The article examines, analytically and notationally, various elements in the structure and context of the music of West African drum ensembles — those groups including such instruments as drums, gongs, and rattles. Stress is laid on analyzing the music on its own structural terms, rather than too readily associating it with Westerm equivalents. The notation used is the Time Unit Box System (TUBS), experimentally developed by the author and others in their search for a more adequate aid than Western notation in the analysis of the drum ensemble music.

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Analysis and Notation of West African Drum Ensemble Music

James Koetting

Like much non-Western music, on relatively general levels of analysis West African drum ensemble music can be considered similar to Western music. Both traditions developed from earlier centuries within a broad association of music and dance within the even broader sociocultural context. Making up the traditions are the performances of various kinds of ensembles representing various genres. The genres, which are often intricate and intricately related, include often intricate and intricately related pieces. The component elements of a piece are patterns repeating, varying, or further alternating across the whole ensemble, its pertinent subgroups, and its individual parts. The patterns are interrelated in the congruent or complementary shape of their sequences of sonority and of rhythm, including accents, on at least one level of which pulses are generated which are both regular and common across the ensemble.

But on more specific analytical levels the two traditions are no more than equivalent. Most basically, on most structural levels in the drum ensemble music and its context there is only a relatively limited or infrequent divergence of elements, always within a characteristic unity: music and dance pieces within performances within the occasions at which they occur; part levels and pattern sequences within pieces; sequences of sonority and rhythm, including pulses, within patterns within pieces and generally within genres. Good analysis and notation of the drum ensemble music require frequent reference to that overriding unity. Some persons working outward from Western music, whose elements are often thought of as self-contained units, might too readily treat the drum ensemble elements the same.

Within this framework, many of the elements of West African drum ensemble music are equivalent to Western musical elements and can without too much qualification be referred to in Western musical terms—such as pitch, tone quality, rhythmic pulses, patterns, pattern interrelation, and so on. But other drum

The Sociocultural Framework

The drum ensemble performances are not formal concerts given before audiences, as in the West, but rather integrated portions of sociocultural occasions—weddings, funerals, royal ceremonies, political/religious meetings or processions, rituals traditionally related to war or hunting, and so on—which various people of a political or tribal grouping may attend. Usually the drum ensemble performs in interrelation with other performing participants: usually dancers, often singers, and sometimes melody instrumentalists. In each category certain kinds of performers and pieces, and thus the music and dance genres they represent, are usually present at certain kinds of assembly—weddings versus funerals, for example.

The drum ensemble and the melody instrumentalists are relatively set in personnel, including standbys, primarily on a basis of artistic competence. Certain other performers, particularly dancers, may be relatively prescribed on an artistic basis or a sociocultural basis—as when a dance is performed by the king and the queen mother or others of a royal lineage, by members of a political "warrior" society, by men or women, by young persons, by "hunchbacks," by certain members of a wedding party, by bereaved family members—or there may be little or no restriction on who performs. When the performers are prescribed the patterns that make up a piece are drawn from repertories developed in training and practice; when the personnel is relatively unrestricted, the patterns are learned more by participation in performances.

Often in a performance certain pieces are placed at appropriate stages or points in the sociocultural occasion. In the Ashanti Kete drum ensemble a certain piece is played if the king wants to or is expected to dance. At another point the piece played may contain a speech-pattern equivalent conveying some pertinent historical event, proverb, traditional story, or sometimes even commentary. A Kete drum ensemble piece referring to gold is appropriate for participation by the king, who is associated with that precious metal and often displays the wealth of the tribe in his royal golden stool, sword, body ornaments, and so on. Another Kete piece might be played when the king gets up to walk, telling him to move slowly and carefully. The Kete master drummer can signal to performers, and also to others when he or other members of the ensemble want something, such as a drink.

The Various Performing Groups

Within the sociocultural framework the drum ensemble pieces, and consequently the genres they represent, are broadly interrelated with their counterparts among the other performers. While this interrelation may sometimes be relatively loose and simple, more often it is intricate and sometimes quite close. The interrelation is one of congruent or complementary patterns, which are relatively set

ensemble elements have no Western equivalents, and those that do often occupy different levels of significance within their own structures than do the Western elements in theirs. Some persons with a Western orientation might focus study disproportionately on the drum ensemble elements that have Western equivalents and disregard or not recognize the others. As they apply Western descriptive terms to the former they might easily think of the drum ensemble elements within the framework of the Western structures that contain their equivalents, thus undervaluing and oversimplifying some of the elements and overvaluing and overcomplicating others. At the other extreme, the person who avoids such erroneous associations might simply assume that the drum ensemble music has little or no structural organization; thus his research data will remain erroneously chaotic.

Of course, the approach that can represent the unity of the drum ensemble music—and also avoid both the above analytical extremes—is to deal with the music strictly on its own structural terms, necessarily with the help of persons who have a firsthand familiarity with both the drum ensemble tradition and its artistic and sociocultural context. The following analytical and notational study attempts this. The study derives from the author's work with recorded samples and from extended live research with the Ewe master drummer Robert Ayitee and the Ashanti master drummer Kwasi Badu, who have taught drum ensemble classes at UCLA. Another to whose works the study owes much is J. H. Nketia, a major contributor to the knowledge of music not only in West Africa but also in the continent as a whole, who has given lectures and led seminars at UCLA. Still another is Philip Harland, assistant head of the UCLA drum ensemble class and the originator of the Time Unit Box System (TUBS), the notation used in this article.

Since in this particular subject there is no developed body of information, and since analysis must stop at the necessary limit of observed data, not all the discussion can be as specific and precise as one would like. Where the situation is known conclusively, the elements of the music are classified inductively in terms of the structures within which persons familiar with the tradition normally consider them to function. In a few cases where the situation is well known but not conclusively, the structures have been partially or tentatively deduced. Where the situation is little known, assumptions are avoided; in their place, sometimes the discussion is qualified, general, or even vague—at other times it is ambiguous, with two or more alternatives being given.

We begin our examination of the drum ensemble music by viewing it in context: the sociocultural occasions within which it occurs, and the total body of music and dance within which it is usually performed. From that vantage point we can study the drum ensemble music itself. After that we will briefly review the analytical approach of the article, introduce the notational approach, and then go on to some sample aspects of notational analysis.

aids. At the same time, the performers use analytical processes in controlling "nonsense" ones), single words, and even disconnected sounds-as mnemonic and kinesthetic processes. The drum ensemble players, for example, learn and and passed on within the sociocultural tradition through a combination of mental in time) is worked out during the performance-sometimes, as in the Ewe piece the timing relations among patterns to achieve the fantastic ensemble precision in terms of the physical movements required to produce it, and the drum ensemble even perform their music —from single sounds to pattern sequences—largely dominantly mental process; they seem instead to have been developed, performed drummer—the leader of the drum ensemble—whereas in other cases the pattern structures of rhythm and sonority repeating, varying, or further alternating across Agbekor, dancers and drum ensemble members rehearse particular patterns for which they are renowned. The timing interrelation (the act of playing together performers use certain direct speech associations—word phrases (sometimes been characteristically created by composers and choreographers in some presequences are relatively set. Neither patterns nor pieces have, as in the West, be performed in more or less spontaneous sequence by the dancers and the master the various performers and the various pieces. The set patterns of a piece may

Within the overall interrelation among the performing groups the drum ensemble often exerts a dominant influence, in the sense that the master drummer of the drum ensemble often selects, introduces, and leads the pieces that are played. But the influence also works in reverse, with the drum ensemble being affected by certain factors both within and outside of the performance. Sometimes, for example, the selection of a piece is determined not by the master drummer but by the desires of a ranking official in the assembly; by the decision of the leading singer, dancer, or even any one of the performers or other persons; or by something in the very nature of the ceremony involved. Sometimes the master drummer leads his own ensemble in changing from one piece to another because the singers have just made such a change. Or he may follow the patterns of a solo dancer.

Often dance patterns even serve as a structural foundation from which certain patterns of a drum ensemble piece are derived. At other times (as has been referred to above in another light) a drum ensemble piece or pattern may be based to some degree on a speech pattern or patterns, which the ensemble instruments approximate in the tonal and rhythmic shape of their patterns; also, the names of individual instruments are words that sometimes might be associated with the type of patterns the instruments characteristically play. But it should be remembered that even those drum ensemble patterns that are derived from dance or speech patterns are essentially musical structures. So while the dance or speech patterns, they should be treated as analytical equivalents to the drum ensemble patterns, they should never be literally equated—the characteristic nuances of the drum pattern's structure, being essentially musical, are of a different order from that of the other types.

The Drum Ensemble

If there are varying degrees of interrelation within the total group of performers at a West African assembly, inside most drum ensemble pieces—and indeed among many of the pieces—a predominant characteristic is the intimate interrelation of patterns on all component levels: individual patterns, pertinent subgroup patterns, and total ensemble patterns. For the performers any one pattern has little meaning out of that context; indeed members of an ensemble often experience difficulty in performing their pattern alone, their success in doing so being dependent on their ability to reconstruct mentally the other patterns of the piece.

studied as rhythm/sonority patterns and must not be too much equated with Western as significant elements. rhythm patterns, which we often think of without including pitch and tone quality from speech patterns. For that reason, the drum ensemble patterns should be in some patterns and sonority somewhat more in others, particularly those derived duce the individual, subgroup, and total ensemble patterns. Thus sonority and tunable instruments, such as gongs and rattles, are usually not made by instrument craftsmen; for example, Ashanti iron gongs (dawuros) are traditionally made by rhythm are generally equal in importance, rhythm being somewhat more significant precisely except in certain cases) together with their rhythmic sequence to protechniques for controlling the sonority of sound (although duration is not controlled used to produce sound on the instrument and by the players, who have precise Sonority in drum ensemble patterns is also affected by the nature of the implements blacksmiths, and those with the desired sonority are selected by the musicians. drums are in a middle pitch range, and the master drum is deepest in pitch. Non-Very often the lesser supporting drums are the highest in pitch, the intermediate head tension) are painstakingly carried out before and even during a performance. the palm of the hand, and tamping the drumhead rim (all means of changing drumwater on the drumhead, tightening or loosening pegs, pounding the drumhead with master instrument craftsmen and are made tunable. The tuning processes of putting sound. To achieve the desired sonority, most of the drums are constructed by used for the drumhead; and any attachments added to the instrument to modify the materials of which it is constructed, including the kind and thickness of leather factors as the size of an instrument, especially its resonating chamber; the sonorities of the other instruments. The sonority is initially affected by such tiated within the ensemble and at the same time compatible with the relative any specific pitch), loudness, tone quality, and carrying power—which is differenof sonorities—including all of pitch (although no instrument is intended to produce cannot be overemphasized. Each instrument produces a relative sonority or range little divergence of rhythm and sonority elements. The importance of sonority Also within each drum ensemble pattern the structure is highly unified, with

and so on? Or take the sequence ABCDABCD—this could be seen as one pattern a pattern without beginning it at the same point each time, or if he demonstrates lating facts and to give up the assumptions in favor of the facts. obtained than it is to recognize when prior assumptions no longer fit the accumumy own failures have convinced me that it is easier to add further information as Western tendency to subdivide analytically beyond the point of rational necessityconsecutively repeating sequence. This is partly in an effort to modify a particular in the absence of further information I always define as a pattern the longest vening interval. Although any one of the above assumptions is theoretically logical natively, or as four patterns (A, B, C, D) repeating across a regularly inter-(ABCD) repeating consecutively, as two patterns (AB, CD) repeating alter-A4..., when do we decide that increasing variation has produced a B1, a C1 vary, or further alternate. For instance, in the sequence A1, A2, A1, A3, A1, progression may be ambiguous, depending on whether they are conceived to repeat, to form a composite pattern. more individual sequences might be considered either separate patterns or united in vertical interrelation in a piece is often unclear—as, for example, when two or access to further performance or sociocultural information. The number of patterns ensemble patterns to dance or speech patterns—often cannot be discerned without that way. Some details of internal pattern structure - such as the relation of drum it consistently there is no rule requiring him to begin his participation in a piece former might enter a piece anywhere in his pattern; or a player might demonstrate terns are not thought of as having any particular beginning, in which case a pernot think analytically about it and do not describe it in precise terms. Some patpin down. The music itself is often noncommittal, and the musicians generally do Certain other aspects of the drum ensemble patterns can be quite difficult to The number and length of patterns in horizontal

In performance the component patterns of a drum ensemble piece are arranged within two roughly interconnecting hierarchies classifiable on several levels. An order of dominance of performers' patterns runs through the relatively simple repeating patterns of lesser supporting instruments (drums, rattles, and sometimes gongs); the less simple and usually repeating patterns of intermediate supporting instruments (usually drums); the simple and usually repeating pattern of a basic supporting instrument (usually a particular gong, or "bell," in those ensembles that use gongs); and the complex and often varying patterns of the master drum as leader of the ensemble. Another order—of timing reference—runs through primary, secondary, and overall relation within the ensemble and peripheral relation with other performers.

As soon as each performer knows what piece is to be played, he selects the proper pattern or patterns from his repertory; this may be in advance if the piece has been previously selected, or during a set of cues as the music begins. A piece is usually begun by the basic gong; the master drum often signals the gong to begin, usually by playing the gong pattern. If the piece has not been pre-

viously identified and if the gong pattern does not identify it (the Kete ensemble of the Asantehene, the head of the Ashanti people of Ghana, plays a repertory of about twelve pieces with only four gong patterns), the master drummer identifies it by playing either his own pattern or the pattern of a particular intermediate supporting drum, a kind of second leader to the master drum.

talists and the singers and dancers. other instruments, and in a peripheral time relation with the melodic instrumeninstrument or instruments. He also performs in an overall time relation with all secondary time relation with the gong if his primary relation is with another time relation with the basic gong or some one or two other instruments, and in supporting drum, rattle, or gong player usually performs his pattern in primary number of supporting instruments have inadvertently shifted their timing. Each master drum and also sometimes voluntary adjustments by the gong whenever a considered the central timing for the piece, subject to changes imposed by the relationships that will fulfill the nature of the piece. The basic gong pattern is timing adjustments necessary even in the best groups to achieve the proper pattern performers. After his entrance each player joins the others in making the various enters at a certain place—or one of several permissible places—in the pattern of that the two adjust their timing first to each other and only after that to the other the previously entering player with whom he has a primary time relation, meaning From that point each intermediate drum and lesser drum, rattle, and gong

often group themselves into "gross" pulses or beats is also incidental. But a regular beats of more highly structured metrical measures, as the level of precise by considering the African gross beats, which can be associated with the prescribed underestimate the importance of the relatively unstructured African fastest pulse person oriented toward the basic metrical system of Western music might easily these would be taken into account. The fact that the repetitions of the fastest pulse or beats often occur within it is relatively incidental, although in density analysis on the level of the fastest pulse well beyond that of Western equivalents. The internal to it or between it and any pattern as a whole. The fact that "split" pulses fastest pulse is structurally fundamental, there being no standard substructure certainly West African drum ensembles achieve a precision of rhythmic timing my opinion it has a basic function in the efforts of the ensemble to stay together; once, and is probably being filled in mentally the few times it is not sounded. In out the piece it is almost always being sounded, often by several performers at tained in a piece the observer can hear the generation of the fastest pulse. Throughpulse appearing across the ensemble only on one level. In the African piece we the "fastest" pulse. As the proper pattern relationships are achieved and maincall that pulse, which sometimes repeats seven hundred or more times per minute, rhythmic structure on most levels, as in the West, with a consistently regular Tempo may vary from time to time in a drum ensemble piece. So also may

The Analytical Approach

timing. The meter-oriented person will then tend to define the African drum ensemble pattern, like most Western rhythm patterns or melody phrases or themes, as a division or multiple of the measure; accent sequences in the drum ensemble pattern might be seen as having the usual regular to syncopated relation to the prescribed strong and weak gross-beat stress values within the metrical measure structure.

complexity, diversity, and variation. Increasing complexity of patterns will lead even greater difficulties develop when the metrical approach is attempted with the him to focus on relatively isolable patterns, such as those of the gong or some the meter-oriented person must deal with the issue of ever-changing meter. the varying parts. As patterns (especially of a master drum) increase in variation. ensemble, the metrical approach will show a confusion of differing meters among patterns become more diverse and the gross beats fail to coincide across the to increasing ambiguity of meter as the gross beats become more obscure. As great body of African drum ensemble music that has a relatively high degree of scures the true character of the patterns as they are conceived and played. And simple levels a focus on "downbeats," "pick-up" strokes, "rests," and so on obpatterns and even entire pieces are cases in point. But even at these relatively of meter is easy; singers' and dancers' "motor-beat" and certain drum ensemble the simplicity, unity, and repetition of the rhythm is such that thinking in terms in terms of the music itself. The problems are small at certain levels on which scholars, including Africans, who have tried to talk about drum ensemble rhythms dancers or horizontally across a pattern, piece, or genre) have beset most music (whether vertically through an ensemble of instrumentalists, singers, and supporting drums. from the interrelated patterns of the ensemble as a whole and increasingly cause Any one or a combination of these metrical factors will tend to divert his attention Problems arising from a metrical approach to West African drum ensemble

Another, nonmetrical, approach the scholar might use may be linked to frequent statements to the effect that African drummers do not think in terms of meter. In this approach the scholar simply sets down every sound and "rest" that he perceives; on doing that, especially with precise aids such as the Seeger Melograph, he might find that even the fastest pulse is not completely regular and conclude (although these instruments would reveal the same fact about the Western metrical beat) that the African patterns have no rhythmic organization.

Finally, some scholars may avoid altogether dealing with the rhythm in precise musical terms and instead approach it from such organizational viewpoints as verbal meanings, movement, or sociocultural significance—these, however valuable in themselves and in the music, do not comprise a full and well-rounded analysis.

To sum up the article thus far, it can be said that West African drum ensemble music rests primarily on three general principles: (1) the intimate and highly structured interrelation of rhythm and sonority (2) within the intimate and highly structured interrelation of individual, subgroup, and total ensemble patterns (3) on a common but relatively unstructured rhythmic base. In Western music (1) the interrelation of pattern levels is equally intimate but not as highly structured; (2) the interrelation of pattern levels is equally structured but not as intimate; and (3) the rhythmic base is equally common but much more highly structured. Put another way: both the drum ensemble music and Western music have (1) intimate interrelation of rhythm and sonority (2) within a highly structured interrelation of pattern levels (3) on a common rhythmic base; but in the drum ensemble music (1) the interrelation of rhythm and sonority is more highly structured, (2) the interrelation of patterns is more intimate, (3) the rhythmic base is less structured.

The article has tried to demonstrate that such comparisons of the two musics—in terms of both this general frame and specific levels within it—can, if the similarities and differences are not too much ignored or emphasized, aid Westerners in better understanding the drum ensemble music. On the other hand, it has also tried to demonstrate that if the comparison is not so handled it can make better understanding virtually impossible. A major goal of the article is to show that the only adequate analytical approach is one that treats comparative study not as an end in itself, but as a subordinate byproduct of the study of the drum ensemble music on its own structural terms.

Let us apply to this analytical approach the proper test for any: what can be found out about West African drum ensemble music by a person acquainting himself with it for the first time and in this manner?

If his initial step is to listen to the music, live or recorded, he might discover certain general musical facts. Early in the performance of a piece he might identify the entrances and the horizontally repeating, varying, or further alternating rhythm/sonority patterns of some of the individual performers. As the proper timing relationships are achieved and maintained, he might recognize the composite patterns of some ensemble subgroups and also the total pattern of the full ensemble. On any of these levels, within a pattern he might hear gross rhythm/sonority pulses that are often equivalent, but no more than equivalent, to the prescribed metrical beats of Western music. Within the gross pulses he might hear the fastest regular and continual pulses, and within those often irregular split pulses.

But on any of these musical levels the information is so general that it allows only the most noncommittal conclusions. For more specific information the observer would have to go to the musicians and others. Information on such issues as the number, length, beginning points, internal structure, and interrelation of patterns might be gathered by talking to the players and having individual ones demonstrate their patterns. Talking with musicians and others can also provide information such as the hierarchy of instrument dominance and timing relation among the performers and the association of the drum ensemble patterns with dance and speech patterns.

It should be remembered that none of these types and sources of information is prior to another; analysis and notation do not have to begin with any one or follow any particular sequence—indeed they rarely occur that way from one piece of research to another. The only rule is based on the form and content of the music: do not make any assumptions—above all, not those based on a Western "musical sense"—when information is lacking or ambiguous; be ready to organize specific data, as it comes in from any or all the sources, in terms of the drum ensemble music itself; use each kind of fact only in correlation with all the others.

Now this kind of analytical approach is certainly not new—it just has not custom—arily been used very much by Westerners studying non-Western music. But its popularity is slowly growing as more Westerners find that its rewards are great and that its use takes only the small although steady effort of maintaining an orientation toward the music they are observing rather than from the music they may know best. And the fact of this growth has already exposed another major problem that lies at the very root of analysis, although not necessarily at its beginning—notation.

The Notational Approach

Most scholars who have tried using the Western system to notate African rhythms have keenly felt its disadvantage, and many have pointed out why. The problem is that the notation, developed in the context of the Western music tradition, shares particular highly analytical and precise structures common across most pieces in the tradition and will tend to transmit these structures to the drum ensemble music. But though many scholars are fully aware that Western notation cannot adequately represent much non-Western music, they continue to use it because it is readily at hand and understandable to their usual readers. Then they must add to their writing many words—often many thousands—explaining the myriad differences between what the notation says and what they know to be true in the music.

The Time Unit Box System (TUBS)—in which the examples that follow have been notated—is an attempt to bypass this problem. The system began to be developed in 1962 by Philip Harland for teaching purposes with the UCLA African Study Group, a performing ensemble in the Institute of Ethnomusicology, when

Harland was working with the Ashanti master drummer Robert Bonsu and the Ewe master drummer Robert Ayitee. The present author has contributed to its further development in collaboration with Ayitee and the Ashanti master drummer Kwasi Badu. A small but growing number of other persons have used the system in their work. TUBS represents the music on approximately the same level of precision that a trained observer hears; for those special analyses in which a more mathematically precise representation of rhythm and sonority is desired, elaborate mechanical tools such as the Seeger Model C Melograph and the Strobocom would be appropriate. TUBS can be an effective tool for transcribing and analyzing West African drum ensemble music; a person who is at least partly for performing or teaching the music.

Notation systems of similar type and effectiveness have been traditionally used to notate rhythmic patterns in such places as Java, India, China, and Korea, and several musicologists have developed their own systems. Traditional North Indian tabla notation, for example, consists of rhythmically grouped bols, written syllables which imitate specific drum sounds. Hardja Susilo in his thesis cribes drum patterns with his own adaptation of traditional notational practices in Sounds. Many are familiar with the graph system used by A. M. Jones in notating Ewe master drum parts. More recently Moses Serwadda and Hewitt Pantaleoni have described a tablature system for notating African dance drumming rhythms of the African Music Society], Vol. 4, No. 2 [1968], pp. 47-52).

Although TUBS is no more rhythmically accurate than Western notation, we hope it will become evident in the following and final section of the article that the system has several distinct advantages in dealing with West African drum ensemble music.

A basic advantage is its ability to produce at least a rough structural sketch even with inconclusive information—as when the observer has nothing to work with but the ensemble music or when the musicians' description is too brief or ambiguous—and at the same time to insert notational detail when precise information is available.

sequential temporal relations within and among patterns than do the notes and	In TUBS' horizontal sequence
TIOTOTO IN CONTRACTOR IN CONTR	ests of varying precise duration used in Western notation.

biguous). The fastest pulse should not be confused with meter—there is no inherent no one box is more significant than another. hierarchy of stress or accent in the sequence of fastest pulses, and in the notation of rhythmic sequence according to some organizational principle however amand rests of varying duration implies a stress structure, or at least an ordering in which Western notation groups notes together with joining flags and writes notes metrical measures with an inherent stress structure (even without these the manner onto gross beats and which translate the drum ensemble patterns into particular time signatures and bar lines of Western notation, which mislay rhythmic emphasis special techniques. In writing the sequence of fastest pulses TUBS avoids the unit in the music, with subdivisions within the fastest pulse being notated with Each box in TUBS represents one fastest pulse

pattern, that is, when there are no changes in sonority or such changes are ranconditions of a live performance are poor; when he finds it impossible to difcases he might notate a sound without characterizing its sonority: when he is not although a necessary one, of several aspects of sonority. Of course, the degree become involved with details of performer technique. dom; or when for any other reason the researcher does not feel it necessary to when sonority is a relatively minor factor in characterizing a drum ensemble ferentiate aurally the various sonorities, especially in fast or complex patterns, familiar with the music; when the technical quality of recorded material or the of precision in indicating sonority is at the discretion of the notater. In some notation fails to recognize that in the drum ensemble music pitch is only one, precise pitch—or relegating it to one line as in the writing of rhythm—Western direction the result would be virtually unreadable; conversely, in emphasizing of sonority—if sufficient diacritical markings were added to the notation in this sounds. Western notation has no effective capacity to indicate this full package formers to produce the pitch, loudness, tone quality, and carrying power of the and to characterize their sonority by representing the techniques used by the perby the box, and is filled when one or more symbols to indicate any sounds occurring Each box in TUBS is left empty if no sound occurs in the time unit represented

a single drum playing the rhythm of "I've Been Working on the Railroad" it would TUBS represents a segment of music on the simplest level, using a dot • to ings and the notational arrangement in general, will be explained as the discussion has a variety of appropriate symbols. These, together with various special markindicate sounds without characterizing their sonority. If we were to notate in TUBS progresses in the next section. Here we will simply give a brief example of how On the other hand, when sonority is being dealt with more precisely, TUBS

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with the fastest pulse being visible between the symbols coming closest together. Very often the fastest pulse heard will result from the combination of the rhythms

> of three against two in African rhythm—notated in its component parts it would be of two or more instruments. Take for instance the so nearly ubiquitous feeling

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In density analysis we would treat this as a single motif . .

third, fourth, and fifth boxes. . . and we would find the fastest pulse visible between the three dots in the

sent adequately their close interrelation. the drum ensemble patterns as relatively self-contained units, fails to represounds, pertinent subgroups, and individual parts. Western notation, in treating sonority sequences on any level of vertical interrelation—the totality of ensemble stack in which TUBS arranges the various parts of the drum ensemble music. The stack allows an effective analysis of the horizontal structure of the rhythm-The two-line example above is a simple illustration of the graph-like notational

Some Notational Analyses

study develops, these will possibly change. notated in TUBS. The analytical and notational techniques in the following discussion incorporate information obtained up to the time of writing; as further some patterns and pattern relationships from various drum ensemble pieces as broader organizational elements of the music. In this manner, let us examine sound. And as we reconstruct these units in notation we must try to exhibit the must constantly try to remember the interrelations that make up the totality of ward these conveniently isolable but perhaps relatively meaningless units, we ments of the ensemble and horizontally through time. As our attention shifts todown what we hear into comprehensible units, both vertically through the instruthe sound as an integrated whole. But as analyzers we very soon attempt to break When we listen to the music of West African drum ensembles, we first perceive

tempo alone can serve to distinguish pieces. on things that Ayitee has said and aside from all other factors, it is possible that different piece or merely a faster version of Atsia is problematical—but, based are probably somewhat simplified. Whether Fast Atsia should be considered a tempo, of course, is faster and correspondingly the master drum and dance patterns the master drum. Fast Atsia is very like Atsia in all respects except that the certain differences from Atsia in the patterns of both supporting instruments and which Fast Atsia derives, is slow in tempo. Agbekor is of medium tempo with in the suite. All three of these pieces have the same gong pattern. Atsia, from ture was set for performance purposes, is similar to two other pieces not done made up of four interconnected but contrasting pieces. Fast Atsia, whose strucby a basic ensemble of drums, gong, and rattle as the last piece in a dance suite UCLA African Study Group by the Ewe master drummer Robert Ayitee and played The first example is the beginning of Fast Atsia, an Ewe piece taught to the In the notation, in each part the symbols are placed to show rhythmic sequence. Each symbol is specific to the technique used by a performer to produce a required sonority, so the symbols may vary from one part to the next. Except for the atsemiwu (master drum) and sogo (supporting drum I) parts, there is no sonority change in the various parts after the first gankogui (double gong) pattern; for convenience, from that point in these patterns the noncommittal • is used.

For the atsemiwu part, it is important to use a symbol such as Some for the open stick strokes that serve as a transition pattern from the previous piece, in order to distinguish their sonority from that of the later hand-and-stick strokes & the master drummer uses when he switches to a rhythmic pattern coinciding with the dancers' motorbeat. In & the master drummer's palm (P) with fingers strikes the center of the drumhead and rebounds, producing a low-pitched open sound—his stick strikes the wooden shell of the drum, producing a sharp cracking (C) sound. Because (P) and (C) are sounded at the same time, the symbols are placed one above the other in the appropriate boxes; at other times these strokes may be made separately.

The twelve-unit pattern of the gankogui, the basic supporting instrument of this ensemble, is the time line for the piece. Since the gankogui (like all gongs) is always played with a stick, the symbol \$ would be meaningless as an indicator of sonority variation in its part. Instead the symbol L is used for the low-pitched first stroke, and the symbol H for the high-pitched strokes that continue for the rest of the piece.

Each of the three drums that supports the master drum is, like the gong, played with sticks and thus has no stick-hand sonority variation. Neither do these drums have any low-high sonority variation. As a result, other symbols are pertinent in notating their parts. The six-unit pattern of the sogo (supporting drum I), in this example the only intermediate supporting instrument, includes open • and damped 🖋 stick strokes. The kaganu (supporting drum II) plays a three-unit pattern of open stick strokes. So does the kidi (supporting drum III).

The three-unit axhatsi (gourd rattle) pattern consists of downstrokes $\mathfrak D$ in which the instrument is struck against the player's thigh.

atsemiwu

S

gankogui

more can we discover?

each instrument except the master drum plays a repeating pattern. But what

Although there is no rule as to exact pattern sequence, it is easy to see that

a minute the example represents only the first few seconds of the piece, but al-

Since in this case that pulse occurs about five hundred times

ready several analytical processes can be discussed

mon fastest pulse.

2 - rest.

cerned with the beginning and ending of patterns.

ensemble music would not be appropriate. But it is true that we must be con-

Of course, to ask such metrically oriented questions about the drum

progress when we learn from Ayitee that all patterns begin with a sound and not

In this example we make some

and axhatsi (gourd rattle) patterns are 1 - rest - rest, rest - rest - 3, or rest -

pattern is 1 - 2 - rest, 1 - rest - 3, or rest - 2 - 3 —or whether the kidi (drum)

A Westerner, for example, might want to know whether the kaganu (drum)

or no variation, pieces these are not rigidly set—and that in the supporting patterns there is little also their entrance points—although here as in most cases in the drum ensemble "rest." From him we know the various patterns' beginning points, which are

Now let us look at all the individual patterns of Fast Atsia

last in a suite, the master drum sequence closely related to those of the dancers; since this piece as taught by Ayitee was the The atsemiwu—the master drum—has not yet begun its patterns, which will be

part or the next one. begin performing his twelve-unit pattern on the first stroke in parenthesis in his soon as he feels that, the gong player may enter on any master drum stroke and function of this particular master drum signal is to give the gong the pace; as to the gankogui (double gong) to begin the piece proper, as is quite common. The is a transition from a previous piece, an introduction for this one, and a signal atsemiwu S S S S S = an open stick stroke S

E S Ξ S I S 工 S エ S H = high toneL = low tone.I S

various individual parts in a vertical stack of several lines on the basis of a com-In the notation, as a first subdivision of the total sound, we have written the

KOETTING 130

Atsia, in which the gong's entrance is relatively set Compare this with another signal from the master drum to the gong used for Fast

	S
	7
	S
	7
	S
	7
	S
	5
	S
	7
	S
	5
	5
	Ш
	CAS.
	4
_	
E	£\$
_	\sqcup
Ξ	Ш

h = an open hand stroke —the knuckle part of the palm of the free hand strikes strokes are by nature less accented than equivalent stick strokes (S). the rim, forcing the fingers to strike the membrane and rebound. Hand

 $\frac{1}{2}$ = a type of flam—the fingertips $\frac{1}{2}$ of the free hand strike the edge of the membrane and do not rebound, followed immediately by a damped stick stroke \$. This is a normal flam, with the second stroke being an accent-

beginning of a gong pattern. of the second gong pattern, but usually where his entrance will coincide with the first (parenthetical) or seventh stroke of the first gong pattern or the first stroke plays a six-unit pattern; as shown by parentheses in his part, he enters on the (supporting drum I), the only intermediate supporting instrument in this piece, Once the gong has begun, the other instruments are free to enter. The sogo

1	I	I	ĺ			ĺ						-	
<u> </u>	0	×	ø	B	0		(0)	×	D	D	0	(0)	sogo
	I	I		エ		Ŧ		I	H		(H)		gankogui

= an open stroke, the stick striking the drumhead and rebounding

= a damped stroke, made on this drum by the stick striking the drumhead and remaining.

his three-unit pattern coincide with two strokes in the first, or sometimes the kaganu (supporting drum II) usually enters at the point where the two strokes in second, gong pattern. The lesser supporting instruments may enter before or after the sogo. The

kaganu	gankogui	
	Ē	
	Œ	
(0)	王	
0	エ	
0	エ	
0		
	I	
0		
0	工	
	エ	
0	Ш	
0	エ	
10	H	
\vdash	I	
0	エ	

first stroke of the second gong pattern. the first (parenthetical) stroke of the first gong pattern and (at the latest) the theses in their parts, can enter with their three-unit patterns anywhere between The kidi (supporting drum III) and axhatsi (gourd rattle), as shown by paren-

axhatsi	kaganu	gankogui	
9	(0)	(L)	
		(H)	
E	(0)		
		Н	
		H	
7	(0)		
		H	
Э	(0)	エ	
		T	

0

 $\mathbf{n} =$ the nlaver strikes the rattle downward against his thigh.

before analysis to what might well be erroneous assumptions and short enough to be understandable as a unit-without making a commitment unit frame is to show in the least obstructed way the unified interrelation of pattime units as measured by the fastest pulse. My purpose in using the twelvea single frame of all the supporting instruments, which repeats every twelve currently played patterns. Here, drawn from the Fast Atsia example above, is and the total ensemble -TUBS can represent specified musical segments in noterns—the frame must be long enough to encompass at least most of the patterns tational frames of any desired length for the analysis of organization among con-When we go into the broader issues of pattern interrelation—pertinent subgroups terns, with interrelation analysis being confined to entrances and beginning points So far we have been looking at Fast Atsia mainly on the level of individual pat-

axhatsi	kidi	kaganu	sogo	gankogui
J	0		0	工
		0		
		0	0	工
Ħ	0		D	
		0	100	工
		0	10	工
Ð	0		0	
		0		工
		0	0	
¥	0		þ	I
		0	D	
		0	D	I

units long and the second one five). is felt in two parts, Professor Nketia tells us, but the first of these is seven time might give the impression that the gong pattern has two halves (indeed the pattern encompassing one repeat of the rattle/kidi and kaganu patterns. Such an approach extra frame lines might be drawn every six boxes around the sogo pattern and he might feel to be internal divisions common to the various parts. For example, might wish to subdivide the frame into equal or additive groupings to show what Of course, for special purposes at a later stage of analysis the researcher

	axhatsi	kidi	kaganu	sogo	gankogui	
	Ð	0		0	エ	
			0			
			0	0	工	
	θ	0		×		
			0	100	工	
			٥	100	T	
	•			0		
			0		•	
			0	0		
	•			D	•	
			•	×		
			0	A	•	
•	-					

Or frame lines might be drawn every three boxes coinciding with the rattle/kidipatterns.

axl		ka		gank	
axhatsi D	kidi	kaganu	sogo	gankogui	
D	٥		0	工	
		0			
		0	0	H	
•	•		ø		
			'a	•	
		•	De	•	
			0		
•	•				1
•	•	0		0	
•	_	0	0	•	
•	•	_		•	
		_		•	
		•		•	

Or the twelve-unit frame might be subdivided and also stretched in favor of emphasizing the individual patterns.

		` ~.		
axhatsi	kidi	kaganu	sogo	gankogui
D D	0	0 0	0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	HHHH
Ð	0	0	0	工
Ð	0	0	78 78	工工

rattle/kidi and kaganu combination from Fast Atsia. for supporting instruments is the gong pattern. The first example will be the which the fastest pulse is the basis of analysis and the primary timing reference conceived and played can be inserted in more precise detail as this is discovered dictory but also at odds with the music as it is conceived and played. On the other appearance is so random both within and among pieces, and often so obscure, as and even throughout some of the more unified pieces -but rather because its gross pulse does not exist in the music -it does, in various parts of many pieces of the fastest pulse rather than the gross pulses of a metrical structure, and the Let us consider some examples, ranging from fairly simple to more complex, in Analysis on this basis provides a general outline into which the music as it is in its relation to all parts of a piece, although not necessarily in its absolute speed. time after time at precise conclusions that are often not only internally contrato prohibit effective analysis. When we analyze in terms of gross pulse we arrive TUBS notation is set up for an analysis with that orientation. This is not because said that the drum ensemble music should be conceived as operating on the basis pulse as a problematic basis for analysis of the drum ensemble music. We have Framing on the rattle/kidi patterns as above brings us to the issue of gross the fastest pulse exists with relative clarity in all pieces and is unchanging

In Fast Atsia the kidi (drum) and axhatsi (rattle) play regular gross-pulse strokes on the dancers' motorbeat. Westerners tend to fix on that motorbeat as the underlying meter and relate the various patterns to it. Immediately the kaganu pattern becomes afterbeats to the downbeat of the rattle/kidi (here, for clarity, an asterisk marks the actual beginning of the kaganu pattern—in other examples one may assume that a pattern's beginning is the leftmost notated stroke, and an asterisk is supplied only where it is not and thus might be obscure or ambiguous).

axhatsi	kidi	kaganu
9	•	
		*
		•
•	0	
		•
		•
•	0	
		•
		•
•	•	
		0
		•

master drum introduction and patterns to make up the total ensemble pattern. combinations in Fast Atsia, For Ayitee, all the supporting instruments form a center and only secondarily to one another. In fact, there are no small subgroup for the other four instruments, and that subgroup pattern joins with the varying repeating twelve-unit subgroup pattern with the gong a primary relating center actually on a par, each relating primarily to the gong as the functional timing of a downbeat-afterbeat relation is dangerous: these three lesser supporters are the rattle/kidi. Even in the rattle/kidi and kaganu combination, the assumption tend to be felt in short varying sections if it were related to the gross-pulse of twelve-unit gong pattern—actually the basic, unchanging timing center—would supporters, indeed in some ways over all the patterns of the ensemble. The as a cross-rhythm to their gross pulse; the relation is exactly the reverse—the patterns of the master drum are quite dominant over those of these two lesser view the master drum in relation to the rattle/kidi and the master drum introduction influence over the ensemble. It would be highly questionable, for example, to patterns in their own ensemble—or that their gross-beat rhythms have any basic that the rattle/kidi relate more strongly to the dancers' motorbeat than to the other consideration. Neither the music nor the musicians give us any reason to assume time vital, particularly when the rest of the ensemble instruments are brought into difference in concept (and quite possibly resulting sound) is subtle but at the same task of relating both patterns at once to the gong, when in fact they were relating whom could not play the kaganu pattern alone with the gong, could easily play the the kaganu pattern as afterbeats to the rattle/kidi and the latter to the gong. The kaganu and rattle patterns together in the proper time relation to the gong. From passed the two instruments around and discovered that all the students, many of both parts simultaneously. Ayitee's surprise at this grew to amazement when he stepped out of the room, the kaganu player picked up the rattle and began playing one day when the ensemble was rehearsing Fast Atsia and the rattle player had his viewpoint he could only assume they were accomplishing the extremely difficult the gong time line with no issue of afterbeats, could never understand that. Then, instead of the gong. Ayitee, who taught the kaganu pattern in primary relation to great help in playing the kaganu pattern at a pace of more than five hundred fastest student kaganu players tapped their feet to the rattle/kidi rhythm, although it was no pulses a minute, and they wanted to learn to play the kaganu along with the rattle In fact, most students conceive of the kaganu pattern as afterbeats. At UCLA the

A similar problem in analyzing the drum ensemble music from the viewpoint of gross-pulse structure exists in at least one of the pieces of a northern Yoruba hourglass stick drum ensemble in Nigeria. The pattern of the basic time-line drum is rhythmically the same as the gong pattern of Ewe Fast Atsia, and one supporting drum generates the same gross-beat structure which, if depended on for analysis, affects one's impression of the gong pattern as well as others. This might be a little difficult to hear because the Yoruba pattern is based on a speech pattern with a different beginning point and two primary accents

\triangleright	0	
fe-ku-ru je-ko	•	
je.	•	٧
ķo	0	
oy	•	\
oy-in-mo-mo		
mo-	•	
mo	0	

Referring to someone who eats two foods that do not go together.

and a third drum in the ensemble plays a pattern with low, medium, and high sonority variation (in the example, an asterisk indicates the beginning of the gong pattern as it is in Fast Atsia).

•		•		•	 	•		supporting drum
		エ	3		-	エ	3	supporting drum
	•			*		•		time-line drum

A comparable but even more subtle gross-beat situation exists in the music of Kete ensembles of Ghana, the drum groups that play for Ashanti paramount chiefs and for the Asantehene, the head of all the Ashanti people. The standard dawuro (gong) pattern, the time line, of a Kete ensemble is rhythmically the same as in Ewe Fast Atsia and the Yoruba piece mentioned above. That fact is hardly recognizable, not because of a strong gross-beat structure anywhere among the supporting instruments, but for other reasons. For one, the Kete gong pattern has a different beginning and also several damped strokes (asterisk indicates the beginning of the gong pattern as it is in Fast Atsia).

dawuro	
0	
1	
o*	
0	
1	
0	
1	1

/ = a light damped stroke.

The dawuro pattern also sounds different from its counterparts because of the kete (master drum, played with two hooked sticks), which can be felt to generate a gross pulse. Moreover, since the patterns of that dominant instrument frequently change, the observer might experience a resultant feeling of change in the dawuro pattern from one piece to another and even within a piece. But even in relation to the kete the dawuro pattern is basically unchanging, as is attested by the Kete musicians—in this case by the Ashanti master drummer Kwasi Badu. As an example, below are segments of three Kete pieces—Abofoo (pronounced "Abofoa"), Adampa, and Mpre. The gong cycle is notated, as it is often played in these pieces, without the damped strokes of the "complete" pattern. The master drum patterns, all of which are notated from performance by Badu and one of which in each case is the piece-identifying pattern, are placed one under another for easy comparison but should be read horizontally from one line to the next without stopping. Since the musicians feel no difference in gong pattern from piece to piece, frame lines are solid

1 1 11 . 1 I the meaton drim nottorno

	sequence)	(pattern • •	kete	dawuro •		
۰	•	•	•	•		Abc
		•	•			Abofoo
0	D	×	1	•		
				 •		
	٠	•	۰			
	•	•	۰			
	•	۰				
	Ja.	0	8			
		•	•	0		
		•	٠			
		۰				
	•	8	8	•		
				 •	l	
	•	•	•			
		•	•			
				•		
	٠	D	×			

2×

	poquence)	(pattern	kete		dawuro	1	Ad
 •	•		1				Adampa
•	•	•	1				pa
	N	(*	1		•		
•		-	İ				
					•		
 •	•	•	•				
•	•	•	•		•		
•	•						
					•	Г	
 •	•	•	•				
•	•	٠	•				
	p		٠		•		
•		•					
					•		
۰	•	٠	•				
0	•	۰	•		0		
٥							
·	•	•	•				

• since this seems to be a timed technique dividing the fastest pulse in half, the first symbol appears in the center of the box and the second one on the line at the end of the box.

	1	sequence)	kete		dawuro •	Mpre
	•			ļ		
				1		
			\vdash	1	-	
-	ç.	Ç.	\vdash	1	-	
-		1.5	_		-	
-	-	-	-		-	
 -	-	-	-		-	
-	-		•		•	
_		_	_			
•	•	•	•			
 ć.	Ç.	ره	ç•			
					0	
	•	•				
					•	
	•	•	•			
	(o	•	Ç.		•	
		•				
			•			
	0	•	•		_	
	ر ه	ć.	(•			
	·	·-	٠.	,		

• = a strong-to-weak flam (the first stroke being accented).

cases the two instruments even generate a single composite pattern, often speechtary to those of the master drum (usually filling in their silent pulses); in some of the master drum and the apentemma, an intermediate hand drum sometimes re-(Asterisks indicate pattern beginnings that are not leftmost strokes.) relation to the gong of the primarily related master drum and apentemma patterns Abofoo and Adampa, but notice from one to the next the difference in their secondary pulse. The patterns are generally similar across the three pieces, especially pulse feeling is lessened and we see more of a timing relation based on the fastest Kete pieces above—Abofoo, Adampa, and Mpre—it should be evident that the grossbased. In looking at the patterns of the master drum and apentemma from our three join those of the master drum in characterizing the piece, are basically complemenferred to by Badu as the master drum's "gong." The apentemma patterns, which another and only secondarily to the gong time line. This is true in Kete ensembles certain two or more lesser supporting instruments—are related primarily to one ments-such as the master drum and certain other intermediate drums, or a they had a primary timing relation to the gong. In most pieces some of the instruquestioned, it would be a mistake to analyze all the patterns of a piece as though While the function of the gong as a basic ensemble timing center must not be

•			Ahofoo		
	kete	apentemma .		dawuro	
٠.	•	8		•	
	0				
		×			
	×			•	
		0 o (x)			
		0		•	
	0	(×)			
	•				
		*		•	
	×				
		0			
		٥			
		`	-		

- (x) = the fingers of either hand, without making an attacking noise, stop the drumhead from vibrating to control the duration of the sound. Optional () in this pattern.
- o = an open stroke—the knuckle part of the palm of either hand strikes the rim, and the fingers strike the drumhead and rebound.
- \mathcal{I} = on the apentemma, the heel of the palm of either hand strikes the rim, and the outside three fingertips strike the membrane and remain.

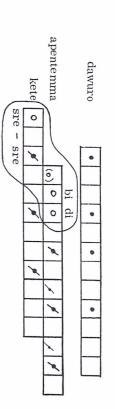
			Adampa		
	kete	apentemma		dawuro	
		0		•	
	•				
	(0	×			
c°	(•	
11					
a fl		o*		•	
am		0			
wit	•*				
h no	•	De		•	
ac					
cen	•				
ted		0*			
• = a flam with no accented stroke.					

apentemma

Mpre

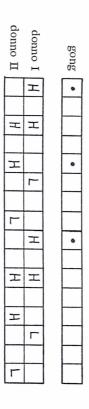
Kete

In the following example from the Kete pieces Mpe-asem and Nnawea we know that the apentemma pattern and the key master drum patterns form a single composite based on the word phrase "sresre bi di," the beginning of a proverb saying that "to beg here and there for food is not stealing."



(\circ) = a light open stroke, optional () in this pattern.

An example of lesser supporting instruments relating primarily to one another and secondarily to the gong appears in the Ashanti piece Sikyi. Two domos (hourglass drum with curved stick) play identical high-low patterns in a set relation.



To continue with our picture of the three Kete pieces: aside from gong, master drum, and apentemma a basic Kete ensemble includes several lesser supporting instruments. These play constant patterns in unvarying primary relation to the gong. A torowa (rattle) always plays the same pattern as the gong. A pair (male and female) of stick drums, called together mmurukuwa and individually aburukuwa, usually play identical patterns with less variation from piece to piece than the apentemma. In the Asantehene's Kete ensemble, a pair of attached donnos are played with a curved stick by a single performer with only one pattern for all pieces; other Kete ensembles, such as that of the Mamponghene, also use donno—but there it is a single instrument and the player has relative freedom to vary his pattern both within a piece and from one piece to another. (Asterisks in the mmurukuwa lines indicate pattern beginnings that are not leftmost strokes.)

ttern [A] and C			donno	torowa	dawuro
0	ن ط	9. A	Γ	•	•
	×		Н		
0	-	0 0		•	•
0		0			
				0	•
0		0	Г		
_	_		I	۰	•
0					
0	co*	*O*			

APPENDIX I

Abofoo

Following are two selections of Abofoo, based on demonstration tapes in which Badu played the different parts in sequence.

Tape I

The first score—representing the full piece of 2:11 minutes with an fp (fastest pulse) of 504 per minute—is written exactly as the tape was heard. It includes all the instruments but the donno, which Badu did not play in this recording because its pattern never changes from one piece to another in the Asantehene's Kete ensemble with which he is experienced. We will look first at the supporting instruments.

aburukuwa II apentemma aburukuwa I kete (cue) dawuro o' ó ं० o[;] Ö ó ç, o[°]) Ç0 o[;] Abofoo ço, 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 °, 0 0 0 0 Ċo 0 ç, ç, 0 ó o^ʻo 0 0 ç,o ٥ 0 Ó o[;] (o 0 0 0 0 0 0 0 0 0 0 0 0 time = 2:11 fp = 5040 0 0 0 0 0 (,0 0 Ġ Ġ 0 Ġ Ġ ç, Ġ, o) 0 2x2x2x2xthroughout

been looking at; the second is the Ewe piece Sohu.

various levels of notational approach presently being experimented with in dealing with whole pieces. The first score is the Abofoo of the Kete examples we have

do injustice to the rest of the ensemble. What is needed is a comprehensive analysis that can encompass similarities and differences as components of the whole. This cannot be done intuitively or by standard Western musicological methods. A deeper probe of the music—involving such detail as the precise beginnings of master drum patterns, possible verbal meanings in subgroup or individual supporting patterns, and dance associations—would have to be made before any trustworthy conclusions could be reached. Such a probe is still at an early stage in

We will, however, append to the article illustrations of

the author's own work.

especially from one piece to the next.

drum, whose changing patterns produce structural differences within a piece and

Yet to focus too strongly on this fact would

taken into account. But to focus too strongly on it would do injustice to the master

from one piece to another, as in the three Kete pieces above—which must be

ticularly true in viewing the relation between the master drum and the rest of the ensemble. The supporting instruments perform patterns that are relatively un-

This fact produces structural similarities —within a piece and often

totality of sound produced by the interrelation of the various parts.

This is par-

piece individually is to miss the main characteristic of the music, which is the

It has been said several times that to analyze the patterns of a drum ensemble

open strokes, which in this piece are dominant in characterizing the patterns, are the same By analyzing across two or more examples of Abofoo and other closely related Kete pieces, these supporting patterns can be broken down into main and variation patterns as follows (here and only the damped strokes change). Asterisks indicate pattern beginnings where these might tions between the apentemma and the master drum (note that in the apentemma patterns the with Badu and on comparison of Abofoo tape I with another in which Badu was showing the relaoccurs seventy times in the six pieces, variation pattern B thirty-nine times, and variation the donno pattern is included). Classification of the mmurukuwa (the combined aburukuwa) pattern C twenty-four times. Arrangement of the apentemma patterns is based on discussion have the same mmurukuwa patterns; mmurukuwa main pattern A generally appears first-it patterns are derived from cross-analyzing this and five other pieces considered by Badu to

Main supporting patterns

apentemma	aburukuwa II 👴	aburukuwa I 😌	donno	dawuro/torowa	
	o)	ó		•	
×			I		
	0	0		0	
0	0	0			
0				•	
	0	0	٢		
×			エ	•	
0	(°o*	(°0*			
0					
		(pattern A)			

Variations played this recording

dawuro/torowa	
none	

apentemma	apentemma	apentemma	aburukuwa II o	aburukuwa I & II 👴	donno none	dawuro/torowa none
	×		0	;o	nc	nc
					ne	ne
				B		
			0			
0	0	0	0			
0	0	0				
			0			
100	4					
			0			
0	₩0	0.*	0	°o.≉		
0	0	0				
			(pattern C)	(pattern B)		

time," the supporting performers recognize the first one immediately and stop playing. up the standard ending pattern that Badu used for many pieces; since the strokes are "out of sometimes with the left stick pressing the drum head. The last three strokes in the score make Of his subtle sonority variations, the two I could distinguish in the tape are indicated . and it, is made up mostly of varying kinds of damped strokes; in Abofoo he uses only damped strokes. 🖊 in the score. Strokes notated ∮ are usually accented—usually played by the right stick Here are the master drum sequences of tape I. Kete master drumming, as Badu demonstrates

							•		sequence)	(pattern	kete	
12	11	10	9	8	7	6	5	++	ω		1	
	•	•	•	•	•	•	•	•		•	•	1
-	•	•	•	•	•			•		•		
		•	•	•	•		•					1
c.	×	×	×	×	×	A	×	×	×	×	•	
•								_			_	
	•	•		•	•	•	•	•	•	۰	٠	
8)	•	•		•			•	•	•			
		×	•		1	•	10	•	۰	•		
	×		×	•		×		×	×	×	۰	
		٠		٠	•		•				×	
										_		
	•	•	٠	•	•	•	•	٠	•	•	•	
	•	•	•	•	•		•	•				
	•	•	•	•	•		•					
	×	×	×	×	×	٠	×	×	•	٠	•	
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			×									
	•	/		•	•	•	•	•	•	•	•	
	•							•				
	•		×									
	×	1		•	•	•	•	V				
									_			
											\neg	
	5x		2 _x			4 _N		4×	3x			

In the second tape—1:36 minutes of master drum and time line with an fp of 546 per minute—the sonority factor and the standard ending pattern are the same as in tape I, but otherwise there are some interesting differences in the master drum sequences. Without sufficient verbal information, it is impossible to know whether it is more significant to define the patterns in terms of six, twelve, or twenty-four time units or some combination of these. On the six-unit level, tapes I and II contain the same master drum patterns except for the last part of line 9 in tape I, which does not appear in tape II. On the level of twelve or twenty-four units, patterns reckoned from the beginning of the gong cycle in tape I—as in line 3—start in the middle of the gong cycle in tape II—as in line 3—start in the middle of the gong cycle in tape II—as in line 3—start in the middle of the gong cycle my general preference is to analyze in terms of the longest sequences valid given the information obtained. But the most important thing is to have a notation and an attitude of mind is available.

1		1	1	1	1	1	1								(pattern	kete		dawuro	
17	16	15	14	13	12	11	10	9	œ	7	6	Ç1	4+	ω	12				
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				•	•	•	۰			٠	٠			•	٠	•		Ш	foo
				۰						٠	۰							Ш	
	•	•	•	×	A	•	•	•	۰	×	×	•	•	×	×	*		×	
						•	٠												
										_			ᆜ					×	
	۰	•	•	•	•	•	٠	۰	۰	۰	٠	٠	٠	L.	•	•			
	•		•		•	•	٠		٠		•	•	•	•	•	•			
	۰		•							11/10	0	•	•	۰				×	
	D	•	De	۰		•	٠	•	×	•	×	1	×	×	×	×			
					•	•	•												
		•	•		•	•	•	•	٠	•	•	•	٠	•		•		×	
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		•		•	1.	•	•	•	•	•		•	•	•	•	•		_	time = 1:36
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early	8	_	_			•	1	8	_	_	1	1	_	_	-	-	-	×	1
earl	L	•	•	•	×	×	•	_	•	•	L	_	•	•	1	1		_	fp = 546
Ÿ						_	•		L			•		1	_	_		_	 ຫ
	C			L	L					L	L					_			94
	44										5X		2x		2x				

APPENDIX II

KOETTING 144

Sohu

The Ewe piece Sohu was a set piece as Ayitee taught it to the UCLA ensemble. The supporting instruments were allowed virtually no variation. The sequence of master drum patterns, which are related to the patterns of the dancers, never changed from one performance to another, although within that sequence there might be variation in the number of times a pattern might repeat, as indicated in the margins of the score. At spots throughout the piece the master drum plays a "stop" pattern as indicated; when he does this, the other instruments substitute his rhythm for their normal patterns and the dancers perform a particular related pattern, below are the supporting patterns of Sohu, and on the following two pages are the master drum sequences. (Sonority symbols are as specific in the notation as they are conceived by Ayitee.)

toké (basic gong) I • • • • • • • • • • • • • • • • • • •	Since the pattern of rattl	kidi (supporting drum III)	kaganu (supporting drum 山)	sogo (supporting drum 1)	, IV			gankogui (supporting gong) I	п	axhatsi (rattle) I	п	toké (basic gong) I		
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	-													
0 -	-	0	0	×	エ	-		エ	D		•	•		
			0			_								

are notated with the noncommittal dot.

In rattle Π , $\mathcal D$ is a downstroke in which the rattle hits the thigh; U is an upstroke in which the rattle hits the palm of the free hand.

Sohu - master drum (cont.)

		Ì	I
pattern 8 :S P	P P C	\$ P	E
"stop" pattern		7 1 1 1 1 1 1	[E
\$ \$ P	\$	h S P	
pattern 3			\$
hshs	T I I I I I I I I I	 	:h S
"stop" pattern	h S	h S h S	h S :
			P
\$ \$ P	\$	h S P	\$
pattern 4 ShhShS	P f\$	P fx	P f : 2-4x
"stop" pattern			P
\$ \$ P	\$	h S P	\$
pattern 3			:hS
hshs	hshs	h S h S	
"stop" pattern		111311113	h S : 1, 1½, or 2x
\$ \$ P	\$		P
· P T	*	h S P	\$
	I		