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Meaning in dance and its music : a model based on metaphor

Candace Elaine Ammerman
San Jose State University

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Ammerman, Candace Elaine, M.A.

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MEANING IN DANCE AND ITS MUSIC:
A MODEL BASED ON METAPHOR

A Thesis
Presented to
The Faculty of the Department of Theatre Arts
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

By
Candace Elaine Ammerman
August, 1990

APPROVED FOR THE DEPARTMENT OF THEATRE ARTS

Dr. Karl Toepfer

Mina Garman

Janet Van Swoll

APPROVED FOR THE UNIVERSITY

ABSTRACT

MEANING IN DANCE AND ITS MUSIC:

A MODEL BASED ON METAPHOR

by Candace Elaine Ammerman

Meaning in dance must consider its accompaniment. The structure of metaphor supplies a model for the meaningful interaction of dance and music. One idea is experienced in terms of another; dance is experienced in terms of the music. The model uses three features of metaphor: asymmetry, that one term is the focus (dance) and the other its frame (music); the power of the frame to cause tension and to organize perception of the focus; and the intuitive reunification of the two.

The art form itself and the response of the viewer are explored in light of the model. Directly known and inferred properties of dance and music are shown to complement one another. Evidence from perceptual and cognitive psychology lends credence to the idea that hearing may guide seeing. With cross-perceptual processing, the cognition of dance and its music may be achieved in the same way as cognition of metaphor.

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INTRODUCTION

Dance is a multi-media art form, just as opera is, which is not a weakness but a partnership of strength. Yet there has been sparse curiosity about the nature of the bond between music and dance, and as Susanne Langer points out, musicians and dancers are often a breed apart (1953, 171). Students of music have a well-developed literature about musical communicativeness, properties and perceptions; the study of dance has lagged sadly behind. When the question of meaning in dance is broached, it is with an oddly reluctant nod to music.

By starting with the view that meaning in dance depends on its interaction with music, it is possible to take a new view of how meaning is made. Dance and music are fundamentally different art forms, though they share certain critical features. Furthermore, dance as visual and music as auditory stimuli are processed differently by the viewer's perceptual systems. Yet the dance and music are understood as one, unified event. The structure of metaphor becomes a model to solve the puzzle of how two dissimilar things could be equated. Description of the dynamic between the two terms of a metaphor supplies a model of not only of how the two arts interact to become one, but also of how the viewer cognizes the event.

Using metaphor as a model is running a calculated risk. Because metaphor pervades not only literature and poetry, but in a way, all the arts, and the very means by which we understand the world, it is a word with many usages, some not very precise. Linguists delineate the various attributes and construction of metaphor in a fairly precise way. The model is built on this more precise use of the word. The risk is that the reader will

assume that "metaphor" implies content; that dance movement is a metaphor or music is a metaphor. Naturally, dance is metaphorical, as are all arts, but the idea that, for instance, an arabesque may be a metaphor for yearning or vulnerability, is not of concern here. A metaphor is an arrangement of ideas, a particular sort of relationship between words. That relationship can be described as its structure. It is proposed that dance and music might, in a sense, be substituted for, and interact in similar ways to, the two ideas or words which are compared by a metaphor. *How* dance means, not *what* it means, is the topic.

This thesis is an attempt to address the lag of curiosity in dance about its own partner, music. It is offered in the hope that it will at least stimulate a daringness about incorporating knowledge and borrowing concepts from associated fields such as linguistics, music and art psychology, cognitive psychology, and philosophy. The field of dance has exploded in the twentieth century, both popularly and among professionals and scholars, but dance has yet to be freed of narrow conceptualizations.

CHAPTER I

DELIMITATIONS, DEFINITIONS, AND THE MODEL

Dance is an activity, world-wide, that serves many purposes: religious, therapeutic, social, as well as artistic. Anthropology is the proper sphere to study such diverse uses of dance, and has yielded important contributions to a philosophy of dance, particularly in formulating definitions for dance. However, meaning in dance as an artistic, non-participatory endeavor has its own interesting problems. This discussion will be limited to dance in its Western concert form; there is no attempt to formulate anything like a comprehensive theory of dance.

The audience as co-creator of meaning figures significantly in the concert dance even though the viewer's participation seems passive. The audience member, while sitting anonymously, is engaged in the highly complex act of processing what he sees and hears and of interpreting meanings and perceiving new relationships. Meaning is not a pre-determined something found exclusively in the work of art. The question of meaning is a philosophical one, but one that should be addressed as much from the audience member's as from the artist's point of view. Video and notation, critical reviews and scholarly analyses help preserve the actual choreography and its possible meanings. But the choreography is meaningless if no one sees it. The audience member completes the act of creation that begins with the artist's work, relying on an incomplete memory of fleeting images from only one viewing to formulate his own meanings. Most of what art means is intuitively apprehended and difficult to put in words.

Two observations formed the starting place for this thesis. First, that meaning in dance cannot be completely accounted for without also considering meaning of the music which almost invariably accompanies dance. While it isn't a necessary condition of dance that there be music with it, music is of large, and largely unacknowledged, importance to meaning in dance. Even dances without music are never quite free of the expectation that dancing is done to music. The music so conditions the viewer's perception of the movement that dance would not produce the same meaning without music, once it has been choreographed with it. This simple observation is, in itself, an unexplored stream of thought for most dance scholars, and perhaps even for many artists who create dance. Simple as it is, it leads to the weighty question, how does the music participate in the production of meaning? The question gets especially intriguing when one asks, does that mean that the audience member must hear as acutely as he or she sees? According to most research in perception, the eye takes precedence over the ear, a phenomenon called visual capture (Kaufman 1979, 221). Can one find meaning in something not really seen or not really heard? The difficulty is greater when the dance is not matched to the music, when it forms a dialogue with the music, or makes a contrary statement. These problems led to the second observation: that dance and music are fundamentally different art forms, though there are properties they share; and that as visual and auditory media, they require different modes of perception from the audience member. In spite of this, they are apprehended as one blended event.

To help explain how two dissimilar terms can be so integrated, a model based on the structure of metaphor is proposed and investigated. Metaphor

contains two unlike words or ideas, one of which is modified or experienced in terms of the other. The model incorporates this basic dynamic, highlights important aspects of the relationship between the two parts of the metaphorical statement, and points the way to the resolution of the two into one global image. Both from the artist's vantage and the audience member's, the model illustrates how the differences between art forms and between perceptual modes can lead to new concepts and insights.

The second chapter will consider the art forms at length in terms of the properties that make up their directly known and their inferred characteristics. It will be argued that those aspects of dance which are not directly known are nevertheless of great significance. Some of these aspects, especially the sense of time, and the kinesthetic sense and response, may be directly known or inferred from the music, so that the two arts complement and supplement one another. The art itself and its audience are not the only sources of meaning: context of performance, and cultural, ideological context are equally important. The immediate context of the performance will not be covered comprehensively, but some thoughts on how the model applies to context are touched on in the third chapter. Cultural context extends into the field of anthropology, and therefore is beyond the scope of this paper. Chapter Four will call into use evidence of cognitive and perceptual psychology to try to trace the making of meaning on an individual level. Psychology of perception offers evidence that seeing and hearing are not quite the same, but cross-fertilize one another in ways that the layperson is not aware. On this pre-conscious level, the model shows how the sound may be secondary to the dance audience yet govern the process of finding meaning. Finally, a theory

explaining the cognition of metaphor is borrowed, one which parallels the cognition, especially the intuitive apprehension, of dance and music. Because so much must be inferred, cognition is at the heart of how meaning is made.

Appendix A takes a brief look at some theories of meaning in music, to offer the reader desiring it some background for the argument that such theories essentially concern musical structure. It may be well to talk about some specific examples of how dance and music work together. Appendix B outlines three sample dances: the unaccompanied Water Study by Doris Humphrey, The Overgrown Path with music by the same title by Leos Janacek and choreographed by Jiri Kylian, and finally, excerpts from works by David Gordon/Pick Up Co.

The reader may wonder what influence the artists, the choreographer and composer may have in making meaning. They co-determine the aesthetic object. If dance and music are to be seen as interacting systems of signification, it can be said in agreement with Jan Mukarovsky that a "work of art is meant expressly to serve as an intermediary between its creator and the community" (1986, 3). However, the creator(s) need not be present or in any way identified for meaning to arise. The art form would not exist without its creator, but once created, the piece of art continues its meaningful life independently of its creator. This independence eliminates from the question of meaning all conditions of creation and any intention of the creator(s), such as whether the music or the movement is the starting point for choreography.

One preliminary remains: to clarify what is meant here by dance and music. Judith Lynne Hanna offers a definition of dance which she feels has

cross-cultural applicability. If her formulation, for purposes of this paper, may be applied to concert dance, it is: "human behavior composed of 1) purposeful, 2) intentionally rhythmical, and 3) culturally patterned sequences of 4) non-verbal body movements other than ordinary motor activities, the motion having inherent and 'aesthetic' value" (1979, 20). She explains "aesthetic" as cultural ideas of appropriateness and competence which guide evaluation, accomplished by rapt attention and contemplation.

By using her definition for concert dance, it is understood that human behavior is specified. However, rather than "purposeful," let the word be "designed," to mitigate confusion over functional versus non-functional movement. The condition that dance is non-verbal is acceptable as a working definition because sound is here considered in terms of its audible perceptual properties, whereas dance is considered in terms of its visual properties. Dances may incorporate vocalizations and even speech, but for purposes of this thesis, dance is non-verbal human bodily movement. Any verbalizations or other sounds resulting from the movement have to do with music or at least accompaniment.

One justifiable criticism of her definition is that the Judson Church advocates of the 1970's demonstrated clearly that ordinary movement can have inherent and aesthetic value and qualify as concert dance. Hanna's intent was to exclude movement done in the context of daily life, and she explains that the very fact of observing movement for aesthetic purposes makes it non-ordinary. But the term is still liable to be misunderstood. In any case, most dance does in fact use extraordinary movement.

Another of her criteria, rhythmic movement, requires a little extra thought. Musical rhythm, often described as divisions of time into groupings of regularly repeating and variable units of duration, often involving accented and unaccented beats, may not be so straightforward (see for instance Victor Zuckerkandl 1956). Some texts simplify by stating that rhythm refers to all that has to do with time. Musical composers and teachers of dance composition often warn that dance time is not synonymous with musical time or rhythm (Horst 1980, 139; Humphrey 1959, 137; Blom and Chaplin 1982, 168; Van Praagh and Binton 1963, 154). Some dances seem not to divide time into units of duration at all but create a sense of ceaselessness. One may suggest using the nomenclature of dance, "sustained" and "quick," to try to clarify the issue. These terms denote more than actual duration, they also indicate the attitude of the performer, as explained by Vera Maletic (1987, 91-7). "Phrasing" is a commonly used term in dance to denote units of duration, but confusion surrounds this word, both in theory and in practice (see Humphrey 1959, 136). Without the music, dance phrases may be all but unintelligible. Do the individual steps in Lar Lubovitch's seamless North Star or in Twyla Tharp's early works carry the rhythm, or do they not rely on phrasing from the music? Most people would be hard pressed to pick out dance phrases on sight. If rhythm is division and duration, how can a continuously moving body do anything but erase the sense of rhythm? The solution might be to look at a deeper level of the concept "rhythm": the notion that dance, by its treatment of time, embodies an attitude toward time for aesthetic consideration.

Yet another problem arises: one cannot separate time and space in dance. In order to embody the given attitude toward time, the dancer must also deal with space and can't really treat them separately. This interdependence introduces the factors of gravity and energy, without which movement in space is impossible. These factors will be discussed in more detail later, but for now it seems that any definitive statement must cover all four elements of time, space, gravity, and energy. With these modifications, the working definition of dance is: 1) human, designed movement; 2) embodying an attitude toward time, space, gravity and energy; 3) based on culturally patterned sequences of; 4) non-verbal motion having aesthetic value.

A definition of music can be as simple as "sound and silence organized in time" (Cleaver and Eddins 1977, 20), or as elaborate as "the art and science of combining vocal or instrumental sounds or tones in varying melody, harmony, rhythm, and timbre, especially so as to form structurally complete and emotionally expressive compositions" (New World Dictionary 1979, 938). The three elements common to both versions are sound, time, and the deliberate act of arrangement. Whereas many theoretical writings on music meaning name melody, harmony, rhythm and timbre, the approach preferred by ethnomusicologists like Bruno Nettl (1983) assumes that any sound can be a building block of music, not just tone (the requisite for melody and harmony). Particularly since the advent of John Cage, modern use of music for dance may sometimes fall into this category of non-tonal accompaniment. However, tone does account for the vast preponderance of music for dance.

A definition of sound must include the sound of the human voice, whether it is singing or speaking. For speech to qualify as musical accompaniment, it must be considered primarily in terms of its timbre, rhythm, and other sound qualities by the listening audience, not heard as semantic content. In all likelihood, speech as semantics overrides speech as music, triggering a linear, non-intuitive response.

The apparent motion of music is a curious feature. Relative motion of bodies (such as planets and stars) is the measure of time. Motion is a characteristic of objects in space. Music is supposedly a non-spatial art. The tones do not actually move, the beats and syncopations don't go anywhere, yet music creates a sense of movement. Without getting into insubstantial theorizing, let it simply be said that music creates and embodies an attitude toward motion as much as dance does toward time. The working definition of music shall be 1) that humanly designed organization of 2) time and sounds 3) which embodies an attitude toward motion 4) for aesthetic consideration.

Now that dance and music have been defined, the aim of describing how dance and music interact to make meaning can be pursued. The goal of this study is to propose a suitable model to guide such a discourse. The model most apt is that of metaphor.

Instantly the reader could be misled into reading the previous statement as "dance and music are metaphorical." This may well be, but it would be the theme of another thesis. Metaphorical statements, according to linguistics, have structure, an inner dynamic. The dynamic between dance and music

may be likened to the dynamic of these terms. What can be said descriptively about the terms of a metaphor may be said of dance with music.

In transferring the model from language to art, certain allowances must be made. Language is denotative, art is not. The power of metaphor in language begins with the fact that literal interpretation of the two unlike terms as they are equated in the metaphor is impossible. There can be no distinction drawn between literal and figurative in art, as in language. Art may encompass the literal with the figurative and not be self-contradictory. It might be more accurate to speak of that which is directly perceived in art, and that which is signified or inferred. Furthermore, language is linear, syntactical, and art may not be. Therefore, it is the dynamic system of interaction between the referent and its predicate in the model that is piquant, not the paradox of true-yet-not-true, the reality versus non-reality, nor the linear positioning of terms that also characterizes metaphor. What makes this model useful is the fact of asymmetry within a metaphorical statement, not the reasons peculiar to language for its asymmetry.

The first point about metaphor is that it makes equivalent two entities which contain both likenesses and unlikenesses. The degree of tension between the entities depends on unlikeness but a metaphor makes no sense if there is no point of likeness. Andrew Ortony (1979) demonstrates that there is an asymmetry of terms inherent in the structure of a metaphorical statement; the terms are not interchangeable. The referent cannot be switched with its predicate in the statement without changing or losing the meaning even though metaphor is a statement of identity. The logic of "if $A = B$ then $B = A$ " doesn't pertain to metaphor. For example, in Shakespeare's

statement "All the world's a stage," "world" is the referent of the statement. It wouldn't have the same meaning to turn the statement around: "the stage is all the world." Therefore, the primary-secondary value system of referent to predicate is critical to the meaning of a metaphorical statement.

These statements about metaphorical structure begin to describe the partnership of dance and music. Music is not equal to or interchangeable with dance in the given context of a dance concert; music accompanies and is always secondary to the dance, unlike a principally musical event that incorporates movement, such as opera or musical theater.

A second point about the structure of metaphorical statement to note is that it is the predicate, the "frame," to use terminology of Max Black (1962), which creates tension, sets up a multiplicity of meanings, and causes perplexity, thereby bringing attention back to the "focus," the referent. "Stage" acts upon "world" to create tension (of reconciling two unlike things). "World" must be modified as a concept because of its new identification with "stage" according to Black; the frame organizes a new perception of the focal term. In this sense the meaning of a metaphor is dependent on its semantic structure, the sentence as a whole, rather than only on the compared meanings of individual words. Black's is a theory of interaction.

Replace "focus" with dance, and "frame" with music: though dance is the focal activity, the music is the frame which organizes perception and interpretation of the movement. The choreographer may intuit this; the viewer may not be aware of it. The choreography is interpreted, even physically seen, in light of the attitude toward motion embodied in the music. This relationship seems more obvious where the movement matches the

rhythms and musical figures. The model explains how music acts on dance in those ambiguous cases when the music seems unrelated or contrary to the dance. The sound sets up the movement, it organizes and drives the dancing, and suggests attitudes and ideas not necessarily in the dance. This framing occurs especially at the semantic level, that is, taking the dance-with-music event as a whole, not analyzing its component parts.

The third aspect of metaphorical dynamic is that in order to reassess the focal term in light of its frame, the hearer must use intuition to draw inferences. He reviews and rearranges features of the categories which describe the literal objects (Black's associated commonplaces and Beardsley's potential range of connotations mentioned by Ricoeur 1975, 87). The mind calls up the general category for "world" and compares features of that category that relate to features of the category "stage." The hearer no longer considers either word in its original sense, but eventually resolves the two into one overriding and pregnant image, one capable of reassessment. As Samuel Levin says, we reconstrue the world in order to make poetic metaphor true (1977, 127). One might add that the frame is thus also modified by the focal term though to what extent is unclear; the relationship is probably weighted toward change within the concept represented by the focal term.

Given that dance is the focus of attention, and following the model, it is the music that creates tension, sets up or eliminates ambiguity (in the sense of multiplicity of meanings). The structural design of the music creates an environment, a framework that supports and calls attention to the dance, that organizes moment-by-moment perception and global, intuitive

interpretation of it. As with metaphor, this influence probably isn't a one-sided situation. The music, too, can be transformed by its association with movement: consider Disney's lasting pictorialization of The Sorcerer's Apprentice or Kurt Jooss' satirical use of the habanera in The Green Table. But dance and music interact in asymmetrical ways. Dance movement utilizes or converses with the attitude toward motion within the music, whereas music contributes to the perception of time, kinesthesia, and mood for dance. It is the task of this paper to develop and demonstrate these assertions using the model.

Let it be understood that by stating that the music sets up tension and ambiguity, the plenitude of meanings (to use Ricoeur's terms) attributable to dance alone isn't being denied. Dance is highly equivocal; sometimes the music does more to eliminate possibilities than add to them. For instance, a dance movement may have a "folk" quality, an earthiness or groundedness but not be of any specific national origin. When combined with a musical style that does have such specificity, as for instance the aforementioned Brazilian habanera, possibilities of meanings of the movement are narrowed. Again, it's the nature of the interaction between dance and music being scrutinized, not any theory of either one alone.

The choreographer chooses from a variety of possible relations of the music to the dance. There is no right or best way to choreograph to music, and it is with a specious controversy on this point that discussions among choreographers and composers often end. Students of choreography are warned against using too familiar a musical work because it is their dance which will suffer from expectations aroused by the music (Blom and Chaplin

1982, 166; Humphrey 1959, 132; Smith 1976, 28). If the choreography is deemed "unmusical," it is assumed that the choreographer is insensitive, if one peruses the comments of dance critic Arlene Croce (1982). These expectations are examples of how dance teachers and critics intuitively know that, though secondary, it is the music that organizes perception of the choreography, not the other way around.

The third aspect of construction of metaphorical meaning is featural comparison of terms. The hearer reconsiders the category represented by the focal term by breaking it down into distinctive features that might be compared to the category represented by the frame. Looking at the interaction of dance and music in light of such comparison, one might note that some choreographers choose to reflect most of the formal devices in the music, the late Balanchine being the obvious example. But it might only be in such choreography that one is led to "see the music" feature by feature, certainly more so than in choreography that responds less journalistically. Though one is at some level aware of momentary features of the music during the performance, especially where, as in Balanchine's work, the steps follow and call attention to the music, it is the overall attitude toward movement embodied in the music that guides perception of the dance, that reunite the two into one powerful image. The music assists the viewer to see and reflect on features of the movement: the way the dance sustains here and rushes forward there, the lightness of a soaring leap, the darkness of a glance. Should the music be different in quality than the movement, it is the meaning of the musical quality that organizes the meaning of the movement quality. For instance, the mausoleum scene in Lavrovsky's version of

Prokofiev's Romeo and Juliet is a duet between a grieving boy and an inert girl--not a lot of movement--while the music is huge with volume and orchestration and chord changes. It certainly makes their misfortune dramatic, his grief enormous, her awakening and realization the more tragic. The movement is enlarged, is understood to imply more than can be actually seen.

The term "metaphor" can be applied to varying degrees of dissimilarity. Earl MacCormac (1985) suggests the terms epiphor and diaphor. An epiphor expresses more than it suggests, while a diaphor suggests more than it expresses. These two deliberately unfamiliar terms circumvent a profusion of types of metaphor, many of which refer to attributes of language and which could confuse the issue, such as metonymy, synecdoche, simile and so forth. An epiphor simply names two entities that have more obvious features in common than not. An example of a literary epiphor might be of a face "gilded in marmalade" from James Joyce's Ulysses (1966, 7). The features of gold: color and richness (perhaps of heaviness also) immediately occur to the reader. Similarly, because music and dance share the features of time and motion especially, it's possible for Ashton, Balanchine, and Jiri Kylian, among others, to mirror one or more of these elements in their choreography. Ballet and jazz are more often imitative of the music, more epiphoric, than modern dance. In suggesting more than it expresses, diaphor causes more perplexity and requires more interpretation. There is more dissimilarity than similarity between the two terms; the extreme diaphor in dance might be a Merce Cunningham and John Cage collaboration. Much of

the post-modern work of Trisha Brown, Steve Paxton, Meredith Monk and others probably tends toward diaphoric use of the music.

Adding to MacCormac's formulation, it is proposed that epiphor and diaphor be considered to represent the extreme ends of a continuum. Viewed this way, the proportion of likeness to unlikeness is continuous and relative, not discrete or absolute. In general, a piece that uses most or all musical and/or incidental elements such as formal structure, phrasing, perhaps country or era of origin, narrative premise, applies an epiphoric treatment. The practice of placing collages of music against movement, such as in Daniel Nagrin's Peloponnesian Wars; or of contrasting musical genre with dance genre, such as Balinese gamelan with ballet; or of contrasting the mood of the music with the theme of the dance, are all examples of more or less diaphoric treatment. Recent film scores often use the latter, contrasting mood with theme, to dramatically enhance suspense or pathos, such as the use of a sweet, pulsing adagio by Samuel Barber throughout the bloodiest scenes in Platoon. In fact, this author has noted that what is true of dance with music applies well to film with music.

CHAPTER II

THE MODEL APPLIED TO THE ART FORMS

A peculiarity of dance with music is its extraordinary cause-effect relationship. In ordinary circumstances, one hears a sound and then looks to see what movement caused it. In dance, one more easily assumes that the sound causes or is the reason for the movement, as the other way around. This is a fairly simple observation, noted in the last chapter, that has far-reaching implications. According to the model, it is because of the primary-to-secondary relation and the tension between them that the sound is considered to motivate the movement. Dance takes the forefront of attention, and the music, though secondary, orients the viewer and challenges him to reconstrue what he already knows about that movement. The properties of music: structural, rhythmic, motive, and emotive, drive and qualify the dance. This chapter is devoted to the explanation of how this relationship is borne out in the interaction of properties, directly and inferentially known, of dance and of music.

1. Properties of Dance

In most essays on meaning in dance, the music isn't particularly accounted for, such as in Selma Jeanne Cohen's Next Week, Swan Lake (1982). She certainly presents a comprehensive review of possible sources of meaning in dance, being one of the few writers to look outside the field of dance for useful concepts. But in all her discussion, one isn't quite sure when she has answered her own question "What Does the 'Dance of the Sugar Plum Fairy' Mean?" with any choice among contending theories. Beyond that shortcoming, her approach to the question of how meaning is made

assumes that meaning resides exclusively in the art form itself. This is typical of philosophical essays on dance. The essay then becomes an inquiry into the nature of dance rather than the nature of the perception of the viewer, or even the nature of the art form, which almost always includes music.

One question in particular often seems to crop up in such essays: shall we think of dance as a visual or a kinesthetic art? As a purely visual art, dance is reduced to a mobile painting or sculpture, or so it seems to champions of dance as a kinesthetic art. But the metakinesis of John Martin (1965, 13-15), the idea that the motions of the dance are recreated kinesthetically, invisibly and inwardly, by the viewer, has its problems as well. It is another version of an ancient theory of arousal, still argued over by music scholars: that the tones (or modes) arouse the hearer to the specific sympathetic states of mind represented in the music. It was supposedly on the basis of arousal theory that Plato based his choice of modes for his ideal state (ethos). Those who reject arousal theory object that the hearer of music that represents anger does not in turn get angry; it is conceded that the hearer may recognize the representation of anger and appreciate it. Martin's version of such arousal in dance would seem to suggest that the viewer has the same sensations that the dancer does. Any dancer can verify that movement often looks different from the way it feels. A balletic bourree, for example, is one of the most difficult and illusory pointe steps to master. There are two simultaneous energies: a contained use of the lower leg to take very rapid tiny steps, and the pulling upward in the torso, away from the floor, to counteract the jiggling and bobbing that results from the leg action. What the audience is aware of,

and may experience inwardly, is the apparent ease of the skimming motion. The illusory nature of movement needs to be accounted for.

Cohen takes exception to Langer's assertion that the audience member "does not see *people running around*; one sees the dance driving this way, drawn that way . . . " (1953, 175). Cohen retorts that of course we see the people and their actual as well as their virtual gestures (1982, 110). The argument between them begs the questions that must be seriously asked: 1) what, exactly, is visible; 2) how much of what is visible is actually seen; and 3) how much of that contributes to the viewer's interpretation? Virtual power or gesture is, by Langer's definition, present as an illusion, the product of imagination and the constructive act of perception, therefore it depends on more than visual acuity. Surely, the reader may say, actual gestures and movements are visible, but it can be shown that only a small proportion of dance meaning derives from what can be directly, visually perceived. A large proportion of what is meaningful must therefore be inferred. Compare the following views.

Qualitative movement for the spectator . . . is not so much "felt" as "seen." It is visually perceived and because of its public nature can be shared by others . . . For the spectator it is not kinaesthetic feelings that are the focus of attention as they are for the performer, but the configural body patterns of the mover (Arnold 1979, 130).

In other words, perception of dance for Arnold is purely visual.

But Rudolf Arnheim argued that such factors as speed, shape and direction do not alone arouse the viewer: "It is the kind of directed tension or 'movement'—its strength, place, and distribution—transmitted by the patterns that is perceived as expression. The perceptual elements of the movements are not simply recorded by the nervous system of the observer; rather it is the dynamic quality

produced by those elements that arouses the corresponding configuration of forces in him" (Cohen 1982, 95).

In this argument, the viewer does respond kinesthetically. These opposing statements demonstrate the argument, and together show the possible sources of meaning: the bald visual information, the implied sensations and ideas, and the viewer's reception and interpretation of all of them. Arnold's denial of the importance of a kinesthetic response is untenable; it can't be denied that something is seen and something felt in response, and that all of it enters into meaning. What he is correct about is that the visual information is all that the viewer has to base his response upon. What is felt in response, inferred by the observer, is very significant for the formation of meaning. The challenge then is to separate the art itself from what it does, its information from its effect, its directly known features from its inferred features. Failure to distinguish between these sources of meaning allows the fallacy to creep in that meaning resides only in the art itself. The effort to make the distinction will be rewarded later in the discovery that a few elements of dance that are inferred by the viewer may be elements directly known, informational, in the music, and vice-versa, contributing to the interdependence and dynamic of tension between the two.

Recall that in the earlier description of the model, among the dangers of applying a linguistic construct to a non-linear, non-linguistic art was mentioned the need to translate "literal versus figurative" into "directly known versus inferred." Dissimilar ideas stated as sharing identities create tension in language because the literal meanings of the words do not blend; their combination jars the listener. The tension thus created is at the heart of metaphorical structure. There is no literal meaning apart from figurative

meaning in art, so it is better to speak of that which is directly known and that which is inferred. For Langer, the latter are the art form's primary and secondary illusions. Without the emotional implications of the actual tones and rhythms contained in the music, without the kinesthetic response gleaned from the seeing of choreography, the arts would be robbed of their richness, perhaps their reason-for-being. When it is known what part of dance is visual information and what part is inferred, that is, becomes a kinesthetic response of the audience, it can better be surmised how music interacts with it.

To begin to distinguish what is directly known from what is inferred in dance, one might try to name its elements. Its actual information—steps, for instance—would seem to be a good starting place. A step is a transfer of weight. One may say that a step is a meaningful entity, like a color or a tone, even though most observers won't notice it apart from an ongoing flow, just as one normally doesn't read word by word, but phrase by phrase (or better, as the listener follows the flow of melody rather than each individual tone).

Steps alone can't fully account for all the meaningful elements of dance; there must also be gesture. Humphrey names four types of gesture: functional, social, ritual and emotional (1959, 114-19). Four types is too many to keep track of here; two types will suffice. A gesture of friendship, a handshake, is a culturally defined, conventionalized motion or series of motions. Some such gestures are more codified than others: a nod of the head is affirmatory in this culture, no matter what the context, but a shake of the head requires a context. Conventionalized gesture shall also include all four of Humphrey's types, so it will constitute one type for our list of

elements. But there are many actions in dance that could be called gesture that are not conventional signals. An arabesque is a gesture. Extending the leg in a developpe is a gesture. The dictionary defines gesture as movement or movements that convey intention or state of mind or feeling (New World Dictionary 1979, 587). By definition, all dance is designed, intentioned movement so this is inadequate to separate gesture from step. As it is sometimes used by dancers, a gesture is a movement of a non-weight-supporting body part (Hutchinson 1970, 22). If, for the purposes of this paper, conventionalized gesture indicates more or less codified motion, then dance gesture, as the second type, can indicate movement that involves a spatial change, as opposed to a weight change. Only three more terms are needed to discuss the "what" of dance. A partial change of weight shall be a shift. Since stillness and posture can convey intention and states of mind as well, they must be included among meaningful elements of information. If posture is added to step, conventionalized gesture, dance gesture, shift, and stillness, the inventory seems more complete.¹

In fact, the inventory is not complete, for not enough has been said as to how states of mind or feelings are communicated. Until the "how" of movement is described, the "what" is dry and without dynamic interest. If gesture is either conventional or dance gesture, then Langer's statement "all dance motion is gesture" (1953, 174) makes no sense; surely she had the expressive or inferred nature of movement in mind. Neither does Balanchine's comment (1980, 151) about "families of gesture" having

¹ See Warren Lamb and Elizabeth Watson (1979) for a full discussion of posture and gesture.

inherent relations just like tones and colors make sense. Martin (1965, 31) credits Rudolf Laban with revolutionizing dance by placing value on "dynamism," the quality of motion, rather than in the poses and plastiques of eighteenth century ballet or the emotional plots of Romantic ballet. Even a conventionalized gesture may be done in different ways to indicate different motivations and attitudes. Laban Movement Analysis (LMA) (Laban 1966) describes the attitudes a dancer displays toward time, gravity, energy, and space. These are the "directed tensions," the "dynamic qualities" that Arnheim lauded. When properly understood, it can be seen that various qualities of motion are the primary expressive element, that which is called gesture by Langer and Balanchine. It may also be argued that it is the special configuration of qualities peculiar to a choreographer that describe his personal style. These qualities do have inherent relationships or affinities such as Balanchine mentioned, as do various spatial and planal orientations, studied in Space-Harmony. For instance, the "full efforts" in LMA of dab, punch, wring, and so on, whether in their "full-effort" form or moderated, are easily understood by any viewer, in fact could be said to be universally understood, as much as any artifact could be said to be universal.² Steps, dance and conventionalized gestures, shifts and postures are definitely not universally understood; they are clearly conditioned by acculturation.

At this point, an answer might be ventured on the question of whether dance is visually or kinesthetically communicative, and how much of it is

² "Effort" is used in LMA to describe a quality of motion, and is not to be confused with "difficulty." To indicate that it is being used in this specialized sense, the word will appear in quotation marks.

inferred or directly communicated. As concert dance is, of course, non-participatory; i.e. the audience observes, it doesn't normally get up and dance, it must be conceded that all of what is directly apprehended must come via the visual system alone, as Arnold said. The kinesthetic element must therefore be based on what can be seen; it is inferred. That does not make the kinesthetic less important to the construction of meaning, as Arnold claimed; quite the contrary. Laban's qualities of motion are best understood kinesthetically. Unless internal sensations of the "efforts" are reproduced by the viewer, the meanings and expressions of the art are only grasped intellectually and incompletely. For example, the use of weight is an important part of Humphrey's choreography. Merely looking at the dancers complete the wave-like phrases in Water Study may make one think of waves, but the actual sensations of gathering-suspension-rushing downward-rebounding carries the import of the dance. These qualities of motion, it has been asserted, convey the primary expressive significance of the movement.

Examined singly, the four elements of dynamics or qualities of motion: time, gravity, energy and space, demonstrate the low proportion of directly known to inferred features of dance (or one could describe them with equal force as the visual information versus the kinesthetic effect).

Time is the first element on the list. Dancers, like musicians, use time in a precise way, more so than actors or poets. However, dance achieves the representation of time visually, which is quite different from time in music. Physical bodies have mass, weight and volume, unlike sounds. Physical bodies present a constant, though constantly shifting, visual stimulus to the eye, unlike sounds which have fairly discrete onsets and endings in time.

The eye requires time to see an amount of information that the ear can hear instantaneously. These facts prevent dance movement from directly conveying to the observer a precise use of time. Even accented physical movement is a little unclear as to exact beats, unless the motion is arrested. It is noted in Kylian's piece (see Appendix B) that beginnings and endings of phrases, far less meters or beats, are difficult to find without the music. Duration is just as exact for the dancer as for the musician, as are tempos and meter. But it would be difficult to say how exactly tempos and durations can be gauged when viewed rather than heard. Judith Green, dance critic for the San Jose Mercury News, strongly favors the view that rhythm must be heard to be understood, that it isn't clearly evident through the movement even when the steps are set beat for beat (interview 1988). What is visually communicative is the dancer's attitude toward time. He may use time in an indulgent, leisurely, lingering way, or he may condense the dance in time, pack time tightly with events, look as though he arrives only to speed on his way. Actual, objective time used by the dancer, though understood to underly the movement, is not what is seen. In fact, a truly musical dancer, while completely accurate with actual and musical time, interprets the actual beats and measures, as Kylian's dancers must be able to do. Like the kinesthetic element, time is inferred.

Time has also to do with the second element of dynamics, gravity or weight: "rhythm is an organizing force, manifested through repetition. In movement, rhythm is the relationship between time and force factors, and is manifested through repetition by the kinesthetic sense" (Winters 1975, 64). ("Force factors" probably indicates the combination of weight and energy.

Laban might have been unique in separating these elements.) While she was referring to the understanding of the dancer, her statement holds true for the observer as well.

Gravity is no more visible than objective time, yet its constant effect on the body may be the most obvious of the elements. The attitude that the dancer exhibits toward gravity is called weight. Momentum and inertia are included in this term. Actual weight is irrelevant; it is the attitude, the use of energy in response to gravity that determines weight. Movements implying heaviness (passivity), strength, and lightness are visible to the eye, but the implications themselves are better understood kinesthetically and must be re-created inwardly by the viewer. Though gravity is a constant, the dance may seem to manipulate it, even create the illusion of denying gravity. One example is the gravity-defying leap of a dancer like Baryshnikov. One or two lifts in The Overgrown Path gave the illusion that the woman floated up with no real assistance from her partner. Movement can create the illusion of utter weightlessness without ever leaving the ground. Red Skelton did an extraordinary skit of an astronaut abandoned in space, years before "space walks" became possible. So, while the attitude toward gravity is to some degree visible, directly sensed, it is largely inferred as kinesthetic. And gravity itself is implied, in that the laws of gravity can be defied by illusion.

Energy, the third on the list, is the only one that originates in the body of the dancer. It may be resisted or obstructed altogether, but it is nevertheless controlled by the dancer. Energy isn't easily described; it is in a continual state of coming-to-be, a flow, a potential for work. A good dancer who seems to expend energy liberally actually uses less than a poor dancer. It is because the

better dancer makes various changes of energy in time and in response to gravity plainly visible that the audience can feel a sympathetic kinesthetic response. Again, though, it is a re-created feeling, based on the visual information. There is a certain remoteness to the sight of energy use without sound. Energy can be seen, but its variations are best communicated through inferred sensation. Laban spoke of bound or obstructed versus freely flowing energy. Examples of the use of bound energy might convey care or caution, indecision or anxiety; of free-flow the sense of ease or at-oneness with oneself or the environment. Nagrin varied his use of energy in Peloponnesian Wars widely to perform semi-mimetic actions, for instance, of drawing an invisible something from his pocket in a smooth, calculating way that made him look like a magician. But there is no way for the observer to know whether he used bound or free flow to pull his hand from his pocket without asking him.

Space, the last of the four, is the one completely visual component, needing no mediating sense. Through focus, proximity, kinesphere, direct versus flexible paths, relative motion of dancer to dancer, dancer to audience, dancer to objects and areas on stage, the dance displays an attitude toward and manipulates space. The enclosures of walls, drapes, and proscenium define space; lighting both defines and activates it. The actual space used by a movement communicates much; the dancer's attitude toward space communicates even more. For instance, Westerners notoriously prefer a direct approach, a focus or way of interacting with others that communicates a cash-on-the-barrelhead, get-to-the-point attitude, and find the indirect, many-faceted or gradually approaching manner of peoples of the East difficult to adjust to. From the polite, lengthy small-talk that must precede any business

transaction, to the flexible, spiralling, meandering body movement of Balinese dance, Oriental movement is characterized by an unhurried, all-encompassing-ness. Westerners have little patience for what they consider irrelevancies, hence their focus tends to the direct gaze, insulting in some Eastern and Native American cultures. Of course, this is a broad generalization, but serves to illustrate opposite attitudes toward space.

Of the four elements of dynamics, time, gravity and energy are at least partially implied. The full impact of their interaction as rhythm is best understood via Martin's metakinesis, which is inferred. Only interpretations of time are actually seen. Only the effect of gravity on the dancer, the problem of responding to it, is actually seen. Energy partakes of both sight and sensation, the second by means of the first. The kinesthetic sensations of balance, ebb and flow, tension and release, suspend and rebound, extend and withdraw, must be interpreted through the visual. Only space and the physical body are truly visible and apprehended directly. Far from being a concrete, tangible art form, most of what is meaningful must be inferred, putting the bulk of meaning-production on the viewer, hence the urgent need to address the issue from the viewer's vantage.

One source of meaning directly known from the work itself, which assists the viewer to anticipate coming events and/or grasp coherence in retrospect, is the structure of the dance. The way the elements are combined into phrases and embedded into sections gives rise to the structure. Cunningham based his work on the premise that any movement can follow any other movement and make valid, theatrically compelling dance. Post-modern choreographers have capitalized on this credo. A majority of modern ballet

choreographers starting with Balanchine have left behind traditional combinations of steps and look instead for novel ways of moving and of sequencing movement. Forms borrowed from music, such as canon and suite do appear frequently on the stage, often in parallel to the accompaniment. But if dance has, at various times, boasted its own intrinsic forms (e.g. pre-classic dance suites or Marius Petipa's formula for the Classical ballet and its grand pas de deux), it has often cheerfully abandoned them in favor of open-endedness and originality. To the extent that jazz and tap dancers improvise on a given rhythmic theme, it is true of these genres as well. These observations lead to the question, what is a specifically dance-derived structure independent of music? What is the connective tissue that imparts a sense of linear logic, a coherence in retrospect?

Constant Lambert (1980, 133) decries the journalistic approach of dance to music and warns that an independently dance structure will not develop if it must rely on musical forms. In the same vein, Martin (1965, 107) comments that music developed its own intrinsic forms while dance didn't, leaving dance structurally disabled. What these writers imply is that not only is time fundamentally different in music than in dance, but that form is different. This possibility makes sense; after all, musical structure follows on the nature of sounds and tones whose psychophysical properties are not bound by space or gravity. Dance structure must take stock of space and gravity.

Consider this description of a narrative sequence, which supplies a clear statement for any type of sequence: "a logical succession of nuclei bound together by a relation of solidarity; the sequence opens when one of its terms has no solidary (sic) antecedent and closes when another of its terms has no

consequent." Roland Barthes explains that solidarity occurs when two terms presuppose one another (1977, 101). Musical theory texts are filled with excellent examples of musical sequences that neatly fit this formulation. The only dance theory that comes close to describing the condition of solidarity is Space-Harmony and the study of affinities between "efforts" and spatial relations in LMA. But there are many dances that do not use these affinities in any orderly way. Sequences in dance may be so difficult to define because there is a dearth of innate ordering principles, or alternatively, because so many principles could be at work.

The reader may have reservations about the claim that structure in dance is undefined. Certainly several forms for dance are cited by teachers of dance composition: AB, ABA, rondo, theme and variations, motif and development, suite, narrative and collage (Blom and Chaplin 1982, 93-105; Minton 1986, 6-10; Smith 1976, 72-5). Notice however, that the only one not borrowed from or in common with music, motif and development, functions without regard to time sequence. Blom and Chaplin enumerate sixteen ways to develop a choreographic motif and say "Its original sequence (the order of its parts) is not sacred as in theme and variation. Fragments of the movement are used and developed separately, then put together with no specific regard for the original sequential order." They go on: "But there is a definite sense of form that comes from developing the motif. The form is often self-serving, unique to the particular development of that particular motif" (1982, 101-2). Therefore a dance could conceivably involve development of two or more motifs, without regard to sequence or embedding of one idea into another. Any structure that serves the purpose of

providing a tenable, cogent basis for development of the motif is valid. Motifs are what Jacob Zelinger would characterize as syntagm as opposed to syntax. "Few formal constraints operate on the production of dance sequences or enchainement. It would not be incorrect to say that in dance any sequence of steps is possible and acceptable depending on the appropriate circumstances." He makes a case against dance having actual syntax, and elaborates on the usefulness instead of syntagm for dance: "The syntagm, that is the chain of words, can be modified by the substitution of any one word for another which is equivalent" (1979, 41).

One would suppose that at least the movement material would necessarily be specific to specific characters. Not always so: Paul Taylor relates in Private Domain his disturbing discovery that the shapes and gestures for the character of Satan were as good for the angel Raphael (1987, 279).

Dance contains plenty of referential material; there is conventionalized gesture, gender-related behavior, national stereotypes, and so on. Since any human movement may be assumed to have motivation and emotion behind it, one suspects this is the type of meaning most people look for in dance--emotional expression, particularly facial--and have trouble understanding when it seems to be absent.³ But none of these contextual references have to do with sequence or structure. Choreographers have an open field when it comes to the sequencing of movement.

Traditional dance genres, such as folk dance or ballet, because of their recognizability, could be said to contain a type of structure in that they foster

³ See Hanna's The Performer-Audience Connection (1983).

prediction of events and sequences. If it follows that style or tradition might somehow serve as sequential logic for dance, then ballet and folk genres need the structure of music least, yet these genres are least likely to go without music. Furthermore, style and tradition, rather than acting as allies, may well have opposing roles in the production of meaning. In her discourse on style, Cohen says:

In his discussion of classical music, Charles Rosen . . . stresses the role of complexity; he is concerned with the ease or tension with which a language is used, noting that when facility takes over, the style really ceases to be a forceful system of communication. If coherence is easily achieved, if there is small threat to unity, there is little to excite us. We may add the possibility that the system has become too familiar; it has lost its cogency. What is easy, familiar, is taken for granted; it no longer moves our consciousness to alert attentiveness (1982, 117).

In an earlier essay, she explains how Alwin Nikolais goes about interrupting the unity of emotion and expression; how avant-garde choreographers (and she includes Balanchine among them) try to keep their viewers from reading into the dance any of their private meanings and familiar ideas (1966, 212-23). Edwin Denby described at length just how Balanchine stepped beyond classical balletic traditions to create his own style, as for instance in Agon (1983, 446-53). The thread of agreement is that the personal style of an artist, even the style of an era, is a response to those who have come before and established traditional approaches. Though the artist may work within a given tradition, his style is recognizable in so far as it is different from and even rejects certain tenets of that tradition. Traditions never become dated; they constitute the reservoir of ideas from which new styles are ever evolving. Tradition in dance could supply structural

reinforcement, but very few choreographers avail themselves of it. The disruption-to-expectation principle enunciated by Leonard Meyer (see Appendix A) is at work not only to generate suspense and perplexity out of the expectation arising from a style; such disruption-to-expectation is to some extent the means for creating style. While it may be consistent within a given work, a personal style does not always constitute a logical system on which to base predictions of events across samples of art works, even by the same artist. A good example is Taylor's work: what has made him remarkable in the past was his willingness to start over each time with entirely fresh movement choices; the success of Last Look is a case in point. He is least attractive (even to some of his fans) when he falls back on what could only be called the "Taylor style." Martha Graham established herself as a seminal style-maker, but would her work be considered fresh, or (as it is sometimes said with condescension or awe) the closest thing to tradition that modern dance can boast?

Of course, logic and predictability do result from such factors as gravity (e.g. the unsupported center of gravity falls; torque applied to one side of the body when the other side is stationary will turn the body), and physiognomy (e.g. the arms and legs normally work in opposition; people normally walk forward, not backward). Other factors are learned patterns of expressive behavior (e.g. up, out, light, quick equals happy; down, in, heavy, slow equals sad), and conventionalized gesture, which is a more context-dependent, quasi-symbolic version of learned behavior. There may be, on closer examination, more on which to base a "deep structure" in dance than in

music.⁴ Certainly there is reason to assume more familiarity on the observer's part with the "instrument," the body, and its range of possibilities, than in music. Still, each of the factors mentioned above--gravity, physical structure, and learned behavior--can only dictate a logical sequence of movements to a limited degree, that is moment by moment, not over long periods of development. Balanchine (1980, 149) and Peggy Van Praagh and Peter Brinson (1963, 153) agree that elaboration of a musical theme can be sustained far longer than choreographic elaboration of a movement motif. This could be because it takes little distortion or variation on a movement motif before the motif is no longer recognizable to most people, whereas musical motifs can change in a variety of ways and retain a basic, recognizable identity. In conclusion, while it can't be stated that there is no structure in dance, it becomes abundantly clear that the embedding of sequences of movement, one following logically after another, is not the form that dance structure, independent of music, ordinarily takes. It also becomes clear that there are so many other sources of meaning in dance, that such sequencing, though the essential mode of structuring music is not essential or even very important to dance. When audiences are at a loss to understand what the dance means, it is often because they are disappointed in their efforts to locate sequences, narrative or otherwise.

⁴ Linguist Noam Chomsky proposed the term, which was subsequently applied by Leonard Bernstein (1962) to musical structure. Vastly simplified, the deep structure is a tacit level of meaning, explicit as to each semantic and syntactic connection, underlying more foreshortened verbalizations.

2. Properties of Music

Turning now to the production of meaning in music, one finds that nearly every theory of musical meaning is a theory about musical repetition and structure. Whether one accepts one or another of these theories, there is no denying that there is a consistency of program among them. A brief overview of some of these, offered in Appendix A, illustrates the surface diversity and underlying homogeneity.

"Why are all meaningful musical messages made up of a relatively limited repertoire of discrete pitch transitions with preferred sequences . . . and clearly defined rhythmic structure?" asks Juan Roederer (1982, 37). In comparison to dance movements, music contains a tremendous amount of repetition and strays not very far from set parameters of basic pulse, tonal range, and key. Zukerkandl drives this point home to show that repetition is an action of time (1956, 212-23). This limitation and repetition is true of music the world over (Nettl 1983, 39). In contrast, aside from Laura Dean, choreographers try not to repeat themselves much. Minton warns against too much repetition and predictability but also feels it incumbent to specify that there should be some repetition (1986, 5). Why is there naturally so much repetition in music, and comparatively much less of it in dance? From the audience's point of view, repetition allows the building of schemas to anticipate events; this process will come clear in the following chapter. Meanwhile, this writer has no suggestions as to why the art forms have developed in the ways they have; it is simply an observation. For now, let it stand as an observation worth investigating. Repetition fosters structure,

which according to many music scholars, is the main and most communicative element of music.

Music is spoken of as a temporal art, usually in reference to the fact that it can't be apprehended in its totality all at once. In this sense, drama, poetry and performance art should be considered temporal arts, as well. Music is the quintessential temporal art in that it specifically arranges time for aesthetic consideration. "Music makes time audible, and its form and continuity sensible" (Langer 1953, 110). The result is that time as well as sound is directly perceived in music.

In Western music, composers refer back to the tonic note throughout a composition, even if it is not restated often or the piece doesn't resolve back to it at the end (Cleaver and Eddins 1977, 22). Possibly this restatement is a source of directly known information. Whatever is available to the ear, without mediating inference, is directly known, including tone, melody, harmony, and timbre. Very little of the actual information of tone, melody, etc. is discussed as being a source of meaning in itself. Instead, music scholars talk about what the listener understands and interprets of the arrangement of tones. What seems to be most important are the inferred aspects of musical meaning: the sense of motion, the interpretation of feeling, and arousal. The nature of the arousal is disputed. Some say it is an arousal of the same feelings represented by the music, some say it is a feeling of satisfaction or frustration resulting from expectation, some say it is recognition and appreciation.

Many music scholars have appealed to linguistics and semiotics to help trace the components and production of musical meaning. Semioticians give

equal weight to the listener as a source of meaning. One aspect of semiotics usually only touched upon if acknowledged at all in other discussions is pragmatics, or the context surrounding the signal (in this case, performance). It is assumed in non-semiotic discussions that the context is supplied by the music itself, by virtue of its thematic statements, its contour and dynamics, its timbres and rhythms.

One type of context, usually considered a rather fallacious source of meaning, is the problem of intention. The opening statements of this thesis declared the position that the art work, once created, is no longer umbilically tied to its creator, and carries its own weight of meanings. It may well, and often does, contain meanings unintended by the artist. Yet Peter Kivy, Leonard Bernstein, Leonard Meyer, and others are unable to dismiss entirely the notion that the listener must grasp the composer's intentions for meaning to be present. One suspects it is because of their reverence for the structure of music that this is so. If structure is logical, it must be inevitable in some way and therefore must be understood as such. If meaning is found primarily through structure, and if one cannot follow the logic or grasp the principle that is intended by the composer, then one cannot really hear the musical meaning, these writers seem to say.

Whichever musical theory of meaning one holds to, the crux of musical meaning seems to be through its structure. With no structure, there is apparently no music (though there could be a controversy over what does or doesn't constitute structure). Variation against repetition, the clarity of time-dependent sequences, and the overtone series, whether the predisposition to understand it is innate or learned, blend together to give rise to a sense of

logic. Prediction and anticipation as well as a sense of coherence in retrospect are readily available to the alert listener. The amount of debate on the issue of structure among music theorists indicates that music is as much about structure as it is about time.

It may be said that structure is the medium through which time is communicated in music. For instance, rather than characterizing rhythm (a primary structure) as recurring free-standing blocks of time internally divided, Langer stresses that rhythm leads to a sense of continuity in time, a feeling of anticipation which flows from measure to measure. She describes rhythm, "the setting-up of new tensions by the resolution of former ones . . . the situation that begets the new crisis must be inherent in the denouement of its forerunner" (1953, 127). Similarly, Paul Fraisse emphasises that anticipation, not regularity, is the basis for rhythm (1982, 156). These comments begin to explain why the sense of time and the coherence of form are so intimately related. They also describe the inferred attitude toward motion in music.

3. Dance and Music Interlinked

The properties that are directly known from dance are those that are accessible to sight: the list of "whats" including step, dance and conventional gesture, posture, shift, and stillness. Space is directly perceived, as is that portion of the other elements of dynamics that is visible. Structure, a directly known element that should assist the viewer to make predictions, is so variable in dance (independent of music) as to be virtually undefinable. That is, dances, taken individually, have structures, but there are so many ways of deriving structure other than the time-dependent structure of music, that as a

directly known element in general it is difficult to pin down. The inferred elements of dance are all those that are kinesthetically experienced: time, weight, energy, and their combination into rhythm. The predisposition to understand affinities between the elements and the interpretation of ideas and feelings represented by the dance are in the domain of the viewer's inferential powers.

The properties directly known of music are time, structure, and all that is accessible to hearing: tone, melody, harmony, and timbre. What is inferential is the attitude toward motion, a predisposition in the hearer to understand relations between tones, interpretation of ideas and feelings represented by means of the directly known properties, and arousal, the exact nature of which is not clearly understood. Because arousal is akin to feelings, it has been assumed that the feelings expressed in the music are in turn felt by the listener. Other explanations are that the arousal is the sense either of satisfaction or frustration or, alternatively, the pleasure of recognition and appreciation.

It should be clear by now that dances choreographed imitatively to music become influenced by, if not dependent on, the musical structure and musical time. Returning now to the model, and placing dance in the focal position receiving the organizing force of its frame the music, it is easy to see how the structure of the music guides the viewer of dance. Music directly embodies time and structure, to which the choreography reacts with its own inferred attitude toward time. This interplay between directly known and inferred sources of meaning follows logically from the sense that the sound causes or motivates the movement. Musical durations are a foil against which the

dance is silhouetted, as it were; the tempos and meters are the regularity that allow the flow of movement to find points of reference, landmarks. The beginnings and endings of melodic phrases are frames to separate this movement phrase from that one. The suspense of a rubato stands expressively alone when the music holds exclusive attention; it becomes a direct challenge to the dancer when combined with the dance. Silence (as in a musical rest) is empty neither musically nor in movement terms but acts like a magnet to pull forth the next motion or to underline a stored energy charge, like the silent upbeat of the conductor's wand. Croce describes the anticipation, the "plunge and recovery" of the musical waltz (1980, 38-42). She gibes at the "self-annihilating," square beat of disco music, leaving "the choreographer . . . pretty much to invent time" (1980, 62). Denby remarks on the variety of effects of different meters and shifting accents on the same movement, likening the stresses of measures, dynamics, melody, harmony and timbre to a dancing floor with varying degrees of resilience. He adds that dependence of dance on music is mutually beneficial, making "particular stresses in the music more perceptible, and continuities more coherent" (1980, 326). He emphasizes that the music lends coherence to long dance phrases.

The above remarks are offered as evidence that the manipulation of time through the structure of the music is the primary organizing force for perception of time in the dance. (Please keep in mind that statements made in this thesis are from the vantage of the audience, not the choreographer.) The framing power of the music is defensible in an epiphoric relationship wherein the choreographer has chosen to follow the music. It is the contention of this paper that this dynamic works the same way in a diaphoric

relationship, even when the music is not one continuous work but a collage of pieces or of sounds. Because of the primary-secondary relationship and the corollary that the frame qualifies the focal term, any auditory accompaniment will be understood to represent time and structure for the dance. The directly known musical time and structure interlink with the inferred time of the dance. Here is the action of the model: the reading of the one art in light of the other. And it is the reaction of the dance to the music that carries the gist of meaning of time, not really the details of rhythmic variation in the music nor the actual visible durations of the movement. The dialogue between the directly known and inferred properties of movement and of sound, the tension between them, is where the onlooker finds meaning.

If music furnishes dance with direct perception of time and organization, perhaps it could be said to furnish it with another unmediated element: kinesthetic response. Motion is a inferred component of music; the tones themselves don't really move. Isn't it possible that the flux of energy, the attitude toward motion embodied in the music is literally felt by the listener as kinesthetic arousal? Consider that the basic medium of sound is vibration, literally received as and causing a vibration in the ear. It would be simplistic to assert that this resonance is any more than an analogy of what could be true of the whole body. However, it doesn't seem utterly fantastic to propose that the arousal (often called feeling) that the scholars are at such pains to explain might be a result of vibration, the changing energies of the sound. Terence McLaughlin (1970, 86) goes so far as to say that rhythm, the primary ordering element of music, is more bodily than auditory since hearers respond motorically. Indeed, G. Harrer and H. Harrer found in their research

that muscle action potentials measured by an EMG increased significantly in the legs while the subject listened to dance music (unspecified) and not elsewhere in the body (1971). Few would deny that the music, whether or not its particular dynamics are mirrored in the movement, galvanizes the dancers, and that rehearsal in silence in contrast to one with music can be a little dreary and tiring. The audible rhythms, the virtual motions insinuate themselves into the dancer's body; why not also the viewer's?

This possibility, if tenable, would go far to explain why music is so important to dance. So much of the essence of dance, lying in its kinesthetic aspect, is inferred. Maybe musical energy is felt as kinesthetic arousal, and interpreted in terms of the movement, in fact attributed to the movement, especially in an epiphoric relationship. This wouldn't lessen the role of inference and kinesthetic response stemming from the movement; the response would simply be heightened by the arousal caused by the music.

Continuing to assess what has been stated about the directly known and inferred properties of dance framed by the directly known and inferred properties of music, it is time to be more specific about the continuum of epiphor to diaphor. When the relationship expresses more than it suggests, the dance seems to follow and draw on musical time and structure, and to take musical energy, the sense of motion, for its own. Specifically, the dance usually follows the musical tempo and beat as it responds to musical measures and phrases with its own attitudes. Few choreographers match the steps note for note, but in an epiphoric treatment, the dance takes much of the musical time structure for its own. As Lambert noted (1980, 133), time is usually the strongest element of likening between music and dance. Oddly

enough, this is the element that would seem to have the least basis for imitation, since structure that might lie inherently in dance would stem from the exigencies and relationships of spatial, visual design of movement foremost. Music has no need for structure based on spatial or visual design, and its forms stem from the exigencies of tonal design. The explanation is that the inherent structures of dance may not depend just on visual but as much or more on kinesthetic requirements. However closely the choreography matches the music, its meaning lies in the tension or dialogue between it and the music.

When the relationship is diaphoric, suggesting more than it expresses, the musical time, structure and energy confront and modify the movement; there is less imitation and more tension. Yet even here the organization of the music gives the dance its primary source of time sense. Less the beats or phrases and more the overall structure of the music govern the progress of the dance. The motion of the dance and the attitude toward motion inferred from the music may convey opposing qualities, and the audience must reconstrue the world to make both qualities blend. More than one simultaneous interpretation could resolve the paradox, allowing layers of meaning to accumulate throughout the work. The layering of meaning that diaphor makes possible doesn't alter the basic asymmetry of the relationship; the dance is interpreted in light of the musical meaning. Even in the most abstract dance using epiphoric treatment, the inescapable difference between dance and music--the visual versus the aural--creates some tension, some suspense: how can the two truly be reconciled? The pleasure of recognition of different-yet-similar is ongoing in the best of such choreography.

One aspect of asymmetry that hasn't been touched on is the representation of feeling. Where music does so through structure or timbre or tempo, dance can directly symbolize or less directly (but still more directly than music) indicate feeling with conventionalized gesture and with dynamic variation. Feeling may be more directly represented by some dance movements than by a musical motif. For all the claims of musicians that music clearly represents feeling, there is more ambiguity (this time in the sense of vagueness as well as many-sidedness) in this aspect of music. What one person may interpret as melancholy, another may hear as sweetness or even hopefulness. Some passages of Beethoven might exemplify the sort of expansiveness that some could call joy and others could call anger. Less vague is the expansiveness itself, the attitude toward motion, the energy fluctuations. Representation of feeling may be based as much on this in music as on structure and the rest. However, the representation of feeling in music probably can be traced to the interaction of many elements. Unless the dance or conventional gesture is specifically symbolic and contextually inevitable, the interpretation of feeling will tend to be weighted toward the attitude toward motion being represented through the music.

CHAPTER III

IMMEDIATE CONTEXT

Immediate context intercedes between the art form and the audience. All of the variables surrounding each individual performance enter into immediate context. The individual viewer's reaction or interpretation might be considered an aspect of context, but for purposes of this paper is considered as a separate source of meaning. Immediate context alone, for example, the title of the work, attributes of individual performers and performances, lighting, costuming, staging and so on, is such an extensive and complicated area that little more than acknowledgement of its importance is feasible here. There are, however, a few comments pertaining to immediate context appropriate to the present topic.

It is no coincidence that it is perfectly acceptable to title a dance after the music whereas it would normally be rude, if not unethical, to name a dance using the name of another famous dance, like Deaths and Entrances or Lilac Garden. The model gives the explanation: perception of the dance depends overtly on the music.

Without the performers, without actual movement and actual tones, there is really no dance, no music. It is a little metaphysical to speak of "the dance" because it doesn't exist except in the flesh. Dance cannot exist on paper nor music in notation, any more than a building exists as its blueprint. Blueprints and notation are merely guidelines for the re-creator. And though a particular dance might be said to exist when it is performed without benefit of full production, i.e. lighting, costumes, even a theater, it can't be truly itself without the music it was choreographed to. This tension between primary

and secondary as in the model becomes apparent when we consider the same dance performed under different circumstances. One may see what is called the same dance, say, Swan Lake, in several versions, in different theaters, costumes, lighting, dancers, even different steps. But unless Tchaikovsky's music is being played, it cannot be called Swan Lake. Even in the most diaphoric relationships, such as Cunningham's Events, the music guides perception of the dance. According to Croce, Cunningham failed to show "that any sound can accompany any dance any place" (1982, 12).

Different performers can change the meaning, using the same steps and music. Maya Plisetskaya gives The Dying Swan a remoteness and classicism which makes it clearly a statement about art, about dance, about surrender to the inevitable, about beauty in the abstract. Another Soviet ballerina dances it with such animal crudeness, such immediacy and desperation that the very same steps now represent the uncomprehending struggle of a large bird awkward out of her element; the ballerina persuades the audience that this creature does not accept death easily or gracefully.⁵ The pathos is vivid in both cases but comes from almost opposing meanings. To a lesser extent, this sort of range of context is true of all dance, all music.

Since the dancer's and musician's work is (hopefully) a realization of the "blueprint," what has been said of the model holds true in the same ways as for the art form. The interpretation given the music by conductor and musicians specifically informs the dancer and audience on play-by-play

⁵ From seeing a contemporary of Plisetskaya's dance The Dying Swan on film at the age of about fourteen; the image of her dancing lasted but unfortunately, not her name.

moments. It is the vitality of the violinist's playing onstage in Duo Concertante that so clearly motivates Balanchine's dancers. Live music has a ring and sonority that is quite different from pre-recorded music. There is a slight risk factor in music performed live that adds to the sense of interpretation by the dancer, a give-and-take between dancers and musicians or conductor (though he is invisible) that generates excitement and tension in itself.

Pre-recorded accompaniment may lessen the sense of interpretation, of ongoing artistic choices. Because the music doesn't vary from one performance to the next, the dance varies less as well. While this invariance eliminates a source of inconsistency, it also decreases a feeling of aliveness. On the other hand, the audience then hears recordings of brilliant performances by artists quite unavailable in person, and may draw new meaning from such superior recordings. In some situations, for instance if the recording is poor or the sound system inadequate, the music can defeat its secondary framing function by drawing too much attention to itself. In rare cases, a poor or dated recording might be used deliberately, and the strained sound quality itself then enters into the metaphoric-style interaction, shading the meaning of the dance toward strain or well-worn age.

Another element of meaning from context is the risk factor just mentioned. Aplomb, control could slide away from a dancer at any moment. Awareness of this fact might enhance some of the arousal, the metakinesis of dance. No one expects the dancer to falter (or the audience member wouldn't bother spending his money), but the possibility always looms. Somehow, especially when the musicians can't be seen, the risk seems less for the music;

one is less prepared for mistakes in the playing (while yet enjoying the particular interpretation). By contrast, the dancer seems vulnerable, personal, and the music is to be taken for granted, a more impersonal force surrounding the bodies.

Other facets of context include program notes, costumes, lights, setting, format and content of the concert, and uncontrollable variables like weather and happenstance events. Since any of these, plus dancers and musicians, can and often do differ from production to production, how can meaning have any consistency, how can it be possible to speak of shared meaning? The next chapter speaks of the inner world of the onlooker, and of how he goes about absorbing and interpreting the art form.

CHAPTER IV

THE OBSERVER

The main difference in the way meaning is found, between the collective audience and the interpretation of an individual audience member, is that the individual can later verbalize his reaction. Only the critic and the historian have the privilege of speaking for the audience as a whole, and the critic might fairly say it is his responsibility as official observer to state *his* personal reaction. Some scholars reject meaning as an individual matter on the grounds that there is no way of identifying it since it is utterly subjective. All it takes to learn about individual interpretation is careful interview. Nothing is utterly subjective or utterly objective; the world, and certainly the world of art, consists of patterns, relationships, and properties existing *a priori* to interpretation. Conventional gesture may only have meaning within some clear immediate and cultural context, but it can be shown to mean generally similar things to most people within the given culture, indicating such ideas as social and gender status, stereotypical traits, states of mind, degrees of intimacy in a relationship, or national heritage. An individual's interpretation is likely to have many categories of meaning shared by others within it. However, we are not concerned with what dance means, rather with the processes of looking and hearing, and with the process of making meaning. Whether one is questioning individual interpretation or meanings shared by all potential audiences, the means of construction is essentially the same.

Convention also evokes more subtle (or less obvious) associations. Kinesphere describes the range of movement of a limb plus some sense of

focal range (Maletic 1987, 74). It is common knowledge that Oriental peoples tend to use a much tighter kinesphere than most African or European peoples. Few but dancers and athletes use the farthest kinesphere in any culture. Proximity is another convention, a signifier of personal space or formality. In Japan it is more acceptable in public to stand in physical contact with a stranger than with one's spouse. Another convention, or at least commonly held assumption, has to do with sexuality. The mere presence of a man with a female on a stage seems to indicate a love relationship, especially in dance where there is no text. Two men who touch are assumed to be homosexual. Two women who touch, aggressively or otherwise, are generally not assumed to be homosexual unless one is dressed in typically male attire. Ray Birdwhistell and others after him tried to analyze conventions of this sort in exhaustive detail in the study of what he dubbed "kinesics" (1970).

And there are the conventions of a well-established genre. One sees pointe shoes on the dancers and the genre is usually assumed to be ballet, even if the movements go beyond normal ballet vocabulary. In fact, ballet-trained dancers can make any dance look balletic, even if the vocabulary lies beyond the normal range of ballet steps, because their mannerisms and way of carrying weight are so distinctive. Modern dancers can often be heard decrying the lightness of ballet dancers cast in early modern works such as The Moor's Pavane. Whether or not audiences can identify the type of training, most moderately experienced audiences are probably aware of differences.

"Moderately experienced" is prerequisite, then, for understanding these conventions, even those associated with everyday behavior. Most of the movements of dance lie outside the ordinary range of movement. Simply stepping in time to music is extraordinary. A great deal of dance uses deliberate distortion and a great deal more explores the fantastic and refers not in the least to the ordinary (unlike so much drama). Since so much is out of the ordinary, much dance as art would seem to be outside the ken of the layperson, except to the degree that it can be quickly compared to everyday categories of gesture, animal imitations, national and gender stereotypes, and the like. Sometimes the music is the only clear source of information. Yet choreographers are often not so obliging as to make steps that move count for count with the music. The relationship of music to dance is often opposing or simply co-existent (diaphoric).

What the artist does is arrange properties, the elements of his craft. The composer chooses his instruments, modes, and motifs; the choreographer chooses his dancers, his music, and his method. The observer also arranges these properties, and the processes of arrangement are consistent between people. Perceptual and cognitive psychology attempt to tabulate these inner processes that give rise to meaning. A brief overview here of some basic concepts will be helpful in elucidating how meaning is built.

Psychologists proceed from the assumption that perception takes place on a pre-conscious level; one cannot observe oneself perceiving. The only accurate method is to accumulate particulars and distill the results of hundreds of carefully contrived and controlled studies. Psychologists are still compiling evidence on single or dual modes of perception during simple

tasks in controlled laboratory conditons. What is sought here is the whole picture at once of an extremely complex perceptual act. We can only select some useful data and theory. Cognitive psychologists distinguish between "top-down" and "bottom-up" processes, that is, those ways of recognizing things in the world guided from a conceptual, higher-order thought level, and those guided from a sensory, reflexive level of awareness. These two modes are used concurrently and interactively (Eysenck 1984, 3; Reynolds and Flagg 1983, 99-101, 115-16). To make sense of the world, sensory data are organized by the receiving system even at the least conscious levels. What exists in the world as properties or objects or events does not just imprint itself on the brain through the eye or ear or skin. The human must actively explore and organize his information. In order to explore efficiently and not just stumble from moment to moment, he must store the information in short term memory and be guided by the developing schema or cognitive map. In order to verify the contours and details of his schema, he must explore. This is a continual cycle of perceptual activity, of exploration, use of memory, and of seeking feedback through further exploration (Heil 1983, 30-49; Wallach 1976, 85-100).

The description of the perceptual cycle would seem to imply that we humans create our own world within us. This is true, but hypotheses are based on existing realities, properties which are in the world and remain relatively constant. If they were fluid or purely random, humans would not be able to form any sort of schema, and intelligence would be confounded. The same holds true for the processes of intelligence itself: they aren't random.

Repetition is a crucial feature of the perceptual cycle, by means of which the data can be rechecked. After a certain level and/or period of time, the awareness shifts away from repeated information; the visual cells habituate and cease to respond, the ears don't hear the clock tick. The perceptual system is attuned to changes in the environment and quickly refreshes when change is introduced. On the other hand, one can accommodate rapid and constant change for only so long before the system overloads and it all becomes a blur or noise. It is because there is a rhythm of change against a constant pulse of repetition that we can comprehend the world (Kaufman 1979, 65; Reynolds and Flagg 1979, 75-6).

The desirable ratio of change to constancy probably depends on the background, skills and need for stability of the person (see Frenkel-Brunswick 1958). The more exposure to the (in this case) art form, the more elaborate the schema becomes. The schemata form pre-arranged patterns which prepare the viewer to understand and to alleviate "noise" or stimuli that make no sense.

Visual perception, on which apprehension of dance depends, is an act of construction. Leaving out the neurological complexities, review for a moment the following facts. Detail is only seen by the central part of the retina, the fovea. Patterns of light and dark that fall elsewhere on the retina are seen peripherally and fuzzily. To see, the eye must scan the subject using ballistic oculomotor movements (called saccadic), occurring^c about four times per second. A decision is made using information from peripheral vision where to bounce to next, and with static pictures, the sequence of glimpses is consistent between people (Hochberg 1978 24-28; Kaufman 1979, 174). Edges,

contours, shadows, and angles are important sources of visual detail to determine continuous and discontinuous surfaces, depths, curvatures, and volumes (Dember and Warm 1970, 301; Reynolds and Flagg 1983, 66-117). The orienting saccadic movements made to scan are as crucial to seeing as the light and shadow, and without the movement, the eye quickly habituates and the visual cells no longer coordinate.

The result of this scanning is that only highlights of a scene are seen and stored in short-term memory, about 5 to 7 bits at a time (Hochberg 1972, 64). These bits decay in less than one second (Kaufman 1979, 171). Larger amounts of information cannot be retained unless chunked, simplified, reduced, abstracted. The human eye not only tolerates a large amount of distortion in order to resolve a picture or orient in space (Wallach 1976, 85-100) but in fact the mind stores an abstracted version of the actual properties, a process called encoding or recoding (Hochberg 1972, 69; Reynolds and Flagg 1983, 38-40). Furthermore, as the Gestaltists have shown, the abstracted version is an effort to organize the information in the most efficient way. Thus the principles of good continuation, symmetry, proximity, and so on from Gestalt theory continue to hold a place in perceptual psychology even though the original field theory no longer has the same credence (Moore 1982, 197-202; Arnheim 1974). Hochberg notes that a cartoon of a hand position is more easily understood and re-enacted by subjects, three sausage fingers and all, than a photograph of the hand (1972, 74).

What may be garnered from all this research is that the viewer does not passively absorb. The mind chooses what to see and how to see it from the most "primitive" level on up. Active decision-making, though unaware, is

fundamental to making sense. The perceptual process is one of extracting featural information as well as global information and re-synthesizing the bits back into wholes based on one's experience of similar patterns (Deutsch 1982, 101). It is important to understand this act of synthesis because it mirrors the constructive act of making sense of a metaphor. Another lesson to be learned here is that the construction of meaningful patterns is not a mystical process but a behavior that can be analyzed. We humans may seem to accomplish a minor miracle simply by seeing a tree, yet the miracle is everyday. Animals with far less of what is called intelligence do no less. Do not mistake the complexity of perception for difficulty. In other words, the comment is not on the difficulty of seeing dance; this is an explanation that making meaning, however complex, is the most basic, primitive, unconscious of acts and therefore not extraordinary.

Most of the above observations describe "bottom-up" process. Note that abstraction, far from being a purely conceptual act, occurs at the most reflexive level of awareness. Encoding, the term for this abstracting, is the subject of much research. Only the surface has been scratched as to visual encoding of static, much less moving images.

What of "top-down" process? Long-term memory plays a central role in recognizing objects and events, and if everyone carried around a public library it would not equal the mind's capacity to store information. It is the organization of storage, as any librarian knows, that allows quick access. Eleanor Rosch (1978, 27-48) describes how the mind organizes schemata by building categories, clusters of ideas, tagged by their prototypical example. The central tendency of a category, say of a dog, may not be a memory of any

particular dog but a composite of typical features and actions that make up dogness. By clustering examples more and less like their prototype into categories with hierarchically ordered lists of features, the mind can store, compare, analyze, reorganize, retrieve, and imagine. Thus, the mind necessarily preconceives an act of perception and the senses are prepared to accept related data: the audience goes to a concert expecting to see human dancers move to music on a stage, not giraffes playing with octopuses in zero gravity. The sort of abstraction that goes on at the conceptual level is a more complex form of the system at work, but still a built-in mechanism of ideation.

Making sense is an ongoing task. The mind is structured so as to use information efficiently and make estimates of future outcomes. It necessarily uses abstraction and imagination; the mind necessarily plays. Furthermore, the properties sensed in the world do not each have their own track in the brain; perceptual modes interact to cross-evaluate data from the world (Dember and Warm 1970, 306-9; Kaufman 1979, 357-88; McBurney and Collings 1977, 234-45). For example, the mind does not just see printed words or phrases. There is evidence that reading is as much an auditory activity as it is visual (Kaufman 1979, 171); we may indeed need to "hear ourselves think." It is by abstraction, encoding, symbolization, categorization that we may "see" a phrase or "feel" a visually perceived action. This is known as synesthesia and perhaps Martin's metakinesis.⁶

⁶ Kivy explains how properties such as contrast, shape, and rhythm are liable to cross over modes of perception so that the listener "sees" a tone (1984, 1980). Allan Merriam devotes an entire chapter to synesthesia (1964).

How do visual and auditory perception compare and interact? Returning to bottom-up processes, it was mentioned that contours, edges, angles, and shadows, according to Information Theory, are among those visual properties by which we determine how to see objects. Similar properties hold for sound, such as the "angle" of a descending into an ascending melodic line (Watkins and Dyson 1985, 71-119), the "edge" of a tone (the first millisecond of its onset) being a major clue as to timbre (Radocy and Boyle 1979, 61; Risset and Wessel 1982, 25-58). Unlike varying wavelengths of light (color), which when combined make different colors from the original, varying wavelengths of sound don't combine but remain distinct as separate tones (Moore 1982, 189-93). When a combination tone is played without its fundamental tone, the brain still "hears" the missing tone (Roederer 1982, 45). The auditory system recovers much more quickly than the visual system (less than one second, compared to several seconds) from prolonged or intense stimulation (Kaufman 1979, 256; Moore 1982, 60). Memory for pitch, according to Deutsch, decays very gradually and is not easily disrupted by visual or other distractions, except by tones very close in wavelength (less than a half-note difference). For most people, absolute pitch recognition is poor and "memory for pitch information must therefore depend largely upon abstraction of this information and its retention in encoded form" (1977, 108). She compares the encoding of sound to visual encoding, using analogous principles like contour and figure-ground. Moore also enumerates these principles for hearing (1982, 197-202). Gradual decay of memory for pitch would indicate some natural association of sound and duration. Fraisse (1982, 157) found that the time interval between elements is important in the perception of

rhythm to the degree that too long or too short an interval (duration) destroyed the sense of rhythm altogether. Roederer (1982, 38) asserts that memory is not analogic but holologic, such that a partial cue will recall the entire category, as in the "hearing" of a missing fundamental of a combination tone. This holologic recall may be the means through which motif and variation work; without repeating the entire motif, a memorable snatch of it will help to recall the encoded, simplified version of it stored in memory.

Listening is not exactly parallel to looking, though certain features are analogous. The feature of contour seems to be shared by more than the visual and aural modes, as the phenomenon of synesthesia suggests. Kivy stresses the contour of music as a centrally telling property, and describes at length the "intimate relation of pitch to energy, and energy to motion" (1980, 55). Contour is easy to identify in dance, in fact could be shown to be the most prevalent element in the visual stimulus as it can be noticed in so many forms: the shape of a body, the shape of a movement, the shape of a grouping of dancers, the shape of the after-image or pathway of the movement.

The reason for delving into the minutiae of visual and auditory perception is that these elements of bottom-up processing, shared by everyone, form the framework for interaction of sound and sight. One may begin to see the appropriateness of the model, of how music forms the frame and dance the focus, based on clues that sound may be easier in some ways to process at a subconscious level than sight. The amount of repetition in music is a good example; the brain requires a certain amount of repetition to establish a pattern. Lacking much repetition, dance patterns that take much

time to form may simply be harder to assimilate and remember than musical patterns. Memory for pitch, and possibly for aggregate sounds, lasts longer than memory for visual images, so that the sounds may serve as encoding signals for similarly constructed visual patterns, hence epiphoric form.

Contour, clearly a primary element of movement and musical recognition, is also a primary means of identifying an epiphoric use of music. Where the contours of the movement and the melody obviously overlap, there is an unmistakable imitative quality. Once such a relationship is established, the musical contour will continue to override the dance contour; the contour of the music may serve as an encoding feature. As pure sensory input, sound and visual images have a great deal—but not every process—in common. The two modes are easily blended while remaining perceptively separate. Cross-sensory processing is native to the human system, and the properties that allow synesthesia such as contour and repetition with variation become the vehicles of abstraction and symbolization.

The presence of music with dance creates a figure-ground split for the audience member. If one pays close attention to the structure of the music, one may not actually see the dance, protests Horst (1980, 140). It seems unlikely that the dance is always figure, the music always ground; more reasonably, seeing and hearing probably play off in a shifting figure-ground relationship in one's conscious awareness. Yet it has been stated that following the musical structure is crucial to understanding anything about the music. If the audience cannot be consciously aware of the structure of the music, it must still be possible for the information to register at a pre-conscious level (Kaufman 1974, 14; Reynolds and Flagg 1983, 28-9). A great

deal of everyday information has to be garnered in this way, since conscious attention is by nature limited to one or two things at a time.

The reason for appealing to the notion of categories and prototypes is that it helps to explain the possibility of shared as well as personal meaning. It also explains epiphoric and diaphoric relation within one unified statement. Categories consist of hierarchically ordered features which can be compared, reorganized and exchanged, and form the basis for new categories. Because of convention, repetition within a work, cultural patterning and familiarity with the medium and with style, the larger categories brought from memory are likely to be similar between people (we won't say the same). Epiphoric relation depends on the overlap of categories between dance and music, such as the inferred properties of kinesthesia and arousal discussed at length in Chapter Two. Diaphoric relation depends on an exchange of features from unlike categories.

This description exactly fits MacCormac's cognitive model of meaning in metaphor (1985). He prefers to use a mathematical construct, fuzzy sets, to draw his model. Categories described as fuzzy sets do not have set boundaries, but may fluctuate in various circumstances. He conceives his model partly as a spatial one of fuzzy sets interconnecting and flexibly changing with experience, organized in hierarchies using both abstract concepts and word for featural descriptions. His use of epiphor and diaphor has already been incorporated here; it's easy to apply what he proposes about cognition of metaphor to cognition of dance with music.

What must also be pointed out is that what is encoded enters memory, whether the stimulus was noted consciously or not. What is not encoded

isn't likely to enter long-term memory. The recognition of similar and dissimilar features, the reorganizing of categories may happen instantly and intuitively, and it can continue after the dance/music event has happened, especially if there is any attempt to verbalize the meanings so constructed. Boure, Dominowski and Loftus note that context is necessary to infer structure, and that without structure and/or context, nothing is stored in memory (1979, 153-60). In any case, what has not entered long-term memory doesn't affect later experiences (remember that what is in memory need not have been in conscious awareness), therefore cannot be significant for the viewer.

A detailed picture of this process of constructing meaning could be drawn. The viewer begins to construct what he sees and hears instantly from bottom-up, using (at least) the elements of repetition with variation and contour cross-sensorily, and a variety of features each for sight and sound. He encodes the visual and auditory movement, abstracting from the onslaught of fleeting images and sound impressions to store in memory a simplified, chunked version. This is an ongoing, pre-conscious process. It must be guided by top-down expectations, experience of body-language, conventions of movement and of music, awareness of style and structure. Little of the top-down process may erupt into conscious thought, so absorbed the viewer must be to both listen and look, though this factor may vary with degree of experience and education in the medium. Probably the principle of visual capture is at work for most people, yet if the music is strongly contrasting or is strikingly familiar, he may be at times more aware of it than of the dance. Most likely, there is a shifting figure-ground relationship. Because the event is defined as

dance, the music is expected to be secondary in meaning. But music is expected to be present. The convention of putting dance to music sets up that expectation, and when a dance is done in silence, e.g. Jerome Robbins' Moves, one is drawn to keen awareness of those aspects that the music usually fulfills, like time structure, and to the sounds and audible rhythms made by the movement (Siegel 1980, 256). The music helps to set up an attitude toward motion (via the arousal of sympathetic energies) and sequential structure and time sense in a way that may not be conveyed visually. Therefore, even though the dance takes primary focus most of the time, the music allows the viewer to make predictions he might otherwise not feel qualified to make based only on the movement. Perhaps musical features take less vigilance to process than visual ones; it is true that the visual system must focus on many points to construct a scene, whereas several sounds can be sorted out simultaneously. The viewer can recognize repeated musical figures and sort out variations without being completely distracted from (or by) the visual aspect.

Perhaps it is because speech patterns so dominate thought that duration of a musical phrase is predictable, approximately the length of a drawn-out exhalation of breath. Perhaps it is because the mind must chunk information to absorb it, must gather the several loose ends into a centrally joined bundle, that sentences and musical phrases generally don't exceed an optimal length, and usually relate to a central idea no matter how complex the elaboration. In any case, music seems to answer the brain's requirement for chunking in a way that dance may not.

Not all dances lack the type of sequential structure usually associated with music; Laura Dean has exploited the effect of repetition in dance and music. Not insignificantly, this effect is "mesmerizing" and "euphoric" (Kisselgoff 1979), in other words negates the sense of the passage of time. Balanchine and other choreographers who follow the music epiphorically could ironically most easily do without the music (in reference to sequence), once the dance is made, though the audience would no longer "get" the logic of the relationship of movement to sound. Dances that don't use the moment-to-moment musical logic but rely on dance logic (e.g. the demands and limits of gravity, the symmetry of the body, cultural and sexual norms, and so forth) may still need music to orient the audience in time and help organize the chunking of sequences, to see how this figure relates to that one, this group to that solo, this frenzy to that calm. Dance movements are extremely rich in features, to the degree that some streamlining, some means of encoding is needed. Because dance resembles narrative in that its developments require time and sequence of events, the sequences must be embedded, smaller units into larger to make sense. This structuring is the *sine qua non* of music.

To function together, the dance and music are unified, merged in memory, just as the smell and taste of coffee merge in memory, though they are, in fact, different. This merging by transformation is the metaphoric function. Semantic embedding is a powerful tool for achieving unity, as Empson (1971, 239) stresses: "Words are seen as already in a grammar rather as letters are seen as already in a word . . . a plausible grammar is picked up at the same time as the words it orders, but with a probability attached to it, and the less probable alternatives, ready, if necessary, to take its place, are in some

way present at the back of your mind." In a sense, the dance particulars are embedded in the grammar of the music.

Denby sums up the aftermath of a performance thusly: "During the stillness, the accumulated momentum of the piece leaps forward in one's imagination, suddenly enormous. The drive of it now seems not to have let up for a moment since the curtain rose" (1983, 451). The end product of the entire flow of events is a unified yet complex impression, an abstracted version of the whole; on a larger scale, the echo of Hochberg's sausage-fingered cartoon hand. Just as in metaphor, in which two dissimilar concepts are transformed into one, or as in Koestler's formulation of "true creation" where "an idea . . . is suddenly seen to fit into two systems or planes of thought which seemed previously to have little or nothing in common" (McLaughlin 1970, 106), the dance and its music are transformed by and into one another and activated (arouse rapt attention) by the tension between them. Momentary features may stand out as memorable; very likely these serve as the highlights which trigger the construction of this transformed and unified abstraction. And the abstraction is carried out intuitively at the semantic level of the whole "sentence" rather than by its units.

Tony Bastich declares that the inductive, associative mode of intuitive thinking is pre-verbal, pre-conscious, and usually chosen in preference to an analytical mode when the material is cross-modal, non-verbal, or when not enough time or information is available. The liberty is taken here of quoting at length:

The intuitive process, in contrast with secondary thinking, is proposed here to involve the combination of emotional sets

containing many concordant responses. . . . The total information being used at any time in the intuitive process is defined by its physiognomy, that is, its associated feelings and ideas. Information may be contributed simultaneously through all modalities, speeding the process. Particularly non-verbal modalities are used, commonly spatial.

In subjects with a verbal preference mode, kinaesthetic representation of the information is commonly made. The verbal mode is restrictive in intuitive thought because of its linear nature (1982, 249).

In discussing previous studies of cognitive style, he objects:

All such methods assume a static network of associated categories. However, the posited direction of increasing redundancy in intuitive processing implies that category definitions change, overlap, recombine, embed, etc. Encoding variability, increase in possible combinations, and cross-modal transfer of information are just three of the factors facilitating this category fluidity, contributing to novel intuitions and even to different intuitions resulting from the same external stimuli (1982, 251-2).

A dance/music event calls up clusters of categories or fuzzy sets from memory, some quite specific, some more generalized and inclusive. The expectations the observer prepares himself with set up a predisposition to respond to (or with) certain ideas and images, which also are likely to have an attached emotional charge. A succession of categories and related emotional tensions are suggested or are inferred, some obviously having directly to do with a theme, some not so obviously related, which in turn may set up tension and anticipation by their unexpectedness. This is in keeping with Meyer's description of how music becomes meaningful. The use of inference depends on cues from context, both peripheral to the aesthetic object such as program notes and costumes, and inherent in the embedding and succession of images into sound and vice-versa. Some weaker and some stronger links

are thus built between categories or fuzzy sets, reinforced by attendant emotional responses and memories. This accumulation of more and less related images seems to be what dance critics concentrate on, judging by their reviews, and especially by Denby's description of meaning in dance. The more links one creates between categories and images, the more meaning the work has, both discursively and emotionally, since thoughts and feelings are not so separate as words may make them seem. Many weaker links may result in more meanings than one or two strong links, because strongly related categories allow of less tension, less interchange, less open-endedness. One or two links between closely related categories do not lead to the challenge of estrangement: they lead to predictability and information (reduction of uncertainty). Either a few very unlike categories suddenly seem to conjoin or many moderately related categories may establish a basis for the construction of a network of meaning. The dance must therefore be consistent within a range of possibilities and simultaneously suggest a plurality of ideas. The meaning is the resulting, unifying pattern of weaker and stronger ties between like and unlike categories, and the emotional impact such a reordering of ideas causes. Probably only a few easily identified ideas erupt into conscious thought during a performance, but other ideas and reactions often come to the surface when a viewer is pressed to verbalize his experience later.

At the end of a concert, the audience member cannot always say "It was about thus-and-so." He may have only a lingering overall impression, much as when one wakes from a dream unable to name details or recall faces but with a distinct sense of the dream's importance and vividness (or

unimportance and incoherence). So many parallel modes of perception have had to come into play during the dance/music event, and been so interwoven, it's little wonder that the average dance viewer recalls very little of the sequence of sounds or movements. Rather than using a linear, deductive mode of thinking, the viewer of dance/music can only understand it as a whole, intuitively. If the fragments seem to fit together like a jig-saw puzzle, then, the viewer senses structure and design, feels mounting suspense, merges all of this with his own observed emotional responses, and thereby forms enough of an articulable idea of meaning to be able to verbalize his reactions later. The features of music and dance have been fused by the intuiting viewer, and though they are fundamentally different, they are remembered as one unified image.

The difficulty, noted earlier, of separating directly known information from inferred meanings, may be due to the globalization of the intuitive process. Bastich observes that "The perception of internal and external stimuli cannot meaningfully be separated as the continued presence of internal stimuli interacts with the perception of external stimuli and it is this altered perception of the external stimuli that provides information on which the organism acts, not the external stimuli themselves" (1982, 251). This statement strongly reinforces the stance that the inferred properties, the tension between dance and music, the transforming interpretation of the viewer, are sources of meaning that must be considered by scholars and choreographers alike, if communication is truly the aim of art.

A work of dance could fail to be meaningful for a number of reasons, among them: 1) it uses so much movement convention and cliché that it

parallels a dead metaphor, it lacks sufficient tension; 2) it uses movements that appear to have unrelated or inexpressive dynamics or gestures that are not similar enough to already existing shared categories to trigger useful associations; 3) the music is rhythmically or thematically more powerful than the movement, destroying the balance of tension; 4) the music and movement purport to be designed epiphorically yet achieve only a weak use of cross-modal properties. The latter problem is a common one and very interesting in that audiences can quickly ascertain, at the beginning of a work, whether the relationship is supposed to be more epiphoric or diaphoric. Sometimes this information is common knowledge, as with Balanchine and Cunningham. Often it must be gleaned, and though audiences may agree that a given work is epiphoric, they may not agree on the features that make it so.

Depending on the perceiver's expectations and assumptions, the meanings that result may re-affirm previously established prototypes; there may be no new insight. Much of this expectation, the "set" of the the perceiver comes from his cultural conditioning, his socio-economic station, his education and his era as much as his personality and previous personal experiences. These larger factors constitute the fourth source of meaning, the overall context. This is a prodigiously complex area of research, far too extensive a topic for the scope of this paper. There is no need to do more than acknowledge the significance of this level.

However, one or two observations do have particular pertinence to the subject of a metaphorical dynamic between dance and music. Music of other eras is played to the gratification of listeners who would laugh or turn away

in distaste from dances of another era (true also of other cultures). The musical taste of the majority of the populace leans heavily toward 19th century styles, to the disgruntlement of twentieth century composers. Of course, the continued popularity of ballets like Giselle, Swan Lake and Coppelia attest to the same slowness to change tastes; undoubtedly audiences prefer the idealism, narrative simplicity and fairy-tale beauty to 20th century themes of despair and disassociation. But the movement style now used to dance these old ballets conforms to a 20th century style, a 20th century aesthetic. Even the physiques of ballet dancers must conform to a current aesthetic. The movement style of even forty years ago looks silly and dated to audiences of today (with the exception perhaps of the hoofers of tap, vaudeville and early film).

Manners of movement are ingrained in every day life, and dance must reflect those manners and aesthetics somewhat in order to "read" to today's audiences. Hence, dance is sadly subject to similar evaluations as for clothing fashion and car design. There is more to the transience of dance than the lack of a widespread, historically established and convenient notation. Dance is so dependent on context that it is almost imprisoned in its own era and jailed by its very interpreters, men and women of great genius whose power will last beyond their lifetimes only in word and legend. Because of the rapid shift of movement preferences, lifestyles, technology, and not least, dance technique, films can only preserve the shadow of their worth.

No doubt the music of Schubert and Beethoven has a different meaning for twentieth century audiences of the U. S. A. than for German listeners in the 1800's. But music of any era is never judged out of fashion. For this

reason, music, when it accompanies dance, indicates much about era, *Weltanschauung*, cultural mores and so on that is not easily stated by the dance. The music thus has access to categories of meaning that further guide and modify the dance in its role of frame in the metaphorical model.

CHAPTER V

REVIEW AND CONCLUDING COMMENTS

In at least three ways, the mechanics of metaphorical statement can supply a model for the mechanics of how music operates with dance to create meaning. First, the dance is understood to be the focus, the subject of the experience. The music is the frame (perhaps even the cause) that organizes perception and interpretation of the movement. Second, the music creates or eliminates ambiguity, in the sense of plenitude of meanings, by its shifting interaction with the dance. And third, the perceiver constructs meaning by featural comparison and reorganization at a pre-conscious level; then by using intuition and drawing inferences, he or she conceives the transformed movement and sound as one unified image. The perceiver hears salient features and structural design of the music at a more or less pre-conscious level and these assist him to organize perception of features, attitudes, and inferred elements such as time and kinesthesia of the movement, alike or in contrast to the music. The terms *epiphor* and *diaphor* were borrowed to indicate degrees of similarity between the dance and musical features.

Meaning emanates from four interacting sources: the art form, the immediate context, shared and personal meanings of the viewer, and the overall cultural context. The art form and the viewer were explored in depth in light of the model; the immediate context was briefly touched upon. In terms of the art form, dance was proposed to consist of spatial and other elements perceived visually, creating its directly known properties, and the inferred elements of time, force and kinesthetic response. The viewer's predisposition to understand dynamics and ability to find an interpretation

play major parts in the inferential process. The music engenders a direct auditory apprehension of time and of structure. Both mediums represent feelings and states of mind, the music primarily through its structure and its attitude toward motion, and the movement through conventionalized gesture and posture and through dynamic. It was suggested that dance does not have inherent time structure in the same way that music does, based on repetition with variation and embedding of sequences, so that music lends its structure to the dance even in diaphoric relationships. Further, the directly known features of music, time and structure, plus inferred features, arousal and attitude toward motion, interlink with those of dance in a way that causes tension, dialogue. Meaning is found in this tension and interchange.

Research in perception and cognition lent evidence to the idea that sound might act as a guiding force, an encoding cue, for the visual stimuli, thus fulfilling its role of frame to the dance. Synesthesia and non-linear, intuitive apprehension play central roles in the processing of cross-modal and non-verbal material, resulting in changed categorical clusters, or modified relations between categories. Dance and music, like metaphor, have both similarity and difference that create tension, and as in metaphor, the audience member merges his or her experience of each in memory, so that they transform and activate one another. The interpretation he gives his experience is based on those encoded and unified features that remain in memory.

Teachers of dance composition recognize the importance of at least a superficial understanding of musical forms, but sensitivity to form in dance is very difficult to teach, partly because the field of dance lacks an articulated

vocabulary of form other than long antiquated pre-classic dance forms. There is no denial that dance has or should have its own structures; the forms of music have simply dominated to the point that perhaps the forms intrinsic to dance remain unrecognized. However, this paper is not intended to advocate the abandonment of musical accompaniment; dance with music is a powerful art form, the more so because it is complex and cross-modal. What may have sounded difficult, seeing and hearing and reordering ideas, is not miraculous or a special talent necessary for understanding art. Perception and cognition are the everyday business of being human, applied to special statements of how it is to be human--that is, art.

The value of questioning how dance communicates with music is to develop ways of speaking about dance that go beyond opinions about taste, that take into consideration corroborating evidence from other fields, and that make it easier for the observer to verbalize what is intuitively, non-verbally derived. Thinking of dance with music as another form of metaphor--experiencing one thing in terms of another--gives the viewer a way of talking about dance. Choreographers need not concern themselves with what the audience thinks (particularly any one individual), but it is being insular to ignore the fact that the work of art isn't complete until it is seen; art is, after all, communication. Understanding something of how meaning is built by the viewer from the art form doesn't detract from the creative process, as some artists fear. It should be liberating. And it need not frighten the viewer to think that he might need a language for talking about art. The comment heard most often is "I may not be qualified to speak because I don't know enough about it." The unspoken plea is "Teach me

how to look, give me words because I do have something to say." A car buyer who knows little of the mechanics of autos thinks nothing of looking at consumer reports, doing some comparison shopping, discussing alternatives with friends. Why not do the same for art? Too much is uncritically swallowed because of a lack of confidence about the language.

APPENDIX A

BRIEF REVIEW OF SOME MUSIC THEORIES

This summary does not mention every significant musical theory, rather it touches on a few theories that illustrate the types of debate typical of the field.

Karl Pribram states that "while the aesthetics of music is a function of the recognition of variation, musical meaning results from the generation of feelings produced by these same variations on patterns of repetition" (1982, 27), and "meanings are derived from the intrinsic organization of the music, its structure. This structure intends and evokes feelings rather than referencing them" (1982, 28). He is talking about the inferred properties of music. Kivy (1984, 1980) proposes that the structural properties of music are analogous to structural properties of basic feeling states and that the listener recognizes and appreciates these with the help of assorted musical conventions, and of synesthesia. For Kivy, recognition and appreciation, inferential activities, constitute the construction of meaning.

In two separate books (1967, 1956), Meyer ties together the use of ambiguity in structure with feeling response, holding to what he calls the conflict theory of emotions after John Dewey. This theory states that emotional response arises when some need or desire is frustrated. Meyer argues that confusion and ambiguity are abhorrent to the human mind, that the mind always seeks clarity, consistency and predictability. Music is sound arranged in clear patterns that are designed to *not* fulfill the listener's expectation at every step. By using theme and development, the composer sets up anticipated outcomes, which require some knowledge of musical

styles on the listener's part, and then delays or denies the resolution, thus eliciting an emotional response. For him, then, it's the emotional response from frustration that holds meaning, not the structure or any objective appreciation of it. Therefore, he recognizes the power of inferred meaning (emotion, anticipation) lying within the directly known properties (structure, style).

The difficulty with his theory, aside from the fact that humans demonstrably seek ambiguity in art, is that it doesn't account for the heightened meaningfulness of familiar works. Meyer attributes the meaningfulness of familiar works to forgetting. But in a familiar piece, what was once a surprise can now be anticipated, yet retains its freshness. One is no less delighted with what one is familiar. Another objection is that if frustration is the basis for feeling and meaning, it hardly seems likely that anyone could actually enjoy music, or any art. Take the idea to its logical extreme, and one would have to concede that the most climactic, meaningful moments would also be the most frustrating. It seems more reasonable to say that the satisfaction of hearing a predicted resolution is heightened by the suspense occasioned by delay and variation. Yet music often augments already stated, predictable themes to enhance the feeling response. This arousal is not a case of emotion caused by frustration or delay but by repetition.

Since the rise of serious ethnomusicology, scholars are well aware of the centrality of cultural conditioning to the production of meaning, yet a controversy on the "universality" of the overtone series and some instinctively understood or learned structure deriving from it is hard to

shake. Whether learned or innate, the octave or mode is found in world musics, according to Nettl, and seems to be the basis on which writers such as Pribram (1982), Coker (1972), Meyer (1952, 1967), Jackendoff and Lerdahl (1982), Bernstein (1976), and others build their version of musical structure and meaning. Detailed knowledge and research from ancient times on the overtone series is, in fact, found in the musical history and literature of India, China, and the Mediterranean. By this same evidence, however, it is clear that the resulting structures are not inevitable, since Western cultures developed quite a different use of harmonics than Eastern ones (Levis 1963; Malm 1967; Shiraii 1977; Wellesz 1957). Mary Louise Serafine in Music As Cognition (1988) takes these "Universalists" to task, pointing out that is is a fallacy to assume that the human ear naturally prefers the "earliest" (in the overtone series) to the more remote of related tones, when all are in fact equally accessible. Ethnomusicologist John Blacking agrees with her when he says "Whether or not there are biological foundations of music-making . . . music itself is not natural. Musical intervals are social facts and not always founded on the laws of acoustics" (1979, 6). Edward Burns and W. Dixon Ward verify this learned basis of a universal phenomenon (1982, 261).

Bernstein (1976) is one such Universalist, positing that the progression of tones described by harmonics makes possible the sort of deep structure and transformational grammar in music which were suggested in the field of linguistics by Chomsky. Bernstein's application of pragmatics, acoustics, deep and super structures to music emphasizes that the main carrier of meaning is the structure, not what it represents, though he says that signification and affect play a part.

APPENDIX B

EXAMPLES: INFORMAL DISCUSSION OF THREE WORKS

In order to verify certain observations concerning the epiphoric and diaphoric relations of music to dance, four examples are examined. Doris Humphrey's Water Study is without musical accompaniment. Jiri Kylian's The Overgrown Path is choreographed to a piano sonata On The Overgrown Path by Leos Janacek. Excerpts from works by David Gordon Pick Up Co. (from a publicity video; no program included) is the last example.

Any attempt to catalogue by introspection one's own perceptual processes, in the strictest sense of the word perception, will meet with failure because those processes are largely unconscious. These analyses simply offer informal samples of the ideas introduced in the body of this paper: that the sound is assumed to cause the movement; that the structure of the music is a frame for the dance, which doesn't have the same sort of time-dependence; that the phrases of music in an epiphoric treatment constitute the "sentences," make beginnings and endings of ideas discernable; that the sound provides kinesthetic arousal which is interpreted in favor of the movement; that the music is transformed into the dance so that they form one unified image even though they are independent mediums. The idea of this chapter is to make as vivid as possible the model's dynamic that activates and makes possible the construction of meaning.

Water Study is about a ten-minute work, that begins with a wave-like arrangement of movement on the floor, traveling from dancer to dancer, gaining momentum and changing as it goes, to culminate in a release into the floor. This motif is repeated. It gradually moves into an allegro section,

with successive lines of dancers rushing and meeting explosively in the center, to be drawn to the side for another round. The energy subsides, and gathers again, with first one, then another and another, swaying in unison, until the entire picture resolves into a renewal of the original movement motif.

Although Water Study has no music, it is accompanied by the sounds of movement: running feet, softly falling bodies, and unison breathing (audible because so many are breathing together, though it should not be emphasized). On first viewing, this writer was aware of the unusual ease of following the development of the phrase, as though being instructed how to watch. It is, in fact, a study, as much an educational tool for the audience member as for the dancer. It is the movement of the viewer's eye, led from dancer stage right across to dancer stage left at the beginning of the dance that informs the viewer of the rhythm as much as actual duration of movements. Time is indicated not by beat but by "breath," not actual breathing but the overall typology of breath. Breath is represented by a cyclic, repetitive action that begins from the center of the body, causes the body to stretch and build energy, finds release or fulfillment at the peak of its momentum, then subsides.

Also obvious was an unusual amount of repetition: within sequences (the wave sequence, the crash sequence, and the swaying sequence); of shapes; of timing; of horizontal to vertical ratio (about 2:1). Development from motif to expanded version was gradual with no logical connection missing so that one would not have a sense of aimlessness or delay of anticipated outcomes.

Another observation was that each dancer embodied individually what the dance as a whole embodied; the microstructure mirrored the macrostructure. Each dancer was sequentially linked to at least one other, so

there was an unbroken flow of energy, a balanced exchange. The dance thereby achieved a sense of unity and anonymity, every body contributing equally and democratically even when each dancer's movement wasn't like any other's.

Kinesthetic response seemed to be in response more to the phrases (discernible because of the amount of repetition) than to any one movement. The exception to this was the sway, eventually taken up in unison toward the end, which had a strongly kinesthetic impact, strengthening as more dancers joined in. On later reflection, it seemed that the kinesthetic arousal for the piece in general was mostly a recreation of the idea of flow being represented. In other words, though it was easy to imagine the trick of balance and timing and use of energy to do each dancer's bit of the wave sequence, what was felt clearly was the wave itself.

It is interesting to note that though Humphrey applied many of these same principles of structure, such as the restatement of macrostructure in the microstructure and repetition with gradual development of variation in Life of the Bee, this later, more ambitious work never achieved the satisfaction for her that Water Study seemed to, according to Marcia Siegel (1979, 33).

Another comment: the idea of breath was at least as auditory as it is kinesthetic, probably more so. What the movement achieved was the illusion of the sounding of a slow breath such as some Titanic being might breathe. That the ocean and other bodies and motions of water were indicated by the title relates to this, as though the ocean's waves were themselves being animated, and given voice and breath.

Rather than classifying this as diaphoric, non-imitative, one would have to say this is a sample of purest epiphor, wherein the movement creates the literal sound. The study has enough repetition and sequential structure to fulfill itself without separate accompaniment. Instead, it creates the illusion of sound which, in turn, satisfies the kinesthetic force normally supplied by music.

The following observations are based on excerpts from Kylian's The Overgrown Path. The ballet was recorded from television onto video but its beginning was inadvertently edited. This dance, too, lasted about ten to twelve minutes, and consisted of solos, duets, trios, and quartets, overlapping somewhat, and sometimes played off against a background group. Altogether it used about six men and six women. The final movement brought all the dancers together (a review of the opening?) in a progression of movements generally from stage left to stage right with occasional brief reversals, each dancer in his own path. A recurring motif, often used as transition between sections, was the gesture from behind one dancer by another, of placing a quiet hand on the other's shoulder. Then the dancer receiving the gesture, without acknowledging his suppliant, would move on to another dancer and repeat the movement question. The music is played on a solo piano.

The first viewing, with music, affirmed Kylian's reputation as one who reflects features, dynamic and structure of the music in the movement, establishing the epiphoric, imitative relationship with the first notes. Some repetition of movement occurred, not generally more than twice at a time, plus inversion (the same sequence on the other side), canon, and careful use of musical phrasing.

The next viewing, many days later, sans music, brought out more telling aspects. The dancers didn't begin or end together in every case, but all followed the swell and subside of the movement phrasing, as far as it could be discerned. Repetition of motifs, stillnesses, and exits and entrances were the only cues as to how to follow the phrasing. That there was a repetitive rhythm or even beat took an effort of memory to see; this writer found herself rehearsing durations auditorally. It was difficult to anticipate changes in dynamic or explain why one movement followed on another. Any change of direction or timing could be taken as a beginning or completion of a thought, but there were far too many such changes to count each one as a new or completed thought, so that after the first few, confusion as to embedding of one idea into another set in.

The sense of timing was most marked by the combination and juxtaposition of quick and sustained. The kinesthetic sense was aroused more by this variation of attitude toward time and space than by the look of a lift or descent or reach. What was most interesting was that the conventionalized gestures (some were used in a fairly natural manner, like a touch to the shoulder or a hug, some in more abstract form) became almost too obvious.

No real narrative formed in the mind to lead from one event to the next; events seemed to overlap and pass by, coming into focus for a bit then rushing into a new scenario. One grasps the give and take of relationships mostly: the loneliness of one woman who follows too many men; the togetherness of a couple even as they part; a network of relationships, almost too many to follow. One doesn't get the idea that Kylian sees any relationship

as simple or unidimensional. The set was minimally informative, simply a cyc painted with two vast dark windows. The costumes emphasized male and female with loose shirts and tights for the men, dresses for the women, but with little variation between dancers. The dancers themselves were clearly ballet-trained but achieved a weighted quality and freedom of torso movement typical of modern dancers. They didn't use much facial expression but posture and gesture initiated from the torso seemed enough.

Once more seeing the work, this time with its music, this writer was struck by the contrast of the surface simplicity of the music (a single piano, uncomplicated melodies) to the web of convolutions in the dance. Moment by moment, the movement found more than one way to respond epiphorically to the music: on first hearing of a figure the dancer sped into a series of leaps; on the repeat of the figure, the dancer suspended a turn, but the effect of movement matching or echoing sound was the same.

Janacek's music is not at all simple; it is rhythmically and thematically complex, just as interwoven as Kylian's dance, but its echo in memory seemed simple, streamlined. It pulled the pieces together into a unified flow of images and tensions and made it possible to see how that ending became this beginning so that phrasing was now easy to follow. In places, the movement anticipated the sound; in others it followed after the sound. Somehow, in either case, the music seemed to call forth the dancing, not vice-versa.

Kylian doesn't make a step for every note or a gesture for every figure, though it took three viewings to realize it. He embodies the configuration of tensions in the musical phrase. Perhaps that is why one series of lifts in the

trio looked so especially floating. Without the sound, the lifts merely looked smooth. With the music, the woman seemed to weightlessly levitate. The music contained clear contours and dynamics of motion that the dance depended on for an internal logic. One could be satisfied that every movement had a reason to be, even movement that without music had seemed overly or inappropriately emotional. Why all these people were in pain so much somehow came clear with the softness, indirectness, nostalgia of the music, as if the dancers were remembering and re-enacting significant moments out of their past.

The David Gordon/Pick Up Co. excerpts from two works (unidentified by the video) offer examples of a diaphoric use of music. One work uses a lush string concerto, for instance, with seemingly unconnected dance events, some balletic, some definitely not, some dancers interacting as though accidentally, others remaining detached. Another excerpt used a lined-up group of dancers, repeating a simple movement phrase in canon, then moving to another place onstage and beginning again. This was accompanied by gypsy-style guitar and singing. The main difference between viewing the excerpts, first without and then with their accompaniment, was that the inappropriateness of their movement to their music, rhythmically and expressively (a value judgment based on previous experience of each genre of music and its usual use in dance) made them funny, which they weren't in silence. Yet Gordon does reflect dynamics of the music to some degree and it looked like the dancers were using musical landmarks to gauge their progress through the dance. The effect of most of what was seen was wryly comic. Males and females were dressed indiscriminately in skirts and pants and odd

combinations thereof. Colors seemed somewhat coordinated, but styles not at all, so the information available there was consonant with notions of inappropriateness. There were no sets. The movement was efficient, sometimes pedestrian, not necessarily rhythmic, and within dances, dynamically monotonous. The effect was a poker-faced parody of pretty dancing in one work, a parody of folk style in another. What made the folk piece "folksy" was purely the gypsy music. On seeing it first without the sound, the dance gave no intimation of it other than a look of strength and a nose-wiping gesture.

In comparison, it appears that a diaphoric use of music is more dynamic, conveying its meaning more obviously through tension. It takes more mental effort to connect the dance and the music meaningfully, but there is a limit to the interplay of elements in a diaphoric use. One strong image from the music tends to dominate the meaning; after that, the elaboration of ideas is from the standpoint of movement statements, not music-with-movement statements. Many more reactions to examples of diaphoric use would have to be recorded before this observation could really be verified. since there are many ways of placing dance and music in tension with one another.

The foregoing can only be the most casually derived, not in any way pretending to any definition of experimental rigor, but they are offered in the spirit that the entire thesis is: the adventure of trying a new way of seeing and stating things.

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