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feature article

A Dialetic Analysis of Selected Contradictions Among Definitions of Meter In Music

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The ability to understand meter and the ability to perceive meter are of obvious importance to conductors and performers. Whether these abilities should be important objectives of the elementary music curriculum is less obvious and even questionable. Nonetheless, the perception of meter in music has long been and continues to be an objective of the elementary music curriculum of the American public schools (Colwell, 1970, p. 63). The approach taken by teachers with regard to that objective is necessarily influenced by their understanding of how the concept of meter is defined. In addition, communication among researchers is clearly affected by an understanding of how the term *meter* is used in various contexts.

Definitions of meter are commonly found in music theory texts, dictionaries, music education texts, and research reports. These definitions are often incomplete, contain unclear terminology, and frequently fail to clarify the distinction between the notation of meter and the perception of meter. Inconsistencies are often present within a definition, and there are clearly contradictions among the various definitions. Perhaps the most important contradictions have to do with how metric patterns are perceived or subjectively organized.

The method employed here is to describe five approaches to defining meter, including the "traditional definition" and the definitions from four sources that provide different approaches. Each definition will be presented separately and followed by a critique. The purposes of the dialectic analysis are to clarify the contradictions within and among the five definitions, and to provide suggestions for resolving at least some of these contradictions.

Contradiction is used here both in the sense of a stated difference of opinion and in the sense of inconsistency. *Dialectic* is used in the general sense of "the art or process whereby contradictions are disclosed and synthetically resolved" (Davies, 1970, p. 198), and not as an application of any specific philosophical method.

The definitions selected for analysis were chosen partly because of their differences and partly because they represent different areas of endeavor. The "traditional definition" is somewhat problematic since it is not taken from any specific source, but generally represents the

approach taken in music theory and music education. The definitions by Cooper and Meyer (1960) and Yeston (1976) are taken from music theory monographs dealing with rhythmic analysis of metric music. Serafine's definition (1975) comes from a dissertation in music education dealing with child development. The definition by Gordon (1971, 1976, 1977, 1980) is taken from his works dealing with methodology and learning theory in music education. Since the Gordon definition is somewhat complex, is unique, and is part of a comprehensive approach to music education, the critique of this definition is more extensive than the other critiques.

Traditional Definition

The traditional music theory definition of meter is stated in terms of the number of beats per measure as either duple, triple, or quadruple, with other meters being much less common (Duncan and Ochse, 1983, p. 13). These groupings are often described as being marked by accents. "For instance, $\frac{3}{4}$ meter (or $\frac{3}{4}$ time) means that the basic values are quarter notes and that every third quarter note receives an accent (Apel, 1969, p. 523).

It is also usual to distinguish between simple and compound meter. An example of a simple duple meter signature is $\frac{2}{4}$; an example of a compound duple signature is $\frac{6}{8}$. In simple meter, the characteristic subdivision of the beat is in two parts; in compound meter, the characteristic subdivision of the beat is in three parts (Duncan and Ochse, 1983, p. 13).

All of the theory texts examined define meter in terms of a number of beats per measure, and all of the texts distinguish between simple and compound meter. However, meter signatures with the upper number of 5 or 7 are treated in a variety of ways. One widely used theory text (Ottman, 1983) does not mention or classify meters of this type. Howard (1975) classifies meters of this type as simple; he states that all meter signatures are either simple or compound and that in compound signatures the upper number is always divisible by three (p. 78). Another text provides the following brief description.

> Time signatures with 5, 7, and 11 as the upper figure indicate complex or unusual meters...These meters are usually heard and performed as combinations of other meters. (Winold, 1966, p. 25)

No further explanation is provided. Another text (Christ, et al., 1966, p. 1) refers to irregular pulses or beats but does not provide any examples.

The problem of inconsistency of meter signatures with beat patterns is often discussed. Howard (1975, p. 2), for example, states that in extremely fast tempos it may be necessary to combine two or three notated beats into a single beat, and that in very slow tempos it may

be necessary to subdivide the beats to facilitate performance. Generally, when the inconsistency of meter signatures with beat patterns is discussed, it is considered to be in part a function of tempo (Apel, 1969, p. 87; Christ, et al., 1966. p. 4).

Critique

Meter is usually classified into two basic categories, simple and compound, and usually on the basis of the meter signature alone. As pointed out by Brink, "There is no argument among theorists that the traditional classification is inconsistant (sic) and unable to deal with much music (1983, p. 3). Unfortunately, theory texts seldom pay more than lip service to these inconsistencies. In fact, theory texts seldom contain more than a perfunctory chapter devoted to rhythm and meter.

The inconsistencies between meter signatures and the metric groupings of music written in those signatures are basically a matter of the distinction between notation and perception. That distinction is sometimes alluded to indirectly in discussions of how the performance of beats is affected by tempo. However, the distinction is an important one that needs more attention from theorists.

It is fairly common in descriptions of metric groups to read that a particular note of each group receives that greatest stress or accent (Apel, 1969, p.523) Howard (1975, p. 39) describes quadruple meter as "a combination of two duple patterns in which the first beat receives more stress than the third..." and asks the reader to clap four-beat patterns with appropriate accents. While acknowledging that this description may be intended only as an introduction to meter, the discussion of stress does not go beyond this level. There are at least two problems with descriptions of this type. The first and most obvious problem is that performing actual music with accents in the manner described is often out of character with the music itself. The second problem relates to the nature of stress or accent. Although it is common in much metric music for downbeats to be perceived as dominant or "stressed," the stress may be created by some means other than dynamics, such as melody or harmony. It is not unusual for dynamic accents to be stronger on beats other than the downbeat without obscuring the feeling of the downbeat.

Edwin Gordon has criticized traditional theory for giving little consideration to meter signatures in which the upper number is 5 or 7 (1980, p. 99). Based on the brief survey of texts discussed earlier, that criticism seems justified. Meter signatures of this type do create classification problems, particularly in fast tempos. For example, although $\frac{5}{8}$ is usually classified as a simple meter, a conductor may of necessity conduct two beats in this meter in a fast tempo. The concept of uneven beats, however, is usually not discussed in traditional theory.

Cooper and Meyer: Levels of Meter

The theory of Grosvenor Cooper and Leonard Meyer (1960) emphasizes architectonic levels of meter. While they acknowledge the possibility of several levels, meter is usually discussed in terms of three levels.

> For instance, a $\frac{3}{4}$ meter differs from a $\frac{6}{8}$ meter in that the former is made up of three units of a lower level $\frac{2}{8}$ meter, while the latter is made up of a lower $\frac{3}{8}$ meter. And either a $\frac{3}{4}$ or a $\frac{6}{8}$ meter may itself be combined with metric units on the same level to form more extensive, higher-level meters...(Cooper and Meyer, 1960, p. 2)

Their "primary level" of meter is described as "...the level on which beats are felt and counted..." (p. 2), and corresponds roughly to the traditional concept of meter; the lower level corresponds roughly to subdivisions.

For Cooper and Meyer, the idea of regular pulses is central to the concept of meter. "Meter is the measurement of the number of pulses between more or less regularly recurring accents" (p. 4). The concept of accent is also central for Cooper and Meyer, although they state that a clear definition of the causes of accent does not seem possible at this time (p. 7).

The determination of the primary level is said to depend on finding the lowest level at which meter exhibits regularity and may or may not coincide with bar lines (p. 4). Thus a group of three quarter notes followed by two quarter notes and in a fast tempo, are considered to form a primary group of 5; likewise, when groups of two are played against groups of three, the lowest level of regularity, or the primary meter, is considered groups of 6 (p. 4).

Critique

In many respects the Cooper/Meyer definition of meter is but an elaboration and extension of the traditional definition, although it provides both more flexibility and complexity. The idea that beats are always felt at the lowest level of regularity is interesting, but it does not take tempo into consideration, and neither is it supported by empirical evidence. In addition, Cooper and Meyer do not deal with meters which use 5 or 7 as the upper number in the signature.

Yeston criticizes Cooper and Meyer for having "the commonly held notion that periodic and regular motion is metric..." (1976, p. 65). He explains by giving the example of unaccented quarter notes as non-metric; he states that if something causes the quarter notes to be perceived in groups of two, than a new level of pulse is created, and adds that meter cannot exist unless there is "a constant rate within a constant rate - at least two rates of events of which one is faster and another is slower" (Yeston, 1976, p. 66). This criticism is not really

valid, since Cooper and Meyer do not suggest that unaccented pulses constitute meter. Their definition, as stated in the previous section, clearly implies two levels of motion, although the definition is not stated in those terms.

Yeston (1976, p. 33) also criticizes Cooper and Meyer, as well as other theorists, for not considering the role of pitch relationships in determining metric interpretation. Although Cooper and Meyer acknowledge melody, among other factors, as playing a role in the determination of accent (1960, p. 7), they do not use pitch as a factor in their analyses.

Yeston's Definition of Meter

Maury Yeston (1976) states that he is not attempting to establish a general theory of rhythm, but to clarify the mechanisms of rhythmic analysis of tonal music and to rethink rhythmic terms such as *meter, tempo, accent,* and *structure* in that context (p. 34). His complex method of analysis, based on Schenkerian techniques (p. 59), does not lend itself to brief or simple explanations, but an effort will be made to highlight key ideas related to meter.

For Yeston, meter is regular and depends on at least two rates of rhythmic motion that are constant relative to each other. Meter is defined as the interaction of such levels (p. 6). The faster level of motion is described as grouped by a slower motion. Meter can exist on more than one level (stratum) at the same time, with meter on one level usually dominating the overall interpretation (p. 152). The fastest level of rhythmic motion in composition is called the *foreground;* the slowest level is called the *background*; other levels are called *middlegrounds*. The method of analysis involves study of pitch and rhythm patterns to —

> discover intermediate structures that have a controlling and interpretative function with respect to the foreground and that contribute to the aesthetic coherence of a composition by virtue of their repetition. (Yeston, 1976, p. 79)

The example below should help clarify the idea of a controlling and interpretive function.

Yeston analyzes the first 8 bars of Mozart's *Eine Kleine Nachtmusik,* written in a fast $\frac{4}{4}$, as an interaction of levels that "suggests a slow $\frac{4}{2}$ meter " (p. 84). In other words, the controlling meter for purposes of interpretation is considered to be groups of four half notes, each group extending over 2 measures. Beginning in measure nine, the controlling level is analyzed as coinciding with the meter signature, or groups of four quarter notes. (p. 85). It is not feasible to attempt to describe the complex analysis that led to these conclu-

sions. It must be noted, however, that pitch relationships, including melody and harmony and their interactions on different levels, played a major role in deciding which level of meter was analyzed as dominant.

Finally, Yeston considers it possible for two levels of meter to be equally dominant in some cases.

Critique

Yeston's approach, like that of Cooper and Meyer, allows for the possibility of meter existing at different levels, although the number of possible levels is more limited since meter is described as an interaction of two levels. Although meter is conceived as an interaction, it is ultimately described (as in the Mozart example above) in terms of a series of pulses grouped together in consistent units, as in traditional theory. What is unique about Yeston's theory is the importance of pitch relationships in determining how meter is interpreted and that the level of meter which is considered dominant may vary within a section or movement. Another idea not expressed in the other theories is that two levels of meter may be equally important.

Yeston avoids making any definitive conclusions about the perception of meter; he does indicate that perceptual analysis is something that occurs as a result of education (1976, p. 38). Even so, the validity of analytic conclusions about the level of meter considered dominant would seem to depend on some type of perceptual verification. At this time no perceptual research evidence is available for this purpose.

Gordon's Theory

The most complete expression of Gordon's theory of rhythmic learning is found in *The Psychology of Music Teaching* (1971, Ch. 5). Although he has modified the theory somewhat since that time (1976, 1977, 1980), the basic elements remain intact.

For Gordon, rhythm is comprised of three basic elements: tempo beats, meter beats, and melodic rhythm (1971, p. 67). Melodic rhythm is simply the rhythm of the melody or text. Unlike traditional theory, Gordon proposes two types of beats. "The tempo beat is easily recognized as generally being the walking, marching, or swing beat" (1971, p. 67). In $\frac{2}{4}$, tempo beats are equivalent to quarter notes; in $\frac{6}{8}$, to dotted quarters. The term *tempo beat* essentially corresponds to the traditional term *beat*. *Meter beats* are derived from the main subdivisions of tempo beats (p. 68). In $\frac{2}{4}$, meter beats are equivalent to eighth notes, and there are two of them within the duration of one tempo beat. In $\frac{6}{8}$, meter beats are equivalent to eighth notes, and there are three per tempo beat. The term *meter beat* essentially corresponds to the traditional term *subdivision*.

In traditional theory, meter is defined according to multiples of the main beat. For example, both $\frac{2}{4}$ and $\frac{6}{8}$ are varieties of duple meter since there are two beats per measure. For Gordon, however, the meter is determined by the subdivision of the main beats, or tempo beats. Thus Gordon calls $\frac{2}{4}$ duple, and $\frac{6}{8}$ triple. The examples below should help clarify this definition.

Gordon classifies meters in two main categories, *usual* and *unusual*.

Usual meter. In usual meter, tempo beats are consistent or equal in time; meter beats are also consistent in time and are divided into twos and threes or combinations of twos and threes. Meter patterns are perceived in pairs of tempo beats (1971, p. 81). Examples of usual meter are described below.

In $\frac{2}{4}$, the tempo beats are represented as quarter notes. This meter is classified as *duple* because the subdivisions, or meter beats, are duple — not because there are two beats in each measure.

In $\frac{6}{8}$, tempo beats are dotted quarter notes and meter beats are eighth notes. Since there are three meter beats for each tempo beat, $\frac{6}{8}$ is classified as *triple* meter.

For Gordon, $\frac{4}{4}$ meter is *duple* because the meter beats are duple. He also believes that one measure of $\frac{4}{4}$ is aurally equivalent to two measures of $\frac{2}{4}$.

$\frac{3}{4}$ is defined as *triple* meter, with the tempo beat as a dotted half note and the meter beats as quarter notes. In this case it would take two measures to establish meter, and the two measures are said to be felt as the equivalent of one measure of $\frac{6}{8}$ (1971, p. 81).

Originally Gordon distinguished *mixed* meter from usual meter (1971, p. 69). In mixed meter, tempo beats were consistent in time; but were a mixture of duplets and triplets (pp. 70-71). An example of mixed meter would be the following: $\frac{2}{4}$ ♫♩♩♫. In his more recent works, Gordon refers to this type of meter as *combined* and includes it in the category of usual meters.

Unusual meter. In the original classification, there were three types of unusual meter patterns (1971, pp. 71-72). The first type included patterns in which there were 2 or 3 inconsistent tempo beats, as in these examples: $\frac{5}{8}$ ♩♩♫♫; $\frac{7}{8}$ ♩♩♫♫♫♩♩

Unusual meter also included patterns with "more than two tempo beats with some tempo beats being void of meter" (1971, p. 71). Examples of the second variety are $\frac{5}{8}$ ♫♩♫♫, and $\frac{7}{8}$ ♫♩♫♫♫♩♩. Apparently the phrase "void of meter" means that a particular tempo beat is the equivalent of a meter beat, as in the case of the first notes of the two examples above.

A third variety of unusual meter included patterns with "just three tempo beats with meter beats consistently grouped in either two's or three's" (1971, p. 71). Examples of this are $\frac{3}{4}$ ♫♩♫♩♫♩, and $\frac{9}{8}$ ♫♫♫♫♫♫♫♫♫.

The third variety of unusual patterns described above has now

been totally eliminated from Gordon's classification scheme. In a footnote, he explains the elimination of these patterns as follows: "...one measure of $\frac{3}{4}$ is audiated as half a measure of $\frac{6}{8}$, and one measure of $\frac{9}{8}$ is audiated as half a measure of $\frac{6}{8}$" (1980, p. 93). In short, Gordon has now rejected the possibility of feeling or perceiving rhythms in $\frac{3}{4}$ and $\frac{9}{8}$ as groups of threes, a possibility which he earlier described as unusual.

The latest classification of unusual rhythm patterns is described by the terms paired, unpaired, and intact (1980, p. 92 ff.), and includes four categories, which are simply further breakdowns of the first two types of unusual meter in the original classification.

Paired tempo beats. It should be clear by now that Gordon's basic terminology deals with rhythm on two levels. Those levels correspond to traditional beats and subdivisions. What is missing is a term for grouping beats into larger units, or multiples, that traditionally define meter. He originally stated:

> young children usually subjectively organize tempo beats in pairs such as "1-2" (or as "1 -1,2" or 1,2 -1," as found in unusual meter). Therefore, written music with one or four tempo beats to a measure, for example, appears to be an artifact. (Gordon, 1971, p. 81).

Precisely what the numbers in parenthesis mean is not made clear in Gordon's written work.

As noted earlier, the original theory allowed for the possibility of grouping three even tempo beats in meter patterns, but the theory was changed (1980) to eliminate this type of grouping entirely. By contrast, unusual meters, or those with uneven tempo beats, may contain either two or three tempo beats.

Consistent with the idea that even tempo beats are always subjectively organized in pairs, a number of meter signatures are considered artificial. According to Gordon, one measure of $\frac{4}{4}$ is subjectively organized the same as two measures of $\frac{2}{4}$; one measure of $\frac{12}{8}$, the same as two measures of $\frac{6}{8}$; two measures of $\frac{3}{4}$ the same as one measure of $\frac{6}{8}$; and two measure of $\frac{9}{8}$, the same as one measure of $\frac{6}{8}$ (1980, p. 98).

Changes in terminology. In his latest work on the topic (1980), Gordon replaced the term *tempo beat* with *macro beat*, and replaced the term *meter beat* with *micro beat.*

Critique

Gordon justifies his definition of meter on the basis of how rhythms are felt or subjectively organized. Meter (micro) beats, or subdivisions of tempo beats, are considered more important in kinesthetic response than tempo beats.

> Meter beats are of more importance to rhythm than tempo beats because when tempo beats are subjectively organized into pairs, meter is felt either as a group of two beats (which gives rise to duple meter) or as a group of three beats (which gives rise to triple meter) within the duration of each tempo beat. (1971, p. 68).

In addition to the fact that the above statement is circular, no evidence is offered to support it.

There is some evidence that the perception of subdivisions is a developmental prerequisite to conceptualizing meter as it is traditionally defined (Jones, 1971, pp. 86-88). There is also evidence that most children of elementary school age have difficulty with the concept of meter (Zimmerman and Sechrest, 1968, p. 68; Jones, 1971, p. 91). Considering this research, it does not seem unreasonable to speculate that most children may respond more easily to the level of subdivision than to the organization of beats into larger units. This hypothesis, however, has not been formally tested. Even if such a hypothesis were verified, it would not be logical to develop a definition of meter on that basis alone, any more than it would be logical to develop a definition of relativity on the basis of children's concepts of speed, time, and space.

Another concept of central importance in Gordon's theory is that of paired tempo beats. Emily Brink (1983), in an article describing the evolution of Gordon's theory of rhythm, is particularly critical of his insistence that tempo (macro) beats are always subjectively grouped in pairs, and provides musical examples that effectively challenge that idea. She provides two examples in $\frac{3}{4}$ meter, "Down in the Valley," and the third movement of the Mozart 40th Symphony (1983, pp. 5-6). In both examples, the rhythms are clearly grouped in three measure patterns. Even if one accepts Gordon's notion of one tempo beat per measure of $\frac{3}{4}$, these musical examples could not logically exist in Gordon's classification scheme.

Let's consider another example provided by Brink, "Beautiful Dreamer," notated in $\frac{9}{8}$. As she points out, an entire measure in this meter is equal to only one macro beat (1983, p.5). Her unstated but clear implication is that a measure in this example feels like three beats and not one.

Because of the contradiction the "Beautiful Dreamer" example represents between traditional theory and Gordon's theory, it should be useful to reexamine the concept of tempo beats. "The tempo beat is easily recognized as generally being the walking, marching, or swaying beat" (Gordon, 1971, p. 67). Considering that the normal tempo at which "Beautiful Dreamer" is performed is approximately ♩. = M.M. 69, it is hard to imagine the motions in Gordon's definition at ♩. = M.M. 23.

The concept of beats is more often associated with conducting

motions than with motions such as those mentioned by Gordon. The definition in the *Harvard Dictionary of Music* is illustrative.

> The temporal unit of composition, as indicated by the up-and-down movement, real or imagined, of a conductor's hand (upbeat, downbeat). In modern practice, the duration of such a beat varies from M.M. 50 to M.M. 140, with 80 being a middle speed.... (Apel, 1972, p. 87)

It is interesting that the durations in this definition correspond very closely to the normal range of human heartbeats or pulses. In contrast to the above definition, Gordon denies the importance of tempo in establishing meter, and simply refers to marching, walking, and swaying motions, all of which imply duple tempo beats in according with his theory.

Since Gordon's classification scheme is largely based on the idea of subjective grouping of paired tempo beats, the evidence in support of that idea must be considered. Brink is justifiably critical of the vague and unspecific nature of Gordon's historical references used to justify his theory (1983, p. 7). She also states (p. 3) that Gordon does not mention any studies to support the idea of paired tempo beats. In his earliest statement of the theory, Gordon actually does cite four studies for this purpose.

> It is interesting to note that research of Coppock (8), DeYarman (10), Dittemore (11), and Pond and Moorhead (31) objectively supports the subjective opinions of some musicologists which suggests that human beings organize tempo beats in pairs. (1971, p. 68).

An examination of those four sources, however, reveals no such objective support, since those studies do not provide a test of the hypothesis of paired tempo beats.

One of the most interesting contributions of Gordon's theory is the provision of a category of unusual meter to account for rhythms with uneven macro (tempo) beats. The category clearly makes some sense for rapid tempos. For example, in $\frac{5}{8}$, with ♩. = M.M. 120, the eighth note would be equal to M.M. 360, much faster than the normal conception of a beat, and certainly not present on the metronome. However, Gordon's theory does not provide a solution to the problem of dealing with uneven beats, in that the accurate performance of such beats depends on thinking and feeling subdivisions. The process of measuring or "metering" temporal relationships depends on a repeatable unit.

It seems a paradox that with Gordon's emphasis on the primacy of micro (meter) beats, his counting system does not reflect this in some cases. For example, nine different unusual rhythm patterns (1980, pp. 111, 114, 204, 206) are counted identically, "du, du, du," representing three macro beats. For example, two of those patterns are $\frac{5}{8}$ ♪ ♩. ♪ and $\frac{7}{8}$ ♩ ♩. ♩ . The difficulty of counting in this manner is

obvious. A modification of the counting system would make sense. For example, the $\frac{7}{8}$ pattern could be counted "du-u, d-u-u, du-u," if those were the syllables of choice.

A clear inconsistency in Gordon's system is that patterns with three macro beats are allowed in unusual meter but not in usual meter. Again no evidence for the validity of this inconsistency in subjective groupings is provided. The earlier statement of the theory was less objectionable in this regard, in that it did allow for the possibility of patterns with three even macro (tempo) beats.

Serafine's Definition of Meter

Up to now we have considered definitions of meter based on multiples of beats and on subdivisions of beats. Another possible definition is to equate meter with beats themselves. Such a definition is provided by Serafine (1975, p. 32).

Serafine's rationale for equating meter with beats was to avoid the problem of cultural bias in developing a conservation of meter task based on Piaget's theory. She points out that grouping meter by twos and threes is primarily characteristic of modern Western cultures.

> Other groupings, such as five or nine, for example, are common among so-called primitive cultures, as well as in some of the very recent music of the West. It is hoped that the task used in the present study, by construing meter as a constant impulse or "beat," however grouped, may have more universal applications and be less susceptible to cultural bias. (Serafine, 1975, pp. 31-32)

Meter is also referred to as "constant time intervals," with rhythm defined as "the variable organization of sounds within those time intervals..." (1975, p. 2).

Critique

The equating of pulse with meter is of little value in conceptualizing metric music. The attempt to avoid cultural bias may be admirable, but the concept of meter itself involves cultural bias. Serafine acknowledges metric group is in twos and threes, and even fives and nines, but her definition is not consistent with the acknowledgement. In addition, the definition adds unnecessary semantic confusion to the research literature, even though Serafine's limited purpose was to define and validate the construct of conservation of meter.

Synthesis

It is important that the semantic problems related to meter be understood in order for clear communication to exist among re-

searchers, theorists, and teachers. There are numerous theories of metric organization but very little research evidence to validate the theories. There is particularly a lack of research to indicate how meter is perceived and how that perception is affected by age and training.

The theories discussed here are in general agreement that metric groupings occur at the level of basic beat, as well as at the levels of subdivision and multiples of that beat. There is virtually unanimous agreement that meter signatures are often not consistent with the ways in which rhythms are perceived and/or performed. The main disagreements have to do with how metric patterns are perceived or subjectively organized.

Meter is a conceptual abstraction that is useful in describing certain regular rhythmic relationships in music and the perception of those relationships. Gordon differs from the other authors discussed in that he believes that the primary response to metric patterns occurs at the level traditionally called the subdivision (meter or micro beat), and in his insistence that even tempo (macro) beats are always perceived by musicians in pairs. The latter belief has been criticized by Brink and this writer as being inconsistent with existing music and as having no basis in evidence. The hypothesis that the primary level of response to metric patterns is at the level of micro beats seems worthy of further study, particularly as it may apply to children at an early level of development.

Since meter is an abstraction, it is possible to redefine it in terms of subdivisions rather than multiples of beats. However, because of the semantic confusion that is created, the reasons for such a redefinition should be compelling. Gordon does not provide a defensible rationale for such a redefinition, and there is no evidence at this time to support it.

Gordon is also unique in developing a classification of meter using uneven macro beats. The concept of meter logically calls for a repeatable unit of measurement. On the other hand, conducting patterns in fast tempos with meter signatures using the upper number of 5, for example, often involves two uneven "beats" in each measure. Patterns of the type Gordon describes as unusual clearly need more attention by researchers and theorists.

Descriptions of meter in traditional theory texts tend to be fairly limited. The approaches of Cooper and Meyer, and Yeston are reasonably compatible with traditional theory, but are less restrictive and offer possibilities for further development and research. Neither theory, however, considers the concept of uneven beats.

The Yeston theory, although not fully developed, implies the perception of meter on multiple levels. Although he did not deal with uneven beats, the concept of meter as an interaction makes sense when applied to meters such as $\frac{5}{8}$. It is hard to imagine performing

standard fast rhythm patterns as associated with $\frac{5}{8}$ without thinking and feeling both the even eighth notes and the longer uneven beats.

Although both Yeston, and Cooper and Meyer deal with levels of rhythmic motion, both imply or state that there is a level at which beats are perceived or considered dominant. Yeston also suggests the possibility that in some music there are two equally dominant levels. Ambiguity is common in perceptual problems and should be studied with regard to the level of beat perception.

Another area that has received little attention is the relationship between tempo and the perception of meter. This relationship offers another promising area for research.

One possible approach to resolving some of the difficulties discussed in this paper would be to define meter restrictively, simply as a method of determining the accuracy of temporal relationships in music, and to deal with the problems of perception and interpretation separately.

Another possible approach would be to define meter as an organizational method of the perceiver that is developmental in nature. A definition of this type would provide a sound basis for curricular decisions. Such a definition is dependent on a research base which is not in evidence at this time.

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