Mimetic Transpositions: An Aesthetic Theory of Composition Linking Music and Speech

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Volume I
Mimetic Transpositions: An Aesthetic Theory of Composition Linking Music and Speech

Volume II
Churchill’s War for Orchestra

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Music

by

Andrew Alan Schnurr

2013
ABSTRACT OF THE DISSERTATION

Volume I
Mimetic Transpositions: An Aesthetic Theory of Composition Linking Music and Speech

Volume II
Churchill’s War for Orchestra

by

Andrew Alan Schnurr
Doctor of Philosophy in Music
University of California, Los Angeles, 2013
Professor Ian Krouse, Chair

There are two volumes to this dissertation: the first is a monograph, and the second a musical composition, both of which are described below.

Volume I
For centuries, the potential connections between music and speech have captivated the imagination of vast numbers of researchers, theorists, and musicians alike. My inquiry into speech-music connections is based on intuitive creative musical practice exploring common acoustic traits shared by both phenomena. My creative
process as a composer involves transcriptions of recorded speech that depend on acoustic perceptual judgments of intonation and rhythm in speech melody. My analysis linking the two phenomena together is constructed philosophically, and by the mimetic transposition of speech through music composition, illuminating common ontological characteristics in speech and music. One of the goals in securing my thesis is to construct a model of understanding that illustrates this common connection set apart from denotative models of speech-music association such as the Baroque Doctrines of Affects that cemented a representational schema potentially detrimental to musical creativity. My evaluation puts forth speech-music linkage, illustrating their shared potential as forces of human imagination and as purveyors of ethos. This analysis illuminates how through their respective modes of composition, utilizing shared materials (of melody, and rhythm), both music and speech uniquely form and express affective tonalities that have deeper meaning and ontological force, going beyond denotation and semantic representation to the formation of unique mimetic expressions with the potential for human transfiguration, unlocking new potentials for feeling, and therefore, being. The best support for my theory is produced by examples of recorded oration expressed as music; speech transcribed as melody and rhythm, mimetically transposed, adapted, augmented, and recomposed into musical works, amplifying the ontological vehemence of the original speech melody.

Volume II

Churchill’s War is a large scale work for orchestra and digitally processed recorded speech. The piece is inspired by the We Shall Fight on the Beaches speech
made by Winston Churchill to the House of Commons on June 4, 1940. The piece highlights Churchill's stirring vocal performance, using in the composition 12 speech-melodies musically transcribed from key lines in the speech. The transcription process utilized computer software to facilitate isolation of discrete intonations of individual vowel sounds, enabling the musical transcription of the speech pitch patterns by ear. The resulting melodic materials provide the compositional basis for the piece and are used throughout the four movements of the work. Included in the submission of this dissertation is an audio recording exhibiting the segmented speech selections paired with their corresponding speech melody played by a digitally sampled piano, and a computer MIDI “mock up” recording of the musical work. In the composition, orchestral sonorities are combined with processed recordings of the speech, weaving together sonic textures and illuminations, viscerally recontextualizing Churchill's oration while revealing connections between melody and text. The musical formations evoke what most importantly binds music and speech together; that is, their common ability to powerfully inspire and transform internal states of feeling in listeners. This piece illustrates the strong connection between the two cultural phenomena.
The dissertation of Andrew Alan Schnurr is approved.

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2013
This work is dedicated with profound gratitude and thanks to the many who have inspired and supported my work over the years: my parents and family, my wife Shannon, my many mentors, and countless other composers who have come before me living through music.
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This dissertation would not have been possible without the assistance and guidance of professors Gregory Bryant and Roger Savage. Professor Bryant was of great importance in offering perspectives in the realm of cognitive science that better informed my arguments. Professor Savage was an essential source of counsel relating to theory of cultural philosophy put forth in this document supporting my conceptual analysis regarding connections between speech and music.

My work with speech melody was originally inspired years ago by composer Steve Reich. The beauty, integrity, and sophistication of Reich’s compositions Different Trains and City Life opened my ears to what was possible in music during my early development as a composer. These works expanded my understanding of the potential for composition to intersect and inform other forms of human expression, including speech. This work is a “sprout” from that seed of inspiration planted years ago.
Andrew ("Drew") Schnurr is a concert and film music composer, media sound artist, and double bassist. Over the past decade his compositions have been performed in select national concert venues and at international festivals while his scoring and sound design work has been featured on various television networks, and presented at galleries and on film screens internationally. Schnurr has performed extensively across the United States, Europe, and Japan, and with symphony orchestras including the Los Angeles Camarata Symphony, San Bernardino Symphony, and Kalamazoo Symphony. He has also composed for performances at the Ford Amphitheater, Harris Hall, and for the Regina Klenjoski Dance Company, members of the Hysterica Dance Company, and for the International Design Conference Aspen. In 2012 he was a featured composer at the highSCORE Music festival in Pavia, Italy. Drew’s electronic sound compositions have been presented internationally, including exhibits at the Beal Center for Art and Technology, the ARCO Madrid 29th International Contemporary Art Fair, and the Museo de Arte Contemporáneo de Oaxaca (MACO). Drew's composition work in film has been featured at international festivals including Cannes, Berlin, Madrid, Acapulco, New York, Los Angeles, Santa Barbara, and Monterey. Drew's composing and sound design clients include the Los Angeles Philharmonic, Sony Ericsson, Dodge, Hyundai, Yamaha Music Corporation, Live Earth, Much Music USA. Wieden + Kennedy, Nike, Google, 20th Century Fox, and Paramount Entertainment.
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INTRODUCTION

For centuries, potential connections between music and speech have captivated the imagination of vast numbers of researchers, theorists, and musicians alike. There have been (and continue to be) multiple modes of inquiry, including exploration in the realms of cultural theory, science, linguistics, and also music composition. Darwin considered the origins of music, hypothesizing that vocal music may have existed before, and was a precursor to, human speech (Fitch 198). Numerous world cultures associate specific human emotional and spiritual states with musical traits including melody and rhythm (Greene; Schwartz 78-86), traits that constitute acoustic aspects of prosody in spoken language. In western culture, ideals regarding the power of music and the importance of its association with rhetoric are explicitly expressed in ancient Greek myth and philosophy (Homer; Plato; Aristotle). These ideals have resonated through hundreds of years, as is evident in the Baroque doctrines of affects emerging out of the Renaissance and a renewal of Greek ideals, realized in the development of volumes upon volumes of compositions and catalogs of musical figures intended to musically signify and evoke specific ideas and emotions (Buelow). Many important composers since have invested in exploration of music-speech connections, both theoretically and through composition. A partial list includes Debussy, Stravinsky, Bartok, Janacek, Schoenberg, Adams, Reich, Reynolds, Mumma, and Ashley.¹ The body of current research in the realm of cognitive science is growing fast and is helping

¹ See bibliography for music-speech oriented writings and works by these composers.
us understand how we similarly process music and speech. As a whole, the full body of research and creative works generated out of the exploration of music-speech phenomena is far too large to fully explore here.

My inquiry into speech-music connections is based on intuitive creative musical practice exploring common acoustic traits shared by both phenomena. My creative process involves transcriptions of recorded speech that depend on acoustic perceptual judgments of pitch intonation and rhythm in speech melody. My objectives are not scientific. My analysis linking the two phenomena together is constructed creatively, and on aesthetic grounds in order to illuminate common ontological characteristics in speech and music. As a musician and composer, I have an instinctual sense regarding how unique composites of composed melodic musical gesture (in both speech and music practice) can commonly affect and inspire listeners, sometimes even eliciting personal transformations. One of the goals in securing my thesis is to construct a model of understanding that illustrates this common connection set apart from denotative models of speech-music association such as the Baroque Doctrines of Affects that cemented a representational schema potentially detrimental to musical creativity. My evaluation puts forth speech-music linkage on philosophical grounds, illustrating their shared potential as forces of human imagination and as purveyors of ethos. This analysis illuminates how through their respective modes of composition, utilizing shared materials (of melody, rhythm, and sometimes timbre), both music and speech uniquely form and express affective tonalities that have deeper meaning and ontological force, going

\[\text{\textsuperscript{2} For a sampling of research in these areas see Thompson, Schellenberg, and Husain; Mc Mullen and Saffran; and London.}\]
beyond denotation and semantic representation to the formation of unique expressions with the potential for human transfiguration, unlocking new potentials for feeling, and therefore, being.

An important objective is to uncover and illustrate a framework of understanding that distinguishes *modes of representation* that are reproductive from expressions of true *compositional vehemence* that augment affective dimensions of our experiences. I will seek to show this distinction while at the same time strengthening the connection between speech and music. In Chapter 1, I shall turn first to a survey of early philosophies of music and rhetoric that will frame our discussion on the nature of human *ethos* and *persuasion*. I shall survey the historical progression of these ideas as realized in the Baroque Doctrine of Affects, subsequently considering why this doctrine ultimately failed to produce a long term viable system of musical expression. In Chapter 2 we will turn to modern philosophy and cultural theory pertaining to *metaphor*, *imagination*, and *mimesis*, using them as a framework to reconsider the selfsame power found in well-composed (and performed) speech and music.

The best support for my theory are examples of recorded oration that are transcribed melodically and rhythmically. These transcribed materials are mimetically transposed when they are adapted, augmented, and recomposed into musical works, thereby amplifying the force and power of the original speech melody. The form and expression of these works reveal their heritage in the original speech they are derived from, while at the same time emanate as distinct artistic expressions (not just musical transcriptions of oratory) each with their own unique *ethos*. In this case, the music compositions become deeper mimetic gestures as kinds of musical metaphors.
amplifying the ethos (affective tonalities) of the original works of oration. I will present examples, first in analysis of select music-speech compositions by composer Steve Reich in Chapter 3, and finally in Chapter 4 with the presentation of my latest musical work exploring recorded speech. This work, entitled Churchill's War for Orchestra, is a twenty minute composition for large orchestra (and electronically processed voice recordings) composed from musical motives melodically transcribed from segments of speech made by Winston Churchill during World War Two.
CHAPTER 1

MODES OF RHETORIC AND MUSIC: IMITATION AND AFFECTS

MYTH

In Western culture, the first evidence we have of any theory pertaining to the combined power of speech and music is found in ancient Greek myth and philosophy. A portion of Homer’s *Odyssey* recounts Odysseus' encounter with the famed Sirens who drove men mad with the beauty and allure of their music and words promising to deliver the wisdom and knowledge of the world through the power of their song (12.200-208). The tale of the Sirens' song illustrates the belief in a transfixing nature to musical speech. Orpheus, the son of Morpheus the God of dreams, was a key figure in the mythology of music and speech. In an expression of the power of his voice, his words were said to have had the power to "soothe the savage breast," even luring rocks and trees to follow him as he sang (Quintilian 1.10. 9-10). He was also a critical character in the quest of the Argonauts, being the only one able to foil the Sirens by singing a song even more beautiful than their own (*Appolodorus* 55; bk 1, ch. 3). In a tale that portrays the ability of musical speech to sway emotions and persuade even the gods, the ancient poet Ovid tells of Orpheus' quest to bring back his dead wife. As he pleaded with Pluto (god of the underworld) "he sang these words to the music of his lyre... [and] the cheeks of the Furies were wet with tears, for they were overcome by his singing. The king and queen of the underworld could not bear to refuse his pleas" (Ovid 10.69-92). These are a few examples of the rich Greek mythology pertaining to the power of musical speech.
This mythology contributed to the cultural context in which ideas by Greek philosophers regarding the character and power of speech and music emerged. Plato and Aristotle both put forth that the *ethos* of music could change the inner-character of men, affecting their behavior, even transforming the underpinnings of their morality. For Plato, music is synonymous with poetry (Weiss and Taruskin 1,6), and the imitation of harmony in speech has benefits to the alignment of the soul:

> Speech was designed for this very purpose—it plays the greatest part in its achievement. And all such composition as lends itself to making audible musical sound is given in order to express harmony, and so serves this purpose as well. In harmony, whose movements are akin to the orbits within our souls...there is a kinship between them, even though our revolutions are disturbed, whereas the universal orbits are undisturbed. So once we have come to know them and to share in the ability to make correct calculations according to nature, we should stabilize the stirring revolutions within ourselves by imitating the completely unstraying revolutions of the god (*Timaeus* 47c-d).³

³ Plato's analysis of the strong link between speech and music and his ideas regarding the affects (emotional and metaphysical) of musical harmony would be appropriated in affects doctrines to follow in later centuries to codify reproducible musical figures to elicit emotions in listeners.
Plato believed the practice of imitation (which is also important to Aristotle's theory of ethos) to be essential to the cultivation of personal character. The traits demonstrating good character that should be imitated in speech are often musical:

As far as words are concerned, they are no different in songs than they are when not set to music...words, harmony, grace and rhythm follow...fine and good character (Republic 398d, 400d-e).

ARISTOTLE

...music conduces to virtue, on ground that it can form our minds... (Politics, pt.5).

For Plato, the purpose of art is to imitate objects perceived by the senses. The true nature and character of those objects constitutes their ethos. Plato's student Aristotle also believed that musical ethos is transformative, asserting that "even in mere melodies there is an imitation of character" and so then "music has the power of forming the character." And human affinity for music is central to music's transfiguring potential:

When men hear imitations, even apart from the rhythms into themselves, their feelings move in sympathy. Rhythm and melody supply imitations of anger and gentleness, and also
encourage intemperance, and all the qualities contrary to these, and all of the other qualities of character, which hardly fall short of the actual affections, as we know from our own experience, for listening to such strains our souls undergo a change (Politics, pt.5).

If our feelings indeed move in sympathy with musical imitations, and if Plato is correct in his assessment of the interchangeability of music and speech, could one assert that a speaker’s ability to cultivate human empathy and influence is in some way connected to musical inflection in speech? This may be right, but I feel it is more appropriately attributed to the affective force at work in speech, that, like music’s expression of feelings and moods, moves the listener and inclines him to think and act accordingly.

All of this talk of the imitation and development of character is central to Aristotle’s theory on the modes of persuasion expressed in his essay on rhetoric. His theory lays out three modes facilitated by the spoken word, two of which are most relevant to our analysis here. The first mode deals with the character and credibility of the speaker. Ethos in this case forms an appeal to the authority of the presenter, establishing credibility. This can be established by an existing reputation or by the way a speaker presents himself. This includes whether his words are spoken in such a way as to reveal him as credible, if his manner of speaking conforms to standards of eloquent speech. In the performance of rhetoric this becomes a manifestation of the speakers ethos encoded in part by the melodic intonation and rhythm of his speech that conveys a quality of character. If the presenter is credible and of good character it will be
conveyed through the *tone* of his speech. Aristotle's second mode of persuasion pertains to the emotions. In the same way the words of Orpheus stirred the emotions of the gods of the underworld persuading them to release his wife, *pathos* refers to the stirring of emotions in listeners through speech so as to affect their judgment (1.2).

It will be necessary to take up Aristotle's *ethos* and *pathos* again later as modern notions of *ethos* conceive of it not only in terms of imitating and projecting character but also as the creation of places of *dwelling*. This will be integral to our discussion on metaphor in speech and music as metaphor. Regarding *pathos*, the expression of emotion in speech is readily evident in its inflections (Juslin and Laurkka). But the ability to affect emotions in listeners is more involved and nuanced, and I submit speaks to the *compositional vehemence* of the speaker. This is in regard to his ability to compose speech melody that communicates its affective meaning effectively to others. If we are to give any credence to the musical nature of speech and its capacity to affect emotions, when we speak of an orator’s capacity to cultivate *pathos* (in the Aristotelian sense), we must be, at least in part, metaphorically speaking to the orators skills as an effective composer.

**AFTER ARISTOTLE**

*Can any music be composed that is sweeter than a well-balanced speech?*

-Marcus Tullius Cicero
The frameworks for rhetoric by Plato and Aristotle are carried onward centuries later in rhetorical treatises, first by Marcus Tullius Cicero (106-43 B.C.) and then by Marcus Fabius Quintilianus (35-100 A.D.). Quintilian wrote one of the most influential treatises on rhetoric, a work cited in many music theory treatises from the 16th to the 18th century (Anderson-Mathiesen). In the *Institutio Oratoria*, Quintilian states that a working musical knowledge was essential for eloquent expression in speech. Equating knowledge of music with knowledge of the divine, Quintilian speaks of its necessity:

...the supreme poet manifests most clearly that music is united with the knowledge even of things divine. If this be admitted, music will be a necessity even for an orator...without the knowledge of all such things there can be no perfect eloquence (1.10.10-12).

And in describing the nature of eloquence Quintillion uses musical descriptions:

...eloquence does vary both tone and rhythm, expressing sublime thoughts with elevation, pleasing thoughts with sweetness, and ordinary with gentle utterance, and in every expression of its art is in sympathy with the emotions of which is the mouthpiece. It is by raising, lowering or inflection of the voice that the orator stirs the emotions of his hearers... (1.10.24-25).
Again, the eloquence of tone and rhythm in speech is expressed as art, this time as the *mouthpiece of the emotions*. The metaphor instructs in the cultivation of *pathos* in speech. It is important to point out that Quintilian's suggestions are compositional in nature, meaning that acting out the musical metaphor in speech requires interpretation and creative synthesis by the orator. In varying “both tone and rhythm” he must improvise prosody of speech that he imagines will produce the desired effect on the listener. This is a mimetic act of the *productive imagination* leveraging the musicality of speech melody for a desired effect. In this way, the imitation of musical *ethos* worked well in advancing the art of rhetoric, not that specific melodic intonations were learned and practiced, but that the metaphor of music served as a framework of reference facilitating works of the imagination in cultivating personal *ethos* in speech.

**DOCTRINES OF AFFECTS**

So far this chapter has focused on ways in which musical ideas influenced the development of rhetoric and speech. The tables turn as we shift our focus centuries later to the development of the Baroque doctrine of affects where principles of rhetoric heavily influenced compositional practice in music. The development of the Baroque doctrine is a popular topic in historical music analysis. We will not be undertaking a comprehensive analysis here as the scope of existing work is already quite extensive. As we survey and outline the progression of rhetorical principles in music, our analysis will concentrate on why the Baroque system was ultimately rejected, focusing on how

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4 See Bartel and Buelow for extensive lists of treatises and analysis pertaining to the affects.
the cementing of music-rhetoric forms and affects undermined *compositional vehemence* in music practice.

The idea of invoking affect (*pathos*) was a central goal in music composition and performance in the sixteenth and seventeenth centuries (Buelow). Compositional trends moving towards this objective have their origins in the reemergence of rhetorical treatises by Cicero and Quintilian in the mid-15th century. This correlated with the development of humanism, and its focus on Greek ideals. A number of music treatises emerge during the Renaissance that make musical reference to concepts of oration and rhetoric by Cicero and Quintilian. As part of the humanist movement, 16th-century Italy was central to musical-rhetorical relations. In 1560 Girolamo Mei even proposes a comprehensive Aristotelian system of communicative arts (Wilson, et al.).

Principles of oration existed in music throughout Europe during this time. Connections in France, Italy, and England focused on integrating qualities of affective delivery in speech performance with music, whereas the German approach was initially rooted in an attempt to rationally understand the human phenomena universally, leveraging the structural principles of rhetoric in music. This led to the development of *musical poetica*, a style of composition with the goal of musically evoking and supporting the literal meanings of texts. To this end, a number of prescribed music-text structures emerged to elicit the desired affections including compositional modes, rhythms, and in some cases melodic inflections. These developments were endemic in the German Renaissance. A shift occurs during the Baroque era as the Germans come to follow the rest of Europe in regard to music-speech connections, shifting their musical

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5 See Tomlinson.
focus to the arousal of human emotions. This is done with a movement towards the
development of musical, *structures, figures*, and *affects* based on rhetorical structures
and concepts. Some examples include the use of dissonant harmonic intervals to
convey feelings of *darkness, sadness, or fear,* or the use of melodic repetition
transposed at specified intervals to evoke the rhetorical affect of *mimesis* (Bartel 29-32,
48, 444).

A comprehensive system of musical affects was never established. The system
of musical figures was extensive but not unified. But the concept of affects was a
central consideration for the Baroque composer, and the theory of affects represented a
shift to the idea of composition as a *craft* as opposed to an aesthetic undertaking. It was
suggested that composers be observers of human behavior and that composition focus
on the calculated use of prescribed musical devices to predictably evoke emotions in
listeners. These ideas were obviously stifling to creativity, squelching the work of the
*imagination* in musical composition (Bartel 35).

Unsurprisingly, this system lost favor as strict adherence to the theory would
manifest musical expressions quite predictable in nature leading to boredom for
composers and audiences alike. This corresponded with cultural shifts during the
Enlightenment when the eloquence of rhetoric lost its prominence in favor of
approaches to oratory viewed as more objective and scientific in nature. During this time
a distinction was made between *rhetoric* and *speech,* the former being associated with
the persuasion of weak minds. Aestheticians of the time encouraged composers to
move away from predictable emotional persuasions in music as these ideas were seen

6 See Bartel for a detailed catalogue of Baroque musical figures.
as marginalizing creative impetus and the expression of an individual composer’s passions (Wilson, et al.).

The failure of the Baroque doctrine of affects as a compositional system presents us with some opportunity to consider the nature of compositional modalities in music (and in oration, for that matter) that are true and viable. Why did the theory fail? In my analysis, the system failed in part simply because it fell out of fashion, as has been, and continues to occur with trends in music and culture that become standardized and stale with time. In Peter Hoyt’s analysis, the affects and forms of this period became an obstacle inhibiting composers from expressing *personal passions*. As a composer, I agree with Hoyt’s analysis while finding the notion of “expressing personal passions” a little vague. I would sharpen his point, adding that composition is not done just in the writing of music but also in the groundwork creation of structures and systems of musical language and meaning that facilitate the composer’s unique mode of expression. Good composers synthesize their own system and language. Their musical works therefore always resonate in part as expressions of the uniquely synthesized system by the composer. A strict adherence to affects doctrines would have subverted this level of composition by standardizing the system of expression, preventing the composer from creating his own unique musical language and thus undermining imagination and musical innovation. In a sense, the creation of music constructed strictly using these cemented figures would not have been composition at all.

Political economist Jaques Attali describes this dynamic in terms of damage done by *codes* and *representations* in culture. *Representations* are cemented creative practices, such as the affects doctrines, that end up becoming a self-reinforcing
hegemonic construct. For Attali, the *noise* resulting from rattling repetition of codified musical forms brings a complete break down of human dialogue and meaning. His answer to this state of affairs is *composition* as *noise* disrupting the *coded* forms:

Beyond the rupture of the...conditions of music, composition is revealed as the demand for a truly different system of organization, a network within which different kinds of music and different social relations can arise. A music produced by each individual for himself (Attali 137).

But even if we rise to Attali's ideal of composition, no composer exists apart from his musical heritage. Each one makes choices regarding what elements to bring into his own musical world from the existing world, thus forming the basis and language for his own mode of expression. This process of integration and unique synthesis of musical language invariably involves imitating (or at least responding to) what has come before. This is why, ultimately, composers were not thwarted by the Baroque theory of affects. As compositional practice moved forward, cultivating new musical forms and expressions, the theoretical system of affects codifying musical figures as *representations* proved inadequate in addressing the true nature of composition as a creative practice.

A THEORY OF IMITATION
This brings us back to Plato who believed all art was imitative. If this were true, would it be bad? We've established in the case of the Baroque affects that the attempt to represent affects musically in imitation of language undermined music composition. After all, a divide between music and language does exist. This is due to music's unique mode of communication. Language plays a critical conceptualizing role in semantic representation. Music's capacity to create and express infinite worlds of meaning (Savage 84) is inexhaustible and cannot be recuperated conceptually. A theory of musical imitation that succumbs to the model of language's representative value undermines the scope of music's potential capacities. But what about other kinds of imitation in music and speech? Is it bad when Beethoven imitates aspects of Bach when composing one of his string quartets? Is it bad when Bartok imitates Debussy (who imitated Beethoven) in the writing of one of his string quartets? Is it bad when Martin Luther King's style of oration evolves from his imitation of oratory he encountered growing up in church? Is it bad that Winston Churchill's manner of oration draws on his experience with poetry as a child? How do we distinguish imitation and synthesis that is good and productive from imitation that is bad?

In answering this question a model emerges that distinguishes modes of imitation that are *compositional* from modes that are *representational*. The Baroque affects were *representational*, an attempt to faithfully and repeatedly reproduce affects through music. I believe this is where the Greeks were misunderstood by the humanists. In encouraging imitation I do not believe Aristotle's intent was the reproduction of *ethos*, but, rather, its cultivation though a kind of imitation that is *compositional*. The *representational* mode of imitation attempts to copy verbatim a gesture (or object) for
prescribed affect, as was the case with the Baroque doctrines. The compositional mode of imitation manifests a synthesis that produces a new meaning within a unique framework. This mode of imitation captures and expresses the essence of a thing, expressing its affective ethos, and amplifying it. These compositional imitations are themselves originals, not reproductions. They stand on their own as reimagined configurations of the gestures and objects they imitate. It is in this sense that for the Greeks imitation of musical traits was helpful in defining and cultivating eloquence in speech. The orators, informed by the metaphor of music, were imitating compositionally the musical traits prescribed. In this case the musical expression is transposed mimetically through the physical speech act, allowing the orator to evoke, to the benefit of his expression, something of music's character, grace, and emotional tonality. This process represents a compositional mimesis as an original work born of the creative imagination. As such, in the discussion to follow, an analysis regarding the nature of imagination at work in mimesis and metaphor will be a key component in conceptually strengthening the bond between music and speech, both as works composed out of imagination.
CHAPTER 2
ETHOS, METAPHOR, IMAGINATION, AND COMPOSITION

AN AESTHETIC BASIS FOR ANALYSIS

The most direct and obvious connection between speech and music is found in their shared acoustic traits of pitch (melody), metric structure (rhythm), and loudness (musical dynamics). As a composer working musically with recorded speech, part of my creative process involves the musical transcription of speech acoustics. This translation of vocal prosody into notes and rhythms is, for the most part, a straightforward process. Scientists utilize software technology capable of precisely measuring prosodic traits in speech. Composers use a well trained musical ear to determine the pitch centers of vowel sounds, transcribing successive patterns of sounds as melody. The musical rhythms are implied by groupings and spacing of consonants in speech. These acoustic connections are readily apparent in in the analysis of speech and music.

But the relationship between music and speech does not end there. They also share the ascetic traits of mood, tonality, and feeling. Understanding their connection on the basis of these traits, for me, yields the greatest compositional potential in terms of establishing and maintaining a creative dialogue between them. So the goal of my thesis is to strengthen their association accordingly. My analysis focuses on illustrating a philosophical aesthetic framework illustrating what I believe to be the common ontological vehemence shared by great compositional works of oration and music. To build this framework we turn first to the theory of metaphor, as it informs how the
affective natures of music and speech can be mutually adapted on the basis of creative transposition, not just transcription.

ARISTOTLE’S METAPHOR

Metaphor consists in giving the thing a name that belongs to something else; the transference being either from genus to species, or from species to genus, or from species to species, or grounds of analogy...the greatest thing by far is to be a master of metaphor. It is the one thing that cannot be learnt from others; and is also a sign of genius, since a good metaphor implies intuitive perception of the similarity in dissimilars (Poetics 22).

There are copious numbers of metaphors incorporating musical ideas. "The words were music to my ears" is such an example. It implies the usually joyous feeling of the listener upon hearing the spoken words. The listener is so pleased with the meaning of what is said that it is as if he had just had the pleasure of experiencing a beautiful piece of music. Music is easily used in this way, expanding our sense in language. This is due to its abundance of potentials for meaning and feeling. Can the tables be turned though? Is it possible to hear music figuratively as if we are hearing spoken words and meanings? The analogy has force because there is an intuitive connection between someone saying something and music’s communicability. The
Baroque doctrine of musical effects attempted to literalize the metaphor by cementing the connection into a set of musical figures to specifically correspond with language. This system failed because it attempted to imitate affective meanings without accounting for music's mimetic character.

ETHOS AS DWELLING

To speak of the *ethos* of music we are implying reference to its *character* or *spirit*. This may be deemed a conceptual misappropriation of *ethos* unless we are able to expand its sense. If speaking in a more strict sense of *ethos* regarding *musical character*, we might describe various musical styles, devices, and forms endemic to different types of music. But these descriptions would fail to address the full ontological vehemence of music and its capacity to evoke feelings. We might instead think of *musical ethos* in terms of the feelings that music expresses, and the mood or atmosphere emanating from a work. What exactly then is being manifested and expressed *within* the atmospheres of musical *ethos*? One way to conceptualize *musical ethos* is to think of it as music's capacity to create *musical worlds* in which listeners become immersed. This *worlding* occurs as a result of the expression of a musical work and its materials (Savage 74). Perhaps, this is why the Greeks believed in music's capacity to affect the character of man, by disposing him within different worlds and different ways of feeling.

What of the *ethos* of speech? And does *musical ethos* relate to the expressive power and potential effects of oration? Does speech also have the capacity to create *worlds*? Michael J. Hyde believes effective rhetoric has this very affect. Here he
presents one way of understanding the ethos of rhetoric in terms of the creation of
dwelling:

...one can understand the phrase "the ethos of rhetoric" to refer to the way discourse is used to transform space and time into dwelling places...that are stimulating and instructive. The ethos of rhetoric, is foundational to all else that can be said about the art and its use by others whose vocations also call on them to create places where people can dwell with and for others (Hyde xiii-xiv).

What is being cultivated in Hyde's place of dwelling? Is it the self same sense of feeling found in music? Is it the imagination? Is it both?

HEIDEGGER

First, we need to understand the origins of Hyde's theory on ethos which comes from Martin Heidegger. Of ethos, Heidegger writes in his Letter on Humanism, "Ethos means abode, dwelling place. The word names the open region in which man dwells" (233).

Poetic prose can be both literally instructive in its metaphor and ontologically significant in the feeling it conveys. And it is in this realm of feeling that poetry creates new places of dwelling for the reader. In his essay “Poetically Man Dwells” Heidegger expands on his theory of dwelling, stating that every man or woman exists first within
the dwelling of their own feeling experience. And it is from this place of dwelling that he or she sets out to engage the world (215). Artistic expression creates new places of dwelling that allow one to be disposed to the world anew and subsequently reconsider possibilities for their place in it. It is here where I find the most compelling connection between oration and music, that is in their transformative capacity to alter our disposition in the living world, inspiring real change in our lives through the power of feeling and imagination.

RICOEUR’S THEORY OF METAPHOR

Paul Ricoeur’s metaphor theory outlined in “The Metaphorical Process as Cognition, Imagination, and Feeling” advances Aristotle’s theory of metaphor as part of Ricoeur’s broader philosophical investigation into the power of imagination. Ricoeur discusses the role of imagination in regard to its transformative power, specifically in regard to semantic innovation:

The maker of metaphors is this craftsman with verbal skill who, from an inconsistent utterance for literal interpretation, draws a significant utterance for a new interpretation which deserves to be called metaphorical... it is here, in the mutation characteristic of the

[As the idea of imagination is dealt with differently in various spheres of scholarly discourse and discipline, it is important to note that Ricoeur’s scheme is aligned with Hans-Georg Gadamer’s concept of imagination, positioning it in line with intuition and as a function of perception. See Gadamer 157, 159.]
semantic innovation, that similarity and accordingly imagination play a role (154).

Ricoeur’s theory illustrates how imagination is at work in fiction, serving to both suspend reality and fuse it with “positive insight into the potentialities of our being in the world...” (155).

Metaphors present literal clashes in predication creating tension between literal and figurative meanings. For example, during a quarrel with my wife at home I might exclaim: "We’re going twelve rounds together here!" A semantic clash is created due to the fact that we are not literally in a boxing ring, we are in our living room. This is the predicative impertinence of the metaphor. This impertinence is resolved as intuitively we are able to recognize the resemblance between domestic partners in conflict and boxing opponents. For Ricoeur, this work of resemblance is attributable to the productive imagination, resulting in what he calls positive insight that apprehends the similarity across the difference (148). We grasp this new predicative pertinence in spite of, and because of, the difference in semantic fields. As a figure of speech, the metaphor functions as a heuristic fiction that redescribes reality. My wife and I are not literally “going twelve rounds.” But figuratively we are.

"It is in fiction that the 'absence' proper to the power of suspending what we call 'reality' in ordinary language concretely coalesces and fuses with the positive insight into the potentialities of our being in the world..." (155).
Hopefully for me and my wife, redescribing the quarrel in the context of the boxing metaphor opens potentials for new ways of understanding how to better respond to the situation, for both of us.

Ricoeur’s theory highlights the role productive imagination plays in the metaphorical operation. But more should be said regarding the role of feeling, especially in terms of Heidegger’s understanding of the way that in dwelling, we find ourselves already disposed, as Ricoeur says, toward "reality." And while feeling and tone should be considered part and parcel of effective metaphor, it should also be considered separately, emancipated from subordination under the linearity of text and narrative. Thoughts and ideas are made our own through feeling (156). And Ricoeur illustrates the importance and power of feeling in fiction and art and its supreme transformative power over conventional reason. The tonality of the metaphor or fictional tale directly correlates to the way one responds to it. Feeling in metaphor consequently has a significant impact on its transformational power. In terms of the boxing match metaphor, the feeling of the scene is motivating in the tone resulting from composite of qualities of the scene: bright lights, obnoxious fans, smell of sweat, blood, swelling bruises, pain, rushing heart beat, and overdosed adrenalin. As my imagination pictures my wife and I trapped in this scenario, I can't help but to be viscerally motivated to get us out of there. Such is the power of the feeling of the metaphor. And so we see that the feeling embodied in any art-form is often sufficient unto itself to open us to the world in new ways.
Is it possible to bring music into the fold of this construct? Is music mimetic? Roger W.H. Savage’s contention in his analysis of Ricoeur is that music, in effecting our sense of feeling and dwelling, opens us to the world anew. And since any action in the world begins with our predisposition to it, an affected state-of-mind impacted by the mood and feeling of a work will certainly impact the nature of our openness to, and engagement with the world (“Is Music Mimetic?” 127). It is possible, therefore, to consider mimetic currents at work in music.

With this understanding we arrive with greater depth of potential for connections between speech and music. First, we now fully understand how music can be used as metaphor for speech (i.e. “speech, as if music”). Transcriptions of speech effect a kind of transfer in which the resulting speech melody condenses the speech’s melodic and rhythmic traits. This iconic condensation of speech enables the composer to use speech melody compositionally to magnify the force of the original speech. Second, we’ve explored conceptual frameworks describing potentials for both music and speech to commonly create places of dwelling as expressions of ethos that prompt different ways of feeling, and thus, of being in the world.

The discussion to follow further considers the productive imagination, this time in the context of mimesis. Specifically we will be considering the mimetic transposition of speech into music and the iconic augmentation effected by this use of speech melody in the composition of musical works. These are works that amplify the affective tonalities of oration.
CHAPTER 3
THE MUSIC OF STEVE REICH

*Speech melodies these are windows into people's souls.*

- *Leo Eugen Janáček*

We now turn to the works of composer Steve Reich, his critical writings, and his music-speech compositions. To date, the composer has written seven serious musical works that explore aspects of musical speech and language: It's Gonna Rain (1965), Come Out (1966), My Name Is (1967), Different Trains (1988), The Cave (1993), City Life (1995), and Three Tales (2003). Reich's early speech investigations utilizing tape technology in the 1960s were critical to his development as a composer, leading him to many of the compositional devices characteristic of his musical style. He has written extensively about the relationship between music and language in a collection of interviews and essays found in a single volume entitled *Writings on Music* (Reich). Our discussion will contextualize ideas written by the composer within the development and progression of his compositional voice and works. My analysis of Reich is framed by my analyses of *mimesis* and *ethos* in music and speech considering the nature of *compositional vehemence* in musical works; works that utilize the acoustic characteristics of speech including *melody*, *rhythm*, and *loudness* expressed as *music*.

EARLY DEVELOPMENT
Reich began his investigations into music-speech phenomena as the result of difficulties he experienced musically setting poetry in a way that felt true to the unique American performance style of speaking English. This corresponded (time wise) with advances that made tape-recording technology more readily available. In his essay on music and language he describes the circumstances of his initial engagement:

My interest in using spoken language as a basis for music began as the indirect result of reading the poetry of William Carlos Williams in the 1950s. I tried to set his poetry to music and found I only "froze" its flexible American speech derived rhythms. Later, in the early 1960s, it occurred to me that using actual tape recordings of Americans speaking may serve as a basis for a musical piece that would utilize the same sources as Williams poetry. This led to my first two early speech taped pieces, *It's Gonna Rain* (1965), and *Come Out* 1966 (198).

Both pieces utilize tape loops of recorded speech. This process, as opposed to setting text musically, unlocks what Reich refers to as the *documentary aspect* of recorded voices. But what exactly is being documented? For Reich, the most authentic sonic expressions of language are found in natural speech, as opposed to the musical setting of text. This, on the basis that with recorded speech and speech melody “there is
no singer’s ‘interpretation’ but, rather, this: people bearing witness to their own lives” (198).

FOLK MUSIC

Reich’s orientation to the nature of speech is heavily rooted in ideas regarding its relationship to culture, specifically in regard to connections between language and traditional folk music:

The model here would be folk music where there tends to be a very direct setting of the language in its common vernacular form (194).

Reich’s analysis relies heavily on theory by composers Leo Eugen Janacek, Bella Bartok, and also musicologist Arthur Morris Jones. Reich sites Janacek and his support of folk music as a basis for the development for art music. Reich further cements the connection citing research by Jones who invented a device called the tonometer that was capable of measuring pitch inflection in both speech and song. Jones used this device to measure and quantify similar acoustic traits in both speech and song in indigenous Africa (Reich 196-197).8

8 This corresponds with more recent investigations of music in "tonal" and "non-tonal" language cultures where researchers have discovered corresponding contour characteristics in both folk music and language (see Han, et al.).
In one of his essays on race and music, Bartok discusses how the variation and evolution of folk song melody is influenced by differences in language characteristics from group to group:

When a folk melody passes the language frontier of a people, sooner or later it will be subjected to certain changes determined by the environment, and especially by the differences of language. The greater the dissimilarity between the accents, inflections, metrical conditions, syllabic structure and so on, of the two languages, the greater the changes... in the "emigrated" melody... Indeed, the life of folk music and the life of languages have many traits in common (Bartok 30).

Darwin considered the ability to adapt and assimilate language as an artistic skill that was instinctive (Pinker 6). As such, this speaks to music and language as living art forms, as dynamic living organisms that are constantly evolving and adapted as cultural innovations by a group. This idea is further supported by Bartok when he states, "folk melody is like a living creature; it changes minute by minute, moment by
moment" (Bartok 10). The creative force of imagination that facilitates those adaptations is composition.

The use of folk music as the basis for art music composition was something Bartok went to some effort to support during a time when intellectualism had taken hold in many serious music making circles. In his essay on the significance of folk music he forms support for the use of folk melody by pointing out for centuries composers have adapted existing materials, and that compositional mastery renders works that surpass original materials, whatever the source:

We know that Handel adapted a work by Stradella in one of his oratorios. And in music too, as in poetry and in painting, it does not signify what themes we use. Is the form into which we mold it that makes the essence of our work. This form reveals the knowledge, the creative power, the individuality of the artist (346).

Bartok's compositional mastery manifests what I have repeatedly referred to as works of true compositional vehemence in music (and in speech). Its quality is readily evident in the work of Steve Reich, which for me is the ultimate justification for the use of whatever materials or techniques the composer may choose to use. For Reich, his

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9 Of course, cultural innovation is not synonymous with biological evolution (e.g. the evolution of a species trait). The appropriation here of terms relating to biological evolution assists in metaphorically redescribing the nature of cultural evolution in folk music and language.
analysis of sources connecting the nature of language to folk music coupled with Bartok's and Janacek's defense for the use of folk melody in art music forms his justification for the use of recorded speech expressed as music. On aesthetic grounds, my analysis incorporating the ethos of speech as well as the idea of mimetic musical expressions developed through composition provide some additional support, but only to a point. I do not go as far as Reich does in terms of the inseparability of music and speech in terms of semantic meaning.

REICH'S UNBREAKABLE LINK

In 1996, Steve Reich was interviewed regarding his use of speech melody in City Life (1995). It is during this interview that he puts forth, most comprehensively, a framework for his thinking regarding music and speech. He makes a strong argument for the inseparability of the sound of speech from semantic meaning. He starts off by discussing his criteria for selecting a speech melody, and goes on to speak of the "inextricable bond" between melody and meaning in speech:

...once the speech melody has caught my ear, the meaning of the words can never be overlooked. Even in my earliest tape speech piece, It's Gonna Rain, both the speech melody and the meaning of the words are inextricably bound together. How could it be otherwise (Reich 199)?
This sentiment certainly comes across in Reich’s work as reflected in his careful and affective musical treatment of semantic meaning in his compositions, often crafting structures of form, rhythm, and sonority that seem intended to enhance the meaning of text and recorded speech used in his work. But Reich’s assertion regarding meaning unsettles me in its absoluteness, and so I find myself to an extent parting ways with him, at least on this point.

In speech, semantic meaning is not absolute as it can be modified by speech intonation that communicates emotions transcending the meaning of text (Juslin and Laurkka). Any husband who has heard his wife say "I’m fine" underpinned with dark tones of unhappiness knows that she is not, in fact, fine. This speaks to the independence of speech prosody (the music of speech) and its capacity to communicate meaning independently.

Reich might argue that in my example, since the tone of speech changed the accepted meaning of the spoken words, the bond between vocal pitch intonation and semantics is still proven to be inextricable. My response would be that this is only true within the context of meanings relating to the semantics of text. What about other meanings in music?

Acts of compositional mimesis transpose and transform expressions by the power of the imagination; Bartok’s compositional mastery at work. In using recorded

\[ \text{\footnotesize 10 Musical analysis in the latter half of this chapter reveals how Reich musically explores and heightens semantic meaning of text in his work.} \]

\[ \text{\footnotesize 11 This topic is currently of great interest to researchers. See Bowling, et al.; Bryant and Fox Tree; Juslin and Laurkka; Scharrer and Christmann; and Thompson, Schellenberg, and Husain.} \]
speech and speech melody in his compositions, Reich himself states that he is doing more than merely setting text:

> Using the voice of individual speakers is not like setting a text—it's setting a human being. A human being is personified by his or her voice. If you record me, my cadences, the way I speak are just as much me as any photograph of me. When other people listen to that they feel a persona present. When that persona begins to spread and multiply and come apart, as it does in *It's Gonna Rain*, there's a very strong identification of a human being going through this uncommon magic (Reich 21).

This takes us back to our earlier discussion of Reich's idea regarding the documentary aspect of speech recordings and speech melody in music. At that point in my analysis I rhetorically asked what was being *documented* in the work. Reich's reference to "uncommon magic" speaks to the essence of that question, alluding to an ineffable sense of *person* and *ethos* that is intermingled with, and expressed by, the musical cadence and inflection of a person's speech. Janacek puts it this way after placing speech melody at the "seat of the emotional furnace." He writes:

> This melody, its surface and edges, are of one metal: this is how speech melody is joined together with the contents of
our consciousness. This is how it is molded together with the reflection of the speaker’s inner life, and the reflection of the environment in which it is spoken... If speech melody is the flower of a waterlily, it nevertheless buds and blossoms and drinks from the roots, which wander in the waters of the mind (Janacek 43).

Janacek suggests nothing short of the true essence of an individual as expressed in the music of speech. A kind of affective tonality emanates evoking the ethos of the utterance. This a far reach beyond mere signification of textual semantics. And Reich’s compositional process is one that demonstrates this as well as he refigures the affective tonalities of speech as new musical works. In doing so he shows the capacity of speech melody to be readily expressed strictly on musical terms, iconically condensed as pure instrumental melody and rhythm, functioning motivically and thematically in the work on equal footing with other musical materials. Once a speech melody is treated as instrumental melody no distinction can be made between musical materials derived from speech and materials derived by compositional imagination. In this way, the musical work itself becomes a metaphorical expression of speech in that a work says something to us. And as discussed earlier, music expresses, and potentially opens, worlds of meaning to the listener. Therefore, mimetic transpositions of affective tonalities of speech melody, freed of text in music composition, must have the potential to transcend the semantics of the originally spoken words. The iconic condensation of
speech captures, so to speak, the affective essence of speech set apart from the realm of semantic meaning.

A frequently used device in Reich's compositional arsenal is the use of repetition. His two earliest recorded speech works rely heavily on this device. *It's Gonna Rain* is a recorded tape piece where Reich presents fragments of speech repeated in overlapping loops without altering the original pitch or timbre of the recordings. For Reich, the affect expresses the emotional power of the speech "while intensifying its melody and meaning through repetition and rhythm" (Reich 19). The intensification of meaning is a potential affect. However, it's not certain. In fact, research has shown that long fixation on individual words can actually lead to a loss of their associative power in a well researched cognitive phenomenon known as semantic satiation (Severance and Washburn; James). As a text looses adhesion to its semantic meaning after a long fixation, space is opened for new potential meanings to arise. Therefore, the unique transformation of meaning of a repeated spoken text must be, in the end, determined by the imagination of the listener. Reich’s use of repeated recordings of spoken phrases unlocks that capacity. The compositional frameworks incorporating those traits as components of musical works creates a space (a world) in which listeners experience new ways of feeling. This promotes the cultivation of new meanings in the imagination of the listener. As all composers do, in expressing works of his original musical imagination, Reich opens doors to new ways of being in the world. As such, the intensification Reich speaks of by the use of repetition in *It's Gonna Rain* is foremost an expression of mimetic transposition, by Reich, using his unique compositional language within the world of his own musical style and ethos.
THE ETHOS OF REICH

The development of the unique character of Reich's music is deeply rooted in his experimentation with electroacoustic technology and speech starting in the 1960s. It was in the composition of It's Gonna Rain (1965) and Come Out (1966) that Reich developed his technique of musical phasing. The effect was the outcome of two identical voice tape loops slowly going out of phase with one another. This gradual mis-alignment of timing causes additional sonic layers to form, slowly obscuring textual semantics, while rendering evolving musical patterns that become more contrapuntal as the loops get further out of phase. This discovery was significant for Reich on two levels. First, he was developing a process oriented approach to composition, one that involved designing a set of parameters, setting it in motion, and letting the work unfold on its own. This approach became foundational to his compositional approach for many works in the coming years. Second, he eventually came to understand the phasing process "as an extension of the idea of infinite cannon or round" (Reich 20), which led him to begin experimenting with shifting phase loops using musical instruments. The next year he wrote two pieces as such. Piano Phase (1967) was originally written for piano and taped piano.\(^{12}\) In it, a single musical pattern is played repeatedly by both pianos with one pattern slowly going out of phase with the other. The same process was used in Violin Phase from the same year, this time using four instances of a single violin.\(^ {13}\) The "infinite cannon" of these pieces are exemplary of early developments in

\(^{12}\) It was later adapted for two pianos.

\(^{13}\) The music for Violin Phase was adapted and released in 2000 as a piece for electric guitars entitled Electric Guitar Phase.
Reich’s layered melodic style which involves stringing together multiple melodic fragments to form longer melodic *textures*.

This was a critical time of creative development for Reich as he himself describes his early works with recorded speech and tape loops as gateways "to some instrumental music that I would have never have come to by listening to any other...music" (Reich 24). The early cultivation of Reich’s musical style is a strong example of *mimetic transposition* at work. Starting in 1965, over the course of three years, Reich, having identified musical traits in speech he wanted to explore compositionally, begins to develop a completely unique musical system and process for composition, creating the basis for his unique musical language; all starting with some tape recordings of a man talking on the street; all the product of his musical imagination.

**DIFFERENT TRAINS**

There is a twenty-one year gap between Reich’s last recorded speech composition in 1967 (*My Name Is*) and his next work using recorded speech in 1988 entitled *Different Trains*. Evolutions in technology made this piece possible. The digital sampler was developed in the 1980s enabling musicians, producers, and composers greater facility in working with audio recordings musically. Compared to tape, which required physical splicing for audio edits, digital samplers were more adept, opening up doors to greater sophistication and precision of expression while working with audio in the digital realm. This opened up new creative possibilities for Reich working with recorded speech. The technology would become essential to his creative process for *Different Trains*, and for music-speech compositions that would follow (Reich 174).
Different Trains was originally written for string quartet and tape/CD accompaniment. It is as much a studio composition as it is a concert music piece. The audio recording accompaniment includes three layers of studio string quartet recordings mixed with recorded fragments of speech. In performance, the addition of the live quartet makes for a total of four string quartets playing at once. Other new compositional techniques were developed in the creation of Different Trains. First, due to greater control with samplers in placement and layering of recordings, it was possible to organize voice recordings in rhythmic and melodic frameworks more deliberately than in Reich's earlier recorded speech compositions. This opened the doors for greater musical sophistication and interaction by the recordings with the instruments. The development of instrumental speech melody technique came out of the instrumental doubling of melodic and rhythmic inflection of the recorded voices sounding in time. This was a revelation, as it facilitated reinforcing speech on musical terms in real time concert performance. The technique was a form of transcription, but the effect was transpositional, as now, new integrated frameworks of expression using music, speech, and sound were possible in composition. This would not have been possible ten years earlier without digital sampling technology.

Many of Reich’s works deploy musical processes and frameworks that are conceptually objective. One of Reich’s imperatives in deploying such methods (including his “objective” treatment of recorded speech) is to create spaces for objective “facts” to be resolved in the “subjective play of emotion” in the listener (Reich 6). As my technical analysis will show, Different Trains follows this imperative in the realization of its process oriented compositional frameworks. However, there is also a very high level of
conceptual impetus for the work, representing another side of the composer as an artist creating work that conceptually reflects a significant aspect of his life. Reich explains:

Different Trains is, among other things, an autobiographical piece.

Traveling back and forth twice a year for 4 years, on a train for 4 days at a time with my governess, between 2 divorced parents, between the ages of two and five, made a strong impression on me. Since my trips between New York and Los Angeles (with a stop in Chicago) happened in the years 1938 to 41, I began reflecting on the fact that if I had been in Europe at the time, as a Jew, my train trips would have been quite different (Reich 181).

There in lies the strong conceptual basis for the composition of the piece, influencing its musical expression and construction.

The 27 minute work is split into three continuous parts, each one dealing with an historical time period in relationship to World War II: before, during, and after. In preparing the work, Reich collected voice recordings of a number of people including his governess, who rode with him on the train between New York and Los Angeles, a retired pullman porter who rode those same trains, and three Holocaust survivors who later moved to America. Throughout the piece Reich goes back and forth portraying scenes from different perspectives and places. Movement one reflects his perspective in America before the war, movement two illuminates the Jews’ experience in Europe during the war, and movement three reflects the Holocaust survivors experience in
America following war. Reich uses fragments of recorded speech throughout the piece to portray each perspective and point in the storyline. Specific events portrayed by the text are sometimes reinforced musically by the compositional structure, however subtly.

*Different Trains* musically illustrates the speech, variously contextualizing each speech melody in the composition. Once the inflection of each speech sample is musically transcribed it is used and arranged compositionally in multiple ways. Sometimes instrumental speech melody occurs before the corresponding speech recording sounds, foreshadowing its musical inflection. At other times the recordings and instrumental melodies occur at the same time, bolstering the musical gesture of speech. The instrumental speech melody also occurs occasionally after speech fragments, echoing and amplifying their *affective tonalities*. This transcription and arrangement of instrumental speech melody is not only illustrative. As Reich demonstrates in the construction of the piece, once these melodies are transcribed they can be used as a structural basis to form larger musical frameworks in the piece. These frameworks constitute the work’s structural form set apart from the original speech. The piece is transpositional in that it develops speech melody so that the musical *ethos* of the original speech recordings is augmented and amplified in the expression of the work.

The three sections of *Different Trains* are composed of smaller sections ranging from 9 to 80 measures in length, each one dedicated to a fragment of speech. Each speech fragment (and corresponding musical section), are presented in sequence portraying the storyline. Upon some theoretical investigation, aspects of Reich’s process-oriented approach to the musical construction is revealed. The sonority
constructions of the musical accompaniment in each section are derived modally, at least in part, with key changes occurring at almost every transition to each new section. Throughout the piece, key signatures and modes mostly correspond structurally to the pitches determined by the chosen text speech melody. Appendix 1 includes a table outlining the structure of the piece: cataloging text, modes, cadential patterns, pitch sets, and speech melody for each individual section. Upon inspection, one notices a high level of correlation between speech melody and musical mode.

Beyond this level of process, Reich also includes musical gestures and constructs in the piece that evoke specific referential meanings. One such example is found in the composer’s musical portrayal of the mechanical sound of trains. Actual recordings, including bell sounds, the cycling sound of the engine, and the train whistle are integrated within the musical textures. The music is structured to mimic the mechanical sounds as well. An excellent example of this seamless amalgam is found at the beginning of the piece, where the relentless rhythmic ostinato of the instruments are interwoven with the sampled sounds of the churning train. The relentless driving 16th note pulse forms the rhythmic baseline for the entire work, only pausing musically at critical transfer points; just as a train would do on a long journey.

On a micro level, Reich often implies cadential cycles (I-V, v-i, etc.) harmonically, and also by using independent bass movement rooted on an implied pedal. The first two chords of the piece, which are repeated throughout the first 47 measure section, imply cycled I-V cadential movement simultaneously in Bb (outlined by the presence of dyads Bb,F then F,C in the upper voices of the first two chords) and in G (outlined by root movement in the lowest voice). The bass cycle in G forms a kind of pedal point for the
cycling of sonorities derived from Bb pentatonic above. The effect is beautiful, outlining and setting in motion the tone and functioning structure for the entire piece. This construct is made into a compositional process, serving as a template for musically arranging the sequence of texts and speech melodies; each one being designated a mode (often implied by notes from the speech melody), cadential pattern, pedal point, and a defined pitch set for the musical accompaniment (chosen from the mode).

There are moments in the piece where the portrayal of events by text are dramatically reinforced by musical structure as well. One such example is found in the second movement in the section starting at measure 269. The text "they were loaded with people" is in reference to the cattle wagons used to transport Jews to concentration camps. The use in this section of B melodic phrygian (phrygian with sharp 6th and sharp 7th scale degrees) produces sonorities that are increasingly dissonant (due to the flat 2nd and sharp 7th scale degrees). This shift in harmonic color helps to articulate this turn in narrative, setting up the next three sections leading up to the most dramatic point in the narrative: the burning of murdered bodies ("Flames were going up in the sky...it was smoking" - measure 319).

The section starting at 319 culminates the horror of the Holocaust as the rhythm dramatically stops and the instruments play sustained chordal sonorities (underneath the speech text), this time based on the scale from the beginning of the piece: B-flat pentatonic. This perhaps evokes a foreshadowed understanding (at the beginning of the journey) of this final destination, casting a reflection of how Reich's fate could have been different had he been riding different trains as a European Jew during the war.
My interpretation of meaning here is just one of many potentials, illustrating the unlimited capacity for meanings in musical works. And Reich's composition of this work, by his imagination and intellect, starting from recordings of speech melody, is a compelling example of *mimetic transposition* through *composition*, and the expression of speech as *music*.

THREE TALES

*Three Tales* (2003) is a collaboration with video artist Beryl Krot with whom Reich had collaborated on *The Cave* in 1993. I present it here for analysis as an example of Reich's progression in his use of recorded speech, also illustrating a commitment and constant drive to expand the bounds of his compositional practice. As was the case with *Different Trains*, new technologies were used in this work to increase potential expression and connections between human speech and music. Regarding the digital processing of voice recordings, two new techniques were used. *Slow Motion Sound* and *Freeze Frame Sound* were conceptual ideas that the composer had for the processing of speech recordings decades earlier. *Slow Motion Sound* would enable the slowing down of a recording without altering pitch. This would make it possible to more easily discern pitch resonances in the vowel sounds of speech in performance. *Freeze Frame Sound* would similarly allow the ability to stop in the middle of a vowel sound, sustaining its pitch indefinitely. Advances in sampling technology made both of these techniques possible by the time Reich began work on *Three Tales*, and both are utilized in the piece.
The incorporation of video, by artist Beryl Krot, brought with it additional creative potentials as well. Previously, there were three methods Reich could use to express speech musically. The first, and most traditional, was the conventional musical setting of text, done for centuries by countless composers. The second came with tape technology providing the ability to set and compose recordings of speech themselves. The third was the instrumental setting of speech melody (with or without the recorded speech sample). In Three Tales, video brought additional potential dimensions into the fold. Meanings and emotions could now be evoked by poetic imagery, and the text could also be displayed visually, re-enforcing the semantics. This would allow Reich, for example, to musically express with instruments the rhythm and melody of language with syntactically aligned text communicating the semantic meaning of speech-melodies visually on screen, all without hearing the sound of the original speech recording. These new visual potentials, along with the potentials for Freeze Frame Sound and Slow Motion Sound, represented a significant addition of compositional possibilities for Reich, all of which are utilized in Three Tales.

Our analysis of the piece here will focuses on the first two movements (the first and second tales). Appendix 2 provides a sample survey of the various music-speech devices, transformations, and combinations used during the piece, including Slow Motion Sound and Freeze Frame Sound.

I. HINDENBURG

The Hindenburg movement is composed in four main sections. Part one begins with the musical and visual manifestation of text. Lines from a newspaper article
pertaining to the crash of the Hindenburg in 1937 flash across the screen. The snare drum outlines the rhythm of the text: "It could not have been a technical matter."

Eventually the phrase is repeated by vocalists whose melodies are reinforced instrumentally. Reich utilizes his now standard device of fragmented repetition, deconstructing each word, syllable by syllable. Minutes into the piece the vowel sounds become musically elongated as do the pace of the images on the screen showing the crash of the airship in slow motion. This foreshadows the use of Slow Motion Sound later. Audio segments of speech from the radio broadcast documenting the tragedy are integrated into the musical textures. As the work progresses the vocal samples become increasingly processed digitally, slowed and stretched. In a departure from Reich’s earlier approach, the vocal melodies in the chorus do not apparently map to any recorded speech sample, but are rather functioning more traditionally as musical settings of the text within the musical harmonic framework. As the sound and musical structures continue to slow and degrade, the expression of the music is eventually emancipated completely from the text. This progression, from beginning to end, from readily discernible semantic text and meaning at the beginning of the movement gradually evolving into more ethereal collages of pitches and sonic textures at the end, illustrates a prolonged (and profound) process of transformation, from semantics to pure music.

Part two begins again with rhythm and repeated musical loops that are links to visual repetitions in the video. The visual is utilizing video from the construction of the huge airship, showing men in repeated physical motions of work. This section is free of text, serving as an interlude between vocal sections in the movement. There's a high
degree of syntactic correlation between phrasing in the music and video, as changes in visual scenes correspond with changes in instrumentation. The repeated rhythmic textures evoke a kind of acceleration of feeling from the moody dramatic end of the first section, and the intensity of musical cycles offsets the sparse slow musical framing of recorded voices to come in part three.

Part three starts with an aerial view of the great airship, presumably shortly after it was completed. We hear a recording of the low rumbling sound of the airship’s engines. This recording contains a barely discernible sense of low pitch that is sustained throughout this section, functioning as a kind of pedal point for the music. For the first time in this work, Reich now uses his well developed technique of musically setting transcribed speech melody, this time with audio recordings accompanied by video images of interviewees who had seen the great airship in flight. Combining the speech melody technique with video makes the gesture feel highly representational and narrational, as if the whole visual and musical framework is intended to be a picture frame for the video fragments of the interviewees speaking. From time to time, the chorus musically echoes bits from the interview segments, singing select phrases and words recomposed musically. A distinction in the musical framework is made here in that the melodic intonation of the sung voices does not map to the original speech. This constitutes a progression of technique for Reich. This particular example of speech transformation has great dramatic effect compositionally, as the combination of repeated elements (visual, speech, and music) convey almost a feeling of timeless passage back to the events portrayed.
Part four begins abruptly, going back roughly to the same framework from the first section, starting again with snare drum articulating the implied rhythm of sentences, again from a newspaper article discussing the crash. As in the first section, recorded segments of radio news broadcast are interwoven with the musical textures. These recordings are digitally processed into slow motion, as before. The visuals eventually come to rest focusing dramatically on the crash site during the aftermath of the tragic event, showing the skeleton of the great airship in ashen ruin. The visual return to the crash site, paired with the return of the musical framework from the first section make the end of this section feel like a kind of recapitulation and coda for this first movement.

II. BIKINI

The *Bikini* movement is composed of a ternary structure (ABC) that is repeated three times, with musical developments in each section occurring in conjunction with the visual narrative portraying the gradual progression of the countdown to the atomic blast over Bikini Atoll. The three-part structure of the large repeated framework consists of a slow, medium, and fast section. Reich’s writing is mostly modal, lacking any clear harmonic function. Instead the harmonic movement consists of a repeated progression of loosely implied sonority structures rooted first in C (major) during the repeated A sections, followed by sonority sections rooted in Ab and B in sections B and C respectively. Feelings of harmonic cadence are sometimes implied in each section by use of a flat second scale degree resolving to “tonic.”

Throughout the entire movement, representations of text from the book of Genesis serve as a unifying structural component, with interrupting interjections of
visual biblical text that are accented instrumentally. Reich is consistent in terms of the compositional devices he chooses to implement here, deploying the same technique he used in the Hindenburg movement: rhythmically aligning the instrumental structures syntactically with syllables of the visually displayed text, highlighting the inherent rhythmic structures of the written text. The recorded vocal samples throughout the movement are from recorded radio chatter by the navy engineers and film production team documenting the test. The vocal inflection of these recordings are musically arranged, but subtly, with each sample of recorded speech melodically mirrored lightly by either a muted viola or violin.

In the first revolution of part A, a looped audio recording of a metronome, apparently used to time the countdown of the explosion, underlies the musical textures. The ticking of the countdown becomes a trope for the repetitions of this section, a defining structural parameter. In general, Reich leaves more space in the A sections, leaving room for visual storytelling while cultivating a sense of suspense. This, presumably, is to correspond aesthetically with the countdown to the explosion of the atom bomb. Numbers visually counting down at the bottom of the screen also highlight the sense of suspended tension. Interspersed within the long phrases of musical space are sung interjections by the chorus, melodically transposing and recontextualizing heard fragments of recorded speech, or re-enforcing the visual text appearing on the screen.

The repeated B sections constitute a visual and musical shift, bringing focus to the native people of Bikini most affected by the atomic test. Reich progresses to a more active modal framework mostly in the key of Ab minor. The feeling of this movement is
melancholic, with repeated cycles of undulation and droning intervals in the strings filling up the musical space. The choral voices continue more or less in the same manner that they did in part A interjecting melodically recomposed fragments of the text.

The shift to the beginning of the repeated C sections always occur stridently with sudden interruptions by visualizations of the biblical texts. Musically, these moments always manifest as strong ensemble moments of tutti unified in rhythmic homophony as the instruments again syntactically align with the visual rhythmic inflection of text. The visual narrative in this section portrays the massive technical preparations for the atomic test. The pace and intensity of the kaleidoscopic musical frameworks pick up accordingly in this section. Reich maintains consistency in his musical frameworks while increasing the intensity. For example, elongated vowel sounds expressed melodically by the chorus voices are made longer, while the length and pace of other instrumental musical gestures are made shorter while brought to greater tempo and frequency of repetition. This musical progression of texture is another example of mimetic transposition as Reich continues to augment the original melodic intonations of recorded speech compositionally, musically obscuring them with each evolution, making them more his own with each development. The modal center on B in this final structural section ties in well with the transitions back to section A (which is modally centered on the pitch of C), setting up a pseudo leading tone relationship that propels the movement back to the beginning of the cycle at section A.

After two revolutions through the large ternary structure, the third repeat of section C serves as the final count down to the atomic blast. As the screen lights up with a brilliant flash of red and gold, the dramatic moment of explosion is marked, not with an
intense musical climax, but instead with a seemingly contrary sudden drop in tempo, rhythm, and musical dynamics, shifting to the seemingly unrelated modal center on the pitch of A (from B). This perhaps connotes the otherworldly nature of the force that has been unleashed in the world. Over the sustained pedal on B, ambiguous undulations of digital melody and texture sound in slow motion. These sounds are digitally stretched recorded samples of the word “zero” (from the count down voice heard previously) so completely elongated and digitally processed as to be unrecognizable as a human voice. Not only has the world been changed by the blast, but so has the nature of man's voice in the world. As we listen carefully to the pitched intonations of the voice we hear why Reich may have chosen the tonal center of A for this dramatic point of cadence and coda. The two syllables of the word “zero” sound approximately as C sharp (ze-) and Bb flat (-ro), the major 3rd and flat 2nd of A; to the tonal ear, resonating simultaneous consonance and dissonance that is quite striking. As the movement winds down and concludes the audience member is left visually with final passages of scriptural text, supported instrumentally as before, this time over a what feels like a harmonic cadential extension on V that never resolves. It just stops, suddenly.
As a musician and composer, music orients my experience in the world. It underpins my understanding of things, giving context and perspective to everyday life experiences. For me, ideas, impressions, thoughts, and feelings are usually in some sense represented by the sonic world and through music. My mode of composition involves the *mimetic transposition* (through music) of ideas and materials resonating in culture. This mode is driven by a combination of methodical inquiry and compositional process. Regarding speech, I’ve always had an intuitive sense of the importance of *speech delivery* in relationship to the communication of hidden meanings. This is due to the prosodic elements of speech, including rhythm, loudness, and pitch, being akin to the musical properties of rhythm, dynamics, and melody, and the way these work together in terms of a speech act’s illocutionary force. In 2006 I became fascinated with possible sonic signatures to spoken lies. I was particularly interested in lies told by politicians and how public statements of untruth might have a unique sonic phenomenology. Having had no formal scientific background in linguistics or psychology, I had no basis on which to mount any empirical investigation. But as an artist I could investigate the phenomenon intuitively and creatively. So I started investigating vocalizations of lies utilizing my skills as a music theorist and composer. I analyzed select recorded statements of deceit by past American presidents, transcribing the rhythm and pitch intonation of each lie. This analysis did not manifest any empirical data of significance, but did yield some interesting melodic musical material that I
subsequently decided to use to compose a series of instrumental chamber music pieces, the collection of which I ultimately entitled *Symphony of Lies* in 2007.

**SYMPhONY OF LIES**

*Symphony of Lies* is a music-media piece designed for large chamber ensemble combined with projected text animations by digital visual artist Michael Chu. The piece musically consists of rhythms and melodies transcribed from three infamous lies told by three famous presidents: Richard Nixon, Lyndon B. Johnson, and Bill Clinton. In performance, Chu’s video accompanies the music, projecting the words connected to each note and melody. The compositional approach for the music of this piece was straightforward: transcribe the melodies and rhythms from the speech, arrange them linearly in repeated musical structures, and orchestrate for the instruments. The piece does not contain any musical thematic development, and therefore serves as an example of speech melody composition that is somewhat representational, embracing Steve Reich’s "documentary" approach to speech melody composition. The video collaboration with Michael Chu synthesizes a musical-visual framework that illustrates the music-speech connection without utilizing original recordings of speech (in contrast to Steve Reich’s *Different Trains* in 1988). *Symphony of Lies* puts the *music of the words* on display (as opposed to the iconic sound and timbre of the president’s voices), illuminating a more subconscious relationship to these infamously spoken lies, on musical terms (Schnurr).
The intention behind *Churchill's War for Orchestra* is to take the compositional process one step further than was done in *Symphony of Lies*: to musically develop speech melody frameworks completely emancipated from any semantic association with the original speech, developing and expressing only the *affective tonality* of the original speech source. In this, the ethos of the musical work amplifies the ethos of the original speech, rendering an expression that not only illustrates a strong link between music and speech, but also serves an example of *mimetic transformation* that is compositional, standing on its own in musical terms.

The piece is inspired by a speech made by Winston Churchill in the House of Commons. The *We Shall Fight on the Beaches* speech was made on June 4, 1940 during a particularly dark and uncertain time for Britain during World War II. This iconic speech served as an important bulwark of assurance and courage for the British people during a time when the war was going badly. Churchill's speech was also heard across the ocean in America, and resonated as an important statement of defiance against Hitler's seemingly unstoppable conquest of the free world. The speech remained a rallying cry for the allies during their darkest days in the war. The resolve to fight on is compellingly expressed in Churchill's written prose. The words resonate. Most significantly, in hearing the recording of the speech one feels the force of Churchill's resolve *brought alive* by the powerful performance of his words.

The piece highlights Churchill's stirring vocal performance, using in the composition melodies and rhythms transcribed directly from recorded inflections of the speech. All core melodic themes in the music are derived from Churchill's vocal
intonations. Occasionally, orchestral sonorities are combined with processed recordings of the speech, weaving together sonic textures that viscerally re-contextualize Churchill's oration while revealing connections between melody and text. The musical formations evoke something that binds music and speech together; that is, their common ability to powerfully inspire and transform internal states of feeling in listeners.

PROCESS

The piece musically incorporates 12 speech-melodies transcribed from Churchill's oration. The transcription process involved perceptual judgment and analysis of the speech selections using computer software (“Logic Pro”) that allowed me to isolate the pitches of individual vowel sounds, enabling the musical transcription of the speech intonations by ear. Once these melodies were catalogued, I began the process of composition. Appendix 3 shows the text selections used, the time location of each selection in the original speech, and the transcribed melodic intonations. Included in the submission of this dissertation are audio recordings of the segmented speech selections paired with their corresponding speech melody played by a digitally sampled piano. A detailed analysis of the piece would show these melodic materials are used throughout the four movements of the composition. I shall provide just a few examples here.

One of the most memorable moments in Churchill's speech comes near the end of his oration where he makes an effort to engender the courage and will to fight on in the war with Germany. Here he utilizes the now iconic repeated stanza "we shall fight."
We shall go on to the end, we shall fight in France, we shall fight on the seas and oceans, we shall fight with growing confidence and growing strength in the air...we shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender (starting at 11min 08sec).

The first movement of *Churchill's War* utilizes transcribed speech melody from the repeated "we shall fight" speech motif and from the line "we shall never surrender." *Example 4.1* shows the first musical use of the "we shall fight" speech motif in measure 16 (tubular bells). This example is a dyadic juxtaposition of two separate melodic utterances by Churchill, combining the sequence C sharp -> G -> F sharp (the melodically transcribed utterance of "we shall fight" from 11min 26 sec in the recorded speech) with G -> A -> C (from 11:15). The same dyadic combination occurs in the brass at measure 27, and then again in the accompaniment starting at measure 36 (*Ex. 4.2*). This sets the framework for sonority progressions in coming measures with dyadic juxtapositions (of Churchill's variations of "we shall fight" speech melody) occurring at measures 50 (musically transcribed from 11:26 and 11:28 in the speech), measure 56 (from 11:15 and 11:32), and measure 63 (from 11:15 and 11:24).

*Example 4.1* *Churchill's War* measure 16

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14 See *Appendix 3* for the complete catalog of speech melody transcriptions in *Churchill's War.*
Dyadic structures derived from transcribed speech melody by Churchill:
“We shall fight...” at 11:15 and 11:26.

Example 4.2 *Churchill's War* measure 36

Dyadic structures derived from transcribed speech melody by Churchill:
“We shall fight...” at 11:15 and 11:26.

Example 4.3 shows one of the first instances of another primary melodic motive for the piece (in the crotales at measure 32), transcribed from the "we shall never surrender" speech selection (at 11:35). Versions of this motive are found throughout the work, reflecting the significance of its sentiment in Churchill's speech. The first musical
example appears in the vibraphone at measure 4. Another more developed example is found in the trumpets at measure 78 (Ex. 4.4) where the melody is harmonized based on the chordal structures outlined in Churchill's speech melody.

**Example 4.3** *Churchill's War* measure 32

![Crotales](image)

Derived from transcribed speech melody by Churchill:
“We shall never surrender...” at 11:35.

**Example 4.4** Trumpets, *Churchill's War* measure 78

![Example 4.4 Trumpets](image)

Melody and harmony derived from transcribed speech melody by Churchill:
“We shall never surrender...” at 11:35.

**PROGRESSION**

The four-movement structure for *Churchill's War* constitutes a progression of musical development of speech melody materials and recordings from Churchill's speech. The first three movements include speech recordings that are performed
digitally with the orchestra, alluding the connections between speech and music. The fourth movement is presented without any recordings, representing the complete progression from Churchill's original oration to pure music. This movement serves here as my final example of mimetic transposition through composition, and also serves as my proof of the speech-music connection, expressing Churchill's speech as music. The subject of the semi-fugal structure starting in the piccolo (measure 9) is wholly constructed using musically developed fragments of Churchill's speech melody from all three previous movements. The rest of the music reflects my personal impression of Churchill's speech, paying tribute to a man who changed the course of human history by the power, and music, of his words.
CONCLUSION

As a composer, my inquiry into the realm of speech-music phenomena is informed by my creative practice in music. Little new has been offered in my research and analysis that empirically links the two phenomena beyond the illustration of their shared musical traits as music. But this is as it should be, as a composer's work lies in the realm of musical imagination, creating places of musical dwelling. What has emerged out of my analysis is an aesthetic framework for understanding how music and speech are both agents of ethos in their common expression of unique affective tonalities with the potential to facilitate inner transformations in listeners; igniting states of feeling; catalyzing the work of imagination and potential for mimesis.

In Chapter 1, it was necessary to illustrate the fracture between music and speech resulting from the Baroque doctrines as it set the stage for my theses that followed, rebinding music and speech on terms better suited to illuminating their common power. When ancient Greek philosophers suggested tapping into the power of music they were tapping into its inexhaustibility. The Baroque affects undermined that potential by attempting to codify a strict system of music composition that would limit the composer's ability to develop and use his own language. This system constituted a mode of musical representation designed to express and elicit specific ideas and emotions, the theory of which ran counter to the formation of expressions of compositional vehemence in original works of musical imagination. Consequently, not since the Baroque has there been such a systematic attempt to harness affects in speech within musical frameworks, though many composers since have incorporated
speech phenomena into their work. Steve Reich justifies his use of recorded speech in music relying, in part, on cultural theory pertaining to folk music and language. My justification for the applied use of speech as music lies in recognizing a distinction between physical transcription of speech and its affective transposition through imagination and composition. The process does involve transcription, but does not stop there. The work of composers like Reich illustrates that the musical transcription of speech can liberate human speech from the semantical realm by uncovering and recomposing the affective tonalities embodied in its musical structures. The speech is emancipated from literal meaning of text, unlocking ineffable potentials; unlocking inexhaustible levels of meaning through the mimetic act of composition.

This modality works because it is what composers do. Composers unlock new levels of meaning through composition. New meanings are created when Aaron Copland borrows from Elder Joseph Brackett musically recomposing Brackett’s Simple Gifts within the compositional framework of Appalachian Spring. New musical meanings are created when Alfred Schnittke borrows musical structures from Alban Berg’s violin concerto forming the compositional basis for his String Trio. New musical meanings are created when Steve Reich musically transcribes speech melody from recordings of Jewish survivors from World War Two; mimetically transposing the affective tonalities of their speech and expressing them as music in the composition of his masterwork Different Trains. This is what composers are in the business of doing. This is the essence of compositional mastery at work.
APPENDIX 1: Different Trains by Steve Reich
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**On my birthday**

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**APPENDIX 1: Different Trains by Steve Reich**

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**APPENDIX 1: Different Trains by Steve Reich**

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<td>27m</td>
<td>1057-1082</td>
<td>27m</td>
<td>1083-1108</td>
<td>27m</td>
<td>1109-1134</td>
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</table>

There was one girl, who had a beautiful voice. But today, they’re all gone.
APPENDIX 1: *Different Trains* by Steve Reich

<table>
<thead>
<tr>
<th>REH.</th>
<th>MEAS.</th>
<th>LGTH</th>
<th>SECTION</th>
<th>MODE/SCALE</th>
<th>CAD. PATTERN</th>
<th>PED.</th>
<th>ACC. PITCH SET</th>
<th>SPEECH-MELODY</th>
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<tr>
<td>158</td>
<td>591-670</td>
<td>80m</td>
<td>and when she stopped singing they said, “More, more” and they applauded</td>
<td>C phrygian</td>
<td>n.a.</td>
<td>n.a.</td>
<td>and when she stopped singing they said, “More, more” and they applauded</td>
<td></td>
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and when she stopped singing they said, “More, more” and they applauded
### APPENDIX 2: Three Tales by Steve Reich

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<th>TEXT</th>
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<tr>
<td><strong>Hindenburg</strong></td>
<td>Hindenburg burns in the Lakehurst crash; twenty one known dead; twelve missing; sixty four escape</td>
</tr>
<tr>
<td><strong>Bikini</strong></td>
<td>Atom bomb exploded over Bikini fleet</td>
</tr>
<tr>
<td><strong>Dolly</strong></td>
<td>DNA is the script for life</td>
</tr>
</tbody>
</table>

#### Music-Speech Compositional Techniques:

<table>
<thead>
<tr>
<th>Technique</th>
<th>Description</th>
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<tr>
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<td>Visual text with recorded voice and instrumental speech-melody</td>
</tr>
<tr>
<td>RVSM</td>
<td>Visual text with recorded voice and instrumental speech-melody</td>
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<tr>
<td>RVSM</td>
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<tr>
<td>RVSM</td>
<td>Visual text with recorded voice and instrumental speech-melody</td>
</tr>
</tbody>
</table>

**Note:** As an example survey, this is not a comprehensive catalog of all text used in Three Tales.
APPENDIX 2: Three Tales by Steve Reich

III. Dolly

This gives me pause

Here we are under the tree again at the end of the day

So how's your day going? Yeah, you got it all planned out? You do. Maybe you'll play with your yellow toy?
**APPENDIX 3: Speech Selections from *We Shall Fight on the Beaches* (June 4, 1940)**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TEXT</th>
<th>SPEECH-MELODY</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:05:06</td>
<td><em>un-conquerable fidelity</em></td>
<td><img src="image1" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 3,4</em></td>
</tr>
<tr>
<td>0:06:09</td>
<td><em>this is a great trial of strength</em></td>
<td><img src="image2" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 3,4</em></td>
</tr>
<tr>
<td>0:08:22</td>
<td><em>every morn brought forth a noble chance</em></td>
<td><img src="image3" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 3 (trans. up 1/2 step)</em></td>
</tr>
<tr>
<td>0:08:26</td>
<td><em>and every chance brought forth a noble knight</em></td>
<td><img src="image4" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 3 (trans. up 1/2 step)</em></td>
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<tr>
<td>0:11:08</td>
<td><em>we shall fight in France</em></td>
<td><img src="image5" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
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<tr>
<td>0:11:10</td>
<td><em>we shall fight on the seas and oceans</em></td>
<td><img src="image6" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
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<tr>
<td>0:11:15</td>
<td><em>we shall fight with growing confidence and growing strength in the air</em></td>
<td><img src="image7" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
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<td>0:11:24</td>
<td><em>we shall fight... (on the beaches)</em></td>
<td><img src="image8" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
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<td>0:11:26</td>
<td><em>we shall fight... (on the landing grounds)</em></td>
<td><img src="image9" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
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<tr>
<td>0:11:28</td>
<td><em>we shall fight... (in the fields)</em></td>
<td><img src="image10" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
</tr>
<tr>
<td>0:11:32</td>
<td><em>we shall fight... (in the hills)</em></td>
<td><img src="image11" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
</tr>
<tr>
<td>0:11:35</td>
<td><em>we shall never surrender</em></td>
<td><img src="image12" alt="SPEECH-MELODY" /></td>
<td><em>Churchill’s War: 1,2,4</em></td>
</tr>
</tbody>
</table>

*developed


Sir, I have myself full confidence that if all do their duty, we shall prove ourselves once more able to defend our island home.

We shall fight on the beaches.
We shall fight on the landing grounds. We shall fight in the fields. We shall fight with growing confidence and growing strength in the air!
Faster; Building Density, Conviction + 110

Tempo

We shall never surrender!!

Faster; Building Density, Conviction + 110
Slow Regal March:
With anthem-like dignity = 53

With anthem-like dignity = 53
II. Burgeon of Strength

Moderate Tempo; Survival = 83

We shall fight on the landing grounds.

I have myself full confidence that if all do their duty... we shall prove ourselves.
Menacing; Smooth

We shall fight on the beaches. We shall fight on the landing grounds...

...with growing confidence and growing strength in the air!

...and to outlive the menace of tyrany,

...never surrender...

...never surrender...never surrender...

We shall never surrender!

We shall fight on the beaches. We shall fight on the landing grounds...

...with growing confidence and growing strength in the air!

...and to outlive the menace of tyrany,

...never surrender...

...never surrender...never surrender...never surrender...

We shall never surrender!
We shall fight on the beaches. We shall fight on the landing grounds.
III. Noble Morn

Broadly and freely; Dreamlike (f = 48-55)

1  2  3  4  5  6

Pno.
Fl. 1.2
Oh. 1.2
C. a

<table>
<thead>
<tr>
<th>C1.2.3.4</th>
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</table>

Timp.

Cl. 1.2
Ob. 1.2
Fl. 1.2

Rec. Voice

C Tpt. 2.3
alt. B. Cl.
Picc. Tpt.
Tbn. 1.2.
Perc. 4:
Perc. 3:
Perc. 2:
Perc. 1:
B. Tbn.

Ob.
Cl.
Fl.

Vln. I
Cbsn.

Picc.
Cl. 3

Pno.

Tuba

Cel.

Vc.

Harp

Timpani

M decidedly faster.

Ndl. Tr. 1, 2, 3

F. B. K. ad T.C.
M.S. 1, 2

Vln. 1, 2
Sp. No. 1.

Vla.

Cello

Perc.

Cello

Vib.

Clarinet in Bb
Crotales
Cymbals
Tubular Bells
Trumpet in C

B. Tbn.

2.3

1st.

1st.

1st.

1st.

1st.

1st.

1st.

1st.
Walking Pace: Waltz-like (d = 150-155)
Match tempos to pace of recorded voice

12 13 14 15 16

Match tempos to pace of recorded voice

Walking Pace: Waltz-like (d = 150-155)
Match tempos to pace of recorded voice
This is a great trial of strength...
Every morn brought forth a noble chance.
And every chance brought forth a noble knight.
IV. The March

March tempo: Confidently (≤ 115-120)
Slow and Stately; Powerful, Glorious (L = 60-65)

Tempo:

Bar 122-127

 Movements:

1. Exposition
2. Development
3. Recapitulation
4. Coda

Notations:

- Continu ad libitum,
- Crescendo and decrescendo,
- Continue and lift dynamics,
- Continue ad libitum pedale modulations.