause frissons. Perhaps the best way to induce chills is by composing lengthy tension-building accustomization followed by the culmination of all three of these elements in a sudden and climactic release.

A caution on surprises comes from our introductory material on contrastive valence—sometimes, a surprise disappoints or frustrates. In the words of the early nineteenth-century Belgian music composer and theorist Jérôme-Joseph de Momigny,

But what is a surprise in an art such as music, when all it does is to dislocate things, and moreover in a harsh and barbarous manner? The only surprises that can be condoned are those flashes of genius, those sudden and unexpected shafts of light that illuminate rather than lead astray. Nothing is so easy to learn as how to make transitions *ex abrupto*, equally there is nothing so puerile as to abuse it.<sup>208</sup>

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<sup>206</sup> See Huron, *Sweet Anticipation*, 281. Huron refers to J.A. Sloboda, “Music structure and emotional response: Some empirical findings,” *Psychology of Music* 19, no.2 (1991): 110-120.

<sup>207</sup> See Huron, *Sweet Anticipation*, 282. Huron refers to J. Panksepp, “The emotional sources of 'chills' induced by music,” *Music Perception* 13, no.2 (1995): 171-207.

<sup>208</sup> Bent, *Music Analysis in the Nineteenth Century*, vol. 2, 132. The quote is taken from J.-J. de Momigny's “Analysis of Haydn's Symphony [No.103 in Eb ('Drumroll')],” 1805.

## Closure

We have spoken of closure as the resolution of tension. It re-establishes a state of repose in the stability-variety-closure triad. We recall Freytag's pyramidal structure for dramatic works as consisting of an exposition followed by increasing action or tension, a climax of tension, and then resolution of conflict leading to the conclusion. Meyer informs us that "The greater the buildup of suspense, of tension, the greater the emotional release upon resolution."<sup>209</sup>

Closure can reside in musical gestures as small as the arrival of an expected tone, the completion of a motivic pattern, the attainment of group synchrony on an expected downbeat, and extend to a work's successful anticipation of a final harmonic cadence, tonality or single tonic.

With closure comes satisfaction, release, relaxation, culmination and exaltation. Closure ensues after a satisfied expectation or a positively valenced surprise. Without it, there is tension. If left unresolved, this tension can turn to disinterest, abandonment, exhaustion, irritation or frustration. At times, however, tension can simply dissipate through fractioning or dissolution. This forms another type of return to calm.

Closure stands for the end of a word, sentence, paragraph, chapter or an entire conversation and, as with any other part of the musical discourse, varies with the interlocutors. Meyer attests to the fact that many cultures employ a return to the introductory material as a means of closure.<sup>210</sup> Perhaps this mimics the symmetry in

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<sup>209</sup> Meyer, *Emotion and Meaning in Music*, 28.

<sup>210</sup> See Meyer, *Emotion and Meaning in Music*, 151.

culturally-mediated arriving and departing gestures, or it sends an invitation to begin anew at another time, as a symbolic expression of continuity and renewal.

We leave this section with Meyer's insightful words: “Both music and life are experienced as dynamic processes of growth and decay, activity and rest, tension and release.”<sup>211</sup>

## Uniqueness

In our discussion on dynamic expectations, we suggested that by consistently applying chosen composition methods, these become norms. When a significant number of compositions have been written according to the same norms, a style develops. Any sound event within a work becomes 'remarkable' and 'memorable' if it is both unique and occurs frequently enough to embed itself in memory. Huron explains this phenomenon as follows:

Since uniqueness *must* involve some departure from schematic norms, the only way to ensure that the "markers" sound "in-place" is to place them in the context of dynamic expectations. This means that some sort of repetition is needed. Instead of creating an identity for a work by introducing distinctive one-time events, a better approach is to repeat the markers frequently. . . . Also to prevent listeners from invoking an inappropriate veridical expectation, these frequently repeated markers should be introduced soon after the piece begins.<sup>212</sup>

To emphasize, if one wishes to compose a work that is memorable, distinct sound events such as motives, themes, rhythmic patterns or harmonic motion, etc., should

1. be presented early in the work,
2. have distinctive features; and
3. appear frequently throughout the work.

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<sup>211</sup> See Meyer, *Emotion and Meaning in Music*, 261.

<sup>212</sup> Huron, *Sweet Anticipation*, 265.

## Summary Creating and Violating Expectations

To facilitate referencing, we have consolidated the main findings of this chapter and suggested applications in the following three tables.

Table 6.2 - Compositional Acculturation and Creation of Veridical Expectations	
Goals	Means
Give importance to comprehensibility of narration to promote inclusiveness, help memory, aid experiential learning and facilitate the development of expectations	<ul style="list-style-type: none"> <li>- Ensure structural clarity, order and coherence.</li> <li>- Provide melodic, rhythmic and harmonic anchoring and pointing.</li> <li>- Attempt to include stability, variety and closure.</li> <li>- Create uniqueness by placing distinct events early in the work and repeat at critical points.</li> </ul>
Develop a recognizable style	<ul style="list-style-type: none"> <li>- Create norms from consistent application of compositional method and choices.</li> <li>- Encourage personal yet generally consistent interpretation of works by providing (through score notes, articles or books, etc.) explanations on composition philosophy and methods used.</li> </ul>
Encourage individual familiarity through direct exposure to work	<ul style="list-style-type: none"> <li>- Create renditions of a work for individual playing and for smaller ensembles (e.g., solo, duo, trio, quartet, piano 4 hands, etc.)</li> <li>- Make scores available through various media, music libraries, music banks, academic centres, music societies, etc.</li> </ul>
Encourage discussion of work before it is heard	<ul style="list-style-type: none"> <li>- Prepare the listening experience through program notes, pre-concert talks, music reviews, articles and books, teaching curriculum, etc.</li> </ul>
Encourage exposure across other art forms	<ul style="list-style-type: none"> <li>- Collaborate directly with other artists during the development phases of a work (e.g., music with/for visual arts, theatre, dance, film, etc.)</li> </ul>
Encourage multiple rehearsals	<ul style="list-style-type: none"> <li>- Work directly with musicians during the development phases of a work.</li> <li>- Encourage addition of work to academic performance curriculum.</li> <li>- Encourage collaboration by explicitly naming collaborators on score, recording and related documentation.</li> <li>- Formally recognize contributing members.</li> <li>- Encourage self-investment of musicians by offering concert space, recording opportunities, joint funding, etc.</li> </ul>
Encourage multiple hearings	<ul style="list-style-type: none"> <li>- Open doors to rehearsals.</li> <li>- Offer free concerts, when possible.</li> <li>- Offer concerts in public venues or outdoors, where and when feasible.</li> <li>- Repeat concert program material at various concerts.</li> <li>- Offer interactive concerts where sections of a work can be repeated and discussed.</li> <li>- Encourage live broadcasting.</li> <li>- Promote through various media.</li> </ul>
Encourage discussion on work after its hearing	<ul style="list-style-type: none"> <li>- Give post-concert discussions.</li> <li>- Encourage music reviews, write-ups in articles and books.</li> <li>- Add work to teaching curriculum.</li> </ul>



Table 6.3 - Creating Expectations	
Schematic Expectation	Dynamic Expectation
<b>Melody</b>	
<ul style="list-style-type: none"> <li>• Keep the melodic lines simple (no more than 10-12 seconds or 25 notes)</li> <li>• Employ recurring patterns of 3-5 seconds</li> <li>• Keep successive tones close in pitch</li> <li>• Ensure that phrases are arc-shaped or descend in the closing half of the phrase</li> <li>• Ensure that phrases reverse or continue their motion towards the mean value of the melody after leaps</li> <li>• Use symmetric phrase lengths</li> <li>• Ensure small intervals continue descending in steps</li> <li>• Use most common succession of degrees (3-2, 5-5, 2-1, 7-1, 2-3, 1-2, 1-7)</li> <li>• Use most common scale degrees (major: 5,3,1,2,4,6,7; minor: 5,1,3b,4/2,7b,6b,6,7)</li> </ul>	<p><u>REPEAT:</u></p> <ul style="list-style-type: none"> <li>• motives</li> <li>• basic ideas</li> <li>• phrases</li> <li>• periods or sentences<sup>213</sup></li> <li>• figuration</li> <li>• thematic material</li> </ul>
<b>Harmony</b>	
<ul style="list-style-type: none"> <li>• Use typical or common harmonies for the style</li> <li>• Use typical harmonic progressions (V-I, vii<sup>0</sup>-I, ii-V, iii-vi, IV-V, I-V, iii-IV, I-IV, IV-I, vi-V, ii-I)</li> <li>• Use many chords in root position</li> <li>• Use typical cadences</li> </ul>	<p><u>REPEAT:</u></p> <ul style="list-style-type: none"> <li>• tonal relations through close neighbours</li> <li>• tonal relations in sections</li> <li>• tonal relations in long-term structure</li> </ul>
<b>Rhythm</b>	
<ul style="list-style-type: none"> <li>• Use conventional meter (2/4, 4/4, 3/4, 6/8)</li> <li>• Use expected tempo (80-120bpm)</li> <li>• Use periodic rhythms and events, or similar rhythms to a given language</li> <li>• Place significant note groupings on strong beats</li> <li>• Keep rhythmic groups to 3-5 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Create acceleration or deceleration of activity prior to an important statement</li> </ul> <p><u>REPEAT:</u></p> <ul style="list-style-type: none"> <li>• rhythmic groups and pulse of sections</li> </ul>
<b>Form/Growth</b>	
<ul style="list-style-type: none"> <li>• Use Standard Forms</li> </ul>	<ul style="list-style-type: none"> <li>• Use structural symmetries within and between sections</li> <li>• Use anchors and signifiers</li> </ul> <p><u>REPEAT:</u></p> <ul style="list-style-type: none"> <li>• melodic, harmonic and rhythmic content</li> <li>• thematic material or variations</li> <li>• instrument groupings and timbre/register</li> </ul>

<sup>213</sup> Please consult Appendix G: Definitions.

Table 6.4 - Creating Tension and Surprise

Tension: Introduce Ambiguity and Delay:

- Increase number of possible tones (chromatic, modal shifts, augmented and diminished chords)
- Delay expected arrival of event by temporal contraction or stretching or introducing rests at anticipated location
- Use suspensions, anticipations, neighbour tones, trills, turns, etc.
- Increase perceived dissonances
- Augment complexity of polyphony
- Increase texture by polychords and polyharmony
- Add distinct polyrhythms
- Blend polyrhythms into compound rhythm
- Introduce lack of melodic, harmonic or rhythmic delineation
- Use rubato or ritardando
- Blend dynamics, range and timbre
- Use delayed cadences
- Introduce contrasting or conflicting character
- Create build-up of tension through an increase in dynamics, acceleration in melodic, harmonic and rhythmic pace, increasing texture, melodic rise, etc.

Surprise: Breach expectations:

- For humour: introduce incongruous sounds, mixed genres, drifting tonalities, metric disruptions, implausible delays, excessive repetitions, displays of incompetence, and misquotations
- For frissons: add melodic appoggiaturas and harmonic sequences
- For frissons: compose a lengthy tension-building accustomization section followed by the culmination of melodic, harmonic and rhythmical action in a climactic peak with sudden change in harmony and dynamic level
- Breach veridical, schematic or dynamic expectation by modifying contours, intervals, texture, timbre, colour, harmonies, dynamics, etc.
- Place dissonant harmonies where consonant harmonies are expected.
- Use evaded cadences
- Thwart expected arrival of event by temporal contraction or stretching or introducing rests at anticipated location
- Fragment thematic material
- Accelerate action
- Use a very long rest, stop all action, start abruptly, change direction

### 6.3. Conclusion

We have examined the role of experiential learning in the creation of schema-based perception and reception of music. We sought and found means to invoke the mind's preference for the triadic relation formed of stability, variety and closure.

In our exploration, we devoted much attention to the works of Leonard Meyer and David Huron. Huron's *Sweet Anticipation* was discussed at great lengths in an effort to explicate how the development of expectations depends on the ability to consign events into short-term and long-term memory. Huron convinced us that repeated exposure is the most important determinant in the mechanisms of expectation. We also learned that it is not so much the familiarity of an occurrence that brings pleasure but, rather, the reward of having successfully guessed the *what* and *when* of the experience.

In studying repetition, we turned to the work of Robert Fink and claimed that predictable cycles of repetition bring mood-regulating comfort. We then spoke of repetition as norm and extrapolated its benefits to the creation of a style.

Approaches, methods and mechanisms were proposed to encourage the formation of veridical, schematic and dynamic expectations, and we emphasized that there comes a point where too much exposure leads to boredom. It was argued that tension and surprise can help prevent saturation and lead to enhanced pleasure through the mechanism of limbic contrast. We devised means to tap into both these processes.

From our investigation, we determined that, should a composer wish to make full use of auditory learning mechanisms and expectations, the music should be made predictable, either by generating its own stylistic norms or by replicating those that are familiar to the target audience. To this end, we consolidated research findings based on listeners' expectations of melodic, harmonic and rhythmic events, and also suggested

various manipulations of parameters that could help foster the creation of dynamic expectations.

Valuable information has been amassed in identifying how to captivate and surprise by making use of Huron's ITPRA Theory of Expectation. We also discovered ways to make a work unique.

In moving to the last section of our work which details our proposed method of composition, we embrace these findings yet stay clear of the zealously of over-generalization. In our previous chapter, Jay Rahn suggested such caution, here, Huron warns,

The good news from research in music cognition is that, if it is true that mental representations emerge from patterned exposure, then there ought to be many opportunities for artists to shape new and different ways of experiencing sounds. However, the mere proposing of a music representation does not mean that listeners are capable of experiencing music this way.<sup>214</sup>

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<sup>214</sup> Huron, *Sweet Anticipation*, 121.

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## PART THREE

### *Tutti!* - The Composition Method

Part 1 produced the impetus to design a composition method that better suits our artistic intent and aligns our vision to that of a communication model of reciprocity. To this end, we identified that Bakhtin's dialogism furnished fertile ground in which our work could be seeded.

Part 2 showed the many mechanisms through which music can be experienced. We then argued that the mind's incessant need for order and coherence influences auditory perception as well as participatory listening. We also discovered how memory and experiential learning offer opportunities for authorship through subjective appropriation of musical events.

In hearing a story according to one's understanding and experience, and in reformulating it in one's own 'words,' the narrative becomes personally relevant. By inviting appropriation, inclusiveness is fostered and this, in turn, engages and enhances participation. We now comprehend how the musical offering takes on a new life through intertextuality, where it lies not only in the present but relates to past and future texts of others. This personal matrix between an artistic object and its aesthetic rendition holds a wealth of avenues leading to a more collaborative experiencing of music.

We find ourselves at the *apogée* of our exploration. In this concluding portion of our research, we aim to share a method for the creation of inclusive and engaging music dialogue that invites interpretation and authorship, cultivates individuality, welcomes diversity and promotes collectivity. We shall look at structural considerations enhancing order and coherence and identify melodic, harmonic, rhythmic and form/growth treatment that contribute to our overall objective of building a respectful, balanced, challenging and interactive dialogue within a music composition.



## Chapter 7 - Creating a Dialogical Music Composition

Pleasure guides most human and animal behaviors. Even deferred gratification is motivated by imaginative appraisals of future pleasure....there is no requirement whatsoever that artists create works of art that make people feel good. But art will not exist for long without some attention to the evoking of pleasure.<sup>1</sup>

—David Huron, *Sweet Anticipation*

### 7.1. Introduction

We have now arrived at the ultimate convergence of our thesis. This journey has shaped the rationale for the creation of dialogue within dissemination and for adopting a reciprocal communication model. We drew parallels between music and language, found valuable anchors in Bakhtin's dialogism and determined that inviting the intertextuality of authorship could foster inclusiveness and enhance participative interaction in the musical experience. We studied means of arousal, noted that it is the motion in music that moves us. We looked at rhythmic entrainment and also prodded the phenomenon of mimesis as it pertains to both corporeal expression and language inflection. We also revealed the importance of the Kantian notion of interplay between imagination and understanding, agreed with Bakhtin that perception is an act of authoring,<sup>2</sup> and finally grasped the words of Nobel Laureate biologist Gerald M. Edelman repeated here for emphasis: “Every act of perception is to some degree an act of creation, and every act of memory is to some degree an act of imagination.”<sup>3</sup>

We highlighted that the mind prefers order, structure, clarity and cohesion, looks for similarities, seeks continuity, desires variety and searches for closure. We discovered that

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<sup>1</sup> David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: Bradford Book, MIT Press, 2006, paperback ed., 2007), 373; 374.

<sup>2</sup> Michael Holquist, *Dialogism: Bakhtin and his World* (London, UK: Routledge, 1990), 7.

<sup>3</sup> Oliver Sacks, *Musicophilia: Tales of Music and the Brain* (Toronto, Canada: Alfred A. Knopf, 2007), 148. Sacks quotes Edelman from Gerald M. Edelman, *Second Nature: Brain Science and Human Knowledge* (New Haven: Yale University Press, 2006), 100.

auditory streaming shapes perception and that expectations influence how we experience sound events. We saw that stylistic norms ensue from repeated exposure and that, in the absence of inter-opus norms, we can create intra-opus norms through repetition. We deemed that experiential learning increases the likelihood of correct anticipation and this predictive success increases pleasure, as does delay, suspense, surprise and variety through the phenomenon of arrested affect. Lastly, we established that the tripartite relation of stability, tension/variety and closure common to much of drama in the Arts seems to offer a desired balance between contrasting elements.

It is said that art makes you free. Creative freedom implies choices. The method of composition that follows should, therefore, not be misconstrued as prohibitive, prescriptive, proscriptive or even prognostic or predictive. It is offered as a framework, a template and a system to build balanced dialogue within a music composition.

We often hear the term 'dialogue' referring to the interactions between music parts. What does this really mean? How is it created? How is it sustained? How can it be made to concord with our vision of inclusiveness yet ensure equilibrium between individuality and collectivity? We propose that balanced dialogue has three main types of interactions (*Sequential, Collaborative* and *Disjoint*) and attempt to show how these can be constructed by making use of auditory streaming phenomena and principles of orchestration. In erecting our structures, we will consult musicologist Jan LaRue's informative *Guidelines for Style Analysis* to help identify parameters that can contribute to the overall architectonic unity (see Appendix F). Concomitantly, we will examine textural, melodic, harmonic, rhythmic and form/growth treatment, and elaborate upon the creation of intra-opus norms and signifiers to arouse interest through expectation, delay and surprise.

To reiterate, although many examples of dialogue can be found in the Western Art-music repertoire, our novel method of composition provides the first comprehensive framework, system and architectonic template that relies on tenets of dialogism to foster an inclusive, diverse and collaborative music dialogue.

## 7.2. Discussion

How does one begin a piece? Having extensively examined the rapprochement between music and language, we noted that the spoken word's inflections and pace influence how we construct and perceive motion in music. In music as in literature, there are innumerable ways to pen a story or initiate discourse. Does the opening chapter start with a slow prologue to a situation or a setting, or does it commence with the ponderings of a sole protagonist? Does the work open instead with a flurry of activities and characters? The composer Ernst Toch in *The Shaping Forces of Music* observes,

As a narrative may start either by plunging *medias in res*, or by first creating an introductory atmosphere of location, time, situation, etc., or by a completely detached introduction, prologue or preface; so may a musical narrative show different types of beginnings, roughly corresponding to those mentioned above. . . . In the prime of our classical music, composers liked to start a larger, especially a symphonic, piece with an introduction in slow tempo. This introduction usually was a completely detached statement, grave and austere in mood, sometimes also leading into the main part by direct motivic preparation.<sup>4</sup>

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<sup>4</sup> Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form* (New York, NY: Criterion Music Corp, 1948). Reprint (New York, NY: Dover Publications, Inc., 1977), 217; 219.

A preparatory section of music can set the stage (or set the tone, in this case) by introducing thematic material or by asserting main tonal areas that will be explored; likewise, it can serve to generate anticipation towards the arrival of principal musical ideas and constituents. This is indicated by Leonard Meyer as follows:

The importance and significance of such “preluding”—a practice found in almost every type of music—lie in the fact that they support by implication the hypothesis that the process of deviation from habit-expected norms is one of the basic forces shaping and articulating musical experience. . . . the preludes serve to establish the norms with which the main piece will operate and from which it will, in one way or another, deviate. . . . Once such a prelude or introduction has been presented, the norms of rhythm, melody, and harmony specific to the particular work are usually presented.<sup>5</sup>

The decision to include a gradual introduction or not falls within the purview of stylistic choices concerning 'form' or 'growth'—the latter term being preferred by LaRue. Growth implies motion, directionality, impetus, function, etc., and conveys our appreciation for the fact that punctual decisions, however small, may impact upon the bigger materialization of a work. Within the elements contributing to growth we consider structure, texture, balance between voices, duration of action versus relaxation, sources of shape and motion found in unfolding melodies, tonalities, rhythms, dynamics, tempi, etc., and their interrelatedness to small, middle and large dimensions. We concur with Robert Schumann that “Form is the vessel of the spirit. The greater its capacity, the greater the spirit needed to fill it.”<sup>6</sup> If our “vessel” consists of a respectful, balanced, interactive and collaborative dialogue, then we need to understand how to best “fill it.”

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<sup>5</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, paperback ed. 1961), 247.

<sup>6</sup> Ian Bent, ed., *Music Analysis in the Nineteenth Century*, vol. 2, (Cambridge, MA: Cambridge University Press, 1994), 171. The passage is taken amongst Robert Schumann, Review of *Berlioz: Grande Symphonie Fantastique*, *NZM*, 3 (1835), no.1 (3 July), 1-2, no.9 (31 July), 33-5, no.10 (4 August), 37-8, no.11 (7 August), 41-4, no. 12 (11 August), 45-8, no.13 (14 August), 49-51.

Since we strongly advocate for the inseparable nature of melody, harmony and rhythm, their handling will coincide with each situation under study. In support of our combined approach, Toch sees the division of theory into separate branches of harmony and counterpoint as “admissible only if we never, from beginning to end, lose sight of the close inter-relationship of the disciplines and their constant reciprocal influence and interdependence.”<sup>7</sup> Toch emphatically insists “*Harmonies are not solid objects.*”<sup>8</sup> Toch views traditional harmony as involving only the point where moving voices cross—this “*arrested motion*” is a “specific, momentary situation in midcourse of motion.”<sup>9</sup> With this in mind, Toch suggests that the labelling of chords by symbols becomes ludicrous.<sup>10</sup> As with the previously discussed concept of *signalisation harmonique*, our views resemble those of Toch, where harmonies not only arise but are pointed to, recalled and transformed within the active lattice of interrelations that take place between voices. Our method relies heavily on harmonic signaling through melodically, harmonically, rhythmically and dynamically planned and targeted contrapuntal events. Polyphony with its possibilities for polyrhythms and polytonality thus constitutes a crucial component of our compositional method, as it gives shape, motion, direction and structure to dialogue. Siding again with Toch, we agree that “counterpoint is not an accessory but an *intrinsic part* of the creative mechanism.”<sup>11</sup> Furthermore, resounding of dialogism's *polyphony*, Toch asserts,

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<sup>7</sup> Toch, *The Shaping Forces in Music*, xxii.

<sup>8</sup> *Ibid.*, 41.

<sup>9</sup> *Ibid.*, 21.

<sup>10</sup> See Toch, *The Shaping Forces in Music* 45.

<sup>11</sup> Toch, *The Shaping Forces in Music*, 143.

A meeting of any kind will hardly take its course with every one nodding assent to the speaker's discourse and leaving thereafter. Rather, it will produce a discussion *in point of contrasting ideas*, voicing the pros and cons, and thus resulting in clarification and final shaping of the issue. Herein lies the virtue of the “healthy opposition”: it becomes a means not of obscurity but of clarification, not of obstruction but of propulsion. Apply these considerations to music and you get the real, intrinsic meaning of counterpoint, one of the most powerful *shaping forces in music*; we might even go so far as to say, one of the most powerful shaping forces in art altogether.<sup>12</sup>

Aside from those blissful moments where a melodic, harmonic or rhythmic gesture appears as a completely formed entity, the work of a composer is just that—work; and as Toch recognizes, “Every composer knows, and many sketches of the masters give ample proof, that there is a long and hard road from the first inspiration to its final form.”<sup>13</sup> With the tools presented in the previous section, we now undertake to share a coherent method for creating a music composition that promotes inclusiveness, diversity and collaboration through balanced polyphonic dialogue.

As mentioned above, there are just as many combinations and permutations available to the composer as there are topics and types of conversations. One can be inspired by surrounding sound patterns, a random set of numbers, street names or cities, the inflections and rhythms in a loved one's laughter, etc., but how one proceeds from an initial musical idea to a fully written composition is a personal choice. What we provide in these pages is a framework. To this end, we have found a very informative resource in our discovery of Johann Christian Lobe's *Lehrbuch der musikalischen Komposition*.<sup>14</sup> This four-volume compendium details the methods typically employed in German Art-music from

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<sup>12</sup> Toch, *The Shaping Forces in Music*, 134-135.

<sup>13</sup> *Ibid.*, 62.

<sup>14</sup> Johann Christian Lobe, *Lehrbuch der musikalischen Komposition, Bd. Von Den Ersten Elementen Der Harmonielehre An Bis Zur Vollständigen Komposition Des Streichquartetts Und Aller Arten Von Klavierwerken. vol. I* (Leipzig: Breitkopf und Härtel, 1850), 5th ed. transl. as *Traité pratique de composition musicale: depuis les premiers éléments de l'harmonie jusqu'à la composition raisonnée du quatuor et des principales formes de la musique pour piano* by Gustave Sandré, Leipzig & Bruxelles: Breitkopf & Härtel, 1889. Reprint Nabu Public Domain Reprints, 2010.

1750's to 1850's. For example, in Chapter 26 of the first volume, Lobe describes a step-by-step approach to writing the first movement of a Sonata-form string quartet. Lobe recommends that a one-voice draft be created before attempting to score for all voices and then shows in detail how to proceed. See Appendix H for details on the construction of a string-quartet's first movement. In addition, Ernst Toch's *The Shaping Forces of Music*, Arnold Schoenberg's *Fundamentals of Musical Composition*, his seminal *Harmonielehre* and his *Structural Functions of Harmony*, Paul Hindemith's *A Composer's World* and *The Craft of Musical Composition*, Heinrich Schenker's *Der freie Satz (Free Composition)* and countless other references (see Bibliography) supply valuable details that cannot be addressed within the limits of these pages. We shall therefore proceed by showing examples and will assume acquaintance and knowledge of composition and music theory.

Our method of dialogic music composition centers on the elements summarized in Table 7.1 below.

Table 7.1 - Elements of a Dialogic Music Composition

- Dialogue within dissemination.
- Dialogism's I and 'other' (transgredience and polyphony), unfinalizability (always evolving, heteroglossia of each subjective interpretation), chronotope of situatedness as pointers and signifiers (*signalisation harmonique*).
- Tripartite construction: stability (familiarity, similarity, unity, continuity), variety/diversity/contrast/tension and release/closure.
- Inclusiveness and participation through arousal (physical, physiological, sensory, emotional, intellectual) by entrainment, mimesis/motion, attentiveness and interest.
- Joy or kinship in playing and witnessing collaborative exchanges, interplay, banter, etc.
- Intertextuality through authorship stemming from comprehension (order, coherence, clarity, structure, direction), imagination and anticipation.
- Knowledge of inter-opus norms and establishment of intra-opus norms through repeated exposure as a means to enhance experiential learning.
- Anticipation and predictive success in order to increase satisfaction or enjoyment.
- Interrupted affect through ambiguity/confusion (incompleteness, dissonance, texture), delay/suspense (dissonance, ornamentation, note duration, harmonic development), and surprise/variety (in timbre, texture, dynamics, tempo, thematic material, harmony, rhythmic groupings, harmonic rhythm, etc.).
- Respectful affirmation, direction, support of individuality, diversity and collectivity.
- Richness of balance of the polyphonic sound tapestry achieved by utilising principles of auditory streaming and orchestration.
- Uniqueness through distinctive features presented early in the work and repeated throughout the piece.



## Melodic Considerations

When drafting a melody, one either begins by creating motivic elements and stringing them together or by forming a complete theme and then breaking it down into fragments that can be used as individual motives, phrases and periods.<sup>15</sup> Toch suggests, if one is stumped, to first build a pitch succession of notes with even durations then impose upon it a rhythmic structure, where either or both are taken from a known work. He then proposes to do the opposite (i.e., start with a rhythmic base and add a pitch succession). Toch, in fact, defines melody as “a definite succession of various pitches in a definite succession of rhythms.”<sup>16</sup>

We have already introduced the notion of *signalisation harmonique* and have seen that signifiers and pointers affect past and future musical events by influencing perception. They provide the drive, motion and direction so vital to form/growth seen as both “vessel” and evolution. When speaking of form/growth, LaRue considers that “*musical Shape is the memory of Movement*” and that this “indispensible unity-plus-duality” proves essential to the process of articulation—the point where change meets continuity.<sup>17</sup> This said, to ensure good shape and movement, melodic or rhythmic accentuation or prominence may be written

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<sup>15</sup> Lobe suggests to begin the task by inventing themes (Main Theme, Transition Theme, Subordinate Theme, Development Theme although not always necessary since it elaborates on the main idea from the Main Theme and the secondary idea from the Subordinate Theme, and Cadential/Codetta Theme) and then separating these into one-measure motives, two-measure basic ideas and 4-measure phrases from which periods for each group are formed. For example, for a first movement, Lobe recommends the construction of one, two, three or more periods for each of the following groups: *A. Exposition*: Main Theme Group, Transition Theme Group, Subordinate Theme Group, and Cadential/Codetta Theme Group; *B. Thematic Development*: Pre-core Group and Core Group; *A'. Recapitulation*: Main Theme' Group, Transition Theme' Group, Subordinate Theme' Group, and Cadential Theme' Group; and *D. Coda*: Coda Theme Group.

<sup>16</sup> Toch, *The Shaping Forces in Music*, 69.

<sup>17</sup> Jan LaRue, *Guidelines for Style Analysis* (1st ed., New York, NY: W.W. Norton & Company, 1970. Expanded Second Edition with Models for Style Analysis, A Companion Text, ed. Marian Green LaRue, Sterling Heights, MI: Harmonie Park Press, 2011), 115.

into a melody to recall or announce significant contributors to a work's architecture, be it a single note, a contour, a rhythm or identifying tones of a tonality of interest. Likewise, let us not forget that fragmentation, contraction, elongation, augmentation and reduction of melodic (and harmonic) activity influence perceived pace. Again, we appreciate the interdependence of melody, rhythm, counterpoint and harmony.

Such methods of signaling and pointing often reveal a composer's intentions much earlier in a work than the arrival of the noteworthy event. The crafting of shape, movement and rest, their treatment at points of articulation, the choice of proportions and divisions, and the careful interweaving of pointers into the fabric of a composition all embody elements of a composer's chosen form and personal style. LaRue favours a strong analytic approach routed in the discovery of peculiarities in a composer's sources of both movement and shape, and warns against the trappings of classifying form according to conventional types.<sup>18</sup>

Accordingly, although many of the melodies we will discuss follow similar formats to those in use during the Classical period, this choice should not be misconstrued as restrictive but rather as demonstrative of elements favorable to the creation of expectations (as summarized in Table 6.3).

We saw that keeping successive tones close in pitch, ensuring that phrases are either arc-shaped or descending in their latter half, returning towards the average pitch of the phrase after leaps, employing symmetric phrase lengths, opting for 3-5 second patterns that recur, using the commonest scale degrees and succession of pitches, etc., all such choices correspond to research findings for schematic expectations related to melody. Redundancy

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<sup>18</sup> Jan LaRue, *Guidelines for Style Analysis*, 153.

and symmetry acquired through the repetition of motives, basic ideas, phrases, periods and the use of figuration (e.g., ostinatos), in turn, tend to create dynamic expectations.

Lobe suggests that a one-measure motive, a two-measure *basic idea* (b.i.) or a four-measure *phrase* taken from the main thematic material can be sequenced and used as material for the melodies of a work.<sup>19</sup> Sequencing can be *strict* or *free*. A *strict* sequence repeats exactly the rhythm and tones, whereas a *free* sequence repeats only the rhythmic pattern. We can adopt a similar method to encourage repetition and variety within a melody by creating sequences from initial kernels. For example, Lobe suggests that a two-measure *basic idea* (b.i.) can be created by direct repetition of a motive, by a model+sequence approach or by combining two different motives:

$$\begin{aligned} \textit{basic idea} \text{ (b.i.)} &= (\text{Motive a} + \text{Motive a}), \\ \textit{basic idea} \text{ (b.i.)} &= (\text{Motive a} + \text{Motive a}') \text{ or} \\ \textit{basic idea} \text{ (b.i.)} &= (\text{Motive a} + \text{Motive b}) \end{aligned}$$

Likewise, Lobe shows the *phrase* as arising from either *strict* or *free* repetition (exact or varied) of the *basic idea* with a model+sequence approach, or from three or four measures having different motives:

$$\begin{aligned} \textit{phrase} &= (\text{b.i.} + \text{b.i.}) \text{ or } (\text{b.i.} + \text{b.i.}') \\ \textit{phrase} &= (\text{Motive a} + \text{Motive b} + \text{Motive c} + \text{Motive d}) \end{aligned}$$

(Note: If three motives are used, then one measure is repeated, freely or strictly, in the *phrase*)

Again, although we welcome the symmetry of this elegant configuration, we do not imply that it is the only solution for repetition within a melody. Recall that schematic

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<sup>19</sup> Lobe recommends that, for each model *basic idea*, many sequence phrases should be created, first using only triads in I, IV and V, then including II, III and VI. Likewise, model *phrases* and associated sequences should be created in large numbers. After sequencing in major mode has been mastered, model + sequence groups can be created for minor mode models. Subsequently, the dominant seventh, diminished fifth, augmented fifth, augmented sixth, diminished seventh and ninth chords can be introduced. In order to build correct chord progressions, Lobe discusses principles of voice-leading and states that I to IV, IV to I, I-V, V-I, IV-V, V-IV are usual progressions but V-VI and VI-V require doubling of the third of VI in order to avoid parallel motion throughout.

expectations of melody indicate a preference for symmetric phrase lengths and short (3-5s in duration) recurring patterns.

As for a complete 8-measure *sentence* or *period* (which is a typical length for a theme in the Western Art-music repertoire), Lobe only refers to the *période simple*:

*Lobe période simple* = 4m model *phrase* + 4m sequence

William E. Caplin, in turn, reports in his *Classical Form*<sup>20</sup> that, in the Classical style *sentence* and *period* were formed respectively as a 4-measure *presentation* phrase followed by a 4-measure *continuation*, or in the case of a thematic *period*, as a 4-measure antecedent (with a two-measure basic idea b.i., and a two-measure contrasting idea, c.i.) and a 4-measure consequent, and where the antecedent ended with a weak cadence, either Half-Cadence (HC) or Imperfect Authentic Cadence (IAC) and the consequent ended in a Perfect Authentic Cadence (PAC).<sup>21</sup> Please consult Appendix G for greater details and definitions.

The *sentence* and *period* have these configurations:

*Sentence:*

4m. *presentation phrase* made of 2m. b.i in I + 2m. b.i' in I,V, other +  
4m. *continuation phrase* w/HC in V or IAC/PAC in I

*Period:*

(2m b.i in I + 2m c.i. in any degree w/ HC in V or sometimes IAC in I) +  
( 2m b.i' most often in I or V but can also be in any other degree +  
2m. c.i' or c.i" in any degree then w/ PAC in I)

Although themes in the Classical period were typically 8 to 16 measures, melodies can be constructed in any length. We recommend simply that melodies have distinctive features presented early in the phrase, be structured in a way that attempts to elicit

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<sup>20</sup> See William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001), 9-13; 35-58.

<sup>21</sup> Caplin provides the following general characteristics of the *sentences* and *periods* in use between 1730 and 1820: they usually begin on I in root position or V in root position, V7th or V9th; are thematic, mixed, or introduce new material; theme-type *sentences* end in half-cadence (HC), imperfect authentic cadence (IAC) or perfect authentic cadence (PAC), while *periods* usually end in PAC; if a PAC is used, the last chord usually falls on the first beat of the next grouping; if a PAC does not end on the first beat of next grouping, the new *sentence* or *period* will usually begin with another chord than that in which the PAC finished; *sentences* and *periods* should flow without interruption, therefore HC or IAC are typically used to unite them.

expectations, demonstrate symmetry or redundancy, have areas of stability/repose and tension/action, make use of pointers and signifiers, and show a correspondence with dialogism's tenets. This is summarized in the table below.

Table 7.2 - Elements of a Dialogic Melody
<ul style="list-style-type: none"><li>- Attempt to meet the guidelines of Table 6.3.</li><li>- Show elements of order, clarity, symmetry, continuity, redundancy, variety and closure.</li><li>- Exemplify features of dialogism by being reflective (dialogue between I and thou), evolving (unfinalizability), allow room for interpretation (heteroglossia), make use of pointers and signifiers (chronotope), and include areas of melodic, rhythmic or harmonic repose, where other voices can join, interact (polyphony) and create textures of ground vs. background.</li><li>- Present unique features at the beginning of the melody and that are repeated either exactly or in part.</li></ul>

A few remarks on the high levels of symmetry and redundancy of Classical period melodies are warranted. From the research presented in the previous chapter, we ascertained that listeners can remember patterns of 3-5 seconds and respond best to a tempo of approximately 80-100 beats per minute (bpm). The Classical period *basic idea*, being two bars in length, takes five seconds to complete at a rate of 96 bpm in a time signature of 4/4. This indicates that the length of the *basic idea* corresponds with the listener's typical memory capacity for the duration of a pattern. Likewise, research data has suggested that optimal attention span lasts 10-12 seconds and retention capacity is limited to approximately 25 events. The Classical period *phrase*, comprised of four measures, will last 10 seconds at

96bpm in 4/4 time. If each quarter-note represents an 'event', then there are 16 such events in four measures, and should these be eighth-notes instead, then there would be 32 events in each *phrase*. As this number would exceed optimal retention capacity, longer durations and rests should appear in the *phrase*. In the case of rapidly ascending or descending scales (i.e., many separate events), the phenomenon of expected continuity (for example, descending notes are expected to continue in the same direction) will facilitate retention of the events. Lastly, since listeners show a preference for shorter patterns of 3-5 seconds (instead of the total 10-12 seconds of available memory), it is preferable to sequence motives instead of the complete 4-bar *phrase*. This is precisely what was done in the Classical period since *phrases* repeat as *presentation-continuation*, *antecedent-consequent*, and rarely repeat exactly; only *basic ideas* sometimes repeat identically. This method of variation also avoids habituation. Similarly, Nicolai Rimsky-Korsakov, in his *Principles of Orchestration*, recommends that monotony can be avoided by employing notes of different durations within the melodic line, and insists that this is especially true for the construction of a good vocal melody.<sup>22</sup> Consequently, although we do not imply that themes and melodies should be constructed by referring to the Classical period model of *sentence* or *period*, the practicality and relevance of doing so is apparent.

Contemporary composers have resorted to similar symmetric constructions. In earlier chapters, we mentioned that both Bartók and Schoenberg, for example, relied heavily on the repetition of motivic structures. Equally, Stravinsky's treatment of rhythmic groupings offers another type of repetition. Redundancy of motivic repetition affords

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<sup>22</sup> Nikolay Andreyevich Rimsky-Korsakov, *Основы оркестровки (Principles of Orchestration)*. 1st. ed., 1922. Edited by Maximilian Steinberg and translated by Edward Agate as *Principles of Orchestration with musical examples drawn from his own works* (Paris: Edition Russe de Musique, 1922. Republication New York, NY: Dover Publications, 1964), 134.

tremendous opportunities for anchoring material into dynamic memory and propelling the idea through the music. Toch reinforces this point with eloquence, clarity and a touch of drama with these words:

Every combination of a few tones is apt to become a motif and, as such, to pervade and feed the cellular tissue of a composition, emerging and submerging alternately, giving and receiving support and significance by turns. It revives and animates, and is revived and animated, in a continuous cycle of give and take. It lives on repetition and yet on constant metamorphosis; metamorphic, polymorphic, opalescent in itself, it takes on the hue, the flavor, the very mood of the environment in which it is imbedded. It smoothes and ruffles, it soothes and arouses; it bridges and reconciles, glues and splices, planes and levels, polishes and varnishes. But above all, it creates and feeds movement, movement, movement, *the very essence of life*, and fends off the arch-enemy, stagnation, the very essence of death. *It, the little motif, becomes the motive, the motive power, the MOTOR.*<sup>23</sup>

As vehemently pointed out by Toch, the exact repetition of motives allows for recall while their metamorphic continuation yields forward drive. Another mechanism of propulsion resides in offsetting the melodic material away from the downbeat or from the beginning measure of a section. This method was greatly employed by both Chopin and Brahms not only as a way to ensure audibly apparent voice separation but also to create temporal shifting. Rosen calls attention to this technique when he points out that Brahms “learned from Chopin how to use a strict eight-bar phrase rhythm without monotony, by beginning the melody sometimes on the second or eighth bar instead of relentlessly on bar I; in other words, he imposed a supple melodic rhythm over a strict rhythmic background.”<sup>24</sup>

Both alteration of motivic material and temporal stretching remind us of the Wabi-Sabi aesthetic in Japanese art, where beauty is tied to the acceptance of transience and

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<sup>23</sup> Toch, *The Shaping Forces in Music*, 200-01. Italicized and capitalized emphasis by Toch.

<sup>24</sup> Charles Rosen, *Freedom and the Arts: Essays on Music and Literature* (Cambridge, MA: Harvard University Press, 2012), 191.

imperfection as a reflection of life. Toch considers that “it is the barely perceptible irregularities which infuse life into artistic form.”<sup>25</sup>

The two excerpts below are taken from the present author's Opus 103, No.2 and exemplify the many characteristics of a melody that has been created according to the proposed dialogic composition method.

Example 7.1 shows the Prologue to the first movement as spanning eight measures but it is neither a strictly defined *sentence* nor a *period*. Its initial motive (in the tonic of c#-minor) appears in the left-hand as a combination of two half-bar figures (figure 'a' and figure 'b'). It is repeated exactly in the right-hand before continuing to the third measure for a first variation, where figure 'a' becomes a dotted quarter-note. This four-measure presentation phrase ends with the right-hand holding the dominant (G#) prominently as a dotted quarter-note over a left-hand that now consists of two instances of the rhythm used in figure 'b'. Instead of finding pattern 'b' in the right-hand of measure 4, the dotted-quarter rest completes this presentation phrase in a mirror-like symmetry. The four subsequent bars carry the prologue through a continuation exploring the dominant area and ending in the tonic of c#-minor.

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<sup>25</sup> Toch, *The Shaping Forces in Music*, 168.



Example 7.1 – First Example of a Dialogic Melody

N. Dupuis-Désormeaux, Opus 103, No.2, MVT1 - Piano Prologue (in c# minor) - 8m

In Example 7.2, the Main Theme (starting at repetition mark € and ending at €) follows a *sentence* structure with free repetition of the 2-bar *basic idea* starting in c# m, then exploring its relative major (E-Major). It concludes by way of a four-measure continuation ending with a Perfect Authentic Cadence (PAC) formed of

c# m (i) → D# Major7 (II as VofV) → G# Major (V) → c# minor (i)

Example 7.2 – Second Example of a Dialogic Melody

N. Dupuis-Désormeaux, Opus 103, No.2, MVT1 - Main Theme (in c# m) - 8m Sentence  
Clarinet in A

When comparing the Prologue and the Main Theme, we see how the Prologue introduces the thematic material not through its melodic structure but through consistency of proportions and harmonic correspondence. It should be noted that, in the Prologue, harmonic signaling transpires by the placement of significant tones at prominent locations (on first beats) and holding them for extended durations; the sustained tones are C#(i), G#(V), D#(as VofV), and again C#(i). Furthermore, the points of contour emphasis in the Prologue correspond to C#, C#, D#, G#, G#, D#, A/F#, E/D#, D#, C#. Both situations of dual emphasis (A/F#, E/D#) arise because the strong beat and the extremity of the contour do not match. In the first case, in the second half of m.6, A is placed on the strong beat and is contained within the d#-dim formed with the first half of the measure, whereas F# is the lowest point of the contour and serves to join the end of d#-dim and V7. In the case of the E/D# duality at m.7, the first beat's stressed E creates tension as it delays the arrival of D# as root of D#-Major and here as V<sup>7</sup>ofV (note: G<sup>b</sup> is written as the enharmonic equivalent to F###). The D# is then repeated but now as part of V.

The last accentuated tone (C#) of the Prologue, on the downbeat of the eighth measure (in the right hand), has its arrival pre-empted by the anticipatory (pointing) figure comprised of the three sixteenth-notes C#-E-D#. In fact, the entire Prologue can be considered a 'signifier'. A quick glance at Example 7.2 reveals the many pointing elements it also contains but, to expedite matters, they will not be specifically detailed here.

Going back to the elements representative of a dialogic melody (highlighted in Table 7.2), we recognize that both examples invite participation by helping to create expectations, as they offer clarity, repetition, symmetry, continuation, variety and closure (they both return to the c#-minor tonic). The shown melodies allow room for interpretation and intertextuality as they do not indicate any dynamics and the score limits accentuation marks (in other melodies, tempo or phrasing indications are omitted). Pointing mechanisms are featured to aid recollection and anticipation and serve to stretch or contract temporal relations as agents of the relativity of the chronotope. Also, the excerpts include areas of relative repose where the other voices can join the dialogue, as in polyphony. Lastly, as reference points promoting familiarity, the opening patterns consist of unique features that are repeated or expanded upon throughout the melody.

LaRue recommends that we analyze a work's components to see how these contribute to small-, medium- and large-scale dimensions. This also applies to the care that must be exercised when deciding upon treatment of our melodic material.

Returning to the topic of signifiers and pointing, an extensive review of the functionality of tones and their rhythm features in the approach taken in *A Generative Theory of Tonal Music* by Fred Lerdahl and Ray Jackendoff. Equally, Schoenberg's *Structural Functions of Harmony*, Toch's *The Shaping Forces of Music* and, of course,

Schenker's well-known method abound with comparable yet highly individual guidance on functional harmony, or here, the functionality of tones within a melody.

It is timely to stress that, in high contrast to the proposed method of dialogical composition, Schenker's method of analysis “ignores rhythmic and textural considerations” yet still offers “a proto-structuralist aesthetic that seems logical and even elegant,” as stated by Joseph Kerman in *Contemplating Music*.<sup>26</sup> We again insist on the inseparability of melody (as tone succession and rhythm), harmony, structural rhythm, form, polyphonic texture and orchestration—the latter two we consider at once.

## Polyphonic Writing and Orchestral Considerations

Schoenberg suggests that form/growth in music aims principally at comprehensibility. As attested to in our exploration of intellectual arousal and in the subsequent overview of auditory perception, the mind seeks order, clarity and structure and this shapes how events are heard. When crafting a dialogic music composition with contrapuntal harmony, the importance of interrelationships between voices, their respectful individuality and their collaboration cannot be emphasized enough.

In his thorough analysis of the functionalism found in the works of Hindemith, Magnar Breivik suggests that Hindemith sought “a rebirth of polyphony, or rather a restoration of the polyphonic principles in a moderately modern tonal language.”<sup>27</sup> Breivik clarifies Hindemith's approach, as follows: “In adding melodies to the polyphonic fabric,

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<sup>26</sup> Joseph Kerman, *Contemplating Music: Challenges to Musicology* (Cambridge, MA: Harvard University Press, 1985), 82.

<sup>27</sup> Magnar Breivik, *Musical Functionalism: The Musical Thoughts of Arnold Schoenberg and Paul Hindemith*, (Interplay: Music in Interdisciplinary Dialogue; No.8), ed. Siglind Bruhn (Hillsdale, NY: Pendragon Press, 2011), 366.

every effort must be made to achieve unity. Individual voices should be balanced and mutually support each other.”<sup>28</sup> Likewise, in *Freedom and the Arts*, Rosen, speaking of obbligato accompaniment in Beethoven's work, reports,

The principal melody and the accompaniment are cut from the same cloth, and match each other. . . . Deriving all the contrapuntal voices of a piece from the principal motifs has also been basic to Baroque style, and is exemplary in the fugues of Bach, in which all the voices are theoretically equal. What the later eighteenth century demanded, however, was a hierarchy of voices, a distinction between main voice and accompanying voices, in which one voice carries the melody and the other voices are clearly subordinate. It was largely the contemporary prestige of opera that imposed this hierarchy of solo part and accompaniment everywhere in music.<sup>29</sup>

Rosen's chapter “Happy Birthday, Elliott Carter!” in *Freedom and the Arts* shows a dialogic rapport with the composer and offers a deep understanding into Carter's approach. Rosen supplies these words taken from a letter that Carter wrote describing his String Quartet no.1 and cello sonata to a concert founder in Los Angeles; and as we can read, Carter's vision parallels very closely the composition method proposed herein,

Certainly my music has sought mainly two things—to deal with vertical and horizontal dimensions in a more varied way than is usually done—I try to find continuities that gain meaning, change, and operate in time on a level of interest that is parallel to our present experience of living. Thus there are textures and shifts of character that feature very contrasting musical behaviours, simultaneously or one after each other, but linked together by phrasing. The other aspect is an attempt to use the performing situation, the instrument, its player, and the combination of instruments as a means of individualization. . . .To bring out their differences and make a virtue of that, even a means of expression.<sup>30</sup>

As can be derived from these successive quotes and from our prior discussions, polyphonic writing supplies an ideal vehicle to sustain individuality, appreciate diversity and invite collaboration. The works of Baroque, Classical and early Romantic periods as well as those of more recent composers such as Toch, Hindemith and Carter bear witness to this philosophy. Although Benjamin Britten's work will not be reviewed at this time, a

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<sup>28</sup> Breivik, *Musical Functionalism*, 366.

<sup>29</sup> Charles Rosen, *Freedom and the Arts*, 255.

<sup>30</sup> *Ibid.*, 181.

comparative reading of the score to his Op.23, no.1-Introduction and Rondo alla Burlesca (for two pianos) against the next few pages will quickly reveal the many passages that concur with the proposed method of dialogic writing.

In the current chapter's introduction, it was suggested that balanced dialogue consists of three main types of interactions (*Sequential*, *Collaborative* and *Disjoint*) and that auditory streaming and careful orchestration contribute to the attainment of this goal. Chapter 5 has already furnished extensive explanations on the phenomenon of auditory streaming but our query deserves a small incursion into matters of orchestration. Walter Piston's words, taken from his aptly titled book *Orchestration*, impel this choice of direction,

The interplay between the horizontal onward movement of melodic forces and the vertical static sonority made by resonance and the superposing of intervals is an ever-present basic fact of the art of music. Counterpoint, the combination of melodies, creates harmony through the coincidence of melodic tones. Harmony creates melodic movement by the effect of progression from one vertical sonority to another. The art of orchestration is concerned at all times with the interpretation of these two opposing yet complementary forces.<sup>31</sup>

Of the writings on orchestration, our attention turns to François Auguste Gevaert, Hector Berlioz (the edition revised by Richard Strauss) and Nikolay Rimsky-Korsakov in addition to Walter Piston. Strauss, in his introduction to Berlioz's *Grand traité d'instrumentation et d'orchestration modernes*, asserts that the numerous choices and variables inherent to the creative process make the establishment of any rigid guidelines somewhat problematic. Similarly, Rimsky-Korsakov declares "To orchestrate is to create, and this is something which cannot be taught."<sup>32</sup> Nevertheless, certain observations can be drawn; therefore, in lieu of extensive investigations overladen with details, only select points appear below.

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<sup>31</sup> Walter Piston, *Orchestration* (New York, NY: W.W. Norton & Company, 1955), 452.

<sup>32</sup> Rimsky-Korsakov, *Principles of Orchestration*, 2.

Let's begin with Gevaert's approach to orchestration:

*L'instrumentation est l'art de traduire une production musicale sous une forme instrumentale déterminée (Orchestre, harmonie, etc.). Cet art se divise en deux parties. Dans la 1<sup>re</sup> partie chaque instrument est considéré isolément, au point de vue de son étendue, de son mécanisme, de son caractère expressif. La seconde partie traite de l'emploi simultané des instruments, des diverses manières de combiner leurs sonorités entre elles.*

Orchestration is the art of translating a musical product into a determinate instrumentation form (Orchestra, harmony, etc.). This art can be divided into two parts. In the 1<sup>st</sup> part, each instrument is considered in isolation for its range, peculiarities of its mechanisms and expressive character. The second part deals with the simultaneous use of instruments, of the diverse ways in which their sonority can be combined.<sup>33</sup>

Although these words may appear simplistic, the art of orchestration demands a thorough knowledge of each instrument's peculiarities. For example, Gevaert considers that, due to their tremendous range, agility and homogeneity of timbre, the strings offer the fundamental element of orchestration—the pivot point, where background and foreground shift past each other seamlessly. Accordingly, Gevaert sees the first violins as occupying the most eminent place within the entire orchestra, and allocates the second position to the combined effect of the doubling of the cellos with the contrabasses.<sup>34</sup> As a cautionary word on doubling, although layering enhances the power, color and volume of an excerpt, it reduces the expressive character of each instrument. Rimsky-Korsakov offers this advice,

It cannot be denied that the constant use of compound timbres, in pair's, in three's, etc. eliminates characteristics of tone, and produces a dull, neutral texture, whereas the employment of simple, elementary combinations gives infinitely greater scope for variety in colour.<sup>35</sup>

For instance, should the bass line need lightening, removing from it the cellos by treating these as an independent voice will achieve this goal and, at the same time, allow the penetrating timbre of the cellos to shine.

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<sup>33</sup> François Auguste Gevaert, *Traité général d'instrumentation: exposé méthodique des principes de cet art dans leur application à l'orchestre, à la musique d'harmonie et de fanfares, etc.* (Paris: J.B. Katto, 1863. NABU Reprint, n.d.), 14. Translation by N. Dupuis-Désormeaux.

<sup>34</sup> Gevaert, *Traité général d'instrumentation*, 110; 112.

<sup>35</sup> Rimsky-Korsakov, *Principles of Orchestration*, 35.

An orchestration either supports, complements or competes with a main statement. To this end, Gevaert suggests that the strings can produce sympathetic interactions through non-arpeggiated, arpeggiated or syncopated chords, tremolos, pizzicatos, etc. Piston reminds us that it should be borne in mind that the “aggregate sonority of the whole bass section tolerates a slower moving bow than does the tone of a single solo bass.”<sup>36</sup> Furthermore, as the basses most often enunciate the harmonic foundation of a work, care should be exercised to ensure that residual partial harmonics do not interfere with the rest of the texture. As for purposefully produced harmonics, Rimsky-Korsakov adds that string harmonics, chiefly employed as tremolando on sustained notes bring an ornamental quality of opalescence to sounds.

The clarinet, in turn, with its large range and varied timbre qualities, unites the woodwind section (Gevaert's words will please any clarinetist when he asserts that “any passage without clarinet essentially lacks plenitude and cohesion”).<sup>37</sup> Alternately, the piccolo and oboe add accentuation and brilliance to the woodwinds. Rimsky-Korsakov remarks that arpeggios and rapid alternations are difficult to execute on the oboe and bassoon but fairly easy on both the flute and the clarinet.<sup>38</sup> In contradistinction, large leaps from one octave to another, although straightforward for flute, oboe and bassoon players, pose a real challenge to clarinetists.<sup>39</sup> Also, oboes and bassoons allow for strong punctuations, while sustained passages are best suited to flutes and clarinets, says Rimsky-Korsakov. He further considers that flutes are compatible with “graceful” melodies in major

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<sup>36</sup> Piston, *Orchestration*, 105.

<sup>37</sup> Gevaert, *Traité général d'instrumentation*, 134.

<sup>38</sup> Rimsky-Korsakov, *Principles of Orchestration*, 19.

<sup>39</sup> *Ibid.*, 18.



keys and sorrowful ones in the minor mode.<sup>40</sup> Piston warns that the flute's low register is “deceptively heavy when heard alone,”<sup>41</sup> whilst Rimsky-Korsakov finds that, in this register, the flute sounds like a trumpet in pianissimo.<sup>42</sup>

The timbres of strings and woodwinds blend well owing to the fact that both instrument groups are made of wood. Conversely, the brass section adds intensity and resonance to any passage by its unique sound formed of instruments sharing very similar timbre. Although modern brass instruments now incorporate pistons and valves, they sound best when tones correspond with natural harmonics. When it comes to bridging timbres, the horn's large range and its ability to sustain tones and perform technical passages render it a fine companion for the other brass instrument. For the same reasons and because its middle register has a timbre similar to that of the bassoon, it proves ideal in tying the woodwinds to the brass section.<sup>43</sup>

In uniting instruments, judicious attention should be applied to an appreciation of their range, timbre, capacity for technical prowess, power or subtlety of expression and specific character along their different registers. Instruments considered to have clear timbres are the oboe, the trumpet, and the strings in their high register, while those having sombre qualities are the bassoon and, in their low register, both the clarinet and the strings. Instruments of mixed qualities are the flute, the clarinet, the horn and the middle register of the strings. Accordingly, the upper register of an instrument will most often be heard as prominent or dominating, while its medium register generally blends more easily with others. The low register often brings with it difficulties due to its distinctive sound.

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<sup>40</sup> Rimsky-Korsakov, *Principles of Orchestration*, 18-9.

<sup>41</sup> Piston, *Orchestration*, 131.

<sup>42</sup> Rimsky-Korsakov, *Principles of Orchestration*, 35.

<sup>43</sup> *Ibid.*, 24.

The merging of instruments sharing a similar timbre quality (clear or sombre) lacks nuance, while the superposition of two having opposite qualities will be heard as harsh. Adding the third type of timbre, a mixed timbre, will round out the sound. A composer can accentuate or temper a passage by making use of these peculiarities. According to Gevaert, grouping all instruments in their high register will seem almost violent in a *forte* but will have ethereal qualities in a *pianissimo*, whereas the union of medium registers will produce a full and velvety result, and the merging of low registers will generate a solemn effect.<sup>44</sup> The middle region of the compound 'instrument' provides the binding knot of the harmony, says Gevaert, and its significance cannot be ignored. Likewise, when a melody is highly reinforced, the accompaniment should be thickened proportionately to ensure a balanced sound. Of import, Gevaert suggests that it is difficult to create a long crescendo, and he recommends to select timbres, tone color and registers according to their presence. In so doing, Gevaert sees the level of timbre prominence increasing from strings to winds to brass; the level of color prominence augmenting from sombre to mixed to clear; and the prominence heard from an instrument's register as increasing in presence as the instrument moves from low to medium to high register.<sup>45</sup>

The second part of Walter Piston's book offers an insightful glance into the analysis of works according to orchestration choices (such as textural elements, distribution, balance/contrast, individual/collective contributions, proportions); he claims,

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<sup>44</sup> Gevaert, *Traité général d'instrumentation*, 195.

<sup>45</sup> *Ibid.*, 198.

The objective in analysis of orchestration is to discover how the orchestra is used as a medium to present musical thought. . . . how instruments are combined to achieve balance of sonority, unity and variety of tone color, clarity, brilliance, expressiveness, and other musical values.<sup>46</sup>

Clearly, the dialogically-minded composer benefits from a thorough understanding of the interactions between instruments and utilizes this knowledge to organize voices according to desired effects and structural considerations, as we shall see in the following section.

Lastly, Rimsky-Korsakov's manuscript proves undeniably informative, as it presents the many possible permutations arrived at when combining instruments within a specific group and in association with other instrument groups. A few of his observations appear in Table 7.3, and his suggestions for general groupings can be found in Table 7.4, both below. Unfortunately, the level of detail afforded by Rimsky-Korsakov's *Principles of Orchestration* cannot be fully reproduced here, but the tables provide valuable information that can be utilized when selecting instrument combinations to produce desired effects.

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<sup>46</sup> Piston, *Orchestration*, 355.

Table 7.3 - Rimsky-Korsakov's Remarks on Sound Mixtures

Resonance	<ul style="list-style-type: none"> <li>- the most resonant group is the brass.</li> <li>- in forte passages, 1 trumpet = 1 trombone = 1 tuba = 2 horns, and 1 horn = 2 clarinets = 2 oboes = 2 flutes = 2 bassoons.</li> <li>- in soft passages, each woodwind or brass instrument yields an approximately equal resonance.</li> <li>- the number of string instruments determines their resonance but, in general, in a soft passage, each string department of a medium-sized orchestra is equivalent to 1 woodwind instrument (e.g. Violins I balance out 1 flute), while in a loud passage, the strings take on more weight and the balance is shifted to require an additional wind instrument, e.g., Violins I = 2 flutes = 1 oboe + 1 clarinet, etc.</li> <li>- the double-basses require doubling (usually in the cellos) if attempting to sustain melodies of a singing character.</li> </ul>
Expression and Color	<ul style="list-style-type: none"> <li>- a woodwind adds thickness to the string section and softens the brass.</li> <li>- strings and woodwinds combine well owing to their similar timbres.</li> <li>- strings do not blend easily with brass and require the help of the woodwinds to establish commonalities in timbre; however, horns and cellos when played in unison produce a rounded and rich tone.</li> <li>- the mixture of the three principal groups in unison produces a rich and velvety sound.</li> <li>- plucked strings go well with percussions.</li> <li>- string harmonics blend well with the flute or piccolo and tie strings to woodwinds.</li> <li>- the strings form the most expressive group, followed by the woodwinds and then the brass, afterwards by the plucked strings, and lastly, the percussions.</li> <li>- if a melody requires high expression, it is best to let it be carried by a singular instrument (solo) of simple timbre.</li> <li>- open strings are clearer and more powerful but not as expressive as when stopped.</li> <li>- playing on a string's bridge produces a metallic sound.</li> </ul>
Character	<ul style="list-style-type: none"> <li>- the timbre of the viola resembles the middle register of the bassoon and the lower compass of the clarinet.</li> <li>- the viola has a nasal quality best used in short phrases; also because there are fewer of them in an orchestra, violas are usually doubled by the woodwinds or in other strings.</li> <li>- the bassoon and the horn have similar characters when played softly or mezzo-forte, and bridge woodwinds with bass.</li> <li>- the horn and trumpet, when stopped or muted, sound like the oboe or English horn and blend very well with the latter.</li> <li>- the reduced volume of muted strings produces a dull sound in pianissimo and has a whistle-like quality in forte.</li> </ul>
General	<ul style="list-style-type: none"> <li>- pitch height of the woodwinds, in descending order, is: piccolo, flute, bass flute, oboe, English horn, small clarinet, clarinet, bass clarinet, bassoon, double bassoon.</li> <li>- pitch height of the brass section, starting from the highest pitch to the lowest, is: the trumpet, horn, trombone, then the tuba.</li> <li>- the soft and weak portion of one instrument's range should not be merged with the most powerful or prominent register of another because, in doing so, the latter will overpower the first.</li> </ul>

Table 7.4 - Rimsky-Korsakov's Typical Groupings by Register						
Register	Woodwinds + Strings <sup>47</sup>		Brass + Woodwinds <sup>48</sup>		Strings + Brass <sup>49</sup>	
High	Flutes (and piccolo, bass flute) Oboes Clarinets (and small Cl.)	Violins	Trumpets (also often doubled by horns)	Flutes Oboes Clarinets	Violins	Trumpets Horns
Medium	Oboes Clarinets Bassoons	Violas	Horns	Clarinets Bassoons	Violas	Trumpets Horns
Low	English Horn* Clarinets (and Bass Cl.) Bassoons	Cellos	Trombones (also doubled by horns)	Bassoons	Cellos	Trombones Tuba
Very Low	Bass Clarinet Bassoons Ctrbasson	DblBasses	Tuba	Bassoons	DblBasses	Trombones Tuba

\* This entry refers to Walter Piston, *Orchestration*, 160.

We leave our exploration into orchestration with Gevaert, who asserts,

*Enfin, l'association [des groupes d'instruments] atteint le dernier degré de perfection lorsque l'ensemble est conçu de manière que non seulement chaque groupe pris en général, mais chaque instrument en particulier, conserve sa physionomie individuelle et son mouvement indépendant.*

In summary, the combination of instrument groups attains its highest degree of perfection when the whole is conceived in such a way that not only each group but each instrument conserves its individual physiognomy and its independent motion.<sup>50</sup>

<sup>47</sup> Rimsky-Korsakov, *Principles of Orchestration*, 58-9; 94.

<sup>48</sup> *Ibid.*, 56-7; 83; 88.

<sup>49</sup> *Ibid.*, 61.

<sup>50</sup> Gevaert, *Traité général d'instrumentation*, 152. Translation by N. Dupuis-Désormeaux.

## Structural Considerations of Balanced Dialogue

*The Great Animal Orchestra* by musician and bio-acoustician Bernie Krause, praised by no other than the highly respected American biologist and father of sociobiology Edward O. Wilson, gathers the results of his extensive field research. Krause has recorded all types of species both above and below water from insects to bats, birds, elephants, whales and even snapping shrimp. *The Great Animal Orchestra* introduces readers to the richness of the *biophony* (from the Latin *bio* or 'life' and *phon* for 'sound') of various ecosystems. Krause's key finding resides in the remarkable observation that the biophony of a given ecosystem is not random but, rather, is structured, selective and dynamic, as it continuously adjusts to deviations in the global soundscape. It appears that, as an evolutionary adaptive mechanism, all animals, including humans, have developed *niche discrimination*, i.e., they produce unique sound patterns, where timbre, rhythm and frequency are specific to their species in order to be heard through the dense sonic tapestry. This continuous re-adjustment of nature's dialogue in response to the totality of the sonic environment reminds us of dialogism's polyphony and of the explicit goals of our research.

In *The Great Animal Orchestra*, Krause asks,

When seeking explanations for the structure and intent in our music, have we been ignoring the context in which humans first began to control sound? How did the sonic structure inherent in biophony impact human expression to take the form of music? Did murmurs from the wild that suggest rhythm, melody, polyphony, and design serve as the organizational basis of musical expression?<sup>51</sup>

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<sup>51</sup> Bernie Krause, *The Great Animal Orchestra: Finding the Origins of Music in the World's Wild Places* (New York, NY: Little, Brown and Company, Hachette Book Group, 2012), 112.

As it is probable that biophonic adaptation has influenced not only how we speak but also the way we create musical dialogues, it seems pertinent to look at the types of dialogues that coexist in nature and proceed to the demonstration of how to reproduce them in music.

*Sequential Dialogue*: Krause observes that, in nature, when sounds resume after an alarming disruption, they often do so sequentially—first the insects, then the birds, and finally the larger animals join the chorus. This phenomenon also occurs within the normal integration of sounds from dawn to an afternoon peak until the sounds recede at dusk.<sup>52</sup> Comparably, in humans, when starting or resuming a conversation, gingerly or politely maintaining it, after a significant disturbance or break in the conversation, or simply when the topic is so tense that one can only listen, successive dialogue likely takes place. Let us call this *Sequential Dialogue*. This typically results in one voice articulating thoughts while the other(s) supports by acknowledging, repeating or responding in turn or by infusing the discourse with short inflections, nods or similar gestures to demonstrate that the message is being heard. In this mode, there is no overlap of topic, theme or voicing. With this communication genre, dialogues can either involve participatory empathy and support or, conversely, autocratic lack of inclusiveness (i.e., unidirectional monologues). The first situation adds stability to the dialogue while the second increases tension.

Musically, *Sequential Dialogue* is achieved by encouraging auditory segregation. Supportive behaviour consists of repeating the initial statement's thematic material (fully or in part) between the other voices while adjusting dynamics, action and gestures in a way that ensures adequate areas of rests in each voice to allow respectful contributions from the others. Returning to Table 5.1, we propose that *Sequential Dialogue* can be achieved by

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<sup>52</sup> See Krause, *The Great Animal Orchestra*, 47.

manipulating musical parameters across voices (interval size, timbre, temporal relations, contour and motion, harmonic relations, dynamics, etc.) as shown in Table 7.5 below. The emphasis, here, resides in expressing, acknowledging and sustaining one principal thought or melody that, in itself, encourages dialogism (see Tables 7.1 and 7.2).

Table 7.5 - <i>Sequential Dialogue</i> and Auditory Streaming		
Sensory Element↓	Within Voice	Between Voices
	Sequential Organization	Simultaneous Organization
Frequency or Pitch	Keep intervals within voice small, i.e., step-wise.	Ensure adequate separation so that each voice can be heard distinctly.
Overlap in pitch	N/A	Do not let voices overlap.
Timbre		Use different timbres to encourage segregation.
Harmonic Relations	Functionally related tones will tend to fuse within the tonality.	Emphasize lower harmonics (octave, fifth, third, etc.).
Onset/Offset	Have different onset to encourage segregation from other voices.	Have same onset (e.g., doubling).
Rhythm	Keep notes in rhythmic proximity.	Use similar rhythmic gestures and long note durations to sustain harmonically significant areas.
Motion	Emphasize directionality by temporal stretching or contracting. Hasten pace to encourage forward drive.	Employ similar rhythms.
Contour	Repeat contours.	Match contours.
Dynamics	Use constant or progressive dynamics.	Adjust dynamics to enhance support.
Spatial Location	N/A	Separate the instruments so that they can be heard individually.

Example 7.3 illustrates the main characteristics of *Sequential Dialogue*. It can be observed that pitches within the leading voice are kept in close proximity while the others skip or remain still, contours reoccur as imitation or variation, staggering of action encourages separation and creates 'banter', and the dynamics allow emphasis to alternate between voices. Further, harmonies remain unobstructed by having the supporting voice arrive on downbeats with tones expressing clear chordal relations.



Example 7.3 - First Example of *Sequential Dialogue*

N. Dupuis-Désormeaux, Opus 106, No.2 - Sonata for Oboe and Piano (c-minor)

Allegro ♩ = 108

Oboe

Piano

Ob.

P.

It is worth noting that the dynamics at bar 3 in the oboe part change from *mf* to *mp* to return prominence back to the piano and the upcoming motivic variation. In the second half of this same measure (m.3), the eighth-note followed by a two-beat duration recalls the figure used to bridge the first two bars; it thus acts as a signifier, pointing behind to recall the motion of the original tonality (c-minor) but showing its evolution by now expressing the dominant area as an end-of-phrase descent. In the same bar, the piano's left-hand changes the direction of the original contour while the right-hand creates tension through its fluttering alternation between tones that calls for a resolution into a stable tone. The promise is upheld by the arrival of the right-hand's sustained D5, serving as an echo to the oboe's end

of phrase. From there, the oboe picks up the fluttering to announce a new statement: the arrival of the grouped eighth notes playfully exchanging the action against the grouped sixteenths. The tension-filled fluttering is referred to by Toch as “winding-up”—a type of coiling before a leap produced by a group of quick notes such as a mordent, etc.<sup>53</sup> Here, it is seen in the piano's right-hand before the leap from G4 to D5, and also occurs before the two-step leap in the oboe from G5-(B5<sup>♯</sup>)-C6.

The gentle pulsing of the ostinato in the left-hand of the fourth measure subtends the remainder of the dominant expression while pointing to the arrival of the tonic (c-minor) in m.5. Lastly, the imitative three-note grouping in the left-hand at m.6 gets reinforcement from a *mf* marking. This example shows how dialogue can be shaped to give cohesion to one, unique, thought that is subsequently and interactively supported—here in a playful exchange.

Constructing *Sequential Dialogue* by the method shown above allocates resources to the pronouncement of one primary thought that is then reaffirmed, supported and validated through focused efforts. In this mode, tension is minimized, disruptive overlap mostly avoided, and harmonies kept uniform, as the voices have a common goal of working through and with one idea at a time before proceeding to its variants or to another topic altogether.

In terms of orchestration, *Sequential Dialogue*, where melody is supported and emphasized by judicious accompaniment, typically results from clearly differentiated tone color, careful selection of dynamics and registers of the instruments involved, gentle

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<sup>53</sup> Ernst Toch, *The Shaping Forces in Music*, 95.

pulsation or nonintrusive rhythms, e.g., a light staccato in the strings contrasting a signing legato in woodwinds, and features that promote stream segregation (see Table 7.5).

We show another case of *Sequential Dialogue* in Example 7.4. In contrast to Example 7.3, here, there is very little exchange of this dialogic melody between the voices—the piano serves almost exclusively as accompaniment and ornamentation. The difference in timbres, motives and texture help in separating the accompaniment from the melody. The piano's quick lacing motive keeps its tones in close proximity and encourages it to fuse together and not interfere with the clarinet's statement. Where the voices overlap, their opposite direction of motion reinforces their distinct individuality.

The harmonies created in the playful exchange are chosen to concur and collaborate. For instance, the accentuated dissonances highlighted by the clarinet in both the second half of m.5 and the first beat of m.8 are held for a half-measure, then resolved between beats by an eighth-note appoggiatura followed by the tone of resolution. This delayed arrival of the resolution creates temporal stretching followed by an energetic release when the anticipated tone is finally reached. Appoggiaturas also appear in the next bar (m.9), in imitation of the clarinet's initial rhythm. In turn, the use of anticipatory figures such as the two sixteenth-notes at the end of bars 7 and 8 give forward drive to the excerpt by precipitating the action in an earlier beat.

As it did in the first two bars, the piano's right-hand in the fifth and sixth measures joyfully tumbles from tonic to dominant of the core tonality of D-Major while the left hand arpeggiates chords under the clarinet's cheerful melody. A collaborative exchange between the piano and the clarinet takes place in m.7 by shifting the piano's motive of sixteenth notes

into the clarinet and by placing prominently the dissonant G5 (over A3) on the third beat before being seized within the clarinet's driving sixteenths (F5-G5) carrying the dissonance upward to resolve on A5 in m.8. This A5 now creates the prominent dissonance discussed above and the motion continues.

Example 7.4 - Second Example of *Sequential Dialogue*

**N. Dupuis-Désormeaux, Opus 103, No.2, MVT4 - Clarinet in A and Piano Sonata  
- displayed in concert pitch -**

**Grazioso** ♩ = 104

The musical score is presented in three systems. Each system contains two staves: the upper staff is for the Clarinet in A and the lower staff is for the Piano. The key signature is one sharp (F#) and the time signature is 4/4. The tempo is marked 'Grazioso' with a quarter note equal to 104. The Piano part features a driving sixteenth-note pattern with triplets. The Clarinet part features a melodic line with a prominent dissonance on the third beat of the first system.

To aid comprehension and retention as well as provide stability, short motives in both voices repeat throughout and tonal areas are uncluttered. Taking advantage of the pleasures offered through delayed affect, many areas of anticipation infuse the music via

temporal stretching and contracting. The splitting of action between parts unites them and also features prominently in *Collaborative Dialogue*, which we will now consider.

*Collaborative Dialogue*: Krause contends that in a healthy ecosystem creatures sing together. The resulting state of structured balance arises from the *niche discrimination* phenomenon that Krause's years of field work confirmed. Krause explains the discovery in this passage:

Gradually the growing body of my work validated the idea that creatures vocalize in distinctive kinship to one another, particularly in older, more stable habitats. . . . In biomes rich with density and diversity of creature voices, organisms evolve to acoustically structure their signals in special relationships to one another—cooperative or competitive—much like an orchestral ensemble. That is, over time, unlike the vocalizations that occur at various stages of recovery in stressed or compromised habitats, natural selection has caused the animal voices that occur in many undisturbed regions to appear “organized.” The combined biological sounds in many habitats do not happen arbitrarily: each resident species acquires its own preferred sonic bandwidth—to blend or contrast—much in the way that violins, woodwinds, trumpets, and percussion instruments stake out acoustic territory in an orchestral arrangement.<sup>54</sup>

In human dialogue, when healthy conversations have their greatest momentum and display high interaction, there is a continuous back-and-forth between participants. In some cultures, overlap represents vivid interest while, in others, it is deemed rude. In the latter case, if polite reserve colors the setting, the type of discourse will fall back to that of *Sequential Dialogue*. We, therefore, focus solely on the respectful (yet interactive), dynamic and sometimes passionate overlapping of viewpoints, positions, ideas and individual voices partaking in a *Collaborative Dialogue*. It is within this type of interaction that the most numerous elements of dialogism can be found, as its primary characteristic is the rich and enriching balance between individuality, diversity and collectivity. This manner of conversing can manifest itself in myriad ways ranging from serene and subtle exchanges to

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<sup>54</sup> Krause, *The Great Animal Orchestra*, 88; 97.

high-intensity interjections. In this last setting, tension ensues from the momentary ambiguity created by the co-existing viewpoints inherent to true polyphony. Tension due to vastly divergent viewpoints fall under *Disjoint Dialogue* and can be interpreted as enhanced contrast and tension in texture's middle dimensions. (Of note, entire movements in highly differing keys can be seen as large-scale tension).

At this point, we are compelled to reiterate our position (first expressed in Chapter 6) that dramatic contrast can, in fact, exist without having to resort to violent opposition or domination. The peaceful approach we embrace sees drama and tension as the product of healthy opposition and brings with it the excitement of the search for common ground as representative of resolution or closure. There are times where, even with the most valiant effort, compromise or conciliation cannot transpire, and we simply decide to 'agree to disagree' but this also is a form of respectful closure.

The intricacies of *Collaborative Dialogue* present the composer with significant challenges and opportunities for an enhanced understanding of both musical and human interactions. To this end, dialogism sheds light on the many directions and choices a composer can make when striving for balance between individuality and unity. In this type of dialogue, the practice of heterophony, or rendering the same melodic gestures simultaneously in different rhythms, can punctuate a dialogue and bring about its coalescence. Similarly, splitting a rhythm or melody across voices greatly enhances unity through collaborative continuity. Rosen explains how this feature operates in Wagner's and Schumann's works,

Related to [heterophony] is the practice of Wagner, already found in the songs of Schumann, of leaving the vocal line fragmentary and unresolved, to be completed by the instruments. Or vice versa—to have an incomplete instrumental line finished by the voice, an essential Wagnerian technique already demonstrated to a sophisticated degree by Schumann. Essentially, they both often conceive a melody differently realized by both voice and accompaniment, sometimes one superimposed over the other, or incompletely by one to be finished by the other. In both, the melody is independent of its specific realization by voice or instrument, and comes into being only as a collaboration.<sup>55</sup>

This last sentence marks the essence of *Collaborative Dialogue*. Its principal features reside in heterophony, mimetic interjections, polyrhythmic inflections and dynamic interchanges, where motivic and harmonic differences serve to complete and complement the rich elaborations of individual and united voices.

Creating *Collaborative Dialogue* requires the construction of individual dialogic melodies (each built according to the guidelines of Table 7.2), a thorough understanding of how they relate harmonically, and careful chord distribution or orchestration in order to facilitate the creation of separate yet interdependent auditory streams. We turn again to Table 5.1 to derive the key parametric manipulations shown in Table 7.6. In contrast with *Sequential Dialogue*, we observe that the unequivocal overlap in *Collaborative Dialogue* renders this structure's characteristic feel. Distilled or persuasive individual lines manifest through the spacing of chords, choice of timbres and prominence of rhythmic features. Compound timbres produced where tones meet or cross will have different properties depending on if these occur through superposition, overlap, interlocking/crossing or enclosure of voices. Both Piston and Rimsky-Korsakov discuss these matters in detail in the aforementioned manuscripts on harmony.<sup>56</sup>

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<sup>55</sup> Rosen, *Freedom and the Arts*, 198.

<sup>56</sup> See Piston, *Orchestration*, 396-404 and 444-452, as well as Rimsky-Korsakov, *Principles of Orchestration*, 63-87.

Equally, Rimsky-Korsakov devotes a full chapter to the presentation of a comprehensive array of methods to connect voices.<sup>57</sup> Here, he suggests the repetition, imitation and transference of motives, passages and phrases, the repetition of chords and their inversions amongst different combinations of instruments, the alternation of groups in forming chord progressions, the amplification (or attenuation) of resonance (similarly to how Gevaert builds a crescendo from the interaction of timbre, color and register), dynamic accommodation, sforzando-piano chords and their opposite, insertion of punctuated tones to create chords at specific points under a melodic line, the use of widely differing chords under a repeated segment or the alternation of harmonies between two melodic figures, and the use of percussions to punctuate or emphasize rhythms, etc.

In speaking of singing, Rimsky-Korsakov claims that the principles underlying the healthy union of two voices extend to the writing for many voices,

[W]riting for two [human] voices is only successful when the progression of parts is clear, when the discords are prepared by a common note, or are the outcome of conveniently separated movement and correctly resolved. . . . All that has been said regarding the relationship of voices in duet applies with equal force to the combination of three, four, five or more voices. An *ensemble* of several voices is seldom purely polyphonic; as a rule, although some parts move polyphonically, progression in thirds, sixths, tenths and thirteenths is used for the remainder.<sup>58</sup>

We apply this rationale not only to the scoring of human voices but also to that of a multi-instrument work.

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<sup>57</sup> Rimsky-Korsakov, *Principles of Orchestration*, 97-118.

<sup>58</sup> *Ibid.*, 141.



Table 7.6 - *Collaborative Dialogue* and Auditory Streaming

Sensory Element↓	Within a Single Voice or a Compound Voice	Between Voices
	Sequential Organization	Simultaneous Organization
Frequency or Pitch	Keep intervals small, i.e., step-wise.	Spread out chords and melodies to encourage balance across the range.
Overlap in pitch	Ensure adequate separation so that each voice (singular or compound) can be heard distinctly.	Create overlap to add ambiguity and add texture.
Timbre	Use different timbres to encourage segregation from other voice-groups.	Use similar timbres to blend textures or to increase ambiguity.
Harmonic Relations	Introduce pointers to link significant harmonic events. Explore separate yet related tonal areas.	Emphasize lower harmonics (octave, fifth, third, etc.) when supporting. Add pointers to reach into the tonal areas of other voices.
Onset/Offset	Have different onsets of action to reinforce individuality.	Have same onset when doubling.
Rhythm	Keep notes in rhythmic proximity. Create polyrhythms to retain individuality. Leave adequate rest.	Use similar rhythmic gestures at key points and longer durations when sustaining or pointing to harmonically significant areas.
Motion	Emphasize directionality by temporal stretching or contracting. Hasten pace to encourage forward drive. Have clear direction.	Reach into other voices by melodic splitting. Use parallel or similar motion when linking voices.
Contour	Create distinct contours that repeat.	Match and complete contours.
Dynamics	Adjust dynamics to highlight individuality or enhance support.	
Spatial Location	Separate the instruments so that they can be heard individually.	Combine desks, sections or groups to form compound voices.

In *Collaborative Dialogue*, harmonies develop, morph and entwine both vertically and horizontally. As witnessed through the analysis of the examples below, distinct melodies co-exist and, at times, even express different but related tonal areas (which we later describe as the principal tonality's *close neighbours*). Within such polytonal passages, if these suggest a common and central tonality, a sense of stability ensues by way of anchoring (as discussed in Chapter 6). Here, signifiers prove essential in suggesting or linking seemingly separate harmonies. Either subdued or obvious, non-diatonic tones emerge from the melodic lines as signifiers, pointers and identifiers in tying harmonically

significant events. In this role, they clearly serve a structural function in the form/growth process of underlying harmonies. When non-diatonic tones are employed to thicken the texture or recall a pattern as the strict reiteration of its intervallic relations, they, nevertheless, carry a functional role, albeit a non-harmonic one. More detailed reflections on harmonic considerations are compiled under the next rubric.

Example 7.5 demonstrates a case of *Collaborative Dialogue* mostly comprised of the blending of motivic and directional action. It begins with the violin's clear enunciation of the  $b^b$ -minor tonality over the cello's simple ostinato reinforcing the tonic before it proceeds to repeating exactly the violin's opening statement (up until the last beat of m.138). This transfer of the violin's initial descent to the cello is imitated in the fourth measure shown (m.139) as a two-octave continuation in the piano's right hand over another  $b^b$  ostinato, here in the left hand.

The second measure (m.137) of this excerpt shows a clearly formed ascent in the violin from F4 to  $D5^b$  over an F4 pedal reinforcing the dominant of the main tonality. This crest at  $D5^b$  is no coincidence and will be discussed below.

In the third measure shown (m.138), the violin skips over the expected  $E5^b$  of the previous bar's scalar motion and begins directly on F5. The expected  $E5^b$  is withheld until it makes a subdued appearance in the descending pattern of the violin at m.139 but, after pivoting on  $A4^b$  as the mediant of f-minor, the violin climbs towards its apex—the long-anticipated  $E^b$ , expressing eb-minor (last beat of m.140).

Example 7.5 - First Example of *Collaborative Dialogue*

N. Dupuis-Désormeaux, Opus 115, No.1, MVT3 - Trio for Violin, Cello and Piano

The image shows a musical score for Violin (Vln.) and Cello (Vc.) from measures 136 to 141. The score is in 3/4 time with a tempo of 108. The key signature has two flats (B-flat and E-flat). The violin part starts at measure 136 with a *mf* dynamic and features a complex melodic line with many triplets and slurs. The cello part starts at measure 136 with a *pp* dynamic and features a more rhythmic accompaniment with triplets. The score continues to measure 141, where the violin part has a *V* marking and the cello part has a *3* marking. The score is presented in two systems, with the first system covering measures 136-140 and the second system covering measures 141-141.

The second beat of m.138 displays an interesting case of tone functionality. Here, the cello clearly demarks the  $b^b$ -minor tonality while the violin's upper line pushes the f-minor climb to its mediant ( $A5^b$ ) on the third beat, where it receives support in the cello. This harmonic diversity is emphasized by the violin's arpeggiated  $G5^b$ - $C$ - $G4^b$  on the second beat of m.138. In this three-note group, the C is no mere ornament. It is prepared in the first beat of m.138 as the dominant of f-minor and continues this role in the third and fourth

beats of the measure, yet its role within  $G5^b$ -C- $G4^b$  only becomes clear when it reveals itself as the link ensuring a smooth passage from f-minor to  $e^b$ -minor through the implied bimodality of F-Major/f-minor and  $E^b$ -Major/ $e^b$ -minor. Likewise, although  $G5^b$  can be interpreted as a passing note to  $A5^b$ , it carries functional weight in this somewhat anomalous  $G5^b$ -C- $G4^b$  group because it acts as a pointer to the arrival of  $G^b$ -Major in m.140 (see below).

The pull between f-minor and  $e^b$ -minor continues in the violin in the fourth and fifth measures of the excerpt. The F5 ostinato in the top line of the violin at m.139 emphasizes f-minor, which receives further reinforcement by the prominence of  $A4^b$  as the lowest point of the descending contour. The cello offers support at m.139 first by carrying  $b^b$ -minor against the violin's upper pedal of F (now heard as dominant of  $b^b$ -minor) and then by doubling the violin. In the first three beats of m.140, the cello's mirroring imitation of the violin allows for both unity and individuality. Here, the awaited  $G^b$ -Major (announced by the  $G5^b$ -C- $G4^b$  group and the highlighted  $D5^b$ ) finally arrives in both the violin and the cello and is confirmed by the presence of  $B^b$  at the end of the cello's contour. In the fifth measure shown, the violin reaches the awaited  $E^b$ , while the cello sits on  $b^b$ -minor and the piano remains neutral with its ostinato on  $b^b$  as both tonic and dominant. The presence of C in the cello ties f-minor,  $G^b$ -Major and  $e^b$ -minor through bimodality, as alluded to above.

During this passage of high action, the piano enters at m.139 in full  $b^b$ -minor force supported in the cello by a contribution on the first beat as well as through the persistent ostinato on the dominant in both the cello and the violin. When this  $b^b$ -minor continues through m.140, it is now heard as reinforcing both the mediant of  $G^b$ -Major and the dominant of  $e^b$ -minor.

Without discussing this example further, we stress that it proceeds to a Perfect Authentic Cadence ( $i^{5/3}$ - $iv^6$  - $i^{6/4}$ - $V^7$ - $i^{5/3}$ ) in the piano at m.143, while the violin and cello express f-minor. Having fully affirmed the  $b^b$ -minor tonality, the piano leaves it behind and joins the violin and cello in f-minor. The passage fully embraces f-minor as of m.146.

This small excerpt exhibits polytonality where manipulation of parameters according to Table 7.6 yield individuality and unity as dialogism's I and 'other.' As seen in the example, pointers prepare through anticipation and help to decipher harmonies as these form within the texture of polyphony. We recall that their situatedness and relativity echo dialogism's chronotope. The pliability of harmonic events shows unfinalizability, while the choices exercised in their accentuation speak of heteroglossia. Inter- and intra-opus norms abound in Example 7.5 with its tempo and time signature concurring with schematic expectations, placement of significant events on the downbeat, step-wise motion, high symmetry, repetition, its use of expected chord progressions such as V-I and the presence of a cadence. There is tension in the layering of ambiguous or competing harmonies. There is no element of surprise in this excerpt but the tension built from both motion and harmonic pulling creates a definite sense of anticipation.

Lastly, it should be noted that Example 7.5's harmonic kinship achieved through bimodality and *close neighbours* serves to promote both stability and cohesion. As we will provide ample details on such matters in our latter section on harmonic considerations, we postpone their study until then. Next, we briefly outline features of a second instance of *Collaborative Dialogue*.

Example 7.6 - Second Example of *Collaborative Dialogue*

**N. Dupuis-Désormeaux, Opus 103, No.2, MVT1 - Sonata for Clarinet in A and Piano  
- displayed in concert pitch -**

The musical score is presented in concert pitch. It consists of three systems of music. The first system shows the beginning of the piece with a tempo marking of quarter note = 52. The second system starts at measure 22 and includes a clarinet part (A Clarinet) and piano accompaniment. The third system starts at measure 26 and continues the dialogue between the clarinet and piano. The key signature is A major (three sharps) and the time signature is 3/4.

The above Example 7.6 quickly reveals both sequential and collaborative elements. We see high symmetry and interlaced repetition of motives. In the first three bars of the excerpt, onset of action is staggered by presenting each voice against a sparse accompaniment. Distinct figures are repeated throughout. For example, the pattern made of a sixteenth-note followed by a dotted-eighth that fills m.26 in the piano reoccurs exactly in

the clarinet at m.27. This combination of sixteenth-note with dotted-eighth was introduced in its reversed version by the clarinet at m.22. The reversal is significant here because it emphasizes that the leading tone D5# does not end its course at E5, instead, it continues through to F5#. The importance of matching rhythmic stress with desired harmonic outcome features in this small modification of a pattern. Should the sequence have been written to emphasize E, the D# would have been given the shorter time-value to act as a decoration between the two soundings of E. Likewise, this F5# having been led to by the D# drops to B4, thus forming a B-Major chord, which will feature again in the piano's left hand on the downbeat of m.23. On this first beat of m.23, the clarinet holds a prominent C5<sup>h</sup> as an accented dissonance formed of a diminished fifth over the F# in the bass before continuing to its upward resolution on D#—the missing tone of this B-Major chord. This discordant C5<sup>h</sup> creates a brash pointer to the upcoming C-Major chord acknowledged by the introduction of G5<sup>h</sup> in all three voices in the middle of m.23 and reinforced by E5 in the clarinet as the last note of m.23. Upon hearing the unequivocal F<sup>h</sup>-Major at m.25, we look back and now understand that C-Major was meant as V of F<sup>h</sup>. This F<sup>h</sup>-Major soars above the entire texture of the excerpt with the piano's right-hand descending chromatically from F6<sup>h</sup> to B4 but reversing upward to emphasize C5<sup>h</sup> just before the arrival of B5 on the second strong beat of this measure. Doubling B in the clarinet and the piano's right-hand serves as an anticipation for the return to the principal tonality of the excerpt, as B expresses V of E. It is worth noting that, at this same beat, the left-hand part creates temporal stretching by takes the lowered leading tone away to G# and F# before finally landing on E at m.26.

Many more dialogic features can be extracted from Example 7.6 but, for the sake of expediency, its analysis ends here. Likewise, without enumerating how each parameter of Table 7.6 contributes to the formation of distinct horizontal streams and vertical fusion, we assert simply that the example speaks for itself. More examples are shown in Appendix I where each excerpt contains particularities of *Collaborative Dialogue* as unique as any conversation can be.

We now proceed to the third and last type of dialogue found in a balanced exchange—*Disjoint Dialogue*. In doing so, it should be borne in mind that the majority of works in music up to the early Classical period contained mostly *Sequential Dialogue* and *Collaborative Dialogue* and only very little *Disjoint Dialogue*. Typically, any such tension was delimited by a work's elaboration of harmonies within a development section or its equivalent.

*Disjoint Dialogue*: As Rosen's assertions in the previous chapter imply, the arrival of textural primacy in the latter half of the nineteenth-century not only brought an increase in tonal color but also the diffusion of tonality. Such lack of tonal anchoring creates large-scale tension in a work that can perhaps push the balance too far in the direction of instability. This goes against our objectives and we shall, instead, only lightly infuse dialogic interactions by a restrained use of the highly-spiced *piquant* of *Disjoint Dialogue*. Too much tension is stressful and, if left unresolved, forgoes closure. Many if not most stimulating conversations will include points of high divergence. How this diversity is treated when it arises determines if collaborative emancipation will ensue or if, instead, the dialogue will recoil under its failure to reconcile viewpoints.



Turning one last time to Krause for this final foray into the animal kingdom, we resolve to accept our human nature as invariably similar to that of all animals. Krause's research has found that when animals become highly stressed by an unexpected or impactful event such as human-generated alterations of the ecosystem, the biophony becomes compromised. In this case, species go silent, their sounds become chaotic, or they flee. After the noise or trauma has dissipated, there is a period of transition where sounds slowly re-enter the sonic tapestry. During this transient state between a traumatic episode and the full re-establishment of balanced niche discrimination, animals are stressed and vulnerable to predators, as reports Krause,

[W]hen a biome is compromised, spectrograms will lose both density and diversity, along with the clear bandwidth discrimination among voices that is otherwise visible in nonstressed-habitat graphic displays. Biophonies from stressed, endangered, or altered biomes tend to show little organizational structure. When habitat alteration occurs, vocal critters have to readjust. I've noticed that some may disappear, leaving gaps in the acoustic fabric. Those that remain have to modify their voices to accommodate changes in the acoustic properties of the landscape, which may have been altered by logging, fire, floods, insect infestation, or other shifts in the nonbiotic components of the habitat. All of these variations mean that the natural communication system evolved within a soundscape breaks down and becomes chaotic until each creature's voice once again finds a place in the chorus. This could take weeks, months, or, in some cases, even years.<sup>59</sup>

The human equivalent to this situation can be explained as follows. When individuals enter into a heated argument, tempers flare and each person stakes their territory in a desire to get their point across. In times such as these, the 'discussion' turns to the clashing of monologues where all parties drive towards their own objective. The lack of common ground generates chaos or, at the very least, high discordance while the conversation forms elaborate tentacles fleeing its central core. The loss of a united exploration of individuality compromises the discourse and, if unable to return respectfully to a state of cohesion, will leave a rather sour taste on the tongues of its participants. In fact,

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<sup>59</sup> Krause. *The Great Animal Orchestra*, 80.

any situation where a discussion's central core is either harshly disrupted (such as in the element of surprise explicitly detailed in Chapter 6), fails to form or completely disintegrates will have a similar effect because intense ambiguity left unresolved will impart a level of tension similar to that of high conflict. We thus caution against the extensive use of such tension-creating mechanisms when composing dialogic music because it may endanger the balance between individuality and unity.

Musically, these brief excursions into *Disjoint Dialogue* take place when different voices carry through their statement without regard for the other voices. This implies that there are no rests or common points allowing for external participation and very little harmonic or motivic transference between members. Essentially, the characteristics of a *Disjoint Dialogue* amount to *Sequential Dialogue* that is unsupported by the other voices.

Table 7.7 - <i>Disjoint Dialogue</i> and Auditory Streaming		
Sensory Element↓	Within a Single Voice or a Compound Voice	Between Voices
	Sequential Organization	Simultaneous Organization
Frequency or Pitch	Keep intervals small or in clusters.	
Overlap in pitch	Create overlap to add ambiguity and texture or no overlap if trying to create separate and unrelated events.	
Timbre	Use similar timbres to increase ambiguity or vastly different ones to highlight individuality.	
Harmonic Relations	Explore unrelated tonal areas. Use textural chromaticism.	
Onset/Offset	Have same onset/offset but differing harmonies to create ambiguity and tension.	
Rhythm	Keep notes in rhythmic proximity when adding density. Create matching rhythm over different harmonies to increase ambiguity. Leave no room for participants to interrupt line.	
Motion	Have ambiguous or dissimilar direction.	
Contour	Create distinct contours that repeat if wanting to emphasize individuality or match contours but apply to different harmonies for ambiguity.	
Dynamics	Keep dynamics equal to increase confusion or make them distinct to highlight individuality.	
Spatial Location	Combine desks, sections or groups to form compound voices.	

Example 7.7 shows how *Disjoint Dialogue* can be incorporated into a dialogic composition to add brief moments of high contrast or intensity.

Example 7.7 - Example of <i>Disjoint Dialogue</i>	
<b>N. Dupuis-Désormeaux, Opus 103, No.2, MVT2 - Sonata for Clarinet in A and Piano displayed in concert pitch -</b>	
<p>The image displays a musical score for a clarinet and piano. It is divided into two systems. The first system starts at measure 25. The clarinet part (top staff) has a melodic line with a slur over measures 25-26 and a fermata over measure 27. The piano part (bottom two staves) features a series of chords in the right hand and a sustained bass line in the left hand. A 'largo' tempo marking is present above the piano part in measure 26, and a 'subito p' marking is below it in measure 27. The second system starts at measure 27. The clarinet part continues with a melodic line. The piano part continues with chords and a sustained bass line. The score ends with a double bar line and repeat signs.</p>	<p>25</p> <p>25</p> <p>27</p> <p>27</p>

The first observation one can make upon looking at Example 7.7 pertains to the clear division between the two instrument. The clarinet's unambiguous direction contrasts highly against the piano's clustered chords. The accompaniment does not support nor reinforce the clarinet's melodic line or any of its motives, and the indication of a *largo* temperament amplifies tension by the heaviness of textural resonance. From m.26 through to m.28, the sustained bass and unrelenting crescendo in the piano brings this resonance to its fullest to create a palpable tension.

Common ground re-establishing the dialogue's equilibrium throughout this area of high *piquant* stems from choice locations of concordant harmonies, such as the last half-beat of m.26 by the joint expression of c#-minor; however, it should be noted that its second inversion in the bass brings with it the familiar tension associated with this chord position. An awaited respite occurs in the very next beat (at the opening of m.27) by way of the matching C#. This point of stability fuels the dialogue to forge through the ensuing passage of dissonances until resolution finally takes place at bar 29 (not shown) in a fully conveyed e-minor chord.

Other than the points of repose mentioned above, the balance in this excerpt is maintained by harmonic signaling and reaching into the other voice's tonal fabric. For example, m.26 begins on G#-Major in all voices as dominant to this excerpt's tonal center of c#-minor but, at the second-half of m.26, the clarinet outlines unequivocally c#-minor that is matched by the piano's left hand; however, the right hand pushes an accentuated A-Major on the second strong beat. These chord elements of A-Major transfer to the clarinet at the same bar location in m.27 as f#-minor<sup>7</sup>—an equivalence facilitated by bimodality. This f#-minor reoccurs in m.28 first in the piano (in continuation from m.27) with its seventh included and followed by the clarinet at the now expected location in its line but f#-minor is now bracketed by D#, as leading tone to the resolution of the passage in e-minor. Another case of bimodality occurs on the last half-beat of m.27. Here, the clarinet's G# supplies the missing dominant for the piano's left hand to express c#-minor but, at the same time, the piano's right-hand part clearly asks for f#-minor<sup>7</sup>. The omission of G# in the piano's left hand yields the necessary ambiguity and malleability to support both the clarinet and the right-hand voice.

Supplying another example of pointing, the D# leading tone had been announced quite vividly in the clarinet at the start of m.28 by holding it for one full beat as an augmented fourth. Likewise the dominant to the new tonality of e-minor, B-Major, had been prepared at m.27 in the piano's right-hand reaching into the left-hand to claim its D#, thus exposing the sole E4 in the bass as an indication of things to come. Another appearance of the impending e-minor tonality was emphasized by the accentuated duality of the tones E and A at the middle of m.26. Leading the passage from c#-minor to e-minor by converging on the modal relationship between f#-minor7 and A-Major can be explained by the concept of *close neighbors*, which we finally turn to.

Before leaving *Disjoint Dialogue*, we simply display two very different examples of obvious textural tension, the first rhythmical and the second polyphonic. More examples feature in Appendix I.

<p>Example 7.8 - Example of <i>Disjoint Dialogue</i> through syncopation</p>
<p><b>N. Dupuis-Désormeaux, Opus 115, No.1, MVT1 - Trio for Violin, Cello and Piano</b></p>
<p>The image displays two systems of musical notation. The first system (measures 43-46) features a violin part with a syncopated melody and a cello/piano part with a steady eighth-note bass line. The second system (measures 47-50) shows a more complex polyphonic texture with syncopation in both parts. The score includes a tempo marking of quarter note = 104 and a rehearsal mark «150».</p>

Example 7.9 - Example displaying polytonal elements of *Disjoint Dialogue*

**N. Dupuis-Désormeaux, Opus 103, No.2, MVT3 - Clarinet in A and Piano Sonata  
- displayed in concert pitch -**

The musical score is presented in two systems. The first system, measures 70-72, shows the Clarinet (A) part on a single staff and the Piano part on two staves. The Clarinet part begins with a rest in measure 70, followed by a melodic line in measure 71. The Piano part features a complex rhythmic pattern of sixteenth and thirty-second notes. The second system, measures 73-75, continues the dialogue. The Clarinet part has a melodic line with some grace notes. The Piano part continues with its complex rhythmic pattern, including trills (tr) in measures 74 and 75. The key signature is one sharp (F#) and the time signature is 3/4.

Now that we have defined and shown how to construct the three principal types of dialogue (sequential, collaborative and disjoint), we contend that it is the balanced presence of all three that maximizes the potency of combined stability, tension and closure.

## Harmonic Considerations

A long excursion through the vast lands of harmony cannot feature within these pages. We thus limit ourselves to observations and recommendations that can be contained in this complementary section. As demonstrated by this chapter's reference list, these summarized points emerged from an extensive review of some of music history's most important texts on harmony, dating back to Jean-Philippe Rameau's 1722 treatise on the subject. Noteworthy among them are those of Rameau, Ernst Friedrich Richter, Simon Sechter, Moritz Hauptmann, Hermann Helmholtz, Arthur Oettingen, Max Loewengard, Hugo Riemann, Max Reger, Peter Ilyitch Tchaikovsky, Nikolay Rimsky-Korsakov, Arnold Schoenberg, Paul Hindemith, Heinrich Schenker, Walter Piston and Ernst Toch. The extent of the research performed yielded an entire manuscript devoted solely to this comparative analysis and the consequent proposal for a renewed approach to harmony titled *A Dialogic Contrapuntal Harmony* (to be published at a later date). We can therefore only present herewith select points of this proposed method of contrapuntal harmony serving to facilitate the comprehension of the proposed composition method. Let us establish from the onset what a Dialogic Contrapuntal Harmony entails. Table 7.8, seen below, displays the main features of this method. From its entries, it can be understood that the compositional choices effected in constructing the types of dialogue presented in the last section derive directly from such a system of contrapuntal harmony.

Table 7.8 - Elements of A Dialogic Contrapuntal Harmony

Melody and Harmony as Indissociable and Indissoluble

- In collaborative polytonality, melody, rhythm, texture, harmony and growth are intrinsically weaved in zones of collaboration, unity, diversity and impactful inclusion, and where dialogism is foundational.

Tonality

- The establishment of tonality aids comprehension and retention.
- The creation of tonal anchoring provides familiarity and stability as well as a reference point for harmonic excursions to proceed from and return to.
- The use of identifying tones specific to a core tonality helps bind events linearly, provides reinforcement across voices and bridges variations in the harmonic texture.
- There is no ground without a background, and tension and relaxation can only exist if relative. Tonality affords this stability and relativity, as it forms the point of origin in a system of coordinates.
- Since the mind strives for stability, variety and closure, tonality becomes the beacon illuminating events towards growth and closure. When the final statements of a work take place in a tonality that is different from that of the beginning, their distinctness will only be heard after being fully affirmed and compared against what has been established.
- To help establish and affirm tonality, we can focus on the following:
  - horizontally: a melody of diatonic tones conveys the key.
  - vertically: the diatonic chords suggest the key.
  - reaching into other voices with signifiers and pointers affirms tonality and encourages cohesion.
  - rhythmically by metrical accents, tempo, pulse, stressed passages, contour rhythm, etc.
  - structurally by the impact of larger structural elements such as stability, local activity, directional motion, recurrence, development, response, contrast, etc.
  - texturally: chord harmonization and orchestration impact upon which tones coalesce into a given harmony (dynamics, timbre, range, doubling, melody/accompaniment, etc.)

Close Neighbours

- All chromatic tones of the scale can be obtained solely by considering the bimodality of the tonic, dominant and subdominant in both their key-name and relative relationships. As such, the *close neighbours* of any central tonality are as follows:

e	G	g
a	<b>C</b>	c
d	F	f

- Progressive modulations can be constructed by overlapping *close neighbours*. Extended modulations can be softened by constructing them in steps, where each transfer proceeds via *close neighbours*. Finding chords that are *close neighbours* is faster through bimodality than by reference to tables of tonal relationships.

G#	g#	B	b	D	d	F	f	A <sup>b</sup>
C#	c#	E	<b>e</b>	<b>G</b>	<b>g</b>	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>
F#	f#	A	<b>a</b>	<b>C</b>	<b>c</b>	E <sup>b</sup>	e <sup>b</sup>	G <sup>b</sup>
B	b	D	<b>d</b>	<b>F</b>	<b>f</b>	A <sup>b</sup>	a <sup>b</sup>	C <sup>b</sup>
E	e	G	g	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>	d <sup>b</sup>	F <sup>b</sup>

Cadence

Cadences, although not essential, solidify tonal relations and affirm tonality. Further, listeners have schematic expectations of typical chord progressions and cadences, such as V-I.



The suggested method of Dialogic Contrapuntal Harmony sees melody, rhythm, texture, harmony and growth as intrinsically inseparable. The guiding principles behind our stance stem from a desire to create individual parts that co-exist, collaborate and grow dialogically through their unfinalizable interactions.

Our method of polyphonic harmony is decidedly tonal, where the clarity, cohesion, stability and anchoring afforded by tonality feature as its binding agents. This is a choice that is consciously made to concur with the artistic vision of a composition method that fosters inclusiveness and participation.

Tonality: Music as dialogue implies storytelling. Tonality helps imagination and invites intertextuality by leaving clues and showing possible routes and pathways for the storyline. Furthermore, it has been seen that the mind's desire to order, comprehend and make associations gives rise to pre-attentive primitive grouping showing a proclivity for similarity and proximity. Such similarity can be found in overtones, while the desire for proximity can be satisfied through the use of chord progressions corresponding to the motion of overtones (as *phantom motion*), shown in Figure 6.2.

Likewise, Chapter 6 demonstrated that expectations can influence schema-based perception and give rise to higher-order mental activity enhancing arousal. It was also conveyed that well-organized processes help memory. As such, the high degree of structural and functional reference points offered by tonality not only aid comprehension but also encourage the creation of dynamic expectations where tonality becomes a norm, an anchor and a signifier. Annabel Cohen emphasizes the importance of such a powerful anchor,

[I]f an established reference note in absolute judgement studies can facilitate memory for all the tones sequentially presented, then this benefit should apply whether the tones are in an experiment of absolute judgement or in a musical piece presented for pleasure. The reference tone overcomes memory limitations and permits the listener to keep track of more notes in the piece than would otherwise be possible.<sup>60</sup>

In addition to the structural clarity that tonality brings, the benefit of aiding memory may translate into enhanced pleasure arising from accurate prediction. Cohen posits that the role that tonality plays in helping memory may very well explain why it features so prominently in music,

[E]stablishment of a reference tone facilitates memory for all tones in the piece. It enables the listener to remember what has just been presented so that it can be related to the rest of the music as it unfolds. Tonality could then well be a prominent feature of music because it is adaptive to the memory constraints of [the] mind.<sup>61</sup>

We understand from this that by using strong tonal relationships, we potentially tap into expectations of both long-term familiarity with tonal music and dynamic expectations formed through anchoring and referencing.

Since the objectives of our Dialogical Music Composition Method start with the inclusion of its participants, it would seem logical to employ mechanisms known to assist in perception and retention. Tonality is such an instrument, and it offers our music composition method an essential and powerful device. Again, not all composers use the same tools but this one, tonality, shapes, sculpts and fastens the many layers comprising our Dialogic Contrapuntal Harmony. This being said, if a passage of music has a strong rhythmic regularity, its tonality can be loosened. The opposite also holds true: providing tonal relationships allows for more flexibility in rhythmic gestures.

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<sup>60</sup> Annabel J. Cohen, "Music cognition: defining constraints on musical communication," in *Musical Communication*, eds. Dorothy Miell, Raymond MacDonald, and David J. Hargreaves (New York, NY: Oxford University, 2005), 70.

<sup>61</sup> *Ibid.*, 78.

In consideration of the level of detail already supplied in previous sections, other points referring to tonality found in Table 7.8 will not receive separate attention.

Close Neighbours: The concept of *close neighbours* proves essential in enabling fluid transitions from chord to chord and in effecting progressive or smooth modulations from key to key.

The principle behind *close neighbours* is, quite simply, the series of overtones. One of the first discussions on harmonic resonance appears in Jean-Philippe Rameau's 1722 *Nouveau système de musique théorique*. Rameau declares,

*Après avoir établi sol & mi pour les sons principaux des deux Modes ou Modulations qui ont le plus de rapport, je prends leurs Dominantes & leurs Sous-dominantes.*

After having established G & e for the principal sounds of the two modes or modulations that have the closest ties, I take their dominants and their subdominants.<sup>62</sup>

Rameau's statement establishes the relationship between a Major key, its dominant and subdominant as well as their relative/natural minors, here expressed around C. Note, as we presented in Figure 6.1, that Rameau defines upward motion of the roots by a P5 as an *Irregular Cadence*, while he defines downward motion of the roots by a P5 a *Perfect Cadence*.

Table 7.9 - Close Neighbours According to Rameau	
e	G (V)
a	C (I)
d	F (IV)

<sup>62</sup> Jean-Philippe Rameau, *Nouveau Système de Musique Théorique, Où l'on découvre le Principe de toutes les Règles nécessaires à la Pratique, pour servir d'Introduction au Traité de l'Harmonie* (Paris: Imprimerie de Jean-Baptiste-Christophe Ballard, 1726), 40. Translation by N. Dupuis-Désormeaux.

Composers often shift from a Major to a minor mode by the simple compression of its third. Accordingly, this modal displacement adds a column to Rameau's observation, as follows:

Table 7.10 - Close Neighbours According to Rameau - and with Addition of Key-Name Bimodality		
e	G	g
a	C	c
d	F	f

In establishing close neighbors, we first note that all diatonic tones are contained in the three triads of tonic, dominant and subdominant.



Furthermore, all chromatic tones can be obtained by simple addition of the relative and harmonic minors to the tonic, dominant and subdominant regions (Table 7.11). The only chromatic tone that must be obtained through enharmonic equivalency is G $\flat$ , which can be rendered (although imperfectly) by the F $\sharp$  arising from of G/e.

Table 7.11 - Tones Available through Bimodality
<u>Tonic Region</u>
Major tonic (C: c, d, e, f, g, a, b)
rel.(harmonic) minor of Major tonic (a: raised 7th = g $\sharp$ )
tonic (harmonic) minor (c/E $\flat$ : b $\flat$ , e $\flat$ , a $\flat$ , raised 7th = b $\natural$ )
<u>Subdominant Region</u>
subdominant Major (F: b $\flat$ )
rel. (harmonic) minor of the subdominant Major (d: raised 7th = c $\sharp$ )
subdominant (harmonic) minor (f/A $\flat$ : b $\flat$ , e $\flat$ , a $\flat$ , d $\flat$ , raised 7th = e $\natural$ )
<u>Dominant Region</u>
dominant Major (G: f $\sharp$ )
relative (harmonic) minor of dominant Major (e: raised 7th = d $\sharp$ )
dominant (harmonic) minor (g/B $\flat$ : b $\flat$ , e $\flat$ , raised 7th = f $\sharp$ )
we obtain: c, c $\sharp$ /d $\flat$ , d, d $\sharp$ /e $\flat$ , e, f, f $\sharp$ /g $\flat$ , g, g $\sharp$ /a $\flat$ , a, b $\flat$ , b

From this practical realization, we proceed from Table 7.10 to show all tonalities. We put forward that any key's close neighbors can be identified readily by simply considering the relative/natural and harmonic minors of the tonic, the dominant and the subdominant, as shown in Table 7.12.

G#	g#	B	b	D	d	F	f	A <sup>b</sup>
C#	c#	E	<b>e</b>	<b>G</b>	<b>g</b>	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>
F#	f#	A	<b>a</b>	<b>C</b>	<b>c</b>	E <sup>b</sup>	e <sup>b</sup>	G <sup>b</sup>
B	b	D	<b>d</b>	<b>F</b>	<b>f</b>	A <sup>b</sup>	a <sup>b</sup>	C <sup>b</sup>
E	e	G	g	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>	d <sup>b</sup>	F <sup>b</sup>

Table 7.12 expands upon and simplifies Schoenberg's "Chart of the Regions" presented in his *Structural Functions of Harmony*.<sup>63</sup> The main difference between Schoenberg's close neighbours and the ones proposed above is that Schoenberg did not include the minors of the dominant and subdominant regions, as depicted in Table 7.13.

G#	g#	B	b	D	d	F	f	A <sup>b</sup>
C#	c#	E	e	<b>G</b>	g	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>
F#	f#	A	<b>a</b>	<b>C</b>	c	E <sup>b</sup>	e <sup>b</sup>	G <sup>b</sup>
B	b	D	d	<b>F</b>	f	A <sup>b</sup>	a <sup>b</sup>	C <sup>b</sup>
E	e	G	g	B <sup>b</sup>	b <sup>b</sup>	D <sup>b</sup>	d <sup>b</sup>	F <sup>b</sup>

The usefulness of Table 7.12 resides in its ability to quickly identify how to move from one chord to another or from key to key. Dialogic Contrapuntal Harmony favours commonalities, so a table such as Table 7.12 offers common ground between tonalities.

<sup>63</sup> Arnold Schoenberg, *Structural Functions of Harmony* (New York: W. W. Norton, 2nd ed., 1969), 20; 30.

The extension of close neighbours to include both relative and harmonic minors allows for the inclusion of chords that are normally referred to as 'altered' chords or considered exceptional such as the Neapolitan 6th. A quick glance at Table 7.12 will reveal that the Neapolitan 6th can very easily arise through bimodality of the subdominant (IV/iv). Since the Neapolitan chord typically leads to  $I^{5/3}$  or  $I^{6/4}$  (Major or minor) it serves a pre-dominant function. As such, instead of considering the Neapolitan sixth as built upon the lowered supertonic of the key minor mode, we can consider it coming from the subdominant region, IV/iv, especially since it is most often placed in its first inversion (i.e., used as a sixth chord) with the third doubled. For example, in a passage in C/c, the presence of a Db could simply indicate an excursion into f-minor (iv). The chord built upon the sixth degree of f-minor is identical to the Neapolitan sixth, and since C is the dominant of F/f, then a progression of a Neapolitan sixth to C, both expressed according to f-minor, represents the half-cadence, f-minor:  $VI^{6/3} \rightarrow V^{5/3 \text{ or } 6/4}$ .

The close neighbours described in Table 7.12 bridge areas (some that might, at first glance, appear as harmonically distant) through commonalities found in their overtones. This proves helpful in effecting transient excursions or full-blown modulations from one harmonic area to the next. A composer can create modulations that arise quickly or take several bars to develop. The quickest way to change keys is to insert a vagrant chord, i.e., one that bears no tonality, such as diminished or augmented chords; however, when a more progressive modulation is desired, smoothness can transpire from the use of close neighbours. Richter suggests, "The art of modulation consists in determining the harmonies

which are related to two or more keys, in order to pass from one key to another by the aid of said harmonies.”<sup>64</sup>

The discussion required to explicate how to conceive and reinforce the arrival of a modulation would fill numerous pages (See Appendix J - Modulation Tools); we opt instead to limit ourselves to Table 7.14 showing Close Modulations and suggest that Indirect Modulations can take place by superposing several Close Modulations linked through their close neighbours. This table builds on information found in Sechter's *The Correct Order of Fundamental Harmonies*. Table 7.14 aims to show a method for achieving a certain fluidity in modulations by making use of overtones; however, composers are free to perform modulations as they deem fit. For example, Schoenberg recommends instead a three-step method consisting of the insertion of a neutral chord followed by a decisive modulatory chord which is then completed by the arrival of the new tonic chord (or a chord that includes its characteristic tones). Schoenberg also recommends to follow the modulation by adding a cadence.

Cadences: Although not essential to a harmonic realization, cadences provide strong emphasis and solidify a tonality. Since they enhance clarity and cohesion by creating sections of relative repose within long passages, their use is recommended within a Dialogic Contrapuntal Harmony. As William Caplin explains,

The task of confirming that an implied tonality is indeed the actual tonality of the musical passage in question falls to a second category of progressions - *cadential progressions* [Caplin first shows the concept of harmonic prolongation of a tonic]. The strongest tonal confirmation is achieved by an *authentic cadential progression*; a weaker confirmation, by a *half-cadential progression*.<sup>65</sup>

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<sup>64</sup> Richter, *Lehrbuch der Harmonie* (Leipzig: Breitkopf & Härtel, 1853, 25th ed. 1907, transl. Theodore Baker as *Manual of Harmony*, New York, NY: G.Schirmer, 1912), 136.

<sup>65</sup> William E., Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001), 27.

Table 7.14a - Close Modulations (enhanced from Sechter)

<p>– Note: the roman numerals pertain to the degrees of the target tonality. For example, to go from C to G, Sechter proposes <math>I_{new}=G</math>: <math>IV(C) \rightarrow II(A) \rightarrow V(D) \rightarrow I(G)</math>.</p> <p>– Cells left blank (or those showing ** before the chord progressions), and all relationships other than those covered in the table cannot be considered <i>direct modulations to close neighbours</i> because the new key, <math>I_{new}</math>, does not include all the tones of the original triad on <math>I_{original}</math>; in this case, <i>indirect modulations</i> (i.e., in steps going through intermediate keys) should be performed. These more 'distant' keys require either the introduction of altered chords and/or they are reached by a 2-tiered (3-tiered or more) modulation that is a sum of <i>direct modulations</i>. These can be called <i>additive modulations</i>.</p>			
Degree →	I	IV	V
I→		Ex: C→F V→I→IV→(II)→V→I	Ex: C→G IV→II→V→I
IV→	Ex: F→C IV→II→V→I		Ex: F→G (** via IV of $I_{new}$ ) IV of $I_{new}$ : C: IV-II-V-I $I_{new}$ : G: IV-II-V-I
V→	Ex: G→C V→I→IV→(II)→V→I	Ex: G→F (** via V of $I_{new}$ ) V of $I_{new}$ : C: V-I (IV-II-V-I) $I_{new}$ : F: V-I (IV-II-V-I)	
rel. minors rel I→	Ex: a→C VI→II→V→I	Ex: a→F III→VI→II→V→I	Ex: a→G II→V→I
rel IV→	Ex: d→C II→V→I	Ex: d→F VI→II→V→I	Ex: d→G (** via IV of $I_{new}$ ) IV of $I_{new}$ : C: II-V-I $I_{new}$ : G: IV-II-V-I
rel V→	Ex: e→C III→VI→II→V→I	Ex: e→F (** via V of $I_{new}$ ) V of $I_{new}$ : C: III-VI-II-V-I $I_{new}$ : F: V-I	Ex: e→G VI→II→V→I
key minors i→	Ex: c→C (** via IV of $I_{original}$ ) IV of $I_{orig}$ : f: V-I/i (F) $I_{new}$ : C: IV-II-V-I	Ex: c→F (** via IV of $I_{new}$ ) IV of $I_{new}$ : Bb: II-V-I $I_{new}$ : F: IV-II-V-I	Ex: c→G (** via V of $I_{original}$ ) V of $I_{orig}$ : g: IV-II-V-I/i(G) $I_{new}$ : G: V-I
iv→	Ex: f→C <sup>66</sup> (** via V of $I_{original}$ ) V of $I_{orig}$ : c: IV-II-V-I/i(C) $I_{new}$ : C: V-I	Ex: f→F (** via V of $I_{original}$ ) V of $I_{orig}$ : c: IV-II-V-I/i(C) $I_{new}$ : F: V-I	Ex: f→G (** via V of $I_{original}$ ) V of $I_{orig}$ : c: IV-II-V-I/i(C) $I_{new}$ : G: IV-II-V-I
v→	Ex: g→C <sup>67</sup> (** via IV of $I_{new}$ ) IV of $I_{new}$ : F: II-V-I $I_{new}$ : C: IV-II-V-I	Ex: g→F II→V→I	Ex: g→G (** via IV of $I_{original}$ ) IV of $I_{original}$ : c: V-I/i(C) $I_{new}$ : G: IV-II-V-I

<sup>66</sup> Simon Sechter *Die Grundsätze der musikalischen Komposition: Erste Abtheilung. Die richtige Folge der Grundharmonien, oder vom Fundamentalbass und dessen Umkehrungen und Stellvertretern*. Leipzig: Breitkopf & Härtel, 1853. Transl., compiled and adapted by C.C. Müller as *The Correct Order of Fundamental Harmonies: A Treatise on Fundamental Bases, and Their Inversions and Substitutes* (New York, NY: WA Pond, 1871. 4th ed. Ithaca, NY: Cornell University Press, 1880. Reprint 2013), 112.

<sup>67</sup> *Ibid.*, 111.



Table 7.14b - Close Modulations (Ctn'd)

Degree →	rel I	rel IV	rel V
I →	Ex: C → a III → VI → II → V → I	Ex: C → d VII <sup>b</sup> → III → VI → II → V → I	Ex: C → e VI → II → V → I
IV →	Ex: F → a VI → II → V → I	Ex: F → d III → VI → II → V → I	Ex: F → e (** via V of I <sub>original</sub> ) V of I <sub>orig</sub> : C: IV-II-V-I I <sub>new</sub> : e: VI-II-V-I
V →	Ex: G → a VII <sup>b</sup> → III → VI → II → V → I	Ex: G → d (** via key M of I <sub>new</sub> or V of I <sub>original</sub> ) keyM of I <sub>new</sub> /V of I <sub>orig</sub> : D: IV-II-V-I(i(d)) I <sub>new</sub> : d: V-I	Ex: G → e III → VI → II → V → I
rel. minors rel I →		Ex: a → d V → III → VI → II → V → I	Ex: a → e IV → II → V → I
rel IV →	Ex: d → a IV → II → V → I		Ex: d → e (** via IV of relM of I <sub>new</sub> ) IV of relM of I <sub>orig</sub> : C: II-V-I I <sub>new</sub> : e: VI-II-V-I
rel V →	Ex: e → a V → III → VI → II → V → I	Ex: e → d II → V → I	
key minors i →	Ex: c → a (** via V of I <sub>original</sub> as VII <sup>b</sup> of I <sub>new</sub> ) I <sub>orig</sub> : c: I → V I <sub>new</sub> : a: VII <sup>b</sup> → III → VI → II → V → I	Ex: c → d (** via IV of relM of I <sub>new</sub> ) IV of relM of I <sub>original</sub> : Bb: II-V-I I <sub>new</sub> : d: VI-II-V-I	Ex: c → e (** via V of I <sub>original</sub> ) V of I <sub>orig</sub> : g: IV-II-V-I(i(G)) I <sub>new</sub> : e: III-VI-II-V-I
iv →	Ex: f → a (** via V of I <sub>original</sub> ) V of I <sub>orig</sub> : c: IV-II-V-I(i(C)) I <sub>new</sub> : a: III-VI-II-V-I	Ex: f → d (** via V of I <sub>original</sub> as VII <sup>b</sup> of I <sub>new</sub> ) I <sub>orig</sub> : f: I → V I <sub>new</sub> : d: VII <sup>b</sup> → III → VI → II → V → I	Ex: f → e (** via V of I <sub>original</sub> ) V of I <sub>orig</sub> : c: IV-II-V-I(i(C)) I <sub>new</sub> : e: VI-II-V-I
v →	Ex: g → a <sup>68</sup> (** via IV of I <sub>new</sub> ) IV of I <sub>new</sub> : d: IV-II-V-I I <sub>new</sub> : a: IV-II-V-I	Ex: g → d IV → II → V → I	Ex: g → e (** via V of I <sub>original</sub> as VII <sup>b</sup> of I <sub>new</sub> ) I <sub>orig</sub> : g: I → V I <sub>new</sub> : e: VII <sup>b</sup> → III → VI → II → V → I

<sup>68</sup> Ibid., 113.

## Rhythmic Considerations

We have seen (in Chapter 4) that motion in music often mimics speech patterns. Similarly, areas of action, rest, punctuation and emphasis define rhythmic relationships between voices. Polyrhythmic passages collaborate or compete depending on how rhythmic action is designed: onsets and rhythmic groupings can be made to coincide or cooperate to promote fusion of voices, while disparate rhythms foster separation of voices. Rapid successions of tones in a voice bind it horizontally and yield forward momentum in that voice but cause it to separate from others. In contrast, tones held for long durations tend to suspend, support or slowly build action. Cyclic repetition of rhythmic clusters produces periodic momentum, where rests serve to separate or dissipate areas of action within or between voices. Additionally, orchestration decisions will impact upon the distinctiveness of rhythmic groupings within a texture. Recall also that repetition of tones or motives allow them to be identified through dense passages. All such choices help to craft the desired type of dialogue.

We spoke of the interrelatedness of rhythm to both melody and harmony. LaRue suggests to consider the “stress-lull-transition states” in small and medium dimensions in terms of a “three-level timeline analysis” (surface, continuum and interactions), and to identify source, duration and apex of action.<sup>69</sup> In other words, rhythmic stress serves to shape or enhance discrete melodic or harmonic events as well as propel these in their process of growth (or form).

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<sup>69</sup> See LaRue, *Guidelines for Style Analysis*, 113.

It should be remembered that contour rhythm, chord rhythm and textural rhythm can impart perceptual stretching or contracting of phrases and even larger sections of a work. This is also the case when utilizing pointing mechanisms, placing dissonances and creating delays through such means as ornamentation. The interdependence of melody, harmony and rhythm (and also dynamics), therefore provides the composer with myriad options in shaping zones of stability, variety and closure within all (small, medium and large) dimensions of a dialogical composition.

Lastly, our previous discussion on physicality and rhythmic entrainment suggests that attention to tempi and the careful scoring of rhythmic action within a work may help to engage performers and elicit mimetic responses in listeners. As we have already argued in Chapter 6, regularity, repetition and placement of significant events on strong beats also assist experiential learning.

### Architectural/Growth Considerations

Small-, medium- and large-scale coherence and repetition aid reception. Similarly, pointing to upcoming thematic material or tonalities, or recalling past occurrences by way of exploratory segments fuse a work together. As amply presented under a different rubric, the global architecture underpinning a dialogic music composition consists of balanced proportions of stability and variety, as well as the establishment of closure. This applies equally to all dimensions of a work. Consideration should be given to the unfolding of the dialogue and its timing of action, joining of sections, overall goal, etc. Continuation of thematic ideas will promote growth while change or surprise will add variety. Completeness

or closure can take the form of melodic inflections and phrasing; rhythmically, it can arise through patterns; harmonically, it can involve a return to a central tonality; and structurally, it may stem from circular or binary forms, etc.

## Overall

We repeat here that the mainstay of a dialogic music composition resides in creating dialogue within dissemination that allows for inclusiveness, diversity and unity. We posit that all means of arousal provide fruitful opportunities in fostering participation and emphasize the importance of inviting interpretation and intertextuality. Here, we see the function of anticipation, interrupted affect and predictive success in increasing satisfaction or enjoyment. We also stress the significance of playability for its role in entrainment and enjoyment, directly for musicians and through mimesis for listeners. Principles of auditory streaming and orchestration govern our compositional choices in striving for richness of collaborative balance within the polyphonic sound tapestry.

### 7.3. Conclusion

We have shown that three types of dialogues (Sequential, Collaborative and Disjoint) exist in all animal biomes, and have argued that situations of high stress destabilize the natural equilibrium of the sound tapestry. We pointed out that humans are also animals and their dialogue features similar interactions to those studied by biologists in their efforts to understand nature's sounds.

The pursuit of an interactive discussion's balance governs our approach to music composition as representative of a respectful dialogue created between equals. We have thus identified how elements of dialogism can offer foundational principles to inspire such works. In addition, we argued that the combination of the three types of dialogues offers the perfect tripartite construction (so often found in the dramatic arts) of stability, variety/tension and closure, deemed to be psychologically pleasing.

It has also been demonstrated that, in making use of judicious harmonization and orchestration, we encourage the formation of auditory streams to match our desired dialogic structures. Furthermore, increasing interest via experiential learning and successful anticipation can enhance participation by tapping into imagination. The invitation to interpret each musical scenario according to one's cohesive understanding of events allows for the interactive intertextuality so vital to sustained interest and arousal.

Lastly, we proposed a system of contrapuntal harmony where bimodality offers additional resources to move within a tonal centre's *close neighbours*. We also suggested that smooth modulations can result from traversing the tonal areas expressed by these close neighbours. Moreover, we have encouraged the use of tonal signifiers as a means to create

temporal contraction and stretching to enhance a work's cohesion. The past practice of placement of rhythmic accents to coincide with significant harmonic events has also been adopted.

Throughout this method of dialogic composition, careful attention has been devoted to structural aspects of timbre, texture, shape and growth. It was recommended that melodic, rhythmic and harmonic symmetry and repetition facilitate comprehension and, subsequently, invite participation through intellectual arousal.

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## Chapter 8 - Conclusion

La seule chose importante en musique, c'est le discours, son véhicule est anecdotique.<sup>1</sup>

—Hélène Grimaud, *Variations Sauvages*

### 8.1. Conclusion

Our multi-disciplinary exploration into means of including and engaging participants in musical communication has yielded a comprehensive and complete approach to music composition where inclusive and interactive dialogue features as its very core.

The importance of narration and storytelling was emphasized throughout this study, as the invitation to interpret and re-author through imagination was recognized to present a key component of intellectual arousal. Likewise, we saw that all acts of perception can turn to opportunities for intertextuality. We understood aesthetic response as the constant interplay between understanding and imagination and saw in it the inherent and inseparable nature of subjectivity. Dialogism's understanding of subjectivity was identified as offering an approach compatible with our artistic vision of music dialogue as a social gesture, and provided a foundation for our query.

We gathered compositional tools in understanding the multiple ways in which music can arouse. From this, mimesis was identified as an evolutionary adaptation stemming from the need to bond, and its powers to entrain were disclosed. Likewise, we recognized the potency afforded by rhythmic entrainment in physical arousal.

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<sup>1</sup> Hélène Grimaud, *Variations Sauvages* (Paris: Robert Lafont, 2003), 231.

We also acknowledged that the mind's incessant need for order, cohesion and organisation creates a proclivity for similarity and proximity. The phenomenon of auditory streaming was then reviewed and we proposed compositional avenues to shape auditory perception of music events. We also saw that expectation influences perception and offers a powerful vehicle to engage participants through successful anticipation and the experiencing of arrested affect.

It was determined that to invite participation, a work has to be cohesive yet leave room for interpretation by including ambiguities. Furthermore, we understood that the tripartite construction of stability, variety and closure offers a perfect parallel to the search for balance between individuality, diversity and unity. From this awareness, we proposed a method of composition reproducing all three elements. In deciding upon the structure of interactive dialogue, nature's biophony proved representative of various types of human vocal interactions.

From the combination of all of the above contributory explorations, we developed a cogent system and architectonic template for our Dialogic Method of Composition, based upon contrapuntal harmony and relying on the ideologies of dialogism to create dialogue as a means of inviting and engaging participants in music's discourse. It is hoped that components of this personal method of composition may be useful to other musicians.

Tying Bakhtin's dialogism, nature's biophony and the compelling force of inclusive, diverse and collaborative dialogue—with all its imperfections—invites balance in this transient life where, too often, humanity fails to embrace diversity as an essential component of unity. In keeping listeners interested, engaged and anticipating by relying on

a subjective *fil d'Ariane*, we foster inclusiveness through dialogism and intertextuality. We give a voice to the subjective experience and the subject. Each voice matters. Each rendition of personal interpretation and intertextuality matters. Dialogism's polyphony and unfinalizability materialize in inviting active participation. The subject becomes an active contributor. The subject is no longer invisible.

As behaviourists will assert, every human requires safety and validation to thrive. Providing order gives reassurance and a sense of safety, while successful anticipation provides for positive learning and validation. Furthermore, giving a voice to performers and audience members not only acknowledges their presence and affirms their value, it allows them to thrive, and thus, we, as a collectivity, also thrive.

Upon concluding this multi-disciplinary exploration, I am personally struck by its many contributors, each musician, each author, each researcher, each 'other' leaving their personal imprint within these pages. A sense of privilege covers me as I now fully understand Ernst Toch's suggestion that, as living artists, “we can only be the product of a long line of ancestors and that each creating artist, involuntarily, is placed as a link in this chain.”<sup>2</sup>

Of course, this dialogic rather than dialectic thesis must end with the contributions of others, as such, here lie the words of great minds without whom the present work would never have seen light:

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<sup>2</sup> Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form* (New York, NY: Criterion Music Corp, 1948). Reprint (New York, NY: Dover Publications, Inc., 1977), iii.

*[Chaque personne] doit trouver son élément, le cinquième élément, le seul dont nous ne serons jamais exclus. L'art est cet élément, sans lequel nous errons, orphelins et malheureux, la vie durant ; sans lequel nous nous coupons de la nature et du cosmos parce que nous devenons sourds, aveugles, insensibles, désensibilisés.*

Each person must find their element, the fifth element, the only one from which we will never be excluded. Art is this element, without which we roam through life orphaned and unhappy, without which we sever ourselves from nature and the cosmos because we become deaf, blind, insensitive and desensitized.<sup>3</sup>

—Hélène Grimaud, *Variations Sauvages*.

If the function of musicking is to explore, affirm, and celebrate the concepts of ideal relationships of those taking part, then the best performance must be the one that empowers all the participants to do this most comprehensively, subtly and clearly, at whatever level of technical accomplishment the performers have attained.<sup>4</sup>

—Christopher Small, *Musicking*

The fact that music cannot specify and particularize the connotations which it arouses has frequently been cited as a basic difficulty with any attempt to theorize about the connotative meanings of music. Yet from one point of view, this flexibility of connotation is a virtue. For it enables music to express what might be called the disembodied essence of myth, the essence of experiences which are central to and vital in human existence. . . . Music presents a generic event, a “connotative complex,” which then becomes particularized in the experience of the individual listener.<sup>5</sup>

In short, music may give rise to images and trains of thought which, because of their relation to the inner life of the particular individual, may eventually culminate in affect. . . . The real stimulus is not the progressive unfolding of the musical structure but the subjective content of the listener's mind.<sup>6</sup>

—Leonard Meyer, *Emotion and Meaning in Music*

*Je pense qu'à partir du moment où l'écrivain cesse de se revendiquer comme créateur, c'est-à-dire comme un monsieur siégeant dans les cieux et faisant descendre son inspiration jusqu'à terre, sans ce ... enfin, en revendiquant seulement sa spontanéité, enfin, le privilège de l'écriture, quand il abandonne ce privilège et qu'il revendique le contrôle et la connaissance de ses moyens de production, je pense qu'il accomplit une certaine forme sociale de contestation.*

I think that from the moment a writer ceases to proclaim themselves as a creator, that is, as a figure besieging the heavens and making their inspiration descend to Earth, without its... well, claiming only inspiration's spontaneity, well, the privilege of the Word-when he/she abandons this privilege and asserts control over and knowledge of their means of production, I think she/he accomplishes a certain form of social protest.<sup>7</sup>

—Georges Pérec, *Les Choses*

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<sup>3</sup> Hélène Grimaud, *Variations Sauvages* (Paris: Robert Lafont, 2003), 251. Translation by N. Dupuis-Désormeaux.

<sup>4</sup> Christopher Small, *Musicking: The meanings of performing and listening* (Middletown, CT: Wesleyan University Press, 1998), 215.

<sup>5</sup> Leonard B. Meyer, *Emotion and Meaning in Music* (Chicago, IL: University of Chicago Press, 1956, paperback ed. 1961), 264-265; 265.

<sup>6</sup> *Ibid.*, 256; 258.

<sup>7</sup> George Pérec, *Les Choses: Une histoire des années soixante* (Paris: Julliard, 1965), 165. Translation by N. Dupuis-Désormeaux.

## 8.2. Suggestions for Future Work

The cohesive system developed in establishing the Dialogic Music Composition method can offer interesting avenues for music theory, music analysis and music aesthetics, where works can be studied by looking at how melodic, harmonic, rhythmic and structural components coalesce in creating the music dialogue. Furthermore, the identification of the different parameters that help shape auditory streams and promote expectations can yield valuable insight into a work's many ways of coming into being.

Lastly, understanding how a music composition can emerge from the inclusive and collaborative contribution of all individuals participating in 'musicking' suggests a renewed approach to music composition, interpretation, teaching and listening.

## Claims to Original Research

1. The novel music composition method proposed herein offers concrete suggestions for the creation and organization of melodic, contrapuntal, harmonic, rhythmic and structural elements such that inclusive, egalitarian, interactive, collaborative and engaging dialogue between voice-parts can ensue and hopefully be experienced by the performers as well as the listeners. This method of composition relies not only on music theory but also on published research in the fields of music perception and reception, music aesthetics, musical communication, music sociology and musicology.

2. A novel method for the creation and analysis of contrapuntal harmony is presented as a renewed approach to harmony fostering dialogism between voice-parts.

(1) N. Dupuis-Désormeaux, *Tutti! - A Cognitively Informed Polyphonic Music Composition Method for Creating Compelling Music through Inclusive and Engaging Dialogue*, in preparation.

(2) N. Dupuis-Désormeaux, *Dialogic Contrapuntal Music Harmony - A Cognitively Informed Method of Analysis and Harmonic Construction*, in preparation.



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## Appendix A: General Observations on Auditory Learning

Expectations: General		
Findings	Researchers	Frequency data
Sound sequences between 3-5 seconds in duration can be retained in short-term memory <sup>1</sup> (incidentally, a segment of five seconds at 96 beats/min corresponds to eight beats, or two bars in 4/4 time, and matches the typical length of a musical phrase's <i>basic idea</i> in the Classical style). <sup>2</sup> This represents approximately 10 notes. With structure, these numbers can reach 10-12s for the sound sequences and 25 individual notes. <sup>3</sup>	David Huron (Ohio State University)	
Placement: Better detection of a tone in the presence of noise disturbance if the given tone of specific pitch occurs at a particular moment, i.e., perception is facilitated by accurate expectation. <sup>4</sup>	Mari Riess Jones <i>et. al.</i> (Ohio State University). Gordon Greenberg and Willard Larkin (University of Illinois)	
Cultural background plays an important part in a listener's expectation of melodic continuation. <sup>5</sup>	James Carlsen, Pierre Divenyi, Jack Taylor (University of Washington)	
Mental processing speed is faster with increased exposure to a particular stimulus. <sup>6</sup>	W.E. Hick (Cambridge University) and Ray Hyman (Johns Hopkins University)	
Tone recognition: some pitches (C and G) are more quickly identified by people who have absolute pitch; and identifying white notes yields faster response times than black notes. <sup>7</sup>	Ken'ichi Miyazaki (Niigata University)	David Huron and Jasba Simpson identified that the pitches identified most quickly occur more frequently in music; and white notes appear more often than black notes. <sup>8</sup>

<sup>1</sup> David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: Bradford Book, MIT Press, 2006. Paperback ed., 2007), 228.

<sup>2</sup> See William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001).

<sup>3</sup> Huron, *Sweet Anticipation*, 228.

<sup>4</sup> *Ibid.*, 42; 176.

<sup>5</sup> *Ibid.*, 43.

<sup>6</sup> *Ibid.*, 63.

<sup>7</sup> *Ibid.*, 64.

<sup>8</sup> *Ibid.*, 387. Chapter endnote 8 mentions the use of several music databases from which data was pooled.

<b>Expectations: General (Ctn'd)</b>		
<b>Findings</b>	<b>Researchers</b>	<b>Frequency data</b>
Degree recognition: Asked to imagine an isolated tone as a specific scale degree, fastest response time corresponds to tonic, second fastest is dominant, third fastest is mediant, fourth fastest is submediant, fifth fastest is sub-tonic, sixth fastest is supertonic, slowest is subdominant. <sup>9</sup>	David Huron (Ohio State University)	Bret Aarden identified that the most frequently occurring degree is the dominant. For major keys, the 2nd most frequently occurring degree is the mediant, while the tonic is third. For minor keys, the 2nd most frequent degree is the tonic, while the mediant is third. <sup>10</sup>
Melodic motion recognition: Asked to judge movement as up/down/same pitch of ensuing note, listeners respond more quickly for most common scale degrees, independently of melodic contour. <sup>11</sup>	Bret Aarden (Ohio State University)	Bret Aarden identified that the most frequently occurring degrees in major key melodies are, in order, 5, 3, 1, 2, 4, 6, 7; for minor melodies, the order is 5, 1, 3b, 4/2, 7b, 6b, 6 and 7. <sup>12</sup>
Asked to imagine a tone, average pitch height imagined was near F4. <sup>13</sup>	David Huron (Ohio State University)	David Huron found from data sources that the average pitch lies around E <sup>b</sup> 4. <sup>14</sup>
Asked to imagine a chord, subjects most often imagined a major chord in root position. <sup>15</sup>	David Huron (Ohio State University)	David Huron found that a highly recurring chord is a the major chord in root position. <sup>16</sup>
Sequence of 7 minutes made from a random selection of 6 types of 3 note figures; then the entire sequence was repeated three times. Listeners were asked to identify figures from two options. Results showed the correct identification of unstressed three-note figures after repeated exposure. Successful anticipation of pitch succession increases with exposure and, the expectation of adjacent tones in a melody is tied to the frequency at which these occur in succession. <sup>17</sup> Listeners group tones according to high transitional probabilities and create boundaries at locations where likelihood of succession is low. <sup>18</sup>	Jenny Saffran, Richard Aslin, <i>et.al.</i> (University of Rochester)	

<sup>9</sup> Huron, *Sweet Anticipation*, 66.

<sup>10</sup> *Ibid.*, 148-9. Sample of major and minor melodies totalling 65 000 notes and 25 000 notes, respectively. The most frequently occurring degrees in major key melodies are, in order, 5, 3, 1, 2, 4, 6, 7; for minor melodies, the order is 5, 1, 3b, 4/2, 7b, 6b, 6 and then 7.

<sup>11</sup> *Ibid.*, 150.

<sup>12</sup> *Ibid.*, 148-9. Sample of major and minor melodies totalling 65 000 notes and 25 000 notes, respectively.

<sup>13</sup> *Ibid.*, 66.

<sup>14</sup> *Ibid.*, 66; 387. Chapter endnote 8 mentions the use of several music databases from which data was pooled.

<sup>15</sup> *Ibid.*, 66.

<sup>16</sup> *Ibid.*, 209; 388. See Huron's Table 11.1; also see chapter endnote 13. Sample taken from J.S. Bach chorale harmonizations.

<sup>17</sup> *Ibid.*, 69-70.

<sup>18</sup> *Ibid.*, 71.

## Appendix B: Schematic Expectations

Expectations: Melody			
Melodic property	Findings	Researchers	Frequency data
Pitch proximity	More efficient tone recognition when tone is preceded by small intervals but takes longer to identify when the interval size is large. <sup>19</sup>	Diana Deutsch (University of California)	Boomsliter and Creel (University of Toronto) found that small intervals between successive notes are more frequent than large ones; i.e., melodies are built using sequences of tones that are close together. <sup>20</sup> (Almost universal. Exception: yodeling and yoiks)
Motion	Also see melodic regression	Piet Vos and Jim Troost (University of Nijmegen)  David Huron	Successive notes separated by a distance no greater than four semitones most often descend. (Almost universal except in Hindustani music)  For intervals greater than four semitones, the results depend on the type of music. In the folk music analyzed, leaps predominantly ascended, while for the data taken from Western Art music, interval size determined motion. <sup>21</sup>
Melodic regression	Musically trained listeners expect a large interval to be followed by motion in the opposite direction, irrespective of the median pitch of the melody. Non-musically trained listeners show no marked preference. <sup>22</sup>	David Huron and Paul von Hippel (Ohio State University)	Findings from Huron and von Hippel from data sets of different music genres demonstrate that pitches following large intervals behave according to regression toward the mean. In other words, when leaps move away from the average pitch, motion returns the melody towards the mean, and when leaps approach the mean, tones proceed in the same direction, and do not necessarily conform to post-skip reversal. <sup>23</sup>

<sup>19</sup> David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: Bradford Book, MIT Press, 2006, paperback ed., 2007), 75.

<sup>20</sup> *Ibid.*, 74-5. See Huron's Table 5.1 showing data obtained by Boomsliter and Creel (1979) for music of Africa, America, Asia and Europe.

<sup>21</sup> *Ibid.*, 75-6. Vos and Troost gathered data from Albanian, Bulgarian, Iberian, Irish, Macedonian, Norwegian, and African-American folk songs as well as from repertoire taken from Western Art music. Huron supplemented this research with data from Australian aboriginal, Chinese folk, traditional Korean, Ojibway, Pondo, Venda and Zulu songs.

<sup>22</sup> *Ibid.*, 85.

<sup>23</sup> *Ibid.*, 80-84. Huron's data was obtained from European, Chinese, South African and Native American folk songs as well as from Schubert pieces. Von Hippel added an extensive review of Western Art music and found that the only composer who mostly observed the post-skip reversal rule was Palestrina. All other music leaps surveyed behaved according to regression to the mean.

Step inertia	Musically trained listeners expect descending steps to be followed by descending steps but also expect ascending steps to be followed by ascending steps. Non-musically trained listeners show no marked preference. <sup>24</sup>	Paul Von Hippel (Ohio State University)	Paul Von Hippel found that 70% of descending steps tend to be followed by descending steps but there is no obvious trend for ascending steps. <sup>25</sup> (Almost universal but awaits larger cross-cultural study)
Melodic shape	<p>Listeners musically-trained in Western Art music anticipate descending intervals in the closing half of phrases but they do not expect ascending intervals in its first half.<sup>26</sup></p> <p>There is a preference for symmetrical phrase lengths.<sup>27</sup></p>	<p>Bret Aarden (Ohio State University)</p> <p>Yuet-Hon Ng (Eastman School of Music)</p>	<p>Certain cultures have melodies that tend to leap upwards, then tumble downward (Native American Lakota-Sioux music, Russian laments, Australian Aboriginal music).<sup>28</sup></p> <p>Huron found that 40% of melodic phrases from a survey of European folk songs had the shape of an arch, while 50% were either strictly ascending or descending phrases.<sup>29</sup> Additionally, ascending phrases were often followed by descending phrases, creating a shape akin to that of an arch with a triangular peak. No such trend could be seen for descending phrases.<sup>30</sup></p> <p>Huron also notes that convex shapes are common when the phrases are constructed of seven notes or fewer, but there tends to be the formation of two arches separated by a central dip in pitch when patterns are made of 12-notes or more.<sup>31</sup> (**Culture-Specific)</p>

<sup>24</sup> Huron, *Sweet Anticipation*, 78-9; 95.

<sup>25</sup> *Ibid.*, 77-8.

<sup>26</sup> *Ibid.*, 77-8; 94-8. Huron provides an explanation by way of Narmour's Theory of Melodic Organization.

<sup>27</sup> *Ibid.*, 229. This is not surprising when accounting for the existence of and desire for repetition in music.

<sup>28</sup> *Ibid.*, 76; 86.

<sup>29</sup> *Ibid.*, 86. In 1996, Huron performed an extensive survey of more than 6 000 European folk songs and found that 40% of the 10 000 phrases studied had a convex contour.

<sup>30</sup> *Ibid.*, 86.

<sup>31</sup> *Ibid.*, 87.

Expectations: Tonality and Harmony		
Tonality/ Harmony property	Findings	Frequency data
Succession of scale degrees		From data of German folks songs in a major key, Huron finds that the most frequently encountered motions between scale degrees are those between tones in close proximity. The most frequent motion is from ( $\hat{3}$ to $\hat{2}$ ), ( $\hat{5}$ to $\hat{4}$ ) and ( $\hat{2}$ to $\hat{1}$ ) <sup>32</sup>  Huron also shows statistically supported directionality of tendency tones such as ( $\hat{7}$ to $\hat{1}$ ) and ( $\# \hat{4}$ to $\hat{5}$ ) <sup>33</sup>
Harmonic progressions		Huron compiled data for harmonic progressions in Bach's choral works and popular music.  Data shows that, from total number of progressions, V-I and its converse I-V are most numerous. When each chord is normalized for probability of its successor, V-I has highest likelihood then vii <sup>0</sup> -I, ii-V, iii-vi, IV-V, I-V, iii-IV, I-IV, IV-I, vi-V, ii-I <sup>34</sup>  Most abundant chord progressions in popular songs are V-I, IV-I, I-IV or IV-V, then I-V. <sup>35</sup>
Tonality	Christa and Putra Hansen established that the determination of goodness of fit of notes within a tonality scheme depends on acculturation to the style. <sup>36</sup>	Bret Aarden identified that the most frequently occurring degrees in major key melodies are, in order, 5, 3, 1, 2, 4, 6, 7; for minor melodies, the order is 5, 1, 3b, 4/2, 7b, 6b, 6 and 7. <sup>37</sup>
Harmonic clichés	Huron shows that degrees most often associated with stability correspond to most frequently occurring and less dissonant ones. <sup>38</sup>  Musicologist Philipp Tagg observed that a progression i- <sup>b</sup> VII- <sup>b</sup> VI-V in a genre of pop music is almost always associated with lyrics of "sadness", "loss" or "resignation." <sup>39</sup>	Robert Gjerdingen (Northwestern University) showed that in the music of Haydn and Mozart, there is heavy use of V-I using ( $\hat{4} - \hat{3}$ ) in one line while ( $\hat{7} - \hat{1}$ ) in next. <sup>40</sup>
Cadential closure	Roland Eberlein and Jobst Fricke (University of Cologne) found that the main determinant for listener's experience of closure is familiarity with specific cadential formulae. <sup>41</sup>	

<sup>32</sup> Huron, *Sweet Anticipation*, 158-9. The highest frequencies of occurrence correspond to motion from  $\hat{3}$  to  $\hat{2}$ ,  $\hat{5}$  to  $\hat{4}$ ,  $\hat{2}$  to  $\hat{1}$  and  $\hat{7}$  to  $\hat{1}$  but the data also shows high reoccurrence of scale degree motion from  $\hat{2}$  to  $\hat{3}$ ,  $\hat{1}$  to  $\hat{2}$  and  $\hat{1}$  to  $\hat{7}$ .

<sup>33</sup> Ibid., 158-9.

<sup>34</sup> Ibid., 251.

<sup>35</sup> Ibid., 253.

<sup>36</sup> Ibid., 168-9.

<sup>37</sup> Ibid., 148-9. Sample of major and minor melodies totalling 65 000 notes and 25 000 notes, respectively.

<sup>38</sup> Ibid., 145.

<sup>39</sup> Ibid., 253.

<sup>40</sup> Ibid., 253.

<sup>41</sup> Ibid., 158.



Expectations: Rhythm				
Rhythmic property	Findings	Researchers	Frequency data	Researchers
Periodicity	<p>Attention may be periodic.<sup>42</sup></p> <p>Periodic rhythms are most easily felt and anticipated.<sup>43</sup></p> <p>Period length most easily predicted is 0.6-0.75s (tempo of 80-100 beats/min). This represents the optimal tempo.<sup>44</sup></p> <p>Expectations of duple or quadruple meters were observed in listeners trained in the Western Art-music tradition.<sup>45</sup></p> <p>Periodicity is important but not as much as temporal learning. See long- and short-term temporal familiarity.<sup>46</sup></p>	<p>Carl Seashore.</p> <p>Herbert Woodrow, Paul Fraisse, Dirk-Jan Povel and Peter Essen</p> <p>Renaud Brochard, Donna Abecasis, Doug Potter, Richard Ragot and Carolyn Drake</p> <p>(Université de Bourgogne)</p>	<p>Art-music written prior to the twentieth century and most world music is periodic, with the exception of Japanese Gagaku, Tibetan monastic music, Bulgarian <i>Aksak</i> meters, and a few others.<sup>47</sup></p> <p>Using Barlow and Morgenstern's <i>Dictionary of Musical Themes</i>, Huron studied data for 8356 themes taken from the Western Art-music tradition.<sup>48</sup> Time signatures for these themes clearly showed metered periodicity. Two-thirds of the themes presented duple or quadruple meters, while triple or irregular meters appeared approximately one-third of the time. Also, simple meters seemed highly preponderant against compound meters (by a ratio of 6:1).<sup>49</sup></p>	<p>David Huron</p> <p>(Ohio State University)</p>

<sup>42</sup> Huron, *Sweet Anticipation*, 176.

<sup>43</sup> *Ibid.*, 175.

<sup>44</sup> *Ibid.*, 175-6. The researchers established an optimum period length between 0.6s and 0.75s which corresponds to 80-100 bpm.

<sup>45</sup> *Ibid.*, 195.

<sup>46</sup> *Ibid.*, 188.

<sup>47</sup> *Ibid.*, 187.

<sup>48</sup> *Ibid.*, 195; 397. See Huron's chapter endnote 26.

<sup>49</sup> *Ibid.*, 195.

Temporal familiarity	<p>Listeners best process the most frequently encountered rhythmic patterns.<sup>50</sup></p> <p>Studies have shown that long-term familiarity with the rhythmic patterns of a given language shape temporal expectations in music accordingly.<sup>51</sup></p>		<p>"The relationship between rhythmic perception, rhythmic production, and familiarity [is] related using Bayes' rule"<sup>52</sup></p> <p>Japanese speech patterns similar to Traditional Japanese music<sup>53</sup></p> <p>Comparison of 300 French and English instrumental melodies: music rhythm mimicked respective speech patterns<sup>54</sup></p>	<p>Peter Desain, Henkjan Honing, Makiko Sadakata (University of Nijmegen)</p> <p>William Malm (University of Michigan)</p> <p>Aniruddh Patel, Joseph Daniele (Neuroscience Institute)</p>
Placement	<p>Listeners are more alert and can better predict pitch at anticipated downbeats.<sup>55</sup></p>	<p>Mari Riess Jones, Heather Moynihan, Noah Mackenzie, Jennifer Puente (Ohio State University)</p>		
Beat hierarchy (strong or weak beat correspondence with onset)	<p>Better fit of tones felt when these were timed with metrically strongest beats.<sup>56</sup></p>	<p>Caroline Palmer and Carol Krumhansl</p>	<p>Study of Puerto Rican infant songs in 2/4 time showed a higher probability of the onset falling on the first metric position (1/8), the second most likely position was at mid-measure (5/8).<sup>57</sup></p>	<p>Maria Cadilla de Martinez</p>

<sup>50</sup> Huron, *Sweet Anticipation*, 191-4; 201.

<sup>51</sup> Ibid., 189.

<sup>52</sup> Ibid., 194.

<sup>53</sup> Ibid., 189.

<sup>54</sup> Ibid., 189.

<sup>55</sup> Ibid., 177. The researchers presented listeners with an initial tone, eight interference tones and then a second tone. Their findings show that listeners can more accurately predict the pitch of the second tone when it matches the *tactus*.

<sup>56</sup> Ibid., 179. Caroline Palmer and Carol Krumhansl determined that judgement related to goodness of fit showed results biased towards those tones lying at the most prominent beats in the measure.

<sup>57</sup> Ibid., 178.

## Appendix C: Conventions of Classical Style and Schematic Expectations

	<b>Conventional elements in Classical style</b>	<b>Schematic expectations</b>
Melody	<ul style="list-style-type: none"> <li>-the upper melodic line is simple</li> <li>-not overladen with too many different melodies</li> <li>-each melody is well connected to other</li> <li>-each period is of suitable length</li> </ul>	<ul style="list-style-type: none"> <li>-pitch proximity in melodic lines</li> <li>-motion in the same direction as last step</li> <li>-motion change following large leaps in pitch</li> <li>-3-5sec patterns (corresponds to 2 bars in 4/4 time at tempo of '96)</li> <li>-symmetric phrases</li> </ul>
Harmony	<ul style="list-style-type: none"> <li>-harmony flows smoothly</li> <li>-key progression is consistent</li> <li>-after an imperfect cadence, there is restatement of the theme followed by a full cadence</li> <li>-from time to time, the harmonies are new and unexpected</li> <li>-there is little modulation, and these coincide with rhythmic changes</li> </ul>	<ul style="list-style-type: none"> <li>-unusual harmonies</li> </ul>
Rhythm	<ul style="list-style-type: none"> <li>-regularity of rhythm</li> <li>-each period is of 'suitable' length</li> </ul>	<ul style="list-style-type: none"> <li>-conventional meter and tempo</li> <li>-placement of onset on first beat</li> <li>-similar rhythm to speech, etc.</li> <li>-rhythmic period length most easily predicted is 0.6-0.75s (tempo of 80-100 beats/min)</li> </ul>
Growth /Form	<ul style="list-style-type: none"> <li>-ordering of periods is consistent</li> <li>-deployment of phrases corresponds to period order</li> <li>-clear, well-arranged, transparent, varied</li> <li>-the character of the whole, from beginning to the end, is truthfully designed and preserved</li> </ul>	<ul style="list-style-type: none"> <li>-clarity and order</li> <li>-continuation</li> </ul>
Sound	<ul style="list-style-type: none"> <li>-separation of melody from rest of the texture</li> <li>-conclusion is energetic</li> </ul>	<ul style="list-style-type: none"> <li>-stream segregation</li> </ul>

## Appendix D: Dynamic Expectations and Tension in Classical Style

	<b>Contributions to Dynamic Expectations</b>	<b>Contribution to Tension</b>
Melody	<ul style="list-style-type: none"> <li>-simplicity of melodic lines</li> <li>-repetition of:               <ul style="list-style-type: none"> <li>- small patterns (motives) within the <i>basic idea</i></li> <li>- entire <i>basic idea</i> either repeated <i>exactly, in dominant</i> or <i>sequentially</i> or used as the basis to form contrasting ideas, which offer contrast but a type of repetition through inversion, mirroring, contraction, expansion, etc.</li> <li>- 2-bar, 4-bar, and 8-bar groupings; as well as cycle-repetition (in the case of ABA' of the <i>Small Ternary</i>)</li> </ul> </li> <li>-use of figuration (e.g., ostinatos)</li> <li>-symmetric proportions of length of ideas, phrases and periods</li> <li>-middle and large dimension strong interrelationship of melodic/thematic material between themes, sections or movements</li> </ul>	tension created by <ul style="list-style-type: none"> <li>-delayed onset, change in motion, use of <i>portamento</i>, etc.</li> </ul>
Harmony	<ul style="list-style-type: none"> <li>-smooth harmonic transitions promote continuation</li> <li>-consistent use of cadential functions promote continuation or closure</li> <li>-reinforcement of tonal centre with ostinato or pedal</li> <li>-middle and large dimension strong interrelationship of key schemes between themes, sections or movements</li> </ul>	tension created by <ul style="list-style-type: none"> <li>- use of suspensions, anticipations and neighbor tones</li> <li>-evaded or delayed cadences</li> </ul>
Rhythm	<ul style="list-style-type: none"> <li>-consistent use of simple time signatures</li> <li>-typical tempo of 80-100 beats/min matches preference of period length</li> <li>-duration of <i>b.i</i> matches findings on attention span (3-5 sec)</li> <li>-duration of phrase length coincides with upper limit of short-term memory</li> <li>-content of phrase does not exceed total number of sound events remembered</li> <li>-rhythmic repetition in the treatment of the <i>basic idea</i></li> <li>-repetition through use of melodic rhythm and inter-theme harmonic rhythm</li> <li>-predictability of motivic contractions/extensions</li> <li>-use of rests to signal closure</li> <li>-middle and large dimension strong interrelationship of rhythmic material between themes, sections or movements</li> <li>-symmetry of tempos within and between movements</li> </ul>	<ul style="list-style-type: none"> <li>-use of <i>ritardando</i> creates tension for impending event</li> <li>-<i>rubato</i> creates tension within an event</li> <li>-use of <i>accelerando</i> and fragmentation create momentum and tension for impending event</li> </ul> tension created by <ul style="list-style-type: none"> <li>-delayed onset</li> <li>-dynamic, harmonic and agogic syncopations, <i>hemiolas</i>, trills, mordent, turns, <i>acciaccatura</i> and <i>glissando</i></li> </ul>

## Appendix E: Harmonic Symmetries in Classical Style

### Harmonic Symmetry:

Main Theme (IAC)  $I \rightarrow I^5_3$  OR (HC)  $I \rightarrow V^5_3$  OR (PAC):  $I \rightarrow V^5_3 \rightarrow I^5_3$   
 Transition (I or V  $\rightarrow$  V of I) Major theme or (I or V  $\rightarrow$  v of Subordinate Theme) minor theme  
 Subordinate Theme - begins in V of I (Main Theme is Major) or Relative Major of I (Main Theme is minor) and ends with PAC in Subordinate key, (V  $\rightarrow$  PAC in  $V^5_3$ ) or (Rel<sub>Major</sub>  $\rightarrow$  PAC in Rel<sub>Major of I</sub><sup>5</sup><sub>3</sub>)  
 Codettas/Closing (bring back to I)

If the Main Theme is in Major mode:

Main Theme a)  $I \rightarrow I$  or b)  $I \rightarrow V^5_3$  or c)  $I \rightarrow V^5_3 \rightarrow I^5_3$

Transition (I or V  $\rightarrow$  V)

Subordinate Theme (V  $\rightarrow$  PAC in  $V^5_3$ )

Codettas/Closing (V  $\rightarrow$  I)

a) we have  $(I \rightarrow I^5_3) \rightarrow (I \rightarrow V) \rightarrow (V \rightarrow \text{PAC in } V^5_3) \rightarrow (V \rightarrow I)$

when we remove key prolongations, we have

$$(I \rightarrow I^5_3) \rightarrow (I \rightarrow V \rightarrow \text{PAC in } V^5_3) \rightarrow (V \rightarrow I)$$

and if looking at closure of each section:

$$I^5_3 \rightarrow V^5_3 \rightarrow I$$

b) we have  $(I \rightarrow V^5_3) \rightarrow (V \rightarrow V) \rightarrow (V \rightarrow \text{PAC in } V^5_3) \rightarrow (V \rightarrow I)$

when we remove key prolongations, we have

$$(I \rightarrow V^5_3) \rightarrow (V^5_3) \rightarrow (V \rightarrow I)$$

and if looking at closure of each section:

$$V^5_3 \rightarrow I$$

c) we have  $(I \rightarrow V^5_3 \rightarrow I^5_3) \rightarrow (I \rightarrow V) \rightarrow (V \rightarrow \text{PAC in } V^5_3) \rightarrow (V \rightarrow I)$

when we remove key prolongations, we have

$$(I \rightarrow V^5_3 \rightarrow I^5_3) \rightarrow (I \rightarrow V) \rightarrow (V \rightarrow \text{PAC in } V^5_3) \rightarrow (V \rightarrow I)$$

and if looking at closure of each section:

$$V^5_3 \rightarrow I^5_3 \rightarrow V^5_3 \rightarrow I^5_3$$

If the Main Theme is in minor mode:

Main Theme a)  $I \rightarrow I^5_3$  or b)  $I \rightarrow V^5_3$  or c)  $I \rightarrow V^5_3 \rightarrow I^5_3$

Transition (I or V of I  $\rightarrow$  v of Subordinate Theme)

Subordinate Theme (Rel<sub>Major</sub>  $\rightarrow$  PAC in Rel<sub>Major of I</sub><sup>5</sup><sub>3</sub>)

Codettas/Closing (Rel<sub>Major</sub>  $\rightarrow$  I)

a) we have

$(I \rightarrow I^5_3) \rightarrow (I \rightarrow \text{v of Subordinate Theme}) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow \text{PAC in Rel}_{\text{Major of I}}^5_3) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow I)$

when we remove key prolongations, we have

$$(I \rightarrow I^5_3) \rightarrow (I \rightarrow \text{v of Subordinate Theme}) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow \text{PAC in Rel}_{\text{Major of I}}^5_3) (\text{Rel}_{\text{Major}} \rightarrow I^5_3)$$

and if looking at closure of each section:

$$I^5_3 \rightarrow (\text{v of Subordinate Theme}) \rightarrow \text{PAC in Rel}_{\text{Major of I}}^5_3 \rightarrow (I^5_3)$$

$$I^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow (I^5_3)$$

b) we have

$(I \rightarrow V^5_3) \rightarrow (\text{V of I} \rightarrow \text{v of Subordinate Theme}) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow \text{PAC in Rel}_{\text{Major of I}}^5_3) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow I)$

when we remove key prolongations and look only at closure, we have

$$V^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow I^5_3$$

c) we have  $(I \rightarrow V^5_3 \rightarrow I^5_3) \rightarrow (I \text{ or V of I} \rightarrow \text{v of Subordinate Theme}) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow \text{PAC in Rel}_{\text{Major of I}}^5_3) \rightarrow (\text{Rel}_{\text{Major}} \rightarrow I)$ , when we remove key prolongations and look only at closure, we have

$$I \rightarrow V^5_3 \rightarrow I^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow I^5_3$$

In summary, when the Main Theme is Major, we have three scenarios:

$I^5_3 \rightarrow V^5_3 \rightarrow I$ ;  $V^5_3 \rightarrow I$ ;  $V^5_3 \rightarrow I^5_3 \rightarrow V^5_3 \rightarrow I$  and when the Main Theme is minor, we have three scenarios:  $I^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow I^5_3$ ;  $V^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow I^5_3$ ;  $I \rightarrow V^5_3 \rightarrow I^5_3 \rightarrow (\text{VII}) \rightarrow (\text{III}) \rightarrow I^5_3$

## Appendix F: Jan LaRue's *Guidelines for Style Analysis*: SHMeRG

<b>Basic Components for Analytic Hypotheses<sup>1</sup></b>	
Method	<ol style="list-style-type: none"> <li>1. Identify Points of articulation within the large, medium and small dimensions of the work.</li> <li>2. Determine source and type (stratification, elision, truncation, lamination) of articulation.</li> <li>3. Describe activity level (stress, lull, transition) for each articulation.</li> <li>4. Define options for continuation (repetition, development, response, contrast).</li> <li>5. Consider each style element for its contribution to Growth (movement and shape).</li> </ol>
Sound	<p><b>Main functions:</b> defines character and punctuation.</p> <p><b>Timbre:</b> selection, combination, degree of contrast of instruments and voices. Range, tessitura, gaps, special effects, exploitation of idiom, surface articulation.</p> <p><b>Texture and fabric:</b> doubling, overlap, contrast of components; homophonic, cantus firmus, contrapuntal, polarized (polychoric; melody/figured bass or 2+1; melody/accompaniment; solo/ripieno).</p> <p><b>Dynamics:</b> terraced, graduated, implied by instrumentation or range; types and frequency.</p>
Harmony	<p><b>Main functions:</b> color and tension.</p> <p><b>Stages of tonality:</b> linear and modal, migrant, bifocal, unified, expanded, polycentric, atonal, serial. Analysis of nontonal, nonserial styles as structures of variant stability/instability.</p> <p><b>Movement relationships:</b> interior key schemes, modulatory routes.</p> <p><b>Chord vocabulary:</b> (direct, indirect, remote), alterations, dissonances, progressions, motifs, sequences.</p> <p><b>Harmonic rhythm:</b> chord rhythm, inflection rhythm, key rhythm.</p> <p><b>Part exchange:</b> counterpoint, imitation, canon, fugue/fugato, stretto, augmentation/diminution.</p>
Melody	<p><b>Main functions:</b> profile (peaks and lows) and density (degree of melodic activity).</p> <p><b>Range:</b> mode, tessitura, vocal/instrumental</p> <p><b>Motion:</b> stepwise, skipping, leaping, chromatic; active/stable, articulated/continuous, chromatic/level.</p> <p><b>Patterns:</b> rising, falling, level, wave, undulating, saw-tooth.</p> <p><b>New or derived:</b> function as primary (thematic) or secondary (cantus firmus, ostinato).</p> <p><b>Middle and large dimension:</b> peaks and lows.</p>
Rhythm	<p><b>Layered phenomenon</b></p> <ul style="list-style-type: none"> <li>-Surface rhythm: vocabulary and frequency of durations and patterns.</li> <li>-Continuum: meter (regular, irregular, additive, heterometric, syncopated, hemiolic); tempo; module or dimensions of activity (fraction, pulse, motive, subphrase, phrase, sentence, larger groupings).</li> <li>-Interactions: textural rhythm, harmonic rhythm, contour rhythm</li> </ul> <p><b>Activity level (stress, lull, transition)</b></p> <ul style="list-style-type: none"> <li>- Patterns of change: amount and location of stress, lull, and transition.</li> <li>- Fabrics: homorhythmic, polyrhythmic, polymetric; variant rhythmic density.</li> </ul>
Growth / (Form)	<p><b>Large dimension considerations:</b> balance and relationship between movements in dimensions, tempos, tonalities, textures, meters, dynamics, range of intensity.</p> <p><b>Evolution of control:</b> heterogeneity, homogeneity, differentiation, specialization.</p> <p><b>Sources of Shape:</b></p> <ul style="list-style-type: none"> <li>-Articulation by change in any element; anticipation, overlap, elision, truncation, lamination</li> <li>- Options for continuation: recurrence, development, response, contrast.</li> </ul> <p><b>Sources of Movement:</b></p> <ul style="list-style-type: none"> <li>- Conditions: stability, local activity, directional motion/Types: structural, ornamental</li> </ul> <p><b>Module:</b> the pervading or characteristic growth segment.</p> <p><b>Text influence:</b> choice of timbre; exploitation of word-sound for mood and texture; word evocation of chord and key change; clarification of contrapuntal lines by forceful keywords; influence of word and sentence intonation on musical line; limitation by awkward vocables; influence of word rhythms on surface rhythms and poetic meter on musical meter; degree of adherence to text form (line, stanza, refrain, <i>da capo</i>, etc.) in articulations and options for continuation; concinnity or conflict in mood changes, fluctuations of intensity, location of climax, degree of movement.</p>

<sup>1</sup> Table expanded from the inside cover page titled “A Cue Sheet for Style Analysis: Basic Components for Analytic Hypotheses,” in Jan LaRue, *Guidelines for Style Analysis* (New York, NY: W.W. Norton & Company, 1970. 2nd ed., edited by Marian Green LaRue. Sterling Heights, MI: Harmonie Park Press, 2011).

## Appendix G: Definitions (according to Lobe<sup>1</sup> and Caplin<sup>2</sup>)

### Basic idea

The *b.i.* (2m.), a two-measure musical idea made of motivic patterns, is typically first given in the tonic.

### Repetition or contrasting idea

The next two bars present either a *repetition* or a *contrasting idea (c.i.)* depending on the Theme Type

-*repetition* can be: *exact* (repeated exactly in tonic), *response* (repeated in the dominant) or *sequential* (in other keys)

-the *contrasting idea (c.i.)* has melodic contour, rhythm or dynamics that are different from those of the basic idea but main difference is a contrasting harmonic organization; it must close with a cadential progression. It can also perform continuation functions of fragmentation and acceleration.

### Sentence

The *sentence* (8m.) is formed of:

*presentation* phrase (4m.) + *continuation* phrase (4m. incl. a HC, IAC or PAC cadence)

- where the *presentation* phrase is the combination of :

the *statement (b.i. of 2m.)* + 2m. *b.i'* (*exact, response or sequential*)

- harmonic organization (I) + (I,V, or other harmony)

and

- where the *continuation* phrase combines both *continuation function* and *cadential function*. It pursues with fragmentation, harmonic/rhythmic acceleration and sequential harmonies, ends with a cadence (HC, IAC or PAC).

the harmonic organization of the *sentence* is:

(2m. *b.i.* in I) + (2m. *b.i'* *exact* in I, *response* in V or *sequential* in other harmony)

+ *continuation* (4m in other harmony but ends with HC in V, IAC in I or PAC in I)

in other words:

2m. *b.i.* in I + 2m. *b.i'* in I, V or other + 4m. in other with cadence ending with HC in V or IAC/ PAC in I

*sentence*: (I) → (I, V, other) → (other) → (IAC/ PAC in I<sub>3</sub><sup>5</sup> or HC in V<sub>3</sub><sup>5</sup>)

### Period

The *period* (8m.) is formed of:

*antecedent* phrase (4m.incl. a weak cadence HC or IAC) + *consequent* phrase (4m. incl. a strong PAC cadence)

-where the *antecedent* phrase is the combination of :

the *b.i.*(2m.) + the *c.i.*(2m. incl. a HC or IAC cadence)

- harmonic organization (2m *b.i.* in I) + (2m *c.i.* in other harmony ending with weak cadence HC in V or IAC in I)

and

-where the *consequent* phrase is formed by repeating the *basic idea* either exactly (in I) or in the dominant (V) or transposed (usually up by step to supertonic II or other), and repeating the *contrasting idea* with variation but now ending with a perfect authentic cadence (PAC) in I.

<sup>1</sup> See Johann Christian Lobe, *Lehrbuch der musikalischen Komposition, Bd. Von Den Ersten Elementen Der Harmonielehre An Bis Zur Vollständigen Komposition Des Streichquartetts Und Aller Arten Von Klavierwerken. vol.1* (Leipzig: Breitkopf und Härtel, 1850), 5th ed. transl. as *Traité Pratique de Composition Musicale: Depuis Les Premiers Éléments De L'harmonie Jusqu'à La Composition Raisonnée Du Quatuor Et Des Principales Formes De La Musique Pour Piano* by Gustave Sandré, Leipzig & Bruxelles: Breitkopf & Härtel, 1889. Reprint Nabu Public Domain, 2010.

<sup>2</sup> See William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001).

In other words,

*consequent* = *b.i'* (2m.) + *c.i'* (2m. including PAC)  
- harmonic organization (2m *b.i'* in I, V or other) + (2m. *c.i'*. in other but ending with PAC on I)

The harmonic organization of the *period* is:

(2m *b.i* in I) + (2m *c.i.* in other harmony ending with HC in V or IAC in I)  
+ (2m *b.i'* in I, V or other) + (2m. *c.i'*. in other but ending with PAC on I)

In other words:

2m *b.i* in I + 2m *c.i.* in other ending with HC in V or IAC in I  
+ 2m *b.i'* in I, V or other + 2m. *c.i'*. in other with cadence ending with PAC in I  
*period* : (I) → (other) → (IAC in I<sup>5</sup><sub>3</sub> or HC in V<sup>5</sup><sub>3</sub>) → (I, V, other) → (other) → (PAC in I<sup>5</sup><sub>3</sub>)

### Larger Theme Types

Large Theme Types can begin with a *presentation* phrase, an *antecedent* phrase or a *compound basic idea* (*c.b.i.*). The *compound basic idea* is the combination of *basic idea* and *contrasting idea* but it is not followed by a cadence; in other words, *c.b.i* = *b.i.* + *c.i.*

The *16m Sentence* consist of two 8m. segments; it begins with an 8m. *presentation* followed immediately (without cadence) by an 8m. *continuation/cadential* portion, ending with a PAC in I.

The *16m-Period* consist of two 8m. segments; it begins with an 8m. *antecedent* (w/ a cadence) and is followed by an 8m. *consequent*, ending with a PAC in I.

Small Ternary ABA' consists of: the *exposition* "A" that is most often a *period* (but can be a *sentence* or a *hybrid*); the *contrasting middle* "B" that is sometimes a *sentence* but never a *period* nor a *c.b.i.* + *consequent*; the *recapitulation* that begins with the *b.i.* of "A" and ends with a PAC in I.

### Cadences

Complete: uses the following chord progression I → II/IV → V → I

Incomplete: uses only

three of the above as either II → V → I, IV → V → I or I → V → I  
the last two of the above: V → I

#### Authentic Cadence (AC)

is a complete cadence with the last two chords in root position

I → pre-dominant function → V<sup>5</sup><sub>3</sub> → I<sup>5</sup><sub>3</sub>

basic presentation is I<sup>6</sup><sub>3</sub> → II<sup>6</sup><sub>3</sub> → V<sup>5</sup><sub>3</sub> → I<sup>5</sup><sub>3</sub>

#### Perfect Authentic Cadence (PAC)

is an AC where the melody ends on the tonic at final harmony

#### Imperfect Authentic Cadence (IAC)

is an AC where the melody ends on the mediant (sometimes on dominant) at final harmony

#### Half-Cadence (HC) ends on dominant in root position

complete form I → II/IV → V<sup>5</sup><sub>3</sub>

can also be reduced to two chords I/II/IV/VI/VII → V<sup>5</sup><sub>3</sub>

*Deceptive Cadence* is a complete cadence ending in I<sup>6</sup><sub>3</sub> or I<sup>6</sup><sub>4</sub> (sometimes on VI or other)

I → II/IV → V<sup>5</sup><sub>3</sub> → I<sup>6</sup><sub>3</sub> or I<sup>6</sup><sub>4</sub>

*Evaded Cadence* is a complete cadence ending in I<sup>6</sup><sub>3</sub> or I<sup>6</sup><sub>4</sub> and moving to another progression

I → II/IV → V<sup>5</sup><sub>3</sub> → I<sup>6</sup><sub>3</sub> or I<sup>6</sup><sub>4</sub> → another progression

*Abandoned Cadence* is a complete cadence ending in I<sup>6</sup><sub>3</sub> or I<sup>6</sup><sub>4</sub> and moving to another progression

I → II/IV → V<sup>5</sup><sub>3</sub>, V<sup>6</sup><sub>3</sub>, V<sup>6</sup><sub>4</sub> or none → continuation

I → II/IV → V<sup>5</sup><sub>3</sub> → V<sup>6</sup><sub>5</sub> → I

A *Plagal Cadence* is simply IV → V



## Appendix H: Main Structure of the First Movement of a String-Quartet <sup>1</sup>

		<i>Main Theme is in Major mode</i>		<i>Main theme is in minor mode</i>		
<i>Name</i>		<i>Start of Period Tonality</i>	<i>End of Period Tonality</i>	<i>Start of Period Tonality</i>	<i>End of Period Tonality</i>	<i>Cadence<sup>2</sup></i>
<b>Exposition</b>						
G1	Main Theme Group	8-24 bars: 1-3 periods -8 bars Sentence or Period, 16 bar: Sentence, Period, Small Binary -24 bars or more: Small Ternary, Small Binary repeated - Tight-knit structure, Presentation of MAIN IDEA - Sentence: 2m. <i>b.i</i> in I + 2m. <i>b.i'</i> in I,V, other + 4m.continuation w/ HC in V or IAC/ PAC in I - Period: (2m <i>b.i</i> in I + 2m <i>c.i.</i> in other w/ HC in V or sometimes IAC in I) + ( 2m <i>b.i'</i> most often in I or V but can also be other + 2m. <i>c.i' or c.i''</i> in other w/ PAC in I) - Sentence or Period can sometimes modulate to other than I but only when first part of a larger theme group				
		Home key	Home key	Home key	Home key	8m Sentence: HC, IAC or PAC Other theme types: PAC in I
G2	Transition Group	Often short (4 bars), 4 to 16 bars but not ABA Theme type: 1-2 periods - Continues exposition of main idea while preparing arrival of Subordinate Group. - Usually sequential, arpeggios, passage work, scales, brilliant style, increase in dynamic intensity and forward drive, uses pivot chords - Near end, liquidates remaining melodic and motivic material of Main Theme to clear stage for Subordinate Theme. - Also a reduction in texture and sometimes a break in rhythmic activity - Not "tight-knit" and is most often: <i>presentation/or antecedent</i> (I or V of I) + <i>continuation</i> + <i>cadential</i> + <i>standing on V (or v of V)</i> - Begins with one of four ways (1. and 2. are most common): 1. made of new material in home key I (especially following a PAC) 2. opening material from Main Theme I (especially when Main Theme ends with HC) or if Main Theme ends with AC, transition can elide with repetition of <i>b.i</i> 3. false closing section of <i>codettas</i> to Main Theme (but introduce rest or break at start) 4. sudden shift to non-tonic region of Home Key, usually submediant				
		If Main Theme ends in HC: stays on V of Home key.  If Main Theme ends in IAC or PAC: Starts in Home Key.	If Main Theme ends in HC stays on V of Home key.  If Main Theme ends in IAC or PAC: modulates to V of Home Theme .	If Main Theme ends in HC: V of Home Key.  If Main Theme ends in IAC or PAC: Starts in Home Key.	V of Subordinate Theme.	Often ends with standing on V or HC but cadence is not required.

<sup>1</sup> See Johann Christian Lobe, *Lehrbuch der musikalischen Komposition, Bd. Von Den Ersten Elementen Der Harmonielehre An Bis Zur Vollständigen Komposition Des Streichquartetts Und Aller Arten Von Klavierwerken. vol.1* (Leipzig: Breitkopf und Härtel, 1850), 5th ed. transl. as *Traité Pratique de Composition Musicale: Depuis Les Premiers Éléments De L'harmonie Jusqu'à La Composition Raisonnée Du Quatuor Et Des Principales Formes De La Musique Pour Piano* by Gustave Sandré, Leipzig & Bruxelles: Breitkopf & Härtel, 1889. Reprint Nabu Public Domain, 2010). See also William E. Caplin, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven* (New York, NY: Oxford University Press, Inc., 2001).

G3	Subordinate Theme Group	<p>8 (often) to 24 bars but not ABA type : 1-3 periods</p> <ul style="list-style-type: none"> <li>- The Subordinate Theme Group ends in a PAC in the subordinate key</li> <li>- Secondary Idea of the movement should contrast the Main Idea in content and tonality and in a key engendering large-scale dissonance with Main Theme.</li> <li>- Initiating, medial and concluding, loose knit structure.<sup>3</sup></li> <li>- No new ideas need to be introduced in the Subordinate Theme Group but instead can be made of existing motifs from Main Theme Group but in a key contrasting that of Main Theme Group. However, it can also be made of entirely new material<sup>4</sup></li> <li>- The periods in this group can have varying lengths which offer contrast when compared to the Main Theme Group</li> <li>- The first subordinate theme can be tight-knit but others not "tight-knit" ; if tight knit, it is most often: <i>presentation</i> (V or I<sub>Major</sub>) + <i>continuation</i> + <i>cadential</i> + <i>PAC in Subordinate key</i> + <i>codettas</i>  <i>where presentation is either:</i>  <i>b.i + repeat of b.i + repeat of b.i OR</i>  <i>(b.i + repetition of b.i). + (b.i. + repetition of b.i.)</i></li> <li>- <i>Antecedent-Consequent</i> rarely seen in Subordinate Theme</li> <li>- Sometimes simply <i>continuation</i> + <i>cadential</i> + <i>PAC in Subordinate key</i></li> <li>- Dynamics are calm with crescendo leading to PAC and then diminuendo for codetta or rising at the end of codetta, or is a single rising crescendo from start.</li> <li>- Almost always followed by codettas.</li> <li>- Sometimes begins with a standing on V from the Transition to mark end of Transition, then the Subordinate Theme begins with new melodic and motivic content in new key.</li> </ul>				
		Dominant of Home key	Dominant of Home key	Relative Major of Home key or other that creates contrast with Home Key <sup>5</sup>	Relative Major of Home key or other that creates contrast with Home Key	PAC of Subordinate key (V if Major and relative Major if minor(or other contrasting key))
G4	Cadential (Codettas) Group	<p>4 (often) to 32 bars : 1-4 periods</p> <ul style="list-style-type: none"> <li>- Follows a PAC and prolongs root-position tonic, circles melodically around 1<sup>st</sup> scale degree. Concludes the Secondary Idea, arpeggios or scales, not typically motivic, increasing fragmentation</li> <li>- Provides a post-cadential closing function</li> <li>- May or may not include a Closing Theme<sup>6</sup></li> </ul>				
		Usually in Key of Subordinate Theme Group - Dominant of Home key	Dominant of Home key	Usually in Key of Subordinate Theme Group	Same key as Subordinate Theme Group- usually relative major of Home Key	Finish in Subordinate Key but no cadence necessary (especially if leading into Reprise)
<b>Reprise (if applicable)</b>						

<sup>2</sup> “Although a rhythmic stop may be associated with a given cadence, a cessation of activity is not essential to the concept of a cadence. Moreover, rhythmic motion can come to a halt at places that are clearly noncadential.”— Caplin, *Classical Form*, 51.

<sup>3</sup> Caplin, *Classical Form*, 97.

<sup>4</sup> Lobe/Sandré, *Traité Pratique de Composition Musicale*, 324.

	<i>Name</i>	<i>Main Theme is in Major mode</i>		<i>Main theme is in minor mode</i>		<i>Cadence</i>
		<i>Start of Period Tonicity</i>	<i>End of Period Tonicity</i>	<i>Start of Period Tonicity</i>	<i>End of Period Tonicity</i>	
<b>Development</b>						
G5	Thematic Development Group (also called Middle Group)	<p>16 to 40 (or more) bars: 2-8 periods            Structure is either:            -Pre-Core + Core + HC on V + standing on V            -Pre-Core + pseudo-core + HC on V + standing on V            -Pre-Core + transition-like unit + HC on V + standing on V            -Pre-Core + subordinate theme-like unit + AC (evaded, deceptive or abandoned) in Development key            -Pre-Core + Core + HC on V + Re-transition w/ material from Main Theme in Development Key.            - Development, transformation and elaboration of Main Idea and Secondary Idea. Longest, most technical, variety and beauty of developments using all motifs or only parts thereof. Sometimes NEW themes arise.            - Built on sequential progressions.            - When Home Key is Major, Development is usually in VI, III or II            - When Home Key is minor, Development usually explores IV or V            - Many modulations often into remote keys</p> <p><b>Pre-Core:</b> 2-8 bars either period, sentence, transition-like or incomplete thematic unit or multiple themes            - Usually sequential repetition of a model            - Complete Pre-Core includes: initiating, medial, and concluding functions            - Dynamics tend to be softer than core and rhythmic motion is often discontinuous (or less active than core). Not as dramatic as Core but sets it up.            - More relaxed than core, hesitant, anticipatory. Material usually taken from basic idea of Main Theme or from closing section of Exposition. It rarely refers to transition or subordinate themes. May introduce new material.</p>				
		Tonicity usually begins in Tonic of Subordinate Theme and continues in Subordinate Key or modulates to a Development Key. At times begins on dominant of an entirely new Development Key	Tonic of Subordinate Key or Dominant of Development Key (if a complete thematic unit)	Usually begins in Tonic of Subordinate Theme and continues in Subordinate Key or modulates to a Development Key. At times begins on dominant of an entirely new Development Key	Tonic of Subordinate Key or Dominant of Development Key (if a complete thematic unit)	HC (V of Home key or of Development Key) if complete thematic unit but does not need to be complete and can lack closing (like a transition)

<sup>5</sup> Caplin, *Classical Form*, 97.

<sup>6</sup> Caplin, *Classical Form*, 122.

		<p><b>Core:</b> large model 4 to 8 bars of new material or taken from Exposition  <i>model + sequence + fragmentation + HC in V of Home Key (or V of Development Key)</i></p> <ul style="list-style-type: none"> <li>- Emotional quality of instability, restlessness, dramatic conflict, dynamic level is usually <i>forte</i>, increase in rhythmic activity, imitation, canon, fugal entries add to musical texture</li> <li>- Model of Core may contain repeated material that will be sequenced (e.g., repeating ascending second or descending fifth) where material can be drawn from any previous material of the movement or it may be new. The sequencing can continue 8-16 bars (or more). This will move in various keys or create a true modulation. The structure is normally retained for the first sequence. The fragmentation of model (often 8 bars) into smaller units may bring about a new model for sequential repetition. Cadential function (often 4 bars) of Core before its closing is not always present but if it is, it is often evaded, deceptive or abandoned cadence.</li> <li>- Includes Sequence + Fragmentation + Concluding and standing on dominant. Lengthy development sections can contain two Cores - one in the development key and the other preparing the dominant of the home key.</li> <li>- Closing: 4-8 bars. Standing on dominant of Home Key using ideas from Main Theme</li> <li>- HC in V of Home Key followed often by substantial standing on dominant of Home Key using anticipatory motives derived from basic idea of Main Theme of Exposition</li> </ul>				
		Often explores VI, III or II of Home Key Note: all are minor in Home Key	Dominant of Home key	Often explores V or IV of Home Key Note: all are minor in Home Key	Dominant of Home key	HC in V of Home Key or V of Development Key or may end with AC in Development Key or may be evaded or abandoned (in this case, there is no cadential closure) <sup>7</sup>

<sup>7</sup> “The great majority of cores have as their harmonic goal a dominant of either the home key or a development key. A core thus tends to end along the lines of a transition. Most often, the fragmentation leads to a half cadence. Frequently, though, a genuine cadence fails to materialize, and a dominant arrival, sometimes a premature one, results instead. . . . If the standing on the dominant occurs at the end of the development, then anticipatory motives derived from the basic idea of the exposition's main theme often appear to help prepare for the beginning of the recapitulation.”— Caplin, *Classical Form*, 144; 145.

Recapitulation						
G6	Main Theme Group'	8-24 bars: 1-3 periods -Embellishments, changes in register, texture, dynamics , changes in harmonic-tonal organization, change in melodic or motivic material justified by need to reduce material and change key so to have the entire Recapitulation in Home Key (and Major of Home Key if Home Key was minor) - Deletion of thematic re-statements - Often explores flat-tonal regions, chromatically lowered scale degrees - Begins in Home Key with basic idea from Main Theme - Adjusts material to stay in Home Key - more rhythmic continuity (removes pauses and fermatas) when compared to Exposition to foster forward motion				
		Basic idea from Main Theme in Home Key	Home key	Basic idea from Main Theme in Home Key	Home key	Can exist but not required because tonality should now be clear
G7	Transition Group'	4-24 bars: 1-2 periods <i>presentation/or antecedent (I or V of I) + continuation + cadential + standing on V (or v of V)</i> - Most altered when comparing with Exposition - Can have compression of material from Exposition Note: Main Theme Group' and Transition Group' can be fused				
		If Main Theme ends in HAC: V of Home Key. If Main Theme ends in IAC or PAC: Starts in Home Key	Home key	If Main Theme ends in HAC: V of Home Key. If Main Theme ends in IAC or PAC: Starts in Home Key	Major of Home key	Often ends with standing on V of Home Key (or Major of Home Key) but cadence is not required
G8	Subordinate Theme Group'	8-24 bars: 1-2 periods -Usually exact replica of Exposition but now in Home Key (or Major of Home Key if Home Key was minor) -Expansive cadential function to confirm Home Key				
		Home key so now transposed from Dominant in the initial version	Home key	Most often Major of Home Key but sometimes Home key	Most often Major of Home Key but sometimes Home key	HC, but most often PAC in Home Key (or Major of Home Key)
G9	Cadential (Codettas) Group' -	4 (usually) to 32 bars : 1-4 periods - Follows a PAC and prolongs root-position tonic . Concludes the Secondary Idea, arpeggios or scales, not typically motivic, increasing fragmentation -Sometimes altered from Exposition and can be omitted if a Coda is used <sup>8</sup> - Circles melodically around 1st scale degree.				
		Home Key	Home key	Most often Major of Home Key but sometimes Home key	Most often Major of Home Key but sometimes Home key	Home key (or Major of Home Key) with a PAC if not followed by a CODA

<sup>8</sup> “In the absence of a genuine coda, the closing section may be extended in order to impart a more decisive sense of conclusion to the movement as a whole.”—Caplin, *Classical Form*, 171.

<b>Coda (if desired to complete thematic ideas)</b>						
G10	Large Cadential (Coda) Group	16-40 (sometimes even 70) - Structurally similar to Subordinate Theme: 1-3 periods - Contains Coda Themes each ending with a PAC (but sometimes HC or Dominant arrival) - Coda Theme Group can include 2-3 Coda Themes - Reduction of main ideas from Exposition and Development. No new material is introduced - Small modulations but tonic is maintained until the end				
		Home Key with perhaps small modulations	Home key	Home key <b>or</b> Major of Home key	Home key <b>or</b> Major of Home key	Closes with a series of Codettas and may use material from the Codetta of the Exposition if this is not used in the Recapitulation  Usually PAC in Home Key (or Major of Home Key) but sometimes on V of I

## Appendix I: Additional Music Examples

Example I.1 - Example of a *Sequential and Collaborative Dialogue*

**N. Dupuis-Désormeaux, Opus 106, No.1 - Sonata for Two Pianos**

The musical score is presented in three systems, each with two staves labeled Piano 1 and Piano 2. The key signature is two flats (B-flat and E-flat) and the time signature is 4/4. The first system shows Piano 1 starting with a *p* dynamic, followed by a crescendo to *mf*. Piano 2 starts with a *p* dynamic and a *mp* dynamic. The second system shows Piano 1 with a *mf* dynamic and Piano 2 with a *mp* dynamic. The third system shows Piano 1 with a *mf* dynamic and Piano 2 with a *mf* dynamic. The score illustrates a sequential and collaborative dialogue between the two pianos.

Example I.2 - Example of a *Collaborative Dialogue*

N. Dupuis-Désormeaux, Opus 115, No.1, MVT1 - Trio for Violin, Cello and Piano

The image displays a musical score for a Trio for Violin, Cello, and Piano, specifically measures 24 through 31. The score is arranged in four systems. The first system (measures 24-28) features the Violin (Vln.) and Cello (Vc.) parts. The Violin part begins with a tempo marking of quarter note = 84. The Cello part provides a rhythmic accompaniment. The second system (measures 29-31) features the Violin (Vln.) and Piano (Piano) parts. The Violin part includes a *dolce* marking and a *rit.* (ritardando) marking. The Piano part features a complex texture with triplets and a *rit.* marking. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is 3/4.



Example I.3 - Example of a Sequential-Collaborative Dialogue

N. Dupuis-Désormeaux, Opus 115, No.1, MVT2 - Trio for Violin, Cello and Piano

The image displays a musical score for a Trio for Violin, Cello, and Piano, measures 79 through 85. The score is written in a key signature of three flats (B-flat, E-flat, A-flat) and a 3/4 time signature. The tempo is marked as  $\text{♩} = 86$ . The music is in a sequential-collaborative dialogue style.

Measures 79-84:

- Violin (Vln.):** Measures 79-84. Starts with a half note G4, followed by a quarter note A4, and a half note B4. The dynamic is *mp*.
- Cello (Vc.):** Measures 79-84. Starts with a half note G2, followed by a quarter note A2, and a half note B2. The dynamic is *mp*.
- Piano:** Measures 79-84. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.

Measures 85-88:

- Violin (Vln.):** Measures 85-88. Features a long, sweeping melodic line with a fermata over the final note. The dynamic is *p*.
- Cello (Vc.):** Measures 85-88. Features a long, sweeping melodic line with a fermata over the final note. The dynamic is *p*.
- Piano:** Measures 85-88. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.

Measures 89-92:

- Violin (Vln.):** Measures 89-92. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Cello (Vc.):** Measures 89-92. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Piano:** Measures 89-92. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.

Measures 93-96:

- Violin (Vln.):** Measures 93-96. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Cello (Vc.):** Measures 93-96. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Piano:** Measures 93-96. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.

Measures 97-100:

- Violin (Vln.):** Measures 97-100. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Cello (Vc.):** Measures 97-100. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.
- Piano:** Measures 97-100. Features a complex rhythmic pattern with triplets and sixteenth notes. The dynamic is *p*.

Example I.4 - Example of a *Collaborative and Disjoint Dialogue*

N. Dupuis-Désormeaux, Opus 106, No.1 - Sonata for Two Pianos

Musical score for Piano 1 and Piano 2, measures 1-4. The score is in 4/4 time and B-flat major. Piano 1 (top system) has a treble clef and a bass clef. The treble clef part starts with a melodic line in measure 1, followed by a rest in measure 2, and then a melodic line in measure 3. The bass clef part has a rhythmic accompaniment of eighth notes. Dynamics include *mf* and *mp*. Piano 2 (bottom system) also has a treble clef and a bass clef. The treble clef part has a melodic line in measure 1, followed by a rest in measure 2, and then a melodic line in measure 3. The bass clef part has a rhythmic accompaniment of eighth notes. Dynamics include *mf* and *ff*.

Musical score for P. 1 and P. 2, measures 5-8. The score is in 4/4 time and B-flat major. P. 1 (top system) has a treble clef and a bass clef. The treble clef part has a melodic line in measure 5, followed by a rest in measure 6, and then a melodic line in measure 7. The bass clef part has a rhythmic accompaniment of eighth notes. Dynamics include *mf* and *ff*. P. 2 (bottom system) also has a treble clef and a bass clef. The treble clef part has a melodic line in measure 5, followed by a rest in measure 6, and then a melodic line in measure 7. The bass clef part has a rhythmic accompaniment of eighth notes. Dynamics include *mf* and *ff*.

Example I.5 - Example of a *Disjoint Dialogue*

N. Dupuis-Désormeaux, Opus 103, No.2, MVT2- Sonata for Clarinet in A and Piano

The image displays a musical score for a Clarinet and Piano. It is divided into two systems, each containing three staves. The first system covers measures 42 to 45, and the second system covers measures 46 to 49. The Clarinet part is written in the treble clef, and the Piano part is in the bass clef. The key signature is one flat (B-flat), and the time signature is 3/4. The score includes dynamic markings such as *pp* and *delicatamente*, as well as articulation like slurs and accents. Trills and triplets are also present in the Clarinet part.

## Appendix J: Modulation Tools

<p><b>Common vs. characteristic tones:</b>          -To establish firmly the tonality, use tones that are characteristic to the key and differentiate it from its 'close neighbours'. For example, when in C-Major, 'f' and 'b' identify C-Major, while f# calls up G, and b<sup>b</sup> indicates F.</p>
<p><b>Neutral chords:</b>          -Neutral chords are those that have tones common to both I<sub>original</sub> and I<sub>new</sub>. Place these after I<sub>original</sub> and before the <i>modulatory chord</i>.</p>
<p><b>Modulatory chord:</b>          -After the neutral chords, it is time to insert the modulation chord. This chord usually includes the leading tone of the goal (or intermediate) key - chords on V, VII and III.</p>
<p><b>Fast modulations:</b>          -Fast modulations can be effected by introducing I<sub>new</sub> directly after the <i>modulatory chord</i>, without preparation if this triad is not included in the diatonic triads of I<sub>original</sub>. If the triad on I<sub>new</sub> is contained in the diatonic tones of I<sub>original</sub>, then its arrival must be prepared by chords that identify it, such as its dominant.<sup>1</sup>          -Other than by direct introduction of I<sub>new</sub>, the fastest way to modulate to a given key is through its dominant (or dominant equivalents).          -With V(of I<sub>new</sub>)→ I<sub>new</sub><sup>2</sup>; here, using I<sub>new</sub> as 6/4 on the strong beat makes "the modulation particularly decisive"<sup>3</sup>. Also achieved with dominant equivalents (e.g., V<sup>7</sup>, Vii<sup>°5</sup>, Vii<sup>m7°5</sup>, vii<sup>°5</sup>, vii<sup>°7/5</sup>)          -"Where remote keys are concerned the <i>minor triad</i> may, to be sure, have a more decided effect as tonic triad; but even then the dominant harmony will follow it to render the impression decisive."<sup>4</sup>          -The use of vii<sup>°7/5</sup> is particularly potent to effect a modulation because, by nature of its construction (being three stacked minor thirds), each vii<sup>°7/5</sup> belongs to one of four keys. So with only three different vii<sup>°7/5</sup>, 12 Major and 12 minor keys can be called upon.<sup>5</sup></p>
<p><b>6/4 chord:</b> -The 6/4 chord is particularly effective in modulation if it is unprepared, occurs on the strong beat and is followed by the dominant harmony.<sup>6</sup></p>
<p><b>Repeat of V→I:</b> -For emphasis, the cadential close can first be used inverted, then re-stated in root position.</p>
<p><b>Color:</b> -Schoenberg suggests to alternate between major and minor keys to enhance color through modality.</p>
<p><b>Chord spacing:</b> -For better voice-leading, it is best to vary chord position.</p>
<p><b>Preparing :</b> - "A satisfying modulation indeed depends on this preparation of the new key!"<sup>7</sup></p>

<sup>1</sup> Ernst Friedrich Richter, *Lehrbuch der Harmonie* (Leipzig: Breitkopf & Härtel, 1853), 25th ed. 1907, translated by Theodore Baker as *Manual of Harmony* (New York, NY: G. Schirmer, 1912. Reprint BIBLIOLife, n.d.), 138.

<sup>2</sup> Ibid., 141-146.

<sup>3</sup> Ibid., 138.

<sup>4</sup> Ibid., 138.

<sup>5</sup> Ibid., 142.

<sup>6</sup> Ibid., 138-139.

<sup>7</sup> Arnold Schoenberg, *Harmonielehre* (Vienna: Universal Edition, 1911), third ed. 1922, translated by Roy E. Carter as *Theory of Harmony* (Berkeley, CA: University of California Press, 1978, paperback 1983), 282.

<p><b>Note on diminished and augmented chords:</b> -The usual convention for intervals is that diminished intervals move down and augmented intervals move up. The same can be applied to intervals within the chords.<sup>8</sup></p>
<p><b>Use of V in the cadence:</b> -In a cadence, use V (Major) not V<sup>b5</sup> (with lowered fifth) or V<sup>#5</sup> (with raised fifth).<sup>9</sup></p>
<p><b>I substitutes, or tonic equivalents:</b></p> <p>-To prolong a cadence, I substitutes can be used, such as III or VI. These chords are particularly effective because they have two tones in common with I; this is also true of IV<sup>7</sup>. Note that VI<sup>7</sup> has three tones in common with I, so it makes for a good replacement. For example, II<sup>7</sup>→III is effective when placed right before a cadence as: II<sup>7</sup>→III →VI→II<sup>6/5</sup>→V→I. Here, II<sup>7</sup> is a dominant equivalent and III is a tonic equivalent.</p> <p>- III<sup>4/3</sup>, VI<sup>4/3</sup>, and IV<sup>6/4</sup> can be used as substitutes for I<sup>6/4</sup></p> <p>-IV<sup>6/4</sup> can be used as substitute for I<sup>6/4</sup></p> <p>-We can also combine V substitutes and I substitutes; for example: II<sup>7</sup>→III; VII<sup>6/5</sup>→VI<sup>6</sup>; III<sup>6</sup>→VI; VII<sup>7</sup>→III, etc.</p> <p>-Note that III can be used both as tonic and dominant substitute because, not only does it contain two tones in common with the tonic triad, it also includes the leading tone (dominant substitute).</p>
<p><b>Dominant (V) and dominant seventh (V<sup>7</sup>) and its inversions 6/5, 4/3, 2:</b></p> <p>-Because the Dominant seventh chord belongs to only one key, its appearance as the <i>modulatory chord</i> is unquestionably effective.<sup>10</sup></p> <p>-The dominant-seventh does not need to be prepared and can enter directly.<sup>11</sup></p> <p>-Rimsky-Korsakov suggests: “All inversions of the dominant seventh chord resolve to the tonic, with the seventh degree resolving to the third of the tonic triad.”<sup>12</sup> He also notes that: V<sup>7,6/5</sup> → I<sup>5/3</sup>; V<sup>7,4/3</sup> → I<sup>5/3</sup>; and V<sup>7,2</sup> → I<sup>6</sup></p> <p>-Although the dominant 7th is decisive, there are other chords that can effectively produce modulations. These are called <i>dominant equivalents</i>.</p>

<sup>8</sup> Richter, *Manual of Harmony*, 86 Note.

<sup>9</sup> Schoenberg, *Theory of Harmony*, 191.

<sup>10</sup> Peter Ilyitch Tchaikovsky, *Rukovodstvo k prakticheskomu izucheni i u garmonii*. Moscow: P. Jurgenson, 1872, translated by Emil Krall and James Liebling from the German version (*Leitfaden zum praktischen Erlernen der Harmonie: Čajkovskijs Harmonielehre von 1871/72*, translation by P. Juon. Leipzig: P. Jurgenson, 1899) as *Guide to the Practical Study of Harmony* (Leipzig: P. Jurgenson, 1900. Re-issue Mineola, NY: Dover, 2005), 63.

<sup>11</sup> Richter, *Manual of Harmony*, 139.

<sup>12</sup> Nikolay Andreyevich Rimsky-Korsakov, *Практический учебник гармонии (Prakticheskiy Uchebnik Garmonii)*. St. Petersburg, 1885, translated by Joseph Achron from the twelfth Russian edition (n.d.) as *Practical Manual of Harmony*, edited by Nicholas Hopkins (New York, NY: Carl Fischer, 1930. Re-issue New York, NY: Carl Fischer, 2005), 34.

**Diatonic dominant equivalents:**

- Because III and VII include the leading tone, they can be used as dominant substitutes or *dominant equivalents*. For example, both III<sup>7</sup> and VII<sup>7</sup> and their inversions work well as V-substitutes.
- In Major, Vii<sup>o5</sup> is used as a dominant, usually prepared by IV in root-position and resolved to the tonic in first inversion (I<sup>6</sup>). In melodic minor, vii<sup>o5</sup>, because of the progression of pivot chords, IV in the preparation must include the raised 6th-degree.<sup>13</sup> The vii<sup>o5</sup> triad also leads to the tonic.
- Schoenberg suggests that Vii<sup>o5</sup>, Vii<sup>m7/5</sup>, vii<sup>o5</sup> and vii<sup>o7/5</sup> do not require preparation and the resolution can occur by other than root motion P4↑ if these are used in passing. In this case the chord position is usually 6/3 (and not 5/3 or 6/4).<sup>14</sup> Hence both Vii<sup>o5, 6/3</sup> and vii<sup>o5, 6/3</sup> can be used as substitutes for V<sup>7</sup> -<sup>15</sup> so we have: Vii<sup>o5, 6/3</sup>→I ; Vii<sup>o5, 6/3</sup>→IV; Vii<sup>o5, 6/3</sup>→VI ; Vii<sup>o5, 6/3</sup>→II and vii<sup>o5, 6/3</sup>→I ; vii<sup>o5, 6/3</sup>→IV ; vii<sup>o5, 6/3</sup>→VI; and vii<sup>o5, 6/3</sup>→VI<sup>#1, 6/3</sup>.<sup>16</sup>
- Most often Vii<sup>o5, 6/3</sup>→I and vii<sup>o5, 6/3</sup>→I; and Vii<sup>m7/5</sup>→I and vii<sup>o7/5</sup>→I.<sup>17</sup>
- Rimsky-Korsakov states that the vii<sup>o5, 6/3</sup> can occasionally be used as a substitute to I<sup>6/4</sup> when in passing and placed between I<sup>5/3</sup> and I<sup>6/3</sup>: I<sup>5/3</sup>→vii<sup>o5, 6/3</sup>→I<sup>6/3</sup>.<sup>18</sup>
- Rimsky-Korsakov states that Vii<sup>m7/5</sup>, Vii<sup>o7/5</sup> (Major with lowered 6th) and the vii<sup>o7/5</sup> go to the tonic triad I<sup>5/3</sup>; while vii<sup>o7/5, 6/5</sup>→I<sup>6/3</sup>; and vii<sup>o7/5, 4/3</sup>→I<sup>6/3</sup>. These chords must all be preceded by IV<sup>5/3</sup>.<sup>19</sup>
- The diminished seventh can be used as V<sup>7</sup> where the root goes up P4↑ to a diatonic tone or the root goes down/up by step (deceptive cadence).<sup>20</sup>
- in minor, III<sup>x</sup> best used for →I, IV or VI “it may be connected with those chords with which it has no common tone. Moreover, we can dispense with the preparation of the augmented fifth.”<sup>21</sup>

**Chromatic dominant equivalents - from altered chords and their inversions:**

- Schoenberg Type-3: built on V with lowered third: i.e., V<sup>3b</sup>: V<sup>3b</sup>→I, IV, where it gets re-interpreted as II of IV. Also good for introducing neutral chords such as VI and raised III (III<sup>#3</sup>). It can also precede III<sup>5b</sup>, I<sup>#5</sup>, IV<sup>#5</sup>, and V<sup>#5</sup>. When used for V<sup>3b</sup>→VI, it is considered as IV of the relative minor of the subdominant.
- V<sup>#5</sup>, V<sup>7/#5</sup> can also be used to replace V.
- The augmented- six-five chord (<sup>X</sup>6/5) is an enharmonic equivalent of a dominant seventh chord.
- Tchaikovsky sees the augmented sixth-chords as:
  - \* the *double-diminished triad* built upon the seventh degree with lowered third (vii<sup>o5/o3</sup>), and placed in first inversion becomes an augmented 6th-chord; it goes to the Major tonic (I).
  - \* the augmented 6/4/3-chord built by lowering the fifth of the dominant seventh V<sup>7,5b</sup> and taking the second inversion; and it also goes to I.
  - \* the augmented 6/5-chord built on the diminished seventh with lowered third (vii<sup>o7/5/3</sup>) and taking the first inversion; and it also goes to I.<sup>22</sup>

<sup>13</sup> Rimsky-Korsakov, *Practical Manual of Harmony*, 24.

<sup>14</sup> Schoenberg, *Theory of Harmony*, 146.

<sup>15</sup> Ibid., 146.

<sup>16</sup> Ibid.

<sup>17</sup> Richter, *Manual of Harmony*, 64, 229.

<sup>18</sup> Rimsky-Korsakov, *Practical Manual of Harmony*, 25.

<sup>19</sup> Ibid., 37.

<sup>20</sup> Schoenberg, *Theory of Harmony*, 193.

<sup>21</sup> Ibid., 107.

<sup>22</sup> Tchaikovsky, *Guide to the Practical Study of Harmony*, 106.

**Diatonic secondary dominants that are V of V:**

-In Major: The II-chord (and II<sup>6</sup>) is VofV, as such, it leads to V. II<sup>6</sup> can, alternately, go directly to I<sup>6/4</sup> before continuing to V or go to a dominant equivalent before proceeding to a tonic or *tonic equivalent*, such as: II<sup>6</sup>→VII<sup>6</sup>→I, or II<sup>6</sup>→III<sup>6</sup>→VI. In Major mode only: II<sup>5/3</sup>→V. It may be preceded by I, I<sup>6</sup>, IV, VI and must be followed by V or V<sup>6</sup>.

- II→(V)→I is so familiar that II often goes directly to I.<sup>23</sup>

-In minor: "The II of minor provides a good means for modulating to the minor keys, especially as a seventh (six-five, four-three, or two) chord. For it gives opportunity to lead the sixth tone (diminished fifth of II) to the fifth tone [of the key]. Moreover, the Vth degree readily follows (II-V); but even if II makes a deceptive cadence (II-I or II to the augmented III), the result is still quite characteristic."<sup>24</sup>

- ii<sup>7</sup>→V and is often employed<sup>25</sup> II<sup>6</sup> (Major) and ii<sup>6</sup> (minor) both →V. They are preceded by I or I<sup>6</sup>.<sup>26</sup>

-Rimsky-Korsakov shows that the II<sup>6</sup> can be used in passing when placed between I<sup>5/3</sup> and I<sup>6/4</sup> after which the progression →V: I<sup>5/3</sup>→II<sup>6</sup>→I<sup>6/4</sup>→V.<sup>27</sup>

-In cadences, II<sup>7,6/5</sup> and II<sup>7</sup> are used as substitutes for II and II<sup>6</sup>. The dissonance of the 7th, must be prepared by I, IV or VI and resolved either as:

\* II<sup>7,6/5</sup> and II<sup>7</sup>→V (in this case, the dissonant 7 moves down one semi-tone)

\* II<sup>7,6/5</sup> and II<sup>7</sup>→I<sup>6/4</sup> (here, the dissonant 7 is sustained, becoming the fourth of I<sup>6/4</sup>).<sup>28</sup>

-IIIx is a VofV equivalent when used in Major mode as a triad on I with chromatically raised fifth; it is often followed by V<sup>7</sup>, II<sup>7</sup> or IV<sup>7</sup>.<sup>29</sup>

**Chromatic secondary dominants that are V of V:**

- II<sup>1b</sup>, II<sup>Neapolitan</sup>, IV<sup>#1</sup>, I<sup>#1</sup>, II<sup>#3</sup>, VI<sup>#3</sup>, IV<sup>#5</sup>, vii<sup>#5</sup>, V<sup>5b</sup> →V

-Rimsky-Korsakov's *false-diminished* and *false-dominant-seventh* also act as pre-dominant - they go to I<sup>6/4</sup> or V

-The augmented-6 chord seen as a passing chord is placed between I and its dominant; when used structurally, it goes to V. It is thus a VofV. (Note that only the third of <sup>X</sup>6 can be doubled).

-The augmented 6/4/3 chord resolves to V and is thus a V of V.<sup>30</sup>

-The augmented-six-five chord (<sup>X</sup>6/5): when its dissonant ninth and fifth are prepared and resolved, it can go to the tonic as I<sup>6/4</sup> with its omitted root going up P4. Going to the dominant with this same root movement always causes parallel fifths, unless the chord is treated as a suspension.<sup>31</sup> Again, its dissonant 9th and its dissonant fifth must be resolved by step down. When root movement is to I<sup>6/4</sup> or the dominant, it is considered a VofV equivalent.

\* <sup>x</sup>6/5→(I<sup>6/4</sup>)→V<sup>7</sup>; \* <sup>x</sup>6/5→V<sup>7</sup> root up by P4↑

<sup>23</sup> Richter, *Manual of Harmony*, 215.

<sup>24</sup> Schoenberg, *Theory of Harmony*, 160.

<sup>25</sup> Richter, *Manual of Harmony*, 64.

<sup>26</sup> Nikolay Rimsky-Korsakov, *Practical Manual of Harmony*, 26.

<sup>27</sup> Ibid., 25.

<sup>28</sup> Ibid., 38.

<sup>29</sup> Richter, *Manual of Harmony*, 83.

<sup>30</sup> Ibid., 87.

<sup>31</sup> Ibid., 88.

**Secondary dominants (V of \_\_\_) - from altered chords and their inversions:**

- The use of  $vii^{o7/5}$  stands as a substitute for  $V^7$  of any new key to be introduced. It can be used both in Major and minor modes.
- "A secondary dominant [made with an altered chord] can be used wherever the diatonic degree of the scale can be used, provided the root progressions allow it."<sup>32</sup> The best root progressions for secondary dominants are as with dominants ( $V \rightarrow I$ ,  $V \rightarrow IV$ ,  $V \rightarrow VI$ ).
- Secondary dominant-seventh chords made from altered chords can appear wherever a dominant can be used as long as the dissonance can be resolved.
- Schoenberg Type-1: Altered chords on all the minor degrees of the Major scale by raising their 3rd ( $II^{\#3}$ ,  $III^{\#3}$ ,  $VI^{\#3}$  and occasionally  $vii^{\#3}$ ). These are the same triads as the augmented-6 chords but in root position.<sup>33</sup> They act as V of the new key. They can also be used as dominant-seventh chords:  $V^7 \rightarrow I$ ,  $V^7 \rightarrow IV$ ,  $V^7 \rightarrow VI$
- Schoenberg Type-4: artificially diminished triads, when considered with omitted root progress structurally up P4 $\uparrow$  and act as V of their new key. Because these are vagrant chords, they can also be used as passing chords.
- Schoenberg Type-5: augmented triads formed on I, IV, and V by raising their fifths (called  $I^{\#5}$ ,  $IV^{\#5}$ , and  $V^{\#5}$ ). They act as V of their subdominant. They can also go to VI or II. Their best use takes advantage of the leading tone quality that is created by the augmented fifth. These are vagrant and can also be used as passing chords.
- Schoenberg Type-4: artificially diminished triads follow the same progressions as the diminished seventh degree ( $vii^{\circ}$ ) in Major or as  $ii^{\circ}$  of minor, and are almost exclusively used as 6/3 chords. Secondary sevenths are best used as secondary dominant sevenths. If we view these as dominant sevenths with a tacit root, they actually form  $I^7$ ,  $VI^7$ ,  $II^7$ ,  $III^7$ , and they resolve by root movement up P4 $\uparrow$  to F/f, D/d, G/g, and A/a - So they behave like secondary dominants. As these are vagrant chords, they can also be used as passing chords.

**Vagrant chords: diminished and augmented triads:**

- Schoenberg type-5 Augmented triads: "may be connected with those chords with which it has no common tone. Moreover, we can dispense with the preparation of the augmented fifth"<sup>34</sup> Four augmented triads divide the entire scale. As such, each augmented (or artificially augmented) triad can be used to introduce three different Major and three different minor keys.
- Diminished triads and artificially diminished sevenths (Schoenberg type-4) are best used as secondary dominants. Three diminished seventh-chord divide the entire scale. Each diminished (or artificially diminished seventh) can be used to introduce four different Major and four different minor keys.
- The use of  $vii^{o7/5}$  stands as a substitute for  $V^7$  of any new key to be introduced and is particularly potent in effecting a modulation because, by nature of its construction (being three stacked minor thirds), each  $vii^{o7/5}$  belongs to one of four keys. So with only three different  $vii^{o7/5}$ , 12 Major and 12 minor keys can be called upon.<sup>35</sup> The diminished seventh-chord is perceived as smoother because of this 'vagrant' nature. It can be used both in Major and minor modes.
- "According to the principle that a chord-progression is most readily grasped when effected by the aid of *common* or sustained tones (preparation), we can start with the tonic triad and modulate directly through their dominant seventh-chords into all the other keys - excepting those whose keynote is the major or minor Third of the original key, or the augmented Fourth of its tonic - when the chord-connection can be made through one or more tones of the original tonic triad."<sup>36</sup> In the case of the Major third, minor third and augmented fourth, an intermediate chord can be introduced, but this is not an absolute necessity.
- The augmented- six-five chord ( $X^6/5$ ) is an enharmonic equivalent of a dominant seventh chord.
- The ninth-chords are also vagrant and can be used as secondary dominants  $V^{9,7}$

<sup>32</sup> Schoenberg, *Theory of Harmony*, 188.

<sup>33</sup> Ibid., 177, See Type 1. Altered chords.

<sup>34</sup> Schoenberg, *Theory of Harmony*, 107.

<sup>35</sup> Richter, *Manual of Harmony*, 142.

<sup>36</sup> Ibid., 139.