SAVING SOCIETY FROM INSTRUMENTAL RATIONALITY:

A Study of Mahler and Homeless Research in the Spirit of Adorno's Critical Musicology [1]

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ABSTRACT

One of Adorno's central themes was that science's way of knowing had become corrupted by instrumental rationality and that art, music in particular, provided a purer way of knowing that could be used to restore the objective universalizing capacity of science. We attempt to restart Adorno's project by using fractal concept analysis from chaos theory. When musical forms found in Mahler's *Lieder eines fahrenden Gesellen* and social science research on the homeless are converted to fractal concept forms, the clearly identifiable differences between the two reveals the corrupting nature of instrumental rationality and points the way toward a more universally objective social science of the homeless.

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6.1.1 Introduction

The separation between composers and producers is particularly sought by the former to insulate artistry from a factor that can be ruinous to authentic music production—profit. The calculating intrusion of bottom line thinking into composition to produce wider popularity can rob music of its natural power to promote the human condition. This problem was the subject of much of Adorno's critique of the evolution of music under capitalistic prerequisites. At its core, Adorno's concern centered on the widely recognized split between art (here, composition) and science (here, economic calculation), a problematic exacerbated as the latter became increasingly associated with reality and the former increasingly relegated to interpretation, fantasy, and entertainment. This is not warranted. Rather, we might say that science and art take different approaches toward investigating the world; that they represent different but not necessarily opposed forms of human cognition (Wilson & Lowndes 2004). Following Adorno, we examine the epistemic logics of art and science to illustrate the way that, although different, they can be complementary. We wish to show that science, once freed from its slavery to economics, can serve art so that art, in turn, can more effectively enhance reality.

Resolving this separation of art and science requires addressing their disconnectedness. That is, we must first understand the logic by which each investigates the world and then work toward integrating them. Specifically, we seek to illustrate what the artistic way of knowing the world can offer the scientific one, since primarily it is the former that is taken to be merely subjective by the latter. Using a schema that can incorporate the way observations are made in both art and science, we analyze (1) Gustav Mahler's *Lieder eines fahrenden Gesellen* (Songs of

a Wayfarer) (1890s and revised later) and (2) social scientific research on homelessness, the modern version of the wayfarer.[2] By holding wayfaring constant, we elucidate the disciplinary forms of logic on which the musical and social scientific versions are founded. As we apply the same schema to both, our methodology suggests a way to bring them together.

6.1.2 Adorno's Form-Based Musicology

Adorno was the member of the Frankfurt School of social philosophy who was most concerned with the arts, who saw in high art the means for redeeming not only art itself, but also society from "instrumental rationality". By this he meant the submersion of culture and society to the means-ends criteria of the economy, a definition we employ throughout this article.[3] So it was a cause of distress for Adorno to observe that with regard to the music of his time, the twentieth century, the healthy separation between artistic and non-artistic goals had already been breached,[4] that high-culture music was being replaced by a more easily consumed pop-culture, that music's artistic integrity was increasingly being undermined by instrumental rationality.

More generally, the Frankfurt School, including Adorno, sought to expose the influences of instrumental rationality on science as well as art and society. Just as the instrumental rationality of music editors and producers could corrupt music, so also could technological goals corrupt science's role in cultural development. Adorno and Horkheimer (1977) and Adorno (1973) argued that the capitalistic mode of thought had overwhelmed enlightenment science's inherent humanity through the demands of practical (profitable) applications of science. Enlightenment had become the opposite of enlightenment. In this way, capitalist technologies had become the editors and producers of science and thus the deeper possibilities of science's contributions to social and spiritual development were endangered. Today, there is clearly

visible separation between the humanities and sciences and within social science, even between

"humanistic" methods like ethnography and more dominant quantitative approaches.

Therefore, Adorno's sociology of music project can be seen as the centerpiece of his

critique of capitalist society including capitalist science, a centerpiece that he hoped would

suggest ways out of the dilemma—that art could redeem both science and society. Here he

echoes Nietzsche's (1871) great theme from his *Birth of Tragedy Out of the Spirit of Music*, that

a Dionysian rebirth by Wagner in the musical arts could redeem the growing decadence in both

Apollonian visual art and society in general.

While Adorno's work has substantive implications, for example the way in which trends

in music follow the logic of capitalism, his ultimate aim was a deeper focus on form (e.g. logic

itself) rather than content (e.g. experience and expression). Adorno believed that a liberating

form of cognition could be found in social studies of music and would help social scientists see

how to recast the underlying *logic* of the dominant social order from oppressive to liberating.

Adorno's writes of Beethoven:

> The Beethoven study must also yield a philosophy of music, that is, it must decisively
> establish the relation of music to *conceptual logic* [emphasis ours]. Only then will the
> comparison with Hegel's <u>Logic</u>, and therefore the interpretation of Beethoven, be not just
> an analogy but the thing itself. Perhaps one comes closest to this by following up the
> ancient comparison between music and dream. …[T]he 'play' of music is a play with
> logical forms as such: those of statement, identity, similarity, contradiction, the whole
> and the part; and the concreteness of music is essentially the force with which these
> forms imprint themselves on the material, the musical sounds (Adorno 1998: 11,
> fragment 26).

This is why music analysis in the spirit of Adorno must identify and *use* the form of logic

and organization in music and then apply this same logic and organization to the analysis of

social issues. Science and music must become alternative modes of expression of the same

underlying forms. Initially, such a suggestion may seem to violate the musician's soul which

resists the hard rationality of logic. Logic would seem to be the opposite of the aesthetic.[5] But music's own logic can be seen in the notion of *music form* in music theory. So, for example, Mahler's first song in the *Lieder eines fahrenden Gesellen* cycle has the ternary form, ABA' where the A form is repeated in the third stanza but with a variation, A'. Something of the cumbersomeness of this traditional music logic can be seen in Mahler's second song, which has the form AAAA, or A followed by three variations, or A1A2A3A4. The actual meaning for forms represented in this fashion is rather hard to find and can be subjective, such as to say, for example, that the ABA' form attempts to find a balance between statement, re-statement and variation. We suggest that with the discovery of fractals (Mandelbrot 1982), which conceptually hold the potential to systematize alternative logic structures, Adorno's goal of expressing both music and scientific analysis out of the same forms is now realizable. To make this possibility clear, if Mahler had used the form ABA' for his songs and had written only three songs which also had the form ABA' then we would have an example of a very simple fractal, repeating its form at two levels, the song level and the stanza level. By itself, this recognition of music's potential fractal nature would not really add enough to be worth the trouble. But, as explained below, when we add fractals as fractal concepts, our understanding of the meaning of music can be significantly enhanced, particularly with regard to qualitative distinctions within and between similar formal structures.

The essence of fractals, as seen in the simple example above, suggests that art and science are iterations of a more general encompassing form. Moreover, Adorno's use of Hegelian dialectics suggests that fractal analysis is a highly appropriate conceptual frame for a study in the spirit of Adorno. In the atomistic scientific culture of the day, Hegel's dialectic is often understood as the collision of two atomistic things that produces a synthetic third thing.

This conception deeply violates Hegel, for whom dialectics emerge from the meta-dialectic between beingness and nothingness (*sein* and *nicht-sein*). The dialectical form should be conceived as expanding out of the *nicht-sein* in increasingly specific conceptual statements. This is also the essence of fractal logic. Without using the word "fractal" Hullot-Kentor (2006: 87) suggests a similar conception of Adorno's Hegelian method:

> Central to Adorno's construction is a reappropriation of Hegelian mediation. Mediation is usually understood as a going between, a third element that reconciles opposites, conceived on the model of communication and compromise. In Hegel's philosophy, however, mediation is the dialectical—that is, antagonistic—process of the object itself in its inadvertent yet constitutive dependency on what it resists.

Moreover, Adorno's own analysis suggests he utilized a fractal-like conceptual frame. "Each section of [*Construction of the Aesthetic*]," writes Hullot-Kentor (2006: 82), "studies details and fragments of Kierkegaard's oeuvre as a microcosm of the whole." Martin (1995: 91) makes a similar observation, "So the starting point of Adorno's cultural analysis is a sort of dialectical reversal of the commonplace proposition that the social whole is made up of its parts; for Adorno, the parts *also* embody the whole" [emphasis ours]. We employ fractal analysis in exactly this same way, illustrating that each analytic fragment structurally is a microcosm of the whole[6]. We next explain our fractal approach (Wilson & Wasserman 2008; Wasserman & Wilson 2008; Wasserman, Clair & Wilson, 2008) and logic schema. We then convert both Mahler's *Lieder eines fahrenden Gesellen* and sociology research on the homeless to fractal concept forms so that they can be directly compared.

6.2 Fractal Concept Analysis and Instrumental Rationality

6.2.1 Fractal Concepts

While the majority of sociology of science researchers focus on contextual influences, Abbott (2004; 2001) developed a new analysis of science based on Mandelbrot's fractal

geometry. A similar analysis on gendered identities was done by Salzinger (2004), along with an account of what insights fractal concept analysis yields over traditional analysis. Like Adorno, these approaches did not focus on the effects of contextual contents of science (content concepts), but on differing styles of conceptualization (*concepts* of content concepts), or *concept architectures* (identifying reference). Fractal concepts are concept architectures grounded on Mandelbrot's fractal geometry so a brief description of the latter will help clarify our approach.

Seeds and Generators. One can approach geometry as a process of iterating *figures*. Mandelbrot and Hudson (2004) showed how his earlier work probing for mathematical models of cotton prices could be conceptualized as an iterative process where a *generator* (a figure archetype) was interpolated into a *seed* (a starting figure) and then repetitively interpolated in each resulting figure until a model of the actual price curve was produced.

Self-Similarity, Scale, Catiteration and Holism. Fractals are not constructed upwards from unrelated pieces assembled together like bricks to form a whole, but downwards through division where the parts repeat the pattern of the whole (called *self-similarity*). Each division into a newly differentiated picture is called a different *scale*. But no matter how high the scale or how small the phenomena, we find the whole in its parts. Fractals, therefore, must be viewed *holistically*. We can return to the initial whole by working backward through the iterations in a process called catiteration (the prefix cat- means to break down or reduce, Garner 2003). It is this iterated-catiterated holism that holds the promise of continuing Adorno's project, because one can analyze artistic wholes fractally without doing violence to the holistic integrity. The whole is ever-present in an analysis that differentiates the whole (through iteration) into its self-similar parts and then re-integrates the parts (through catiteration) back into the whole but now with new understanding.

Dimensionality. A price-curve chart appears to be one-dimensional since it is an up-and-down line-graph, but increasing iterations look like densification or thickening of the line when viewed from a distance because the lines get closer together. A thick line would be a line in two dimensions, length and thickness, but the "thickening" of the price line merely approaches being in two dimensions. That is, as the iterations increase, the price-curve squiggles get closer together approximating a plane (a square, for example) but it never actually achieves a plane. This property yields the counter-intuitive, partial dimensionality of fractals. The actual dimensionality of the price curve fractal model is a fraction between 1 and 2.

Conceptual Figures. When concepts are brought into simple polarities, they take on qualities like geometrical figures—they have relative position with respect to each other; they can be thought of as *conceptual figures* and therefore used as fractal generators like geometric figures. The possibility of conceptual figures opens social science to the advantages of fractal analysis, and the innovation of fractal *concept* analysis opens fractal analysis to new applications.   Similarly, Martin (1979) uses binary pairs to explain the "paradox" of rock music as replicating order while iconizing disorder. While she does not employ fractal language, she foreshadows the binary fractal work seen in Abbott (2001) and Salzinger (2004). Further, she indicates the conceptual gap between form and content, "The main problem for sociologists is the interaction between the general properties of symbol systems and the social structures in and through which they find expression" (Martin 1979: 97).

6.2.2 Fractal Concept Methodology for Music and Instrumental Rationality

Fractal analysis (Wilson & Wasserman 2008; Wasserman & Wilson 2008; Wasserman, Clair & Wilson, 2008), we believe, will be able to resolve the split between studies of music

coming out of the social sciences (sociology of music) and those coming out of the humanities (musicology). Sociology of music has focused on the social context of music, on the meaning of music given to it by the collective (Martin 1995: 30), i.e., on its social *content*. Musicology has stressed the aesthetic qualities of music, on its perfection of style and structure (Cooke 1959), i.e., on *form*. Put differently, sociologists viewed music as the expression *of* social life, and musicologists examined music's logic qua aesthetic influences *on* social life. So, while musicologists saw the aesthetic perfection of form as a model to uplift the general social consciousness, sociologists saw such as merely another manifestation of an elite agenda.

DeNora (2003), however, notes that awareness was increasing on both sides of the need to bridge these two approaches to music and offers a methodology to facilitate synthesis, which we will use to guide the current analysis. Such a methodology, she argues, should articulate the "social practices of music appropriation" (sociology of music) *and* music's musical features which are responsible for its effects (musicology), yielding a new "socio-musical" perspective. Freed from sociology of music's dominating concern with music as an effect of social context, socio-musical analysis could seek to document music's potential for social change, seeing it as productive not just a product.

Cone's (1974) theory of personas or voices that include even those of the social contexts of both music composition and performance provided a natural avenue for the incorporation of interests from both musicology and sociology of music. *Rethinking Music* (Cook and Everist, 1999) can be thought of as following this lead, providing a series of readings that de-center voice and persona allowing for an easier integration of now interconnected and overlapping sources of meaning. Samson (1999), for example, abandon's the "formalist enterprise" in favor of a "recursive intertextuality" where music text and social context are inseparably interlaced. And

Korsyn (1999) urges a deeper commitment to intertextuality, using the work of Mikhail Bakhtin to argue for, "…new paradigms for analysis, new models that will allow both unity and heterogeneity," a goal that is central to the development of our own fractal methodology.

Because fractals are essentially form-structures, fractal concept analysis affords the opportunity to further DeNora's (2003) call for a musicology and sociology of music synthesis. Once we have demonstrated how to perform a fractal analysis of music, a new way to examine musicology's interest in form, we will then show how to apply the same fractal to social science research. In this way, we bridge music form and social content i.e. what music affords social science. We use the fractal to demonstrate the presence of instrumental rationality and to suggest possible ways to increase the logical breadth of sociological analysis.

The challenging aspect for fractal analyses of music forms is to find a generator that is sufficiently broad as to be applicable to social contexts without being so broad that the generator adds little useful information. We employ a four-leveled conceptual fractal called the MIC (Multidimensional Integrated Concepts) generator. This fractal generator has already been applied to the analysis of visual art (identifying references). The MIC generator is based on a simple cultural universal, the four kingdoms of nature—mineral, plant, animal, and human. E. F. Schumacher (1977) referred to these "four levels of being" and their associated four fields of knowledge in his last book as the fundamental understanding, often overlooked in philosophies, needed to integrate the overly atomized state of current knowledge. The MIC generator is formed from the conceptual essence of each level of being: static (mineral), dynamic (plant life/growth), evaluative (animal awareness, sentience), and identity (human self-awareness, individual uniqueness).

The multidimensionality of the MIC generator arises from the qualitative differences between the four levels, which also can be represented in numbered dimensions. The static level is defined by the three dimensions of volume or space (length, depth, and width) and therefore has the dimensionality of 3; the dynamic level adds growth or change processes across time and has the dimensionality of 4; the evaluative level adds the difference between the inner and outer worlds of consciousness (sentience), through feelings of pleasure and pain, of the effects of the outer world on the inner world and has the dimensionality of 5; the human kingdom adds the possibility of creative difference, unique identity, of one person's inner world differentiated from another's and has a dimensionality of 6.

This four-level schema retains a figurative quality through the relationships among the concepts for the four levels. Even though the six dimensions can be thought of as nominal categories and therefore not having a figurative relationship among themselves, they are actually like a Guttman scale where the higher dimension concepts always contain lower dimension concepts. The cube (3rd dimension) includes the plane (2nd) and the line (1st); awareness (5th dimension) can only occur among growing beings (4th) existing in space (3rd, 2nd, and 1st dimensions) and so on. Also, as in geometric fractals, partial dimensionality can arise: an attempt to explain dynamics in terms of statics (reduction to spatial and material forces) could be said to have a dimensionality closer to 3 than 4 (between static and dynamic); reduction of feelings/values to dynamics has a dimensionality between 4 and 5 (between dynamic and evaluative); and reduction of unique identity to common evaluative reactions has a dimensionality between 5 and 6 (between evaluative and identity).

Instrumental rationality now can be clarified in terms of the MIC generator. MIC is a meta-fractal form, which can characterize alternative logics or methods of social science. Each

of the latter can be represented as a fractal generator with a specific MIC form. Instrumental rationality, therefore, is a specific MIC generator. Its signature is lack of development at the identity level, as having a dimensionality closer to five than six. The rational calculation of human inputs for instrumental purposes can only be done when the differentiating aspect of human identity, its creative component, is rejected.

Mahler's *Lieder eines fahrenden Gesellen* was written in his youth but revised with a more mature view later in his life (Cooke 1980; Kennedy 1974) and consists of four songs about a man who left his established life and wandered the countryside after loss of love. If fractal analysis can help realize Adorno's hopes for music analysis, then we would expect our study to reveal in Mahler a fractal generator that has not been subverted by instrumental rationality. We find this to be the case.

6.3 Fractal Concept Analysis of *Lieder eines fahrenden Gesellen*

6.3.1 Fractal of the Music Event: Libretto

We begin the fractal concept analysis of Mahler's composition of *Lieder eines fahrenden Gesellen* by interpolating the MIC generator over the four songs in Table 1. The overall lyric meaning for each song is captured in a concept-phrase in the first column. When the song cycle is read with the MIC generator, the form emerges: the first song is read statically, it sets up the cycle by defining the key issue and such definitive statements are generally the most static; the second song is read dynamically, it reports Nature's activity and intensifying attempt to balance the singer's sorrow with the encompassing joy of Nature's beauty; the third song is read as an evaluation, it dramatizes the singer's descent into his pain of loss; the fourth song, to achieve the 4th level of the MIC generator, must then be read as a breakthrough to free agency when he

breaks from the social and, with Nature's help, transcends his social dependency with the insight that all life is polarity, love *and* sorrow.

<Table 1a-d>

Alternatively, the music and lyrics can be read in such a fashion as to support the interpretation that Mahler's singer commits suicide in the fourth song (see Feder 2004: 62, for a clear example of this interpretation and Kennedy 1974: 114 who suggests this interpretation but with the caveat that we know that the wanderer is Mahler himself). But read this way, the suicide interpretation makes the form of the four-part structure less meaningful. A fourth song about suicide would merely continue the emotional quality of the third song and then the first two songs would also have be read primarily in an emotional fashion to set up the suicide. The four-part structure would then collapse into a single structural form that pityingly reports the sorrow and suicide of an abandoned lover. This, we argue, is not the song cycle that Mahler wrote. Further iterations of the fractal into the stanza's and phrases of each song, as we shall see, make it clear that the dignity of a true four-form structure is the interpretation most consistent not only with the fully detailed structuring of the song cycle, but also with the psycho-social phase of the analysis carried out after the music analysis.

Interpretations must be made whenever there is a gap between signifiers and concept. So, for example, in the first song, there is a substantial gap between the signifiers (the Nature signifiers and the signifiers of the singer's pain) and the concept (that the song portrays a competition between natural life and social life that is won by social life). Interpretive problems can be minimized, therefore, by reducing the gap between signifier and concept. This is precisely

the feature of iterative fractal analysis. Instead of jumping the gap between signifier and concept, fractal analysis iterates concepts sequentially with the generator toward greater complexity until the complexity of the signifiers is approximated. When done thoroughly, a relatively smooth transition between signifier and concept is achieved and the interpretive leap is reduced.

Table 1's summary concepts for each song were achieved through a combination of iteration and catiteration (the static, dynamic, evaluative, and self levels are color coded for clarity; columns that represent catiterated concepts are labeled). First, the cycle as a whole was interpolated with the generator in a figurative rather than conceptual fashion. Here, we only took note of the composer's natural divisions. Thus we noted Mahler's division into four songs for the first iteration, the division into three or four stanza's within each song in the second iteration, and finally the division of each stanza into sentences or phrases for the third iteration. These natural divisions were then tested for accuracy by catiterating the signifiers, Mahler's words, into the fully iterated form. This results in a set of catiterated concept phrases that are still very specific being only once-removed from the signifiers (catiteration 3). These concepts were then grouped according to the next division level, stanza, and new stanza level concepts were obtained from summaries of each concept-grouping. These are now twice catiterated from the signifiers. Finally, the stanza level concepts were grouped by each song, and song-level concepts were derived that are thrice catiterated from the signifiers.

We can verify our claim to have substantially reduced interpretation by following iterations-catiterations for the four songs from overall concept (catiteration 1) to signifier (lyrics in column 4). The iteration from song-concept to stanza-concept for the first song (Table 1a catiteration 2) is as follows: song 1.1 (song 1, stanza 1) statically defines two experiences, social

versus personal, as separate, 1.2 portrays the active integration of Nature and personal feeling, and 1.3 shows the singer's feelings about social separation to be stronger than his feelings of integration with Nature. The song-concept has been iterated into a three-membered stanza-concept structured by the generator (static-dynamic-evaluative). Comparison and contrast at this point between song-concept and stanza-concepts confirms that the stanza-concepts have not gone beyond the content already found in the song-concept. The next iteration of each stanza-concept into MIC forms for each stanza then proceeds as follows: the first stanza-concept, separation of singer's social and personal experience is iterated with the first three parts of the generator (static-dynamic-evaluative) into a three-membered concept of separation: separation (static), resignation to separation (dynamic), and separation feelings (evaluative). The second stanza-concept, active integration of Nature with personal feelings, is iterated similarly: flower integration (static), bird integration (dynamic), feeling integration (evaluative). The third stanza-concept also proceeds in the same fashion: the relative strength of social feeling over nature feeling is iterated as break with nature feeling (static) consolidated in sleep (dynamic) with intensification of social separation feelings (evaluative).

The last iteration takes us to the actual lyrics in column 4.[7] Here, each sentence/phrase concept is fructified by the generator producing, under Mahler's creative hand, a specific choice of lyrics. Here, rather than perform the iteration, we only observe Mahler's final choices at work. Having carefully followed the composer's path through the iterations, the analyst can now have the sense of knowing the composer's artistic creation as well as resonating with the living sense of the artwork. When we read, "Blümlein Blau! Blümlein Blau! Verdorre nicht! Verdorre nicht!" we can now understand the battle beginning to rage in the soul of the singer and can feel the gradual overpowering of the singer's healthy Nature-relationships by social tragedy.

Nature's side of the inner battle, portrayed in the second song, was perhaps more easy to appreciate during Mahler's time when the majority of people lived on rural estates and farms, where people more often relied on nature-walks to calm stormy feelings after an argument or painful tragedy. Mahler's concept for this song (Table 1b, catiteration 1) is therefore a dynamic battle between social tragedy and the power of Nature's healing effects. Interpolating the generator over that concept yields a four-leveled lyric (catiteration 2), a three-sided artistic rendition of the scope of Nature's ability to influence the singer, which is paralyzed by the singer's social tragedy in the 4th stanza. In the first stanza (catiteration 3), interpolation of the four-fold generator encourages the singer to identify with the finch (1-walking in the finch's domain of field and grass, 2-finch speaks, 3-exemplifies Nature's beneficent effect, and 4-finch's conclusion about himself); in the second stanza, interpolation encourages identification with the harebells; in the third, identification is encouraged with the sun; but in the fourth, where the singer tries to identify with Nature, he finds instead that he cannot, that his loss is too great.

Nature's struggle for the singer's identity, having been lost in the second song, now gives way to the singer's complete immersion in his social feelings in song 3 (Table 1c catiteration 1). The first iteration by the generator gives the three stanza's (catiteration 2): intensely painful feeling (1st stanza, static), takes over the effects of Nature (2nd stanza, dynamic), and takes over his awareness even during dream-life (3rd stanza, awareness). The second iteration interpolates the generator for each of the three stanza-concepts but in different ways—as a three-form for the first stanza and as two binary forms for the next two stanzas. The binary forms for the 2nd and 3rd stanzas are especially noteworthy, each presenting an element of life on one side of the binary form (Nature in stanza 2 and dream-life in stanza 3) and then showing how that element is transformed by the singer's descent into sorrow on the other side of the form.

The singer's descent into pain and sorrow is so complete in song 3 that there seems to be no way out. But Mahler nevertheless is able to find a resolution without any sense of being artificial or contrived. The simple elegance of Mahler's resolution-concept in song 4 (Table 1d, catiteration 1) could probably only be found by someone who lived through the experience himself as disclosed by Mahler's biography. The resolution-concept is that one can escape the power of socially induced feeling through a break from social life. Then, after such a break, healthy nature-feeling can once again send its healing impulses into a devastated life, widening one's awareness beyond the one-sided, sorrowful reaction to a more encompassing, balanced view of life and life's sorrows. In a sense, the 4th song-concept is about fractal iterations, about how life in general iterates into greater and greater complexity, but how in its social iterations life can be iterated too far and too one-sidedly. And about how, once this happens, social life has to be catiterated back to a more general perspective from which balance can be re-established.

So, Mahler's interpolation of the generator into the song 4 concept yields three stanzas (Table 1d, catiteration 2): the decision to break from society (static), the wandering (dynamic), and the value gained from the wandering (evaluative). In the latter, renewed contact with Nature (under the Linden tree) enables the singer to catiterate back from social life to life as a whole where he comes to see that all life is filled with both love and sorrow. The Linden tree, well known to Europeans, was the national tree for Slovenia and was treasured by Slavs in general as the symbolic "tree of life" due to its reputed healing qualities. Properly understood, the fourth song cannot be a song of suicide, but one of liberation from negative consequences of social life where the singer, with help from the Linden tree, is able to restore his mental health, but now at a higher stage of maturity.

6.3.2 Fractal of the Music Event: Music

Now we can begin to trace, in reverse order, the development of Mahler's music concepts that parallel his libretto. The actual notes (especially in their contrasts of pitch, loudness, speed, etc.) will be treated as the feeling-content. Since we are following the development in reverse order of the lyric-concept *iterations*, we will be following the feeling-concept *catiterations* back to the level of the first lyric-concept iteration (in catiteration 1). While the song cycle's form can be readily seen with the aid of traditional music theory[8] (A[aba1]B[a1a2a3a4]C[aba1]D[a1a2a3]), the additional use of fractal concept analysis, helps expose the meanings embedded in the traditional form. So, for the first song, which introduces the topic of the cycle and therefore occupies a static position in the fractal, Mahler helps establish the static quality by making plentiful use of the device of rests between phrases, sentences and stanzas. There are more rests in the first song than in any of the others[9]. The first rest denotes change in form from a static phrase (measures 5-8) to a dynamic phrase (measures 10-12). The fractal quality of dynamics is created, by raising the phrase a half-step and speeding up the phrase with the elimination of a half-note. The second rest denotes a new change in fractal form from dynamic to evaluative through an inversion of the phrasing (rising then falling instead of falling then rising) and a reversal of polarity (quarter note phrase followed by eighth notes instead of the reverse) giving a more dramatic quality to the phrase. Next, in contrast to the separation of the first two sentences of the stanza by 4 rests, the third sentence is preceded by the only remaining rest. A similar change in separation characterizes the stanzas: the first stanza is separated from the second by 7 rests and the second from the third by 3 rests.

Once the first song is demarcated into three scales (stanzas, sentences, and phrases), we can now see that the MIC generator fits comfortably over the demarcated forms. The three stanzas (catiteration 2) differ according to static, dynamic, and evaluative; the three sentences

within each stanza (catiteration 3) are similarly differentiated in quality; and even the three phrases of the first sentence of the first and third stanzas (measures 5-17 and 64-74) are also differentiated in accord with the MIC generator. The new fractal structuring does not violate the traditional forms of music theory while also showing elements of the music that would not be noticed from the standpoint of traditional music theory alone.

The other noteworthy use of rests is in the fourth stanza of the second song, but here they are used to define an entirely different fractal quality. Here, they show the quality of self identity (the 4th stanza should be at the 4th MIC level). This hard to define quality is achieved in simple fashion. The singer take a 2½ measure rest after singing, "Will my happiness also begin?" and then a 4½ measure rest after repeating the question. This establishes a mood of reflexive self-contemplation where the singer asks his question, looks for the answer, asks again a little more insistently and then waits twice as long to see if his happiness will begin. This makes it clear to the listener that the question is not merely rhetorical with the foregone conclusion that of course the singer cannot be happy. It says instead that the singer doesn't really know whether Nature will be able to help him here. He has to investigate it and think it through, both qualities of the fourth level in comparison to an emotional third level.

But while this use of rests makes sense for the fourth stanza, Mahler cannot use rests in other stanzas of the second song as the main punctuation device. The second song, if composed in accord with the MIC fractal pattern, would have to be more dynamic than the first and the continued use of rests for punctuation would cause the song to drag and seem repetitious. The music for the second song needs to carry the dynamic qualities of Nature's capacity to challenge and uplift any dark mood. So instead of rests, Mahler uses phrase inversions to punctuate

changes in quality. There are three phrase reversals in each of the first two stanzas of the second song yielding two four-forms, each conforming to the four qualities of the MIC generator.

Further detailed iterations of the MIC generator in the music can be traced through all four songs in Table 1, characterizing the four-song cycle in general as well as the musical changes within each song. We turn now, however, to what is perhaps one of the most interesting aspects of Mahler's music, his use of polyphonic voices to carry differing and sometimes conflicting themes into his music. Cone's (1974) theory of personas provides the classic analysis of multiple voices in music. Three voices can be heard across the four-song cycle, (1) the voice of a social event, the marriage of the singer's beloved, which is a tragedy for the singer, (2) the voice of Nature (with many sub voices), which is like a healing therapeutic, and (3) the voice of the singer. The positioning and changes in these voices musically define the meaning of the songs in a fashion that cannot easily be done in text. In music, being can be expressed more fluidly than it can in text. Thus, even though we can hear social being, individual being, and Nature being as distinct 'beings' in the music, it is also possible to hear the influences of one being over another in music to the extent that one being completely takes over or merges with another being. To hear the struggles of existence expressed not merely as the pushes and pulls *between* beings, but as stark struggle for *beingness* as such is a remarkable and dramatically compelling experience. Music, therefore, can display social life in a unique and complementary manner to text.

The first song introduces all three voices most clearly distinguishable in the three stanzas. The first stanza is introduced by the orchestra (see Table 1a catiteration 2 row 1), presenting the essence of the voice of the social event as an MIC static, level one fractal, depicting the social event as something separate from the singer and beyond his control although colored by a

dialectical happy and sad tone. The second stanza is also introduced by the orchestra

(catiteration 2 row 2), but this time in the voice of Nature developed throughout the stanza as a

dynamic and contrastingly hopeful theme. Finally, the singer's own voice is heard in the third

stanza without an orchestral introduction (keeping in mind that since the song is a multi-scaled

fractal iteration, multiple voices can be heard within the stanzas even though one voice may

dominate the stanza). Presented as an MIC level 3 fractal, the singer's voice is heard in the third

stanza as threatened being, as merely an emotional reaction to the social tragedy without clearly

defined beingness of its own. Here, then, is the key tension motivating the song-cycle. Will the

singer's independent being drown in the tragedy of social being? Pitted against this possibility is

the singer's hope that Nature's voice will help oppose such a loss of being and eventually release

him from his sorrows.

The efforts toward this end of both singer and Nature are presented in the second song.

The brightly paced orchestral introduction (Table 1b catiteration 2 row 1) contrasts sharply with

the voice of social tragedy from the first song. Throughout the first two stanzas, Nature's voice

is intensified and elaborated by the orchestra while the singer attempts to follow suit. But in the

fourth stanza (the second song is the only one with four stanzas), which begins without orchestral

introduction and therefore without a leading nature-voice, the singer contemplates his capacity

for emancipation from the social tragedy and in a touching conclusion lacking any sense of

whining (since, as mentioned above, Mahler's clever use of rests show that the singer genuinely

contemplates his situation), perceives the submersion of his being within the social tragedy even

as it is occurring. Examination of the dimensionality of this stanza helps clarify its meaning

more precisely.[10] While self-contemplation is a partial development of the dimensionality of

level 4 (between dimensions 5 and 6), a fully developed dimensionality of 6 can only occur with

the singer's creative autonomy from the social. Without a full achievement of creative

autonomy, the power of the social expresses itself through the fact that the singer is not even able

to maintain the partial dimensionality of level 4 (i.e., his attempt toward objective self

contemplation) and falls back into the emotional pit of level 3.

Now, in the dramatic third song (level 3 of the MIC generator), this complete loss of

separate being is introduced by the orchestra in a frightening manner. The wild orchestral

introduction is actually an emotional parody of the essence of the nature-voice presented in the

first introduction of this voice by the orchestral introduction in the second stanza of the first song

(Table 1a catiteration 2 row 2). Mahler shows, through this device, the next stage of collapse of

the singer into the being of the social tragedy. This new state of being, as mere extension of

social tragedy, is incapable of hearing Nature in its own voice and hears instead the emotionality

of the social tragedy in Nature. Nature itself becomes the being of the social tragedy for the

singer. This musical merging of being is also reflected in the lyrics of the second stanza for the

third song where the singer can no longer see Nature as separate being but superimposes the

image of his social tragedy over the being of Nature (seeing eyes in the sky and hair in the field).

Musically, this theme is expressed through reduction to a mono-voice. The voice of social

tragedy takes over all other voices and a unity of pain and sorrow is heard.

The music for the fourth stanza is almost always interpreted as a death knell to go with

the similar interpretation of the libretto, but the fractal analysis again reveals an alternative

interpretation. The music begins in the same mono-voice, now as a funeral dirge, which is

consistent with the death knell interpretation. But by the second stanza, a new polyphony begins

to be heard as the dirge subtly fades into the background. Also, even though the fourth song

begins in a minor key consistent with the suicide interpretation, the music nevertheless

progresses from E minor up to F minor. Such progression, we argue, is consistent with the qualities of the self (fourth level) that begin to be asserted, heard as re-differentiation and progress in the music. The dimensionality of this stanza moves beyond the 5th, not yet fully developed to the 6th perhaps, but with a new confidence. From the lyrics we learn that this new polyphony is made possible by the singer's break from the social. Like the homeless of today, he leaves not just his home, but also the social life that is symbolized by 'home'. Then, under the healing influence of the Linden tree, a new, supportive nature-voice is very subtly heard in the background and, most importantly, a dimensionality closer to 6 (6 is full creative autonomy) comes into being as the singer's autonomous voice is heard for the first time, concluding, with both resignation and strength, that all life is full of the most difficult polarities. Here the music achieves briefly its most sublime moment connoting Mahler's sense of beauty associated with the balancing of these difficult polarities.

6.3.3 Fractal of the Music Social Context: Catiteration as New Concept for Bridging Music and Social Context

We have used the MIC generator to provide a general fractal form for both the libretto and music of *Lieder eines fahrenden Gesellen* , and through a comparison of these have begun to bridge the music and its social context (see especially the discussions above of the Linden tree and the role of country walks). This raises deeper questions about the relationship between music and social context, which, when expressed as a fractal question, is a question of the relationship between music fractals and social context fractals. Composers have perennially taken one of two courses in this regard, they have either (1) attempted to work more directly out of life experience, producing what is called "program music", or (2) they have composed the music in a manner that allows it to stand independently from the life experience that may have inspired it. We use the

concept of catiteration as a new way to conceptualize the second alternative. We suggest that this artistic process works as follows: the composer begins by catiterating life experience back to its essential forms (i.e., attempts to develop greater social insight) rather than merely translate life experience directly into music. Then, once the life experience is reduced to catiterated fractal seed, the seed rather than the experience becomes the inspiration allowing the music to be composed out of these more universal, less contextually dependent, forms. In the first alternative, the structure and content of the music attempts to more closely match the life experience, such as the use of percussion instruments to sound like a running horse, and often is thought to be trite unless it is used for children's music (e.g., Prokofiev's *Peter and the Wolf*). In the second alternative, composers do not attempt to merely represent life experiences in a music mirror, but to re-iterate the insight laden catiteration in an entirely new life experience, a musical experience, the iterations of which only have to stay true to themselves rather than mimic life. As *musical life*, music that is not program music introduces an entirely new form of life experience, one that feels at the same time more intensively engaging with the creative while also standing as an entirely objectively appraisable experience. It is especially music of this nature that carries the potential to uplift the social, not as a "lesson" about a direct social life iteration, but as means to objectively enter into an emotionally rich alternative form of experience that can thereby lead the listener to her own social insight.

We believe that Mahler was aware of the artistic importance of the relationship between composing and developing insight into social context, commenting on it both verbally and in writing on many occasions, but he expressed himself about it in the concepts of his time. For example, he wrote social context "programs" to go with the movements of his early symphonies but later removed them when he found that audiences began reifying his music as the program.

Expressed in fractal concept analysis, Mahler was not seeking to merely repeat the detailed iterations of past life experience in the music event, but to catiterate those experiences to a generator, to archetypal forms that underlie the experiences. The greatness of a work, in this sense, stems from the degree of artistic insight that has gone into the social life catiteration.

When we want to return from the music to its social context for analysis, we catiterate back from the song, both libretto and music, into its generator and then re-iterate the generator into social context with concrete social content. When carried out for both past and future, a general model of the artistic relationship to social life emerges: first, social life presents the artistic imagination with dilemmas, crises and tragedies; second, if an artistic insight results, the artist catiterates the dilemma, etc. into an integrated artistic form; third, the insight from the artist's catiterated form can then be used to re-iterate future social life in new ways. If listeners or analysts have traveled that condensing and expanding process with Mahler, then an outcome that is very important to the lives of listeners/analysts results—they have participated in the artist's creative moment and therefore have a right, perhaps even an obligation, to add their own creative contribution to the artistic event. The larger artistic event then becomes the collaboration of all involved. Certainly this has always been necessary for performers, but it is also useful for other participants such as music analysts and general listeners. For example:

Once we (as analysts) find a working generator we find it natural to come to the artistic conclusion (i.e., we make our own iteration) that fully developed autonomy can only be achieved in some situations after separation from social life, and that if such separation is accomplished, Nature provides just the kind of support necessary to the development of healthy autonomy. We (as analysts) create our own position that Nature is not hostile to healthy human development. Instead, autonomous human development is a natural continuation of Nature's own development,

and so, following our own insight development, we conclude that Nature is one of the best friends of development. Thus Mahler's four-fold generator in its simplest form can lead to this conclusion: of Nature and society (level 1), society damages and Nature heals (level 2), except when society overwhelms (level 3), and then the individual must break from society (level 4) to re-establish a healthy foundation for life.

6.3.4 Fractal of the Music Social Context: Instrumental Rationality in Homelessness Research

Social science research on the homeless can be rather neatly bifurcated into individual and structural positions (Shlay and Rossi 1992 make this point clear in their meta-analysis of homeless literature).[11] That is, homelessness is sometimes asserted as the result of individual pathologies such as addiction and mental illness (see for example Jencks 1994). Other times, either through critique of individualized explanations or independent analysis, homelessness is asserted as the result of social structural pathologies such as decline of wages in real dollars, shrinking industrial sector, and shortages of low-income housing (see for example Mathieu 1993; Mossman 1997; Snow, Baker, Anderson, and Martin 1986). Most researchers appear somewhat uncomfortable with taking either approach singly, but in response to the insufficiencies of each, they mostly employ both (see for example Rossi 1989). For example, one might assert that structural factors tend to cause homelessness, but individual pathologies tend to keep a person homeless.

However, individual and structural approaches to homelessness both fundamentally rely on the means-ends logic of instrumentally rational science, particularly where that requires homogeneity of the objects of investigation. That is, homelessness must be simplified a

condition that is uniformly bad (an assumption contested by our interpretation of Mahler).

Within this categorical understanding of homelessness, means-ends logic suggests that ridding

society of homelessness requires either treating individuals or remedying social structure.

The individual and structural positions on homelessness are typically seen as

oppositional. Even those drawing on both see them as separate modes of attack (Shlay and Rossi

1992). But just as Abbott's analysis of social science finds fundamental similarity of form

amongst disciplinary oppositions driven by content, we can understand the individual-structural

opposition in homeless research to hold in common a particular vision of the human self, one

which by virtue of instrumental rationality leads to support of either individual or structural

interventions. That is, neither can come to terms with the human being as its own creative agent,

but holds to a vision of the homeless person as an object to be acted on. Treatment prescriptions

then follow one of two courses: treat the individual or treat society. The two columns on the

right of Table 2 identify the instrumental rationality of both individual and structural

explanations.

<Table 2>

For the individual approach, the conflation of homelessness with individual pathologies

of mental illness and addiction naturally entails seeking to treat those conditions (see also Lyon-

Callo 2000). This medicalized model does not work toward an independent concept of healing,

but rather is guided by social norms, particularly those of work and ownership, re-assimilation

into the economy. The success of the homeless shelter is judged by how many former clients are

working and paying rent. Of course, endemic to the medical model is the transformation of the

subject into object; the patient is the passive receiver of expert knowledge, not an active participant in the identification and treatment of their sickness.

In the conservative atmosphere of American culture, the individual pathology approach has been convincing to city governments and service providing organizations; it currently is their response of choice. However, as largely liberal disciplines, academic social sciences lean toward calling attention to social structural factors. This is postured as the more sympathetic approach, the one that does not blame the victim. While this is accurate to some extent, the liberal-helping approach often fails to recognize its own assault on subjectivity (see Freire 1994 for further theoretical exposition). Rather than providing real opposition to the conservative pathology approach, social structural solutions implicitly strip the individual of power by placing them wholly under the thumb of political-economy.

But not all homeless research can be so neatly characterized by the individual-structural split. As a research method, ethnography tends to blend the humanistic and scientific. After all, ethnographers are trained social scientists, schooled in a discipline in which instrumental rationality is nearly exclusively employed, but ethnography also is about the in-depth study of human beings. So it is not surprising that ethnographies of the homeless have glimpsed the notion of the creative human, but do not seem able to give it full account because they remain partly constrained by instrumental science. In our framework we might say that they have a dimensionality between five and six. The works of Hopper (2003) and Snow and Anderson (1993) make mention of the creativity of the homeless, but only as a somewhat meager response to overwhelming conditions. Their observations of creativity therefore serve to illustrate the laudable character of their homeless participants, but do not fully develop notions of creative

agency that might itself overcome social structure. Agency here can only win small battles in a losing war.

Instrumental rationality eclipses crucial aspects of human existence. Individual and structural approaches to homelessness both set up a concept of the human being as wholly socially dependent. While the social sciences have never reached consensus about the relationship of the individual and society, few would be comfortable explicitly taking such an extreme position, even though it is implied in the theory, method, and practical applications of the discipline. By bringing to bear an artistic sense of the human, particularly that of Mahler, new possibilities arise for conceptualizing and addressing homelessness.

The two right-hand columns of Table 2 show the fractal generators for the two alternative interpretations of Mahler's wayfarer and can be directly compared with the instrumental rationality approaches of social science research on the left. The suicide interpretation is consistent with these approaches, whereas the interpretation that follows the differentiated four-form structure shows the affordance of a music analysis for social science by posing the only true alternative in the table. Only the generator in the fourth column, Mahler's autonomous wayfarer, has a dimensionality approaching 6. The other three columns reveal generators emerging under the influences of instrumental rationality which dilute, in different ways, the dimensionality of self back toward a dimensionality of 5, a conception of self lacking qualitative uniqueness vis-à-vis the social. The third column represents the suicide interpretation where the larger and more significant movements of social structure and organization sometimes collide with individual aims in an inevitably painful and damaging contradiction. With this story comes the romantic idealization of the one who suffers on behalf of love, even unto death. Its dynamic centers on the overriding power and inevitability of larger social processes, but draws sympathetic emotionality

when the individual suffering arises from a great individual goal such as love (or, in other contexts, loyalty, honesty, etc.). That this view fails to reach a dimensionality of 6 can be seen in the fact that there is no question of the individual's capacity to transcend his social milieu. For a conception where the nature of self is necessarily a product of the social milieu, where would the individual draw any kind of a self-conception that is not of the social milieu?

A similar view clearly drives the homeless literature fractal (Table 2, left two columns). Homeless research, and sociology generally, shares an impoverished concept of the human self as socially dependent and therefore never achieves a dimensionality of 6. Here we see most baldly the effects of Adorno's notion of form of instrumental rationality over content. At the fourth level we find that neither individualistic nor structural researchers have a consciously developed notion of an independent self. Instead both take the implied position of Western liberalism articulated as early as the 17th century in Locke's notion of the *tabula rasa* self, the self that is composed entirely of the mentally recorded experiences of life. Both orientations draw their notion of the self from socialization theory in sociology and social learning theory in psychology, and so both perspectives must ultimately draw from the same sources for their justification. Individualistic notions of homelessness based on the social mean are justified by the lack of any other basis for the self outside of the social. Similarly, structural critiques that assume a Lockean self must ultimately locate structural maladies in variation from the structural social mean. Put differently, normal structures socialize normally and so individual suffering can only result either from individual or structural variation from the social mean.

6.4 What Art Affords Science

To recapitulate, both individualistic and structural orientations toward homeless research stem from the same assumption of identity, the socially dependent self, but differentiated in a

simple polar fashion through the rest of the fractal generator. Thus the individual and structural approaches are really two sides of instrumental rationality and so when one is used as a generator for continuing research into new topics and questions, it must necessarily produce responding research from the generator on the other side of the coin.

It is precisely at this point that we can appreciate Adorno's hope that the logic of music could save science and society. This new logic, put in fractal form, is represented in the true multi-dimensionality of Mahler's autonomous wayfarer. We say "true" multi-dimensionality to call attention to the four-fold differentiation of this column into qualitatively distinct dimensions of analysis. In the fourth column of Table 2 we find four dimensions characterizing the human experience that are genuinely differentiated while at the same time coordinated under a conception of self that has the contradictory sounding capacity for promoting both differentiation and coordination. The nature song (song two) is in a qualitatively different world from the social song (song one) and in these two songs themes of the individual, society, and nature all are allowed to develop freely according to their own internal demands. When for example the singer first turns to hear Nature's appeal, he allows it to sound its own notes uncolored by his social crisis. It is only in the third song that all of the voices collapse into the emotionality of the social crisis, but this is a quality that reveals something of the essential nature of the evaluative dimension. When strong emotion sounds in the individual, all else tends to be eclipsed. The difference is that in Mahler's autonomous wayfarer this condition is only temporary, felt deeply and earnestly, but then passed to the entity that stands resolute on its own foundation in the midst of all experience, the autonomous self. This self has an undeniable relationship to social life but is nevertheless ultimately self-determined rather than socially-determined. Thus the fourth level, the level of self, not only has a clearly identifiable quality of its own (especially seen in Mahler's

examples of 4th level music not only in the fourth song but also in the fourth stanza of the second song), but also carries the capacity to reinforce the qualitative distinctiveness of the other three dimensions without risking chaotic disorganization. The autonomous fourth level self-concept, therefore, is the ground that makes all differentiation possible.

This essentially artistic conception of the self can be found elsewhere in the arts and specifically in other artistic conceptions of homelessness, even in the contemporary period.[12] Take for example literary views of homelessness. Travelogues from modern-day wayfarers suggest an appealing life of freedom, creativity, self-reflection, and a conscious attempt to remove oneself from social structures deemed exploitative and unacceptable. Using only their first names, two such authors, Hibickina and Kika (2003: 9), write:

> This is what it means to be an adventurer in our day: to give up creature comforts of the mind, to realize possibilities of imagination. Because everything around us says no you cannot do this, you cannot live without that, nothing is useful unless it's in service to money, to gain, to stability.
> The adventurer gives in to tides of chaos, trusts the world to support her—and in doing so turns back on the fear and obedience she has been taught. She rejects the indoctrination of impossibility.
> My adventure is a struggle for freedom.

Captured here is the notion of not only adventure, but of a life of self-reflection and peaceful freedom.[13]

In another poetic example, the anonymous author of the book *Evasion* (2003) takes the reader through his life as a dumpster-diver, squatter, train-hopper, and shop-lifter with romantic attention paid to the creative demands and artistic qualities of living outside the system. On vacation in a neo-bohemian, art community (an irony the author notes), he writes:

> And when the artists doing Yoga in the park gasped as I stumbled from the bushes at 5a.m., wet and scary, they might not recognize it as art, but they should. I wanted a little credit. Rooftop sonnets and moldy bagel blues. A novel is born each night in an unlocked U-haul. Yes, I would show them art. (Anonymous

2003: 51)

While the homelessness of these anarchist authors is not causally similar to the population typically studied, we can draw insights from their experiences, which are applicable to the majority of homeless and elucidate the variety and complexity of their experiences rather than reducing them all to existences of uniform pain and suffering. For example, in research by [identifying reference], street homeless participants talked extensively about a "peace of mind" gained by living with minimized demands of social structure. The individualist will say this is nothing more than rationalization born of addiction while the structuralist will say that it is fatalism born of oppression. Either could be right in some cases, but to presuppose either as a simplified characterization of a homogenous experience blinds us to a third potential, that it is true. Both instrumental rationality approaches must explain away the claim of "peace of mind" because they presuppose no positive aspects to being homeless, something they cannot see with views of the human being as socially dependent. So, while most homelessness is not chosen but does indeed result from social structural inequality, this need not lead us to a structuralist position. To escape such a trap, we can turn to art, just as Adorno suggests. Art's more open logic can also be used in science thereby helping to liberate science from its debilitating instrumental rationality.

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[2] To be sure, there are a multitude of differences between the wayfarer circa Mahler, and contemporary homelessness and we later discuss them more extensively. But there also are similarities that are hidden by the instrumental rationality perspective in the social sciences, and it is these similarities that exemplify what art can afford social science.

[3] It is useful here to note that the means-ends logic of the economy, in so far as it is seen as a threat to art by Adorno, and the way in which it is employed here, need not supplant other forms of logic present in social discourse. That is to say that we need not assume the means-ends rationality of people per se (an assumption Weber soundly trounced in Marx) to note the influence of instrumental rationality on art. Therefore, we do not wish to counter substantive rationality (Weber 1904[2000]), or more contemporary explanations of human thinking such as Bourdieu's (1990) concept of *habitus*, which suggests the incompleteness of instrumental rationality as an explanation of human behavior.

[4] See, for example, Perterson and Berger's 1975 analysis of record marketing; see also Tschmuck 2006 on the twentieth century transformations involving interactions of music and technology; see Goodman 1998 for a discussion the "collision of rock and commerce"

[5] In fact, Kant makes a division in human capacities between pure and aesthetic cognition.

[6] See Madden (1999) for an alternative approach to the use of fractals in music based on fractal mathematics.

[7] While it is beyond the scope of this paper to go into greater detail, we are actually two more iterations away from the final detail differences within the sentences. So, for example, the first sentence of the first song is broken into three phrases that result from the interpolation of the generator (1-darling, 2-has wedding, 3-singer grieves), and those phrases are each, finally iterated into *content-pairs* (1-darling/wedding, 2-has joyous/wedding, 3 singer/grief). These final pairings cannot be iterated further. Thus the last iteration of the lyric-concepts into lyric-contents gives us the actual wording of the lyrics when the content of the songs are added to the fully elaborated generator. Now the original concept of the song, seen in the first iteration (column 1), has been fleshed out to the level of "experience," which we can now define as the last iteration of form where content is added to form.

[8] The capital letters refer to songs and the small letters refer to stanzas within the songs.

[9] We note here that the analysis of rests cannot be severed from the context of the rest of the work and more generally quantitative observations should never be allowed to overwhelm basic music commonsense. The mere existence of a greater number of rests does not guarantee anything since rests can vary greatly in their duration, but given their context, the way rests are used here seems indicative of the concepts described. Still, healthy commonsense and holistic attention to context should guide all such analyses.

[10] The first three dimensions characterize the space orientation of level 1 of the MIC generator, the 4th dimension the time orientation of level 2, the 5th for level 3, and the 6th dimension for a fully developed level 4.

[11][11] While exactly what is meant by "structure" is often ambiguous, we use the term broadly here to incorporate both "semiotic and materialist visions" (Sewell 1992: 3). We elsewhere have argued that the social sciences, even in their micro-level orientations are very structural, guided

an ontological vision of the human self as predicated on social structures via socialization (Author's citation).

[12] In fact, there is an enormous romantic literature that sanctions values related to "living outside the system." To list just a few: a classic example can be found in Whitman, a pre-war example in the music of Woody Guthrie, postwar example in Keruoac, and contemporary examples include *Hopping Freight Trains in America* by Duffy Littlejohn (1993), *Evasion* by Anonymous (2003), and *Off the Map* by "Hibickina" and "Kika" (2005).

[13] Given the controversial and politicized nature of homelessness and homeless research, we find it impossible to stress enough that finding our way conceptually to a positive version of homelessness, or at least positive aspects of it, does not in anyway justify its existence as forced condition of economic deprivation. These divergent conceptions of homelessness turn on the notion of freedom. When chosen or *utilized* as a means of liberation, homelessness can be positive. When forced upon someone in direct opposition to human agency and freedom, it is indeed an unacceptable form of oppression. The complex reality is a blending of both of these.