

# Anatomy of a Musical Being

## *A Music Systems Theory of Music Therapy*

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**Abstract:** The goal of this essay is to work towards an answer to the question, ‘Why is music effective as therapy?’ The general features of the music state, as experienced in therapy, are outlined. Through a step by step process the author integrates features common to all natural systems in coming to a music-centered answer to the question of effectiveness by outlining a new contribution to music therapy discourse, the Music Systems Theory.

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### *A Music Systems Theory of Music Therapy*

#### **1 Introduction**

##### **1.1 The Question**

*Music.* The word conjures, it evokes, it rings, it baffles. We know what it is, and yet we don't. For some it is nothing but a background rumbling and for others, at the opposite end of the continuum, it is a deep mystery to be explored.

As a music therapist, I strive to understand music with clarity and depth. Otherwise how can I know what I am doing when engaged with the other, and still be true to myself as a musician and therapist?

For some time in the modern history of the profession of Music Therapy, the goal has been to answer the pragmatic question, 'Is music effective as therapy?' This advocacy has been necessary to establish the profession of music therapy in the modern health care world. Everyday in her work, the music therapist answers this question – in her treatment planning, in her achievement of therapeutic outcomes, in her extended body of published research.

Also, we see the profession growing internationally; it would not be so if music were not effective therapeutically.

We come to the more difficult question. We ask, '*Why* is music effective as therapy?' We move beyond recognizing the phenomenon of music as effective, to attempt an understanding of *why* this is so. My purpose in this essay is to respond to this question of effectiveness in an authentic and comprehensive manner, one that will contribute to the ongoing dialogue in the community of engagement that is music therapy.

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With this purpose in mind, it is helpful to mention that Aigen (2005, pp. 23 - 28) differentiates between three approaches to theorizing about music therapy: (1) *recontextualized theory* explains with concepts from other disciplines, (2) *bridging theory* uses terms from other disciplines in combination with those specific to music therapy, and (3) *indigenous theory* is original and specific to music therapy. For Aigen and others, a theory specific to music therapy would be ‘music-centered’. Examples of those working to develop understanding concerning the therapeutic effectiveness of music, whose work informs me: Aigen (2005), Aldridge (1996), Bonny (2002), Bruscia (1987, 1998a), Eagle (1996), Kenny (2006), Nordoff and Robbins (2007), Pavlicevic (1997), Priestley (1994), Rider (1997), Ruud (1998), Smeijsters (2005), Stige (2002).

I believe that if one imposes a theoretical construct from another field of study onto music therapy, whether it be behaviourism or psychoanalysis for example (See Ruud, 1978), then one is essentially working from the ‘outside in’. I agree with Herbert Read that, “If you are translating form in one material into form in another material, you must create that form from the inside outwards” (Read 1931, p. 255). We are, after all, using words to describe another medium, music. The words we use need to resonate with the authentic experience of music therapy.

### 1.2 Definition of Music

To help determine the scope for the following inquiry I present this working definition:

**Music is sound as time-ordered, trans-verbal play.**

*Sound* is what is heard. *Time* is the “indefinite continued progress of existence and events in the past, present, and future regarded as a whole” (Oxford). *Ordered* is methodical arrangement. *Trans* is the going beyond, the travelling to the other side of *verbal*, the language of words.

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*Play* is free action, considered as active spontaneity, rather than reactivity (Winnicott 2005).

This definition of music is meant to allow a broad conception of music, one which includes manifest sounds from three identifiable musical realms: the music of culture (made by humans), the music of nature (emanating from the natural world), and the music of self (the music of the individual). For example, one may consider the different rhythmic characteristics of each: (1) the rhythm of nature is *flow*, continuous yet random, (2) the rhythm of culture is *groove*, a periodicity that is measured and coordinated among the players, and (3) the rhythm of self is literally *pulse*, personal and purposefully moving to maintain the steady state in both psyche and soma. These rhythmic attributes of music are all *time-ordered*, but in different ways, and so are included in this definition of music: *sound as time-ordered trans-verbal play*.

### 1.3 Music States

My path of inquiry is to follow the “impulse to reduce to clarity and thereby get a systematic and comprehensive hold” (Honderich 2001, p. 16) on the nature of music, specifically as it affects the human reality. My underlying conviction is that the more we understand music, the more clearly we fathom what it is to be human, and vice versa. This conviction is based on a broader premise that, “Like conditions give rise to like results throughout the cosmos: this is the basic credo of our natural sciences” (Laszlo 1996, p. 59).

This path involves the process of *correlation* (Tillich, 1967, I, pp. 59 – 61). What I am *putting together in relation* is music and humankind. I am not interpreting them as polar opposites, but rather as generating a mutual interdependence, both essentially (in possibility) and existentially (in actuality). For example, if *human* is the question, then how is *music* the answer? Conversely, if *music* is the question, then how is *human* the answer?

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Perhaps more clearly, I am moved by another person making music and I want to know, *What happens to her, to me when music happens?*

This question about what is happening is one about correlating *music* and *human*. To do this I bring forward the concept of ‘music state’. By this notion I mean the way music basically *is* in the human organism at a given time; it refers to the fundamental properties of this condition (Audi 1999, p. 876). Music state represents a clear and simple concept for linking music and humankind.

I begin by creating a profile, making a list of the most significant attributes of music states in the context of music therapy. Generally, a theory of music therapy “which makes sense of these features is to be preferred to a theory which does not” (Ravenscroft, p. 2). (Elements of the following discourse borrow structure from Ian Ravenscroft’s excellent Introduction in *Philosophy of Mind*, 2005).

The present question is *What happens when music happens?* and the answer I propose is contained in this list of nine fundamental properties of music states one experiences through music: (1) responsive, (2) expressive, (3) changing, (4) neurological, (5) emotional, (6) cognitive, (7) ecological, (8) relational and (9) transpersonal. (Note: In the following narrative approach Jones and Smith may represent someone engaged in music therapy, either as therapist or client; *or* Jones and Smith may also represent people more generally engaged in music, outside of music therapy. Both interpretations are possible.)

### 1. Responsive

*Some music states are caused by states of the cultural environment.* For example, Jones responds to a rhythm he hears by tapping his foot. This means that the music state is open to influence from the outside. Whether he realizes it or not, Jones is receptive to the musical

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stimuli coming from the music and sounds of the cultural environment - the voices, instruments and technology, alone or in combination. His organism is open to rhythm, melody, harmony, timbre, dynamic, and musical form. Music states are responsive.

### 2. Expressive

*Some music states cause action.* Jones sings; he plays a drum. He is able to send vibration out into the environment. He expresses himself. He redirects the energy from within outward. Why he does this is not clear at the moment. He just does it. Music states are expressive.

### 3. Changing

*Some music states are correlated to personal growth.* Jones is as he is in this music state. He was different before. He will be different in the future. So, where is the real Jones? What is his identity? Is it in his body, his memory? Is he motivated to change, or is he being motivated to change? Does this change follow a natural developmental course? How is music related to this change? Jones head is spinning with the questions. He knows, we know that music is affecting him. Every tenet of music therapy states that we are to bring about a *positive change* in Jones. Does this mean supporting him as he is, or redirecting him? Who gives us permission to do this? Music states are about selves in change (Pivcevic 1990).

### 4. Neurological

*Some kinds of music states are systematically correlated with certain kinds of brain states.* Recent advances in neuroscience show that music is a global phenomenon in the brain (Hodges 1996; Taylor 1997; Rider 1997; Levitin 2006; Schneck and Berger 2006; Sachs 2007; Patel 2008). We know that various areas of Jones' brain are stimulated by sound, music, movement, memory, emotion. There is nothing going on with Jones that is not firing somewhere in his brain. But there remains what has been called the *explanatory gap* between brain states and

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phenomenal experiences, between the objective and the subjective. This is another way up saying that the mind/body split is still not resolved. In other words, “It’s one thing to give neurological explanations of the various relationships between our (music) experiences; it’s quite another to explain the (music) experiences *themselves*” (Ravenscroft 2005, p. 185).

### 5. Emotional

*Some music states have qualitative depth.* Jones feels the music. He is enraptured with the sound. His phenomenal consciousness (Block 1997) feels now joy, now pain, now boredom, something. For a time he lost his hearing, and the quality of his music state was different, muted. His music state is steeped in emotion.

### 6. Cognitive

*Some music states are about things in the world.* Jones recalls the meaningful moments he has had with music. The music represents something to him: memory, context, image, metaphor, a symbol of longing. It stimulates his access consciousness (Block 1997). Theories of musical meaning range from referential (music refers to something non-musical) to absolutist (music has no meaning but the music itself). Jones is somewhere in the middle, an expressionist; he believes that music as being like life, that “the elements of music are related to and share important qualities with basic human experience” (Wigram 2002, pp. 36-37). In this moment he experiences release of tension, conscious of his own awareness that he is experiencing the relaxation response. Jones’ music state is a thinking state, a web of cognition. (See Lauzon 2006a).

### 7. Ecological

*Some music states are caused by states of the natural world.* For example, Jones is influenced by the music of nature, the wind and waves, the deeper cosmological patterns. Once he becomes

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attuned, this music is capable of grounding Jones in the extended manifest world around him.

“Eco” is the home base, that which we need to survive. Jones considers that he must renew and maintain his connection to the natural world. He finds this connection very much alive in traditional world musics. His organism is open to the rhythm, melody, harmony, timbre, dynamic, and musical forms embedded in the natural world. Music states are ecological.

### 8. Relational

*Some music states cause music states in the other.* Jones sings and Smith responds. He is surprised that she responds like this, but she does. In this moment, they share energy, a trans-verbal understanding. This connection may lead to other connections. He has precipitated a condition where relationship may develop. Smith and Jones, Jones and Smith, together in time, each in their own musical state, yet sharing something. Music states are relational.

### 9. Transpersonal

*Some music states expand the self into other realities.* Jones asks himself the bigger questions: Why am I here? Why do bad things happen to good people? Do we live on after we die? Is there a God? What is a good life? Every time he sings the sacred music of Bach, the hymns, the chants, he feels a part of a much larger world – a world of worship and prayer and vocation and good deeds, enchantment, purpose. He finds connectivity all around him. He intimates that somehow it is beyond him, beyond anyone. Music is transpersonal.

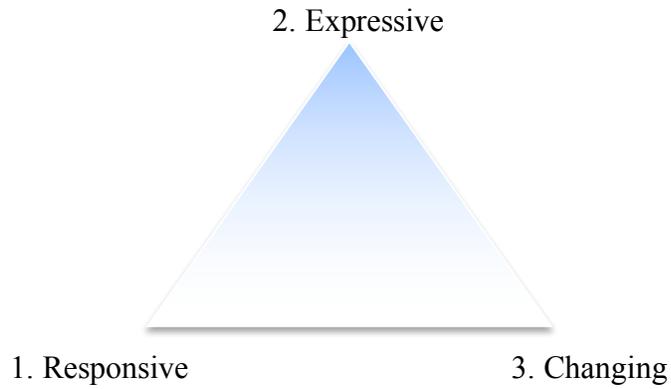
## 1.4 Grouping the Music States

We now organize these nine fundamental properties of music states according to how they relate to the individual human being, who for our purposes we call the ‘Self’. The three dimensions relate to how the self acts in the world, how the self is structured and how the self connects to the other.

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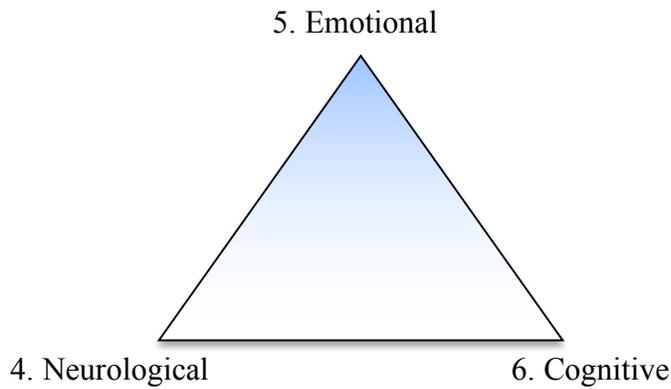
The first three aspects (responsive, expressive, changing) we group as

### A. THE JOURNEY OF THE SELF



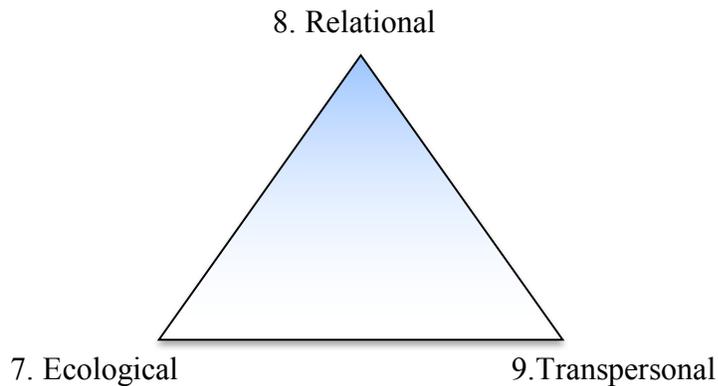
The next three (neurological, emotional, cognitive) are based on form and structure as

### A. THE LEVELS OF THE SELF



Finally, the last three are based on how music is the sea for the island of self to reach out as

### A. THE SELF AND THE OTHER



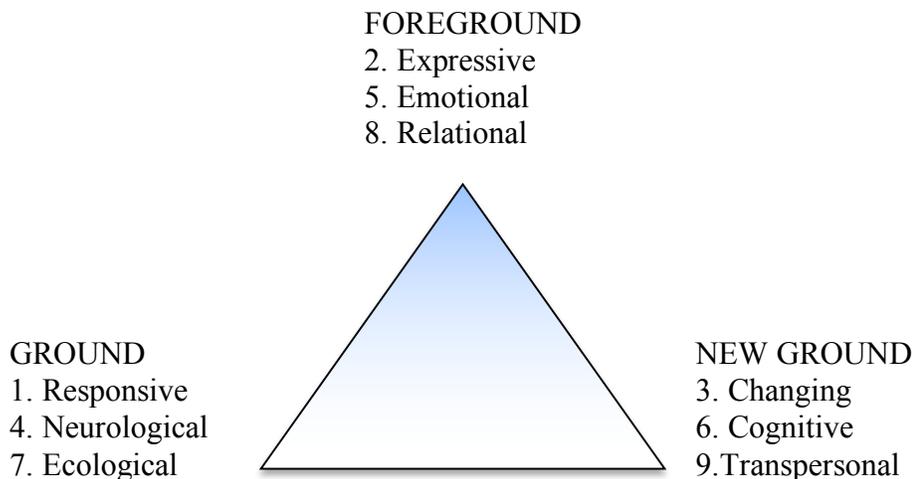
## 1.5 Grounding the Music States

I also suggest another layer of understanding within each of the triads. The left side of each triangle may be considered the *ground*, by which I mean the basic background morphology of the dimension. In 1. *responsive* we have the ground for human dynamic movement; in 4. *neurological* we witness the basic connector for the biological pattern; in 7. *ecological* we have the natural world around us, our literal *ground*.

The top of each triangle we designate the *foreground*, the place of our most visible engagement in the now. In 2. *expressive* we see the external self coming out of the inner self, communicating to the world; in 5. *emotional* the self discloses the many variations within the world of feeling; in 8. *relational* the self connects with the other.

Finally, the right side of the triangle is the *new ground*, that which emerges on a new level of experience for the self. In 3. *changing* the self is learning through the experience of living; in 6. *cognitive*, the self uses the rational mind to integrate the body and feeling, as well as to understand the past, to be alert in the present and to plan for the future; in 9. *transpersonal* we witness the self moving into an awareness of the vastness of being.

One way of further understanding these connections is to use the dialectic approach of thesis (ground), antithesis (foreground) and thesis (new ground).



## 2 *Music Systems Theory*

### 2.1 **Rationale**

*A tourist in Paris comes upon three workers and asks what they are building. The first replies that he is laying bricks. The second says he is constructing a wall. The third, with a flourish, explains that he is building a cathedral!*

This story speaks to the historical (and often interpersonal) tension between analysis and synthesis. Every discipline needs a constant source of new empirical data. This information must then be categorized and analyzed. Ideally, we take the next step, a turn to synthesis: not simply as speculation, but as a conjoining of various sets of seemingly unconnected information into a constructive understanding of the thing. The specialist becomes the generalist who is able to see the big picture; you examine the tree whilst remembering it is part of the forest.

One approach that is biased towards synthesis is *General System Theory*. GST is a trans-disciplinary study of the common organizational invariances of different phenomena. In other words, in this approach one tries to see the similarities in various things and to describe the underlying systems that make them work together into a larger whole. Systems theorists see common principles in the structure and operation of systems of all kinds and sizes. This approach was pioneered by biologist/philosopher Ludwig von Bertalanffy (1901 – 1972). His goal was to present an approach that could be adapted for universal application with a common language and area of concepts. Since the early 1950's, GST has been applied to many disciplines in both the sciences and humanities including, but not exclusively, biology, psychology, economics, ecology, agriculture, social sciences, and philosophy (Davidson 1983, Skyttner 2001). I have appreciated Carolyn Kenny's use of *field theory*, a category of systems theory, in her groundbreaking theoretical work in music therapy. I have been particularly drawn to the work of GST

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theorists Ludwig von Bertalanffy (1968) and Ervin Laszlo (1972 and 1996) and will use this approach to help answer our question about the effectiveness of music as therapy.

### 2.2 The Musical Being

We saw how Jones had different kinds of experiences while in his ‘music state’. Let’s give Jones an integrated identity as a living breathing ‘musical being’. This kind of language has been in use for decades in music therapy. In a passage which describes the responses of the special child to improvisational, interactive music therapy, Nordoff and Robbins describe,

The *music child* is therefore the individualized musicality inborn in every child: the term has reference to the universality of human musical sensitivity – the heritage of complex and subtle sensitivity to the ordering and relationship of tonal and rhythmic movement – and to the uniquely personal significance of each child’s musical responsiveness.

(Nordoff and Robbins 1977, p.3)

This concept is at the core of Nordoff/Robbins, a model of music therapy that has ongoing impact in the community of care. To imagine a *music child* inside a disabled and disadvantaged child allows the music therapist to listen, to appreciate, to engage.

Suppose the music child were to grow into the music adult? I take liberty to call this changing musical person the *musical being*. As the title to this essay intimates, we move forward to outline the anatomy of the musical being. I approach this as an enquiry of *we are* as opposed to a view of *I think*.

*I concern myself with being only in so far as I have more or less distinct consciousness of the underlying unity which ties me to other beings of whose reality I already have a preliminary notion.* (Marcel 1951, p.17)

### 2.3 Natural Systems

Jones in his combined music states has become a musical being. I have shown how this resonates with the concept of the music child. I come to the logical next step. Taking cue from systems theory, I now describe the *musical being* as having *music systems*. In the language of GST, a *system* is any entity maintained by the mutual interaction of its parts. Think now of how the early medical doctors finally began to understand the human organism when they determined that she had physiological systems, the circulatory, respiratory, digestive, and such. They were able to describe the *substance* (morphology) of each system and its various parts, as well as the *functions* (physiology) of that system as a whole. For von Bertalanffy, *isomorphisms* are “structural likenesses that reflect a commonality in the way the parts of a system relate to each other” (Davidson 1983, p. 173). His notion of *dynamic morphology* is that substance and function should be treated as different approaches to the same phenomenon. This is a search for *correlation* of form and function in the human and musical domains.

I am not saying that musical systems are the same as physiological systems. They are different. In fact, as we shall see, they reorganize human anatomy and physiology in attunement to music. What they do share are common organizational features of all open working systems. For von Bertalanffy (1968) a system is either isolated from its environment (*closed system*), or continuously exchanging matter/energy with its environment (*open system*). As an open system, a *natural system* is one that “does not owe its existence to conscious human planning and execution” (Laszlo 1996, p.23). GST has identified these four organizational features common to natural systems: (1) ordered wholeness, (2) maintenance of steady-state, (3) self-reorganization in the face of challenge, and (4) hierarchical fit in a multi-holon reality. (*Italic statements from Laszlo 1996*).

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1. *Natural systems are wholes with irreducible properties.* A whole possesses characteristics which are not possessed by its parts singly. A natural system has the quality of ordered wholeness.

2. *Natural Systems maintain themselves in a changing environment.* They are open systems in a steady-state. That means that they are self-monitoring and repairing themselves. Constancy is maintained by a continuous flow of input and output. The precise regulative mechanisms of warm-blooded creatures that we call ‘homeostasis’ are one example of steady-state.

3. *Natural Systems create themselves in response to the challenge of the environment.*

When subjected to constant external forces, systems can *reorganize* their own constraints and acquire new dimensions in a process of *adaptive self-organization*. “The progressive transformation of organic species pushes the front of evolution forward” (Laszlo 1996, p. 60).

4. *Natural Systems are coordinating interfaces in nature’s hierarchy.* In the natural world, organisms that last do so because they are hierarchically organized. In the course of evolution, hierarchies are more efficient than non-hierarchies. A natural system is part of a ‘multi-holon’ structure. *Holon* is Arthur Koestler’s term for wholes that are also part of other wholes; it functions as a whole on one level, and as a part on the higher level. Below it are its parts, called the ‘subsystem’, and above it is the ‘suprasystem’, of which it is a part. “An organism displays not only a morphological *hierarchy of parts* but also a physiological *hierarchy of processes*” (Von Bertalanffy 1952, p.42).

## 2.4 Music Systems

Apart from biological needs humans share with animals, we live in a world not of things but of symbols (Langer 1957). One major realm of human symbol making is *discursive*, as in

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the communication of information and meaning in language. Music can be understood as more of a non –discursive *experiential* symbol making system. There is a deep intuition at work here. How is it possible that I make music unless I am somehow made as music is made?

Further, what is music to us? How do we understand it? Let's go back to our definition: *sound as time-ordered trans-verbal play*. Each of the elements of this definition of music brings forward a part that is essential to the whole. In the long history of musicology we see these same dimensions of music being brought forward for analysis and understanding: rhythm (time-ordered), melody (trans-verbal), and harmony/form (play). Granted, the notion of harmony as understood in the West is not always practiced in the same way in the music of other World Music cultures. In these musical worlds, the simultaneity of tones is expressed rather in both polyrhythmic and polytonal group performance, a kind of horizontal rather than vertical harmony.

In concert with the above definition of music, I choose to frame the discourse concerning music systems with these three aspects of music: rhythm, melody, and harmony/form. I move the discourse forward by asserting that the *musical being* has three *music systems* called, (1) *rhythmos*, (2) *tonos*, and (3) *harmonia*. I deliberately give each a name. I identify them as existing within the human organism. This systems model is presented equally as structural and functional, a *dynamic morphology*. I aim to present an organic conception, looking to the biological and musical properties and to the uses they have in humans.

### 2.4.1 Rhythmos

*Rhythmos* is the system which makes the individual a rhythmic being, manifest in the basic periodicities and cycles of a human life. Jones would take solace in this description of his formative days:

Accompanied by the powerful drumbeat of the mother's heart, the being is shaken to the core by these pulsations, which promise purpose, wholeness, synchrony. Secure in this rhythm, the being's own heart takes form and begins an answering pulse. As soon after birth as possible, the mother takes the baby in her arms and puts its head against her heart. The rhythm is still there, a reliable beat against which to measure the flow of growth and change. (Leonard 1978, p. xi)

If we are to speak of *rhythmos* as a human music system, we would be well served to examine it according to the four organizational features common to all natural systems

1. *Ordered wholeness is essential to rhythmos.* The essence of wellness in humans is an agreement of the moving parts so that the organism may work as a whole. In studying human disease physiology, we identify

such elements as rhythms of pain sensitivity, activity rhythms, cosmic rhythms, endogenous rhythms, muscular rhythms, pain-wave rhythms, rhythms of blood circulation and respiration, rhythms in sleep, breath, heart, and others.

(Scheck and Berger 2006, p. 142)

This brief list points to the rhythmic nature of all physiological systems and the necessity of coordination of these rhythms. There are cognitive rhythms and emotional rhythms. The emerging science of chronobiology tells of infradian, circadian, and ultradian rhythms. Neuroscience dwells in part on the frequency of our beta, alpha, delta, and theta brain wave

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states. Donald Hodges points out that, “Brain waves, hormonal outputs, and sleeping patterns are examples of the more than 100 complex oscillations monitored by the brain” (Hodges 1996, p.43). It is clear that there are multiple manifestations of rhythm in the human organism. This broad subject is the work of many researchers, and awaits a thorough meta-analysis within the musical systems theory. Suffice to say, *rhythmos* manifests as an ordered wholeness of great complexity and reach.

2. *Rhythmos is an open system in steady-state.* Our rhythmic system is constantly adjusting itself to maintain a biomusical homeostasis. It is an open system, subject to rhythmic influence from the environment. As an example, witness the use of sedative and stimulative music to both slow down and to speed up the organism.

3. *Rhythmos has the capacity for creative self-reorganization in the face of challenge.*

Rhythm is something we get better at the more we do it. Michael Thaut points out that, “auditory rhythm improves the temporal, spatial, and force aspects of the total movement pattern in therapy and not just the timing of movement endings in coincidence with a beat” (1999, p. 238). *Rhythmos* provides a flexible system of many levels, generating new patterns for the arrhythmia of our lives.

4. *Rhythmos is a coordinating interface in a hierarchical structure.* All rhythms are forms of periodicity. The rhythmic subsystem is *vibration*, that level where sounds manifest and take shape. Vibrational units join together to become the holon *rhythm*, a regularly recurring motion which proceeds in time-ordered, alternating sequence. One important element of the periodicity called rhythm is *pulse*, the ongoing, steady, underlying beat. Another aspect of rhythm is *pace*, the duration of the space between pulses. Lastly, various holon-rhythms join together in the suprasystem *cycles*, the level where larger *patterns* emerge, patterns connected to many more

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natural systems. The cycles of musical rhythm interface with biological rhythms to make *rhythmos*.

*Periodicity*, the tendency of an event to recur in cyclic intervals, is one of the basic foundations upon which physiological function is sustained, and is an inherent characteristic in music. (Scheck and Berger 2006, p. 138)

The process manifest in human *rhythmos* is similar to that of our physiological systems, in that this process is sustained by its underlying forms, for example, as the pre-established structure of the heart supports its function of rhythmical contraction. Von Bertalanffy describes this conjoining of form and function:

What are called structures are slow processes of long duration, functions are quick processes of short duration. If we say that a function such as the contraction of a muscle is performed by a structure, it means that a quick and short process wave is superimposed on a long-lasting and slowly running wave. (Von Bertalanffy 1952, p.42)

### 2.4.2 Tonos

*Tonos* is that music system which organizes humans as sound generating beings, particularly through the voice. Tone is a building block of melody, and being less dependent on cultural meaning than *melody*, the word *tonos* will allow for extended application in describing this music system. When Jones feels, he vocalizes. The range of sounds he makes presents a wide range of emotion. Here is a description of *tonos* when considering the four organizational features common to all natural systems.

1. *Tonos is a system with ordered wholeness.* Anatomically, the tonal system includes all of the sound generating, sound receptive, and sound processing aspects including: the lungs, vocal

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folds, resonators, and articulators, the outer, middle and inner ear, as well as the complex neurological connections inclusive of the auditory cortex in the brain. These physiological features work together so that Jones can vocalize. Not only does he sing, but he tunes his voice, he modulates his expression.

2. *Tonos maintains itself in a changing environment.* Notice how the breath literally supports the voice in keeping a steady state. Burrows observes that,

a number of different human sounds, the voice among them, result from the stratagem of tapping into the primary activity of breathing. Sneezing, snoring, snorting interrupt the flow of air at the nose instead of the larynx; wheezing and gasping are protovocalizations, gasping exceptionally taking place on the intake.

(Burrows 1990, p. 29)

The tonal system integrates human melody as a symbolic expression of basic emotion.

Along with laughter and sobbing, the limited repertoire of human calls include: groaning in disapproval; sighing as an expression of sadness and weariness, fatigue, or relief; and crying with pain, fear, and/or remorse. These six human calls and their variants are exclusively available to all human animals. Diagnoses and dysfunctions of any kind seem not to impede employment of these basic symbolic calls, except in cases of severe damage to the amygdala . . . (Schneck and Berger 2006, p. 161)

We use vocalizations to make things right with the world, both within and without.

3. *Tonos creates itself in a changing environment.* It is clear that various aspects of *tonos* can change profoundly. One changing aspect, the breath is understood as key in all schools of mind/body wellness. Another set point for *tonos* is the individual's 'natural pitch'. This is one's characteristic drone note when speaking in a relaxed manner. As we change over time, so does

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our natural pitch adjusting to the emergent persona. Also, we expand our repertoire of the above mentioned six basic human calls. The outer voice reflects the inner being, telling the ultra-verbal story of our lives (Austin 2008).

4. *Tonos is a coordinating interface in a hierarchical reality.* The tonal system is based on vibrational frequency that we interpret as pitch. Each fundamental ‘ahh’ that Jones expresses contains its own vibratory rainbow of ‘ahh’s’. This world of harmonics is an organizational *invariant*, one of the most dramatically beautiful in all of nature – each fundamental frequency cloning itself into higher and higher realms. This subsystem of harmonics, makes the holon tone which in turn combines to make larger structures, a suprasystem of musical language. When listening to Jones, we hear the real connection between his music and his language, one involving emotive meaning and one referential meaning. The connection of music and verbal language is not merely a metaphor, but they share underlying biological similarities (Patel 2008).

### 2.4.3 Harmonia

For the ancient Greek, the word *harmonia* meant “the joining or fitting of things together, even the material peg with which they were joined (Homer, Od. V. 248), then especially the stringing of an instrument with strings of different tautness, and so a musical scale”

(Guthrie 1962, p. 220). Roget gives these additional meanings for the verb *to harmonize*,

Be harmonious, be in tune or concert, chord, accord, symphonize, synchronize, chime, blend, tune, attune, atone, sound together, sound in tune; assonate; melodize, musicalize (Roget, 1977)

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From this brief listing we see that harmony brings together all other aspects of music, particularly rhythm and melody. As we will see, the music system called *harmonia* easily takes on the four attributes common to all natural systems.

1. *Harmonia is a whole with irreducible properties.* By definition, harmony is ordered wholeness. This fitting together of parts so as to form a connected whole is strikingly similar to the concept *health*, which we describe as ‘a quality of wholeness associated with well-being’. Musical harmony can be experienced as a vertical stacking of tones in one simultaneous moment, or as a horizontal counterpoint of interwoven melodic motifs. This unifying force has resonance in the human organism.
2. *Harmonia maintains in a changing environment.* This is an open system, constantly moving to maintain a steady-state. Consider the concept *consonance*, literally a ‘sounding together’, and *dissonance*, a ‘sounding apart’. By driving the sounds apart, dissonance initiates and maintains movement. Consonance brings the sounds together by reconciling them into a structure of wholeness. For Levarie and Levy (1983, p. 121), “The unison is actually the only consonance, compared to which all other musical experiences are dissonances of varying strength.” The biological mechanisms of *homeostasis*, and the more recent theory of *homeodynamism* (Rider 1997), show the play of *harmonia* in a human life.
3. *Harmonia creates in response to the challenge of the environment.* Natural systems tend to go to ordered steady states, but most states are relatively unstable. In the play of harmony we select a few tones from the many, progressively developing new steady states which are more resistant to the dissonance than the former ones. “Our proposal regarding the relationship between music and its benefit for clinical practice rests on the proposition that our human identity is like the identity of a piece of music continually being composed in the the moment”

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(Aldridge and Aldridge 1999, p. 85). We compose a life. We perform health. We bring together the disparate elements into an ordered whole that is new. “Self-organization radically modifies the existing structure of a system and puts into question its continuing self-identity” (Laszlo 1996, p.47). *Harmonia* is a dynamic system, helping us to deal with the inner constraints we have to forceful challenges by creating an adaptive pathway to a new identity.

4. *Harmonia is a coordinating interface in nature’s hierarchy.* At the ‘eureka’ moment of scientific discovery, in the peak moment of artistic expression, there is a sense of oneness that many call harmony. In this music system we alternate between microcosm to macrocosm. The subsystem is atomic, vibrational, the harmonic series. In the next holonic level we make harmony in music. Interestingly, the historical development of harmony in Western music coincides with the developmental structure of the harmonic series itself: unison, parallel fifths and fourths, triads, the chordal seventh, and on it goes. *Harmonia* is such that one suprasystem follows another:

We are natural systems first, living things second, human beings third, members of a society and culture fourth, and particular individuals fifth – we can make our own classification along such lines. In any case, we know ourselves if we know how basic characteristics of organized nature are specified to issue in that *sui generis* individual which each one of us turns out to be on close acquaintance. (Laszlo 1996, p.21)

### 3 *Answering the Question*

#### 3.1 **Music States and Music Systems**

Our next, and not insignificant, task is to determine if *music systems theory* provides an answer to the question, ‘*Why* is music effective as therapy?’ To accomplish this, I return to our original list of the most significant features of music states in the context of music therapy. Briefly put, we have characterized these as, (1) responsive, (2) expressive, (3) changing, (4) neurological, (5) emotional, (6) cognitive, (7) ecological, (8) relational, and (9) transpersonal. I have suggested that a theory of music therapy which makes sense of these features is to be preferred to a theory which does not. *Music systems theory* has been developed with this challenge in mind. I will examine each feature of music states in light of the three music systems. This process will allow for further clarification of the systems in terms of structure and function, as a dynamic morphology. What follows is a description of the properties of music states in music therapy in the *language* of music systems.

1. *Some music states are caused by states of the world.* Jones responds to a rhythm by tapping his foot because his *rhythmos* is actively entraining with the outside environment. Musical systems are open to input from the environment. This input includes all aspects of *rhythmos* (pulse, pace, pattern, etc.), *tonos* (pitch, prosody, phrase, timbre, etc.), and *harmonia* (consonance, dissonance, dynamic, form, etc.).
2. *Some music states cause action.* In terms of active engagement in action *rhythmos* is the key music system. That being said, it is clear that both *rhythmos* and *tonos* have an actively expressive dimension. We can think of the two combined as a ‘tonorhymic’ system. Jones sings; he plays a drum. He is able to send vibration out into the environment. He expresses himself.

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He redirects the energy from within outward. The balance of response (#1) and expression (#2) is coordinated by *harmonia*. We recall that all music systems are open systems moving to a steady state.

3. *Some music states are correlated to personal growth.* Music systems are flexible, able to facilitate change of all kinds. Musical milestones of development can be carried on throughout a person's life. *Harmonia* provides a constant for Jones sense of his own identity. Music systems provide a structure where he can find motivation to change from within. At times, this change is sudden, unexpected. At other times it follows a natural developmental course. In an article on therapeutic improvisation, I have shown how change can be directed within a musical model of interaction (Lauzon 2006b). In another essay, I have examined the notion of *change* in music therapy in relation to the mimetic, interpersonal, and music-centered theory groups, and have shown how change is possible in a music systems model (Lauzon 2006a). Whether the music therapist is working with the notion of *change* from a supportive or a re-directive stance in the therapeutic moment, it is my view that music systems can provide a cogent, true-to-the-work approach for clinical practice in music therapy.

4. *Some kinds of music states are systematically correlated with certain kinds of brain states.* There is no question of this; we have defined the music systems as being embedded in the human organism as a whole, including the brain. We have already mentioned that recent advances in neuroscience show that music is a global phenomenon in Jones' brain. Music systems provide one answer to the *explanatory gap* between brain states and phenomenal experiences, between the neural and mental awareness. Music systems have the capacity for both *curing* (an outer phenomenal procedure), and *healing* (the individual's inner force for

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wellness), because as natural systems they are open to input from outside, whilst embedded and working within the person.

5. *Some music states have quality.* As mentioned earlier, *tonos* integrates human melody as a symbolic expression of basic emotion. When Jones sings and plays, he feels the music. He is enraptured with the sound. He responds more easily to some music because it speaks to him. This is beyond *taste* in music, it is about a deep psycho-bio-musical connection. All music systems have quality, but *tonos* is the key to emotion.

6. *Some music states are about things in the world.* Stephen Brown contends that music and language have evolved from one original ‘musilanguage’ (2000). In a way, *tonos* is like that original form of expression, combining both the emotive qualities of music and the meaningful capacities of language. Psychologically, music is a real experience in the now. For Jones, music is meaningful, it represents something to him, stimulates his access consciousness. In the *Frames of Mind* (1993, p. 126) Gardner considers that we have a *musical intelligence*:

As an aesthetic form, music lends itself especially well to playful exploration with other modes of intelligence and symbolization . . . Yet, according to my own analysis, the core operations of music do not bear intimate connections to the core operations in other areas; and therefore, music deserves to be considered as an autonomous intellectual realm.

This is *harmonia* at work, stimulating access consciousness. Jones’ *harmonia* is an authentic experience in the moment, helping him to make sense of things. It is a force for balance in the dimensions of his life, coordinating his *I think* with *I feel* and *I do*, for example.

7. *Some music states are caused by states of the natural world.* Jones is influenced by the music of nature, the wind and waves, the deeper cosmological patterns. As mentioned earlier

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(page 4), our definition of music as “sound as time-ordered trans-verbal play” allows us to speak of three kinds of music – the music of nature, of culture, and of self. Each of these in turn can be described by their own unique adaptation of *rhythmos*, *tonos*, and *harmonia*. I have outlined these distinctions in the following table:

Music of ⇒	NATURE	CULTURE	SELF
RHYTHM <i>Rhythmos</i>	FLOW Random	GROOVE Structured	PULSE Personal
MELODY <i>Tonos</i>	SOUND Cosmos	SONG Group	VOICE Solo
HARMONY <i>Harmonia</i>	LISTENER Essence	ACTOR Presence	INSTRUMENT Resonance

Obviously, this diagram requires further description which I will provide in a longer work based on this essay.

8. *Some music states cause other music states.* Jones sings and Smith responds. He need not be surprised that she responds like this, his *tonos* is engaged with Smith’s *tonos*, as is his *rhythmos*. This time-ordered, trans-verbal understanding may lead to deeper communication. He has precipitated a condition where relationship may develop. One excellent description of music at work in a therapeutic relationship is Carolyn Kenny’s *The Field of Play* (Kenny,

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1989/2006). In her work she creates a model of (what I call) *harmonia* at work in client/therapist engagement.

9. *Some music states expand the self into other realities.* Jones realizes that although he is not exactly the centre of the universe, he can at times perceive the larger web which connects him to sacred, ineffable realities. The meditative, spiritual journeys of the world's great religions, the mystical approaches have a rhythm, a song, and a harmonious intent that goes to the core of living this passage here on earth. The lightning strike of insight, the thunder of realization engage the Smiths and Jones, lifting the quotidian life to greater meaning. These realizations have found expression in the history of ideas from Plato's eternal forms, through Renaissance notions of the 'great chain of being', to the modern quasi-mystical language of quantum physics, and most recently to the advanced approaches of systems thinking. We are all, each of us, part of a grander rhythm, adding our individual song to the endless chorus of creation.

In the foregoing I have tried to demonstrate how the *music systems theory* of music therapy makes sense of the phenomena of music states by providing a music-centered language to describe the core operations of a dynamic natural system.

## 4 *Further Considerations*

### 4.1 **Summary**

In this essay I have suggested that one very important theoretical question is 'Why is music effective as therapy?' In answering the preliminary question 'What happens when music happens?' I made a list of features common to *music states*. I said that a theory which makes sense of these features is to be preferred to a theory which does not. I insisted that Jones not

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only have music states, but that he become a *musical being*. I then determined that the musical being must have *music systems*. I articulated the four organizational features common to all *natural systems*. I described our three music systems, *rhythmos, tonos, harmonia* as natural systems with the four common features of natural systems, (1) ordered wholeness, (2) maintenance of steady-state, (3) self-reorganization in the face of challenge, and (4) hierarchical fit in a multi-holon reality. Lastly, I gave answer to our original question of effectiveness by making sense of the features of music states with *music systems theory*. This theory was able to provide explanatory language for all of these features, the (1) responsive, (2) expressive, (3) changing, (4) neurological, (5) emotional, (6) cognitive, (7) ecological, (8) relational, and (9) transpersonal.

### 4.2 Conclusions

There are several good reasons why the working music therapist should consider *music systems theory* as a sound framework for understanding and explaining her work.

1. This is a *music-centered* theory of music therapy. It is a *bridging theory* in that it uses terms from General System Theory in combination with those specific to music therapy. It is an *indigenous theory* in that it creates new theoretical concepts (*rhythmos, tonos, harmonia*) with the intent to explain the work from the inside outwards.
2. While building on previous knowledge of musical structure, this approach gives her a *new vocabulary* for her work, one that is specific to music therapy.
3. The theory takes a general, synthesizing approach, respectful of both science and art. This allows for integration of all emerging *research* in the field. It builds on the ongoing contributions of all those who study natural systems.

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4. The method used in this inquiry, of examining the features of *music states*, can be used as a common language to be shared with other theoretical approaches to music therapy. Also, the whole notion of *music systems* is intended to be generative of new realizations that often emerge through dialogue.

5. This theory has adaptability. A person entering into the study of music or music therapy may grasp the basic notion of music systems, while at the other end of the continuum, music systems can be examined in depth and specificity by researchers, scholars, and experienced practitioners from a variety of related disciplines.

It is clear to many in the field of music therapy that the new and emerging paradigm for music therapy theory is germinating in the notion ‘music-centered’. *Music Systems Theory* is offered as a step along that path.

In conclusion: ‘Why is music effective as therapy?’ I reply that we are made as music is made, with *music systems*. To be effective, the music therapist works with these music systems.

## GLOSSARY

**Closed system.** A system considered to be isolated from its environment.

**Correlation.** Mutual relationship of interdependence of two or more things.

**Dynamic Morphology.** The view that morphology (form) and physiology (function) should be treated as different approaches to the same phenomena.

**General Systems Theory (GST).** A holistic way of thinking based on an awareness of the behavior of systems in general. The proposed discipline that would seek and apply general systems laws.

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**Harmonia.** The music system which brings together all aspects of the musical being in ordered wholeness.

**Health.** A quality of wholeness associated with well-being

**Holons.** Systems in hierarchical order. Wholes that are also parts of other wholes.

**Homeostasis.** The living organism's process of self-regulation, as in the regulation of body temperature.

**Isomorphisms.** Structural likenesses that reflect a commonality in the way the parts of a system relate to each other.

**Morphology.** The study of living forms.

**Music.** Sound as time-ordered, trans-verbal play. (Lauzon)

**Musical Being.** The individualized musicality inborn in every person. (Adapted from Nordoff/Robbins).

**Music state.** The way music basically *is* in the human organism at a given time; it refers to the fundamental properties of this condition.

**Music system.** A musical dimension maintained by the interaction of its parts in the human organism.

**Natural system.** An open system that does not owe its existence to conscious human planning and execution.

**Open system.** A system that continuously exchanges matter/energy with its environment.

Includes all systems that are alive.

**Periodicity.** The tendency of an event to recur in cyclic intervals.

**Rhythmos.** The music system which makes the individual a rhythmic being, manifest in the basic periodicities and cycles of a human life.

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**Steady state.** A basic characteristic of open systems, in which constancy is maintained by a continuous flow of input and output.

**System.** Any entity maintained by the mutual interaction of its parts.

**Tonos.** The music system which organizes humans as sound generating beings, particularly through the voice.

(Aspects of this Glossary are adapted from Davidson 1983, pp. 223-228)

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*Why is Music effective as Therapy?*

Music States	Music Systems	Natural Systems
<i>(What happens when Music happens)</i>	<i>(The Musical Being has Music Systems)</i>	<i>(Four features of all Open Systems)</i>
<ol style="list-style-type: none"><li>1. Responsive</li><li>2. Expressive</li><li>3. Changing</li><li>4. Neurological</li><li>5. Emotional</li><li>6. Cognitive</li><li>7. Ecological</li><li>8. Relational</li><li>9. Transpersonal</li></ol>	<ul style="list-style-type: none"><li>• <i>Rhythmos</i></li><li>• <i>Tonos</i></li><li>• <i>Harmonia</i></li></ul>	<ol style="list-style-type: none"><li>1. <i>Ordered Wholeness</i></li><li>2. <i>Maintenance of Steady State</i></li><li>3. <i>Self-Reorganization</i></li><li>4. <i>Hierarchical Fit</i></li></ol>