



**Example 2** Opening four bars of Slow Agbekor as transcribed by Kongo Zabana (*African Drum Music*, vol. 1, *Slow Agbekor* [Accra, Ghana: Afram Publications, 1997]; used by permission)

$\text{♩} = 104$

The musical score is presented in two systems. The first system contains the first two bars of the piece. The second system contains the next two bars, with a measure rest in the first bar of that system. The instruments and their parts are as follows:

- Kakogui (Bell):** Plays a steady eighth-note pattern.
- Axatse (Rattle):** Plays a pattern of eighth notes with rests.
- Kagan (Drum):** Plays a complex pattern of eighth and sixteenth notes.
- Totodzi (Drum):** Plays a pattern of eighth notes with rests.
- Kroboto (Drum):** Plays a pattern of eighth notes with rests.
- Kidi (Drum):** Plays a pattern of eighth notes with rests.
- Atsimevu (Lead drum):** Plays a complex pattern of eighth and sixteenth notes.

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Practically every scholar writing about West African rhythm during the last half century has taken note of time lines. About the stylized war dance, Agbekor, for example, David Locke says that “every act of drumming, singing, and dancing is timed in accordance with the recurring musical phrase played on an iron bell.” John Chernoff introduces the instruments of a typical drum ensemble by observing that “the bell is like the heartbeat which keeps things steady.” Kwabena Nketia, who first used the term “time line” in 1963, describes it as “a constant point of reference by which the phrase structure of a song as well as the linear metrical organization of phrases are guided.” And according to Gerhard Kubik, time-line patterns are “a regulative element in many kinds of African music,” numbering among the basic “principles of timing.” There is, in short, general consensus that time lines are materially real, widely used, and crucial markers of temporal reference in African ensemble music.<sup>2</sup>

Inevitably, perhaps, the extant literature does not propagate a single, definitive perspective on time lines. Disagreements abound, some of them quite fundamental, regarding their nature, musical function, and ultimate significance. While Kubik, for example, claims that a time-line pattern “represents the structural core of a musical piece, something like a condensed and extremely concentrated expression of the motional possibilities open to the participants (musicians and dancers),”<sup>3</sup> Meki Nzewi, without disputing its

2. David Locke, “Africa: Ewe, Mande, Dagbamba, Shona, BaAka,” in *Worlds of Music: An Introduction to the Music of the World’s Peoples*, ed. Jeff Todd Titon (London: Prentice Hall, 1996), 86; John Miller Chernoff, *African Rhythm and African Sensibility: Aesthetics and Social Action in African Musical Idioms* (Chicago: University of Chicago Press, 1979), 43; J. H. Kwabena Nketia, *African Music in Ghana* (Evanston, IL: Northwestern University Press, 1963), 78; Gerhard Kubik, *Theory of African Music*, vol. 1 (Wilhelmshaven: F. Noetzel, 1994), 44. We owe the designation “standard pattern” not to A. M. Jones (as is often reported) but to his informant during the 1950s, Desmond Tay, who drew attention to its prevalence in Southern Ewe dances, including Adzida, Agbadza, Govu, and Atsiagbekor. The term “African Signature Tune” appears in Jones’s *Studies in African Music*, 2 vols. (London: Oxford University Press, 1959), 1:210 in reference to the <22323> and <23223> patterns that stand in antecedent structural relation to the standard pattern. John Collins follows Jones’s usage in a recent speculative study, *African Musical Symbolism in Contemporary Perspective: Roots, Rhythms and Relativity* (Berlin: Pro Business, 2004). In 1960 Anthony King, Jones’s colleague at the School of Oriental and African Studies in London, drew attention to a handful of occurrences of the standard pattern in Yoruba music (King, “Employments of the ‘Standard Pattern’ in Yoruba Music,” *African Music* 2, no. 3 [1960]: 51–54). Since then, numerous others have used the term. See, for example, David Temperley’s “Meter and Grouping in African Music: A View from Music Theory,” *Ethnomusicology* 44 (2000): 80–82, which includes a discussion of “Hemiolas and the ‘Standard Pattern’”; and Chernoff’s “The Rhythmic Medium in African Music,” *New Literary History* 22 (1991): 1093–1102. The generic term “time line” (Nketia, *African Music in Ghana*, 78) has come to enjoy a more or less stable place in writings about African rhythm. Kubik, however, prefers the more explicit “time-line pattern.” See, for example, his *Angolan Traits in Black Music, Games and Dances of Brazil: A Study of African Cultural Extensions Overseas* (Lisbon: Junta de Investigações Científicas do Ultramar, 1979), 13–22.

3. Kubik, *Theory of African Music*, 45.

ubiquity, maintains that the time line “is a phrasing referent, not a structural referent in African musical thought and ensemble composition.” It might even be “purely a statistical equation.” Therefore, attempts “to contrive theoretical fabrications in order to prove that it is the structural fundamental in African musical creativity and ensemble music composition” are misguided.<sup>4</sup>

Disagreements betray two broad orientations, one qualitative, the other quantitative. Qualitatively oriented approaches engage rhythm as a supremely temporal and complex process; they seek its patterns in life, language, and forms of embodiment. Quantitatively oriented analytical approaches, on the other hand, assign numbers to elements in order to establish identity, and then exploit a series of operations (adding, dividing, and multiplying) to construct patterns of association among rhythmic elements and groups. Referring specifically to the figure shown in Example 1 (although her own representation uses the Time Unit Box System rather than staff notation), Ruth Stone writes that it is “played in Africa without reference to the counting or the quantitative means that Western art music might employ. People in the West frequently favor a quantitative approach, while the Kpelle [of Liberia]—and many other peoples in Africa, as well as in places like India—employ the syllables that are spoken in qualitative relationship to one another.”<sup>5</sup> Kubik had earlier drawn attention to mnemonic patterns as forms of oral notation that convey timbral, motional and accentual qualities, qualities that do not register readily in staff notation.<sup>6</sup> Other scholars pursuing a qualitative approach have sought to establish the influence of a society’s modes of time reckoning on the temporal and rhythmic character of its music,<sup>7</sup> given due attention to the rhythms of language and declamation,<sup>8</sup> drawn attention to the ethical and belief systems that constrain attitudes to drumming,<sup>9</sup> and proposed a model originating in gesture and terminating in stylized gesture to frame a divergent set of rhythmic behaviors.<sup>10</sup>

Recent years have seen a surge of interest in quantitative approaches to African rhythm, specifically the mathematical properties of time lines. Already

4. Meki Nzewi, *African Music: Theoretical Content and Creative Continuum; The Culture-Exponent’s Definitions* (Olderhausen, Germany: Institut für Didaktik populärer Musik, 1997), 33 and 35.

5. Ruth M. Stone, *Music in West Africa: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2005), 81.

6. Gerhard Kubik, “Oral Notation of Some West and Central African Time-Line Patterns,” *Review of Ethnology* 3 (1972): 169–76.

7. Alan P. Merriam, the chapter “African Musical Rhythm and Concepts of Time Reckoning,” in *African Music in Perspective* (New York: Garland, 1982): 443–46.

8. Gilbert Rouget, “Tons de la langue en Gun (Dahomey) et tons du tambour,” *Revue de musicologie* 50 (1964): 3–29. See also Ruth M. Stone, *Dried Millet Breaking: Time, Words, and Song in the Woi Epic of the Kpelle* (Bloomington: Indiana University Press, 1988).

9. Chernoff, *African Rhythm and African Sensibility*.

10. Kofi Agawu, *African Rhythm: A Northern Ewe Perspective* (Cambridge: Cambridge University Press, 1995).

in 1983, Jeff Pressing employed the principles of group theory to explore what he called “cognitive isomorphisms” between pitch and rhythm in various world musical cultures.<sup>11</sup> The African material in this fascinating study is drawn (mainly) from published transcriptions of various West African time lines, each one given a quantitative profile in order to facilitate comparison with European scales, including those associated with American jazz. Thus the pattern in Example 1, rendered durationally as <2212221>, is held to be equivalent or analogous to the major scale, whose pattern of semitones is also <2212221>. Pressing’s article was meant to stimulate further research into general cognitive processes and to encourage reflection on ways in which different world cultures domesticate analogous patterns of pitch and rhythm for artistic purposes. Jay Rahn, in an article on ostinatos in African music, explored the numerical properties of 8-, 9-, 12-, 16-, and 24-beat cycles, offered a critique of Pressing’s cognitive isomorphisms, and, in a later study, assembled a database of some twenty-five time lines for purposes of comparative analysis.<sup>12</sup> Kubik’s remarks about the notable absence of time-line patterns in American Blues include a chart demonstrating “the mathematics of West and Central African asymmetric time-line patterns” in the form of a pyramid stump.<sup>13</sup> Willie Anku’s structural set analyses of two Ghanaian dances, Adowa and Bawa, employ a quantitative approach deriving from set theory in order to lay bare the nature of the lead drummer’s art.<sup>14</sup> And perhaps most importantly, mathematician Godfried Toussaint has recently pursued some of the lines of investigation first opened up by Pressing. A study devoted to ten 12/8 seven-stroke time lines, for example, retains their interval vectors, dramatizes their geometrical shapes within a circular representation, and proposes new methods of classification based on rhythmic oddity and offbeatness.<sup>15</sup>

11. Jeff Pressing, “Cognitive Isomorphisms between Pitch and Rhythm in World Musics: West Africa, the Balkans and Western Tonality,” *Studies in Music* 17 (1983): 38–61.

12. Jay Rahn, “Asymmetrical Ostinatos in Sub-Saharan Music: Time, Pitch and Cycles Reconsidered,” *In Theory Only* 9, no. 7 (1987): 23–36. Rahn’s time-line database remains unpublished.

13. Gerhard Kubik, *Africa and the Blues* (Jackson: University Press of Mississippi, 1999), 54.

14. Willie Anku, *Structural Set Analysis of African Music*, vol. 1, *Adowa* (Legon, Ghana: Soundstage Production, 1992) and *Structural Set Analysis of African Music*, vol. 2, *Bawa* (Legon, Ghana: Soundstage Production, 1993). See also his “Circles and Time: A Theory of Structural Organization of Rhythm in African Music,” *Music Theory Online* 6 (2000), website at <http://www.societymusictheory.org/mto/issues/mto.00.6.1/mto.00.6.1.anku.html> (accessed 1 October 2005).

15. Godfried Toussaint, “Classification and Phylogenetic Analysis of African Ternary Rhythm Timelines,” in *Proceedings of BRIDGES: Mathematical Connections in Art, Music and Science*, University of Granada, Spain, 23–26 July 2003, 25–36. Extended version at <http://cgm.cs.mcgill.ca/~godfried/publications/ternary.pdf> (accessed 1 October 2005). There is a possible third category of cognitively oriented studies that would include Bertram Lehmann, “The Syntax of ‘Clavé’: Perception and Analysis of Meter in Cuban and African Music” (MA thesis, Tufts University, 2002); and Justin London, *Hearing in Time: Psychological Aspects of Musical Meter* (New York: Oxford University Press, 2004).

If Stone is right that African thinking is predominantly qualitative while Western thinking is quantitative, then the studies by Kubik, Pressing, Rahn, Anku, and Toussaint would have to be dismissed immediately as alien to African modes of musical intellection—etic rather than emic in orientation, perhaps. And indeed, some of the ostensibly objective findings of quantitatively oriented analysts—such as the isomorphism between the standard pattern and the major scale, or the maximal evenness of the standard pattern itself, or the high degree of invariance that results from rotation—have so far not found any corroboration in indigenous African discourse. This is partly because, the existence of counting games notwithstanding, the numerical mode is not the dominant mode in indigenous pedagogy. African discourses about music generally stress holism over atomism, integration over separation, and an across-the-dimensions over a within-a-dimension tendency. To the extent that the numerical mode operates within individual domains, it is handicapped in conveying what some feel is the essence of African rhythm.

At the same time, however, several properties revealed in quantitatively oriented analyses are compelling enough to engender further inquiry. For example, deep structural parallels between time lines suggest a possible historical convergence of today's more divergent, often ethnically associated patterns. Could it be, perhaps, that there once was an Ur-time line that over many generations has morphed into the variants we know today? Similarly, might the fact that the pattern in Example 1 presents a maximal sampling of possible starting points explain its historical endurance as an intrinsically mobile and musically rich resource for many traditional African composers?

These and several related questions about the meaning of African rhythmic practices need to be approached analytically and with methodological self-awareness, and it is part of my aim in this article to adopt such a stance in illuminating a single rhythmic pattern, the so-called standard pattern. The choice of a brief rhythmic pattern should provide a convenient focus for close analysis. I seek understanding from both structural and cultural points of view. Thus, I will describe the pattern in ways that might be acceptable to music theory, while commenting on the very ecology that sustains each description. At the same time, I will consider the cultural relevance of a number of ostensibly objective features that scholars routinely attribute to African rhythm. I end by proposing a simple generative approach as the one that most readily resonates with African ways of proceeding.

In distributing insights into “structural” and “cultural” categories, I am not unaware that the terms are fragile. The realm of culture can and does incorporate structure, while structure itself inevitably has a cultural history. But I retain the rubrics as broad points of orientation because they seem to me to possess some institutional currency. Structure signifies material attributes mediated by a precise, mathematical nomenclature, and free of the contingencies of expressivity. Culture, on the other hand, embraces a broader set of expressive attributes that are not necessarily or specifically musical. Structure ac-

knowledges a degree of autonomy while culture insists on context. The aim here is not to elevate one form of analysis over another but to foster dialogue and debate between two nominally distinct modes of thinking. If the conditions of possibility for developing a cross-cultural analysis of African rhythm are in any way enhanced by what follows, my aim will have been achieved.<sup>16</sup>

## Narrating the Character of the Standard Pattern

As expressed in Example 1, the standard pattern is a set of attack points (or onsets) and durations (or intervals)—events, in short. In a dance like Agbadza, the pattern might be heard upwards of seven thousand times in the course of a single four-hour performance. Phenomenally, then, the sound of the standard pattern is very present to all performers, including dancers. It should be emphasized that the pattern is repeated literally; it does not admit variations at the conceptual or intentional level. This says nothing about the way it is actually perceived, however, especially because perception is shaped by the range of activity within a fuller rhythmic texture. I only wish to register the intention that governs the production of sound. This unchanging constraint is one reason why some scholars have likened the time-line function to that of a metronome.<sup>17</sup> The analogy is not entirely felicitous, however, because a metronome marks tempo, not rhythm. Whereas a metronome notionally marks time rather than carves time, a time line uses a carved rhythmic pattern to mark time.

16. A few of the limitations of what is attempted here need to be aired in order to avoid misunderstanding. First, I have persisted in using the terms “African” and “Western” not because I fail to recognize the reach and complexity of both geocultural spaces but because the terms seem to me to retain some semiotic potency in the academy. Second, to readers who are bothered by my use of “Africa” instead of specific ethnic and subethnic designations (which, in any case, are products of colonial occupation), it should be said that the authority for any generalization is more than a matter of statistics; it is a matter of symbolic capital as well. Readers who find comfort in ethnographic specificity are, of course, free to substitute “Southern Ewe” for “Africa” in what follows, but if generalizing is understood as an expression of desire rather than an act of conventional reportage, then the selective use of “African” or “Western” will, I hope, be seen to be strategic. Third, concerning the ruling dichotomy of this article, it is possible to hear a resonance between culture/structure and other binaries, including emic/etic, hermeneutics/analysis, music as social fact/music as formal system, extramusical/musical, and insider/outsider. Their fragility notwithstanding, such oppositions have proved indispensable to many acts of interpretation; the present context is no exception. Fourth, mindful of the venue in which this article appears, I have taken the liberty to recapitulate some conventional wisdom about West African ensemble music for those who do not normally work with African materials. Ethnomusicologists seeking new ethnographic data are advised to look elsewhere; I aim, rather, at readers with an interest in the emerging critical discourse surrounding African music and its ramifications for cross-cultural interpretation.

17. Nketia *African Music in Ghana*, 87; idem, *The Music of Africa* (New York: Norton, 1974), 131.

If, for the sake of easy identification, we number each attack point of the standard pattern using integers (Ex. 3), we note immediately that there are seven events (or “elements,” “objects,” “onsets,” “attack points”);<sup>18</sup> they manifest only two kinds of duration, long (quarter note) and short (eighth note). Events 1, 2, 4, 5, and 6 comprise the larger class of longs (five items), while 3 and 7 make up the class of shorts (two items). One feature of the standard pattern, then, is its use of the structural as well as logical minimum of contrasting durational values (a long and a short). This minimality plays a part in establishing the pattern’s foundational character.

**Example 3** Standard pattern as event sequence



**Example 4** Standard pattern as additive structure



How might we narrate the character of the standard pattern? An attempt to construct a narrative that conveys the tendencies of this particular sequence of durations lays bare some of its expressive potential while also drawing attention to other structural properties. According to one narrative, shorter durations interrupt sequences of longer durations. That is, an eighth note first interrupts a sequence of two quarter notes; then another eighth note interrupts a sequence of not two but three quarter notes. (I use “interrupt” rather than “follow” to register the active nature of the progression and also to acknowledge a slew of psychological operators that come into play as we listen

18. What one calls these things betrays a far from negligible conceptual investment. The terms “element” and “object,” for example, codify substance or material, “attack point” and “onset” project a temporal awareness based on a moment of inception, while “event” signals a happening within the context of other happenings. Two (among several) authors who grapple with terminology while proposing their own theories of rhythm are Simha Arom, *African Polyphony and Polyrhythm: Musical Structure and Methodology*, trans. Martin Thom, Barbara Tuckett, and Raymond Boyd (Cambridge: Cambridge University Press, 1991; orig. pub. 1985), and Christopher F. Hasty, *Meter as Rhythm* (New York: Oxford University Press, 1997). Needless to say, there is no agreed-upon set of terms for the analysis of African rhythm. For a necessary but by now dated account, see Robert Kauffman, “African Rhythm: A Reassessment,” *Ethnomusicology* 24 (1980): 393–415.



to a rhythmic pattern such as this.) In this understanding the process emerging as 1–2 event sequence is disrupted by 3, resumed and amplified as 4–5–6 before being interrupted again by 7. The process may be understood as an emergent one: something is waiting to happen—or to be disclosed—but is not being allowed to play itself out properly. This hermeneutic reading introduces an element of tension—a foundational tension we might say—whereby the standard pattern, unlike some other time lines, never achieves internal resolution, but is permanently marked by a promise, an extensive anacrusis. Such built-in dynamism may well constitute one source of the pattern’s attraction for African musicians. In effect, it simultaneously enshrines a circularity suggestive of stasis as well as a mobility pointing to a future, qualities that make it especially appropriate for dance.

A second, implicit narrative reinforces the same emergent property. According to this, the standard pattern may be thought of as a repeating structure with an interposed element. That is, the sequences 1–2–3 and 5–6–7, which occupy the beginning and end of the pattern, are identical, and are separated by 4. Event 4 is thus the center, fulcrum, or point of symmetry. Although this description is technically correct, it has little or no cultural corroboration. One reason for this is that the sum of durations of both units—1–2–3 and 5–6–7—is 5, a number that is implausible as an archetypal rhythmic or metric unit in African culture, the more common units being 2 or 3 and their multiples.<sup>19</sup> Another is that the interposing of event 4 would imply a mode of rhythmic organization in which processes of addition and, by implication, deletion are recognized as legitimate structural processes. As we will see, however, additive processes are difficult to support from an African conceptual point of view.

A third narrative hinges on the role of event 3. Since the standard pattern is meaningful only as a repeated pattern, we might say that event 3, the first short in the pattern, introduces a kink, the effect of which is to destabilize the pattern, introduce an element of syncopation. (Event 3 does not accomplish the work of destabilizing by itself; it is the return to a long at 4 that shows 3 up as a dissenting element, and this suspicion is confirmed as 5 and 6 maintain the sequence of longs.) This confers a quality of extended anacrusis on the 4–5–6–7 event sequence. Discharge takes place at the repeat of the pattern. In this understanding, once event 3 destabilizes the stability emerging in the 1–2 sequence, the consequent instability is not countered until we reattain event 1

19. A. M. Jones put it directly: “The 8, 12, 16 rule is a pretty safe guide and unless the transcriber’s notation adds up to one of these numbers he can normally assume that he has made a mistake” (“On Transcribing African Music,” *African Music* 2, no. 1 [1958]: 14). Anku, in “Circles and Time” (paras. 9–10), makes a similar point in identifying three basic kinds of set in African music: a 12-time point set (with an eighth-note referent), a 16-time point set (with a sixteenth-note referent), and a cross-set (combining elements of the 12 and 16 sets). Neither Jones nor Anku recognizes five- or seven-element sets.

in the immediate repetition of the pattern. However, the second sounding of 1, although it provides a measure of resolution, does not, as it were, give the listener sufficient time to take in the discharge because it is soon beset by another disruption as the pattern repeats. In this interpretation, too, the pattern emerges as charged, as pregnant with a cumulative dynamism that spills across the material boundaries of each cycle and keeps the music going.

### Additive Conception and Us-Them Conceptual Wars

The sum of durational values in the standard pattern is 12 eighth notes. Although an empirical image of actual performances will inevitably reveal slight discrepancies—and thereby undermine our confidence in what we hear as an unequivocal cycle of 12—the consensus among scholars nowadays is that 12/8 meter accurately reflects African musicians' conception of the pattern. The number 12, in turn, brings into view additional properties, some of them developed by analogy with compositional constructs and systems that depend on a modulus of 12, including scale theory and 12-tone theory.<sup>20</sup>

The standard pattern's 12-span is sometimes expressed as 2+2+1+2+2+2+1, thus implying an additive rather than a divisive conception (see Ex. 4). These durations may be gathered at the next hierarchic level into groups of 5 and 7 respectively. Segmentation of the pattern therefore produces not an exact but a near-exact division, not 6+6 but 5+7. This slight offcenteredness conveys a fundamental duality found in the building blocks of many African expressive forms. The idea of unequal or nearly-equal halves expresses complementation, perhaps a call followed by a response, and is an important property of many African rhythmic patterns, too—a source of their peculiar shapes and potency.<sup>21</sup>

Do African musicians think additively? The evidence so far is that they do not. Writing in 1972 about the Yoruba version of the standard pattern, Kubik stated, "There is no evidence that the musicians themselves think it as 'additive.'" <sup>22</sup> I have argued elsewhere that additive thinking is foreign to many African musicians' ways of proceeding. For one thing, the syllabic structure of numerous indigenous languages is such that the counting words "one," "two," "three," up to "six" have mostly two syllables, sometimes three. This is in stark contrast to their one-syllable English equivalents. Therefore, attempting to render the standard pattern as 2+2+1+2+2+2+1 in one of those languages produces an excess of syllables that impedes effective performance.

20. See Pressing, "Cognitive Isomorphisms"; Rahn, "Asymmetrical Ostinatos"; and Toussaint, "Classification and Phylogenetic Analysis of African Ternary Rhythm Timelines."

21. On rhythmic oddity, see Arom, *African Polyphony and Polyrhythm*, 231; and Toussaint, "Classification and Phylogenetic Analysis of African Ternary Rhythm Timelines," 9–10.

22. Kubik, "Oral Notation of Some West and Central African Time-Line Patterns," 170.

Then, too, there appears to be no trace of an additive conception in the discourses of musicians, whether directly or indirectly. So, although Jones, Nketia, Brandel, and many others once insisted that additive rhythm is, as Nketia put it, “the hallmark of African music,” this viewpoint is in all likelihood a colossal error.<sup>23</sup>

It would seem, then, that whereas structural analysis (based in European metalanguage) endorses an additive conception of the standard pattern, cultural analysis (originating in African musicians’ thinking) denies it. Might this opposition be reconciled? Although the challenges to historical reconstruction are formidable, let us suppose that the original African composers of the standard pattern were aware—if not consciously then at least subliminally—of its “mathematical” properties. Let us suppose that a Yoruba or Kpelle or Ewe composer constructed the pattern out of increments of short and long durations, figuring out intuitively that a  $(2+2+1) + (2+2+2+1)$  arrangement is maximally ambiguous from a metrical point of view, and that the near-symmetry confers on the pattern a peculiar energy. The effects of these properties would be evident in performance, but they would be described in affective and expressive language, not one that deploys the supposed precision and security of numbers. This would emphatically not imply any compromise in the rigor of compositional thinking, however. After all, it is well known that cultures of drumming evince a remarkable propensity for precise timing in executing rhythmic patterns; indeed, the level of precision so displayed sometimes exceeds that of musicians practicing within traditions of writing and counting schemes. The firmness with which lead drummers recognize and immediately right wrongs in the course of ensemble performance is proof of mathematical or temporally precise awareness. Whether attributed on the basis of observed performance behavior, or presumed on the basis of an ethical conception of the nature of the compositional process, mathematical thinking is, according to this view, implicit in African musicians’ ways of proceeding.

It might be argued, therefore, that the arithmetical framing exemplified by a notion such as “additive process” is simply an economical way of expressing

23. Nketia, *The Music of Africa*, 131. One could argue that the theorist should not be constrained by what African musicians say or do not say; like Monsieur Jourdain, they may be engaged in additive behavior without knowing so. As a matter of principle, one would not expect all of the theorist’s concepts to emanate from, or be confirmed by, the verbal discourse of practicing musicians. But given the impossibility—not mere difficulty—of rendering an additive conception in indigenous languages, and given the viable alternative ways of producing those very rhythms, it is not clear why one would insist on the validity of an additive approach. The additive conception involves gathering up remnants and default groupings; it is in this sense not a dynamic process that can endow meter with the projective capability that ultimately transforms meter into rhythm. For a sustained study of projection, see Hasty, *Meter as Rhythm*; for a more extended critique of additive rhythm, see Kofi Agawu, *Representing African Music: Postcolonial Notes, Queries, Positions* (New York: Routledge, 2003), chap. 4.

the qualities sensed intuitively and conveyed affectively by African musicians. We are dealing, therefore, with different economies of expression. Neither economy is intrinsically superior; they are merely different. But to take refuge in difference is to overlook aspects of the history, ethics, and politics of knowledge construction. It is to downplay the fact that quantification, held as a natural or even universal process in the metropolis, has been brought to bear on analyses of African rhythm with apparently no need for further justification. But quantitative thinking as an institutional practice is a contingent development, not a necessary or inevitable one. It is propped up by a larger capitalist and political economy, and in the specific case of applications to African music, by an imperial history.<sup>24</sup> Imagine, if you will, a new world order in which African approaches to rhythm pedagogy predominated in the American academy. Patterns would be taught holistically rather than atomistically; theoretical work would privilege gestalten and larger rhythmic units over pulses akin to the movement of millipedes' feet; and no one would be granted a music degree who could not dance!

The question remains, however, for those committed to cross-cultural understanding who do not choose to overlook the politics of ordering knowledge: If the original culture-bearers are oblivious to our way of assigning properties to their rhythmic patterns, are we justified in insisting on the validity of our way? One answer might be that our way is valid because we know it to be so within our intellectual economy; theirs may be valid too, but not necessarily to us. Another answer might be that our way translates their way into a more precise analytic language. Our intellectual economy is stronger because discourse about music is cultivated within institutions, not gathered informally from sporadic utterances made at the site of performance. But several follow-up questions arise: Given that they have a way that is knowable by us, what is our ethical responsibility towards that way? Do we make an honest effort to learn to do things their way, or do we maintain the *a priori* superiority of our way? In short, if the standard pattern can be produced and analyzed from an additive conception, and if this mode of production and analysis comes more easily to a (Western) individual, why should s/he bother with a manifestly different, perhaps more challenging mode of (African) learning?

These are hardly new questions for music scholars; nor do they admit of straightforward answers. Theorists countering the charge of anachronism in analysis, ethnomusicologists seeking to mediate between insider and outsider perspectives, and historical musicologists attempting to reconcile the imperatives of modern thinking with a reconstructed past thinking—all have had to confront the central questions of appropriate knowledge and power differen-

24. Alan Bishop, "Western Mathematics: The Secret Weapon of Cultural Imperialism," *Race and Class* 32, no. 2 (1990): 51–65.

tials in intellectual discourse.<sup>25</sup> The most honest conclusion may not be the liberal position that we are engaged in some kind of dialogue with historical others or geographically distant subjects. Why not admit that whatever we do, we are obliged to win in the end? If the idea of dialogue provides the front for such “winning,” then so be it. To lose would be to lose ourselves—an entirely unacceptable outcome, many would privately admit, even while publicizing a fake egalitarianism. “Our ultimate concern,” writes ethnomusicologist Kenneth Gourlay, “is with ourselves and our own culture. . . . At bottom we are in it to save our souls or at least, to find them.”<sup>26</sup>

## Rotational Possibilities

Perhaps the most interesting properties of the standard pattern stem from its rotational possibilities. Already in 1959 A. M. Jones had noticed that different African communities phrased and accentuated versions of the pattern differently. Anticipating objection to his method of derivation, he landed upon the rotational (as distinct from permutational) possibilities of the pattern:

At whatever point in this [<22323>] formula you choose to start, if you repeat your pattern, this sequence will appear. Were the Africans to change the order of the long and short notes, then the basic pattern would be upset. For example, the sequence [<23322>] makes an entirely different basic rhythm and at whatever point you start in it, you will never, by repetition, produce the familiar [<22323>] form. It is this particular sequence of short and long basic units which is so clearly a typological feature of African music generally.<sup>27</sup>

The idea that the pattern might be begun at different points and still retain certain essential features has proved attractive to later scholars. Although a thorough, interethnic study of this principle remains to be undertaken, research by Pressing and Toussaint suggests that we might gain further insight into the aesthetic choices of different African communities by exploring further the principle of rotation.<sup>28</sup>

25. For one among several fruitful discussions, see chap. 9 (“The Politics of Reception: Tailoring the Present as Fulfilment of a Desired Past”) of Leo Treitler’s *With Voice and Pen: Coming to Know Medieval Song and How It Was Made* (New York: Oxford University Press, 2003).

26. Kenneth Gourlay, “Towards a Humanizing Ethnomusicology,” *Ethnomusicology* 26 (1982): 411–12.

27. Jones, *Studies in African Music*, 1:213

28. There are other ways of describing the procedure here referred to as rotation. One may speak of modes by analogy with scales. Just as the Dorian and Phrygian modes use an identical collection of pitches but with different centers, so the order of the elements in the standard pattern can be disposed with different starting points. See, among other writings, Pressing’s “Cognitive Isomorphisms” for further discussion of rotations as modes.

A simple rotation of the seven events that constitute the standard pattern yields the following orderings. (Each durational pattern is then written twice to reveal the embedding of the initial rotation 0 [in boldface and underlined].)

Rotation 0	<2212221>	< <b><u>2212221</u></b> 2212221>
Rotation 1	<2122212>	<212221 <b><u>2212221</u></b> 2>
Rotation 2	<1222122>	<12221 <b><u>2212221</u></b> 222>
Rotation 3	<2221221>	<2221 <b><u>2212221</u></b> 221>
Rotation 4	<2212212>	<221 <b><u>2212221</u></b> 2212>
Rotation 5	<2122122>	<21 <b><u>2212221</u></b> 22122>
Rotation 6	<1221222>	<1 <b><u>2212221</u></b> 221222>

Immediately noticeable is the high degree of invariance among rotational forms—a consequence of the pattern’s maximal evenness. Rotations 0 and 4 are identical except for the reversal in the order of elements 6 and 7. Rotations 1 and 5 switch their elements 5 and 6, rotations 2 and 6 their elements 4 and 5, rotations 3 and 0 their elements 3 and 4, rotations 4 and 1 their elements 2 and 3, rotations 5 and 2 their elements 1 and 2, and rotations 6 and 3 their elements 7 and 1. Rotation, in short, preserves the essence of the pattern. (This says nothing about the cognitive veracity of rotation as such.)

From another point of view, the procedure of rotation reveals that pairs of patterns are related by exchanging their “halves.” (Since each pattern has seven elements, and since the exchange we are proposing embraces whole elements, a “half” should be understood as a succession of 3 or 4 contiguous elements. For these purposes, therefore, sets containing 3 or 4 elements are held to be equivalent.) Thus, rotation 0, whose “halves” are <221> and <2221> respectively, is closely related to rotation 3, whose “halves” are <2221> and <221>. In effect the two forms exchange their halves while preserving the order within each half. This property obtains for six other pairs: rotations 1 and 4, 2 and 5, 3 and 6, 4 and 0, 5 and 1, and 6 and 2. Gesturally, the property is perhaps akin to the kind of hexachordal exchange that produces aggregates between combinatorial sets, although the preservation of order in the case of the standard pattern might dissuade us from pressing that analogy too far. One might also liken the property to the authentic/plagal pairing of modes in the modal tradition. Rotation, in short, yields a high degree of economy within the standard pattern and its derived forms.

What might be the cultural significance of rotation? Jones identified the two basic forms of the standard pattern as <23223> and <22323>. (The latter may be obtained by rotating the former twice, although Jones spoke of an “inverted pattern” and different starting points.) He found versions of the former among the Bemba, Ewe, and Lala, and versions of the latter among the Yoruba, Ewe, Ila, and Tonga. Given their equivalence, he concluded that they are one and the same pattern, a pattern that is “very deep down in the African musical mind.” He recognized that it is possible to use the “unadulterated basic pattern” or some variant of it.<sup>29</sup>

29. Jones, *Studies in African Music*, 1:212.

Following Jones, Anku has argued that individual African communities possess sets of norms of perception. These norms dictate, for example, that an Anlo-Ewe hears the regulative beat of the standard pattern beginning on element 1 while a Yoruba hears it beginning on element 4. The Ewe and Yoruba patterns “are derived from the same rhythmic concept. On a deeper level, they are merely perceived with different start points as well as different beat perceptions.”<sup>30</sup> Anku does not provide extensive ethnographic data to support his assertion, nor does he cite evidence from reception history. Nevertheless, the idea that norms of perception exist within African communities, and that they may differ from community to community, is entirely plausible. In the specific case of the standard pattern, the prospect of different perceptions of the position of a regulative beat suggests a collective conceptual investment in rotational equivalence. Subsurface equivalence and surface difference, in turn, indicate a possible common origin for all time lines.<sup>31</sup>

Does rotation register in African systems of musical thought? Although a definitive answer is not possible on the basis of the current state of knowledge, none of the published lexicons representing talk about music in indigenous languages, or ethnographies shaped by African-language expression, includes a term for “rotation” as a structuring principle. These include the Kpelle, Igbo, Akan, Vai, Tiv, Dan, and Hausa in West Africa and the Ankole in East Africa.<sup>32</sup> These vocabularies tend to privilege affective response, musical genres, instruments and—most importantly for our purposes—terms that convey actions in performance, not the kinds of technical vocabulary associated with music theory’s structural properties. This is not to say that structural procedures cannot be teased out of indigenous taxonomies (Arom’s claim that “African taxonomies, while adequate from a social and/or religious perspective, throw no light whatsoever on the systematic structure of the *musical techniques* employed”<sup>33</sup> is surely an overstatement); it is only to concede that the immediate concerns thematized in the discourse of musicians revolve around the dynamics of performance. The absence of terms that support the idea of rotation is

30. Anku, *Structural Set Analysis*, vol. 1, *Adowa*, 8.

31. For more on rotation, see Toussaint’s discussion of “rhythm wheels” in “Classification and Phylogenetic Analysis of African Ternary Rhythm Timelines,” 11–13.

32. See Ruth M. Stone, *Let the Inside Be Sweet: The Interpretation of Music Event among the Kpelle of Liberia* (Bloomington: Indiana University Press, 1982); Meki Nzewi, *Musical Practice and Creativity: An African Traditional Perspective* (Bayreuth: IWALEWA-Haus, University of Bayreuth, 1991); J. H. Kwabena Nketia, *Akanfo Nnwom Bi* [Akan Songs] (London: Oxford University Press, 1949); Lester P. Monts, *An Annotated Glossary of Vai Musical Language and Its Social Contexts* (Paris: Selaf, 1990); Charles Keil, *Tiv Song: The Sociology of Art in a Classless Society* (Chicago: University of Chicago Press, 1979); Hugo Zemp, *Musique Dan: La musique dans la pensée et la vie sociale d’une société africaine* (The Hague: Mouton, 1971); David Ames and Anthony King, *Glossary of Hausa Music and Its Social Contexts* (Evanston, IL: Northwestern University Press, 1971); and Paul van Thiel, *Multi-Tribal Music of Ankole: An Ethnomusicological Study including a Glossary of Musical Terms* (Tervuren, Belgium: Musée Royal de l’Afrique Centrale, 1977).

33. Arom, *African Polyphony and Polyrhythm*, 215.

noteworthy; perhaps rotation is simply an extra-African explanatory principle—an imposition from without.

Some readers may object to the method emerging here, namely: subject Western theoretical terms to an African test and determine their validity on this basis. They might argue that whether or not rotation registers in African discourse is beside the point; the fact that our metalanguage shows the standard pattern in different rotations used by different ethnic groups is significant in itself. Perhaps—the argument continues, albeit speculatively—African musicians may in time come to embrace the term when they see that it codifies what they have been doing for generations. Such an objection should not be dismissed because, as I have argued elsewhere, it is not what Africans say—or do not say—at a particular historical moment that ultimately matters; rather, it is what is sayable by them—what can be learned to be said—in the moment in which their worlds come into contact with other worlds, when their horizons fuse with others' horizons.<sup>34</sup>

The emergence of this newer, postcolonial vocabulary should cause us to temper the lines we use to distinguish Western reality from African reality. But to place the accent on the hypothetical, on what might be, is to obscure what exists. If African musicians have a perfectly coherent way of describing performance actions that produce specific structures, why not embrace *their* nomenclature and *modus operandi* rather than insist on the validity of our way? Skepticism about the relevance of “rotation” and other such terms is therefore not only not inappropriate, but potentially illuminating of the naming practices and critical priorities displayed in indigenous African thinking.

## Pitch-Rhythm Isomorphism

Fascination with the standard pattern also comes from the pursuit of analogical structuring. By crossing parametric domains, one notices immediately that the “Western” diatonic scale’s intervallic sequence <2212221> (measured in semitones) and the durational sequence of the African standard pattern <2212221> (measured in eighth notes) are identical. This equivalence allows us to transpose any number of formal properties associated with the much-researched diatonic scale (including asymmetry, maximal evenness, and generation by fifths) into the temporal/rhythmic realm. Jeff Pressing provided the most compelling demonstration of this kind of parallelism in a study of “cognitive isomorphisms” in selected Western and non-Western (including African) repertoires.<sup>35</sup>

34. This point is developed as part of an argument against constructions of difference in the discourse of Africanist ethnomusicology (see my *Representing African Music*, chap. 7). Veit Erlmann counters my contestation of difference in “Resisting Sameness: À propos Kofi Agawu’s ‘Representing African Music,’ ” *Music Theory Spectrum* 26 (2004): 291–304.

35. Pressing, “Cognitive Isomorphisms.”



The idea that the standard pattern, this most used of African rhythmic patterns, finds a ready equivalent in the diatonic major scale, that most used of Western scales, is at the very least sociologically intriguing, and it may reinforce stereotypical attributions of rhythmic genius to African peoples and pitch genius to Europeans. But the nature of this analogy needs to be interrogated. Scale systems and rhythmic systems are based on different generative principles, so their processes may not be compared facilely by, for example, equating “intervals” across two separate domains. Moreover, actual musical manifestation would discourage us from pressing the analogy too far: whereas the standard pattern is a fixed ostinato heard from the beginning to the end of a dance composition, the diatonic scale is rarely employed as an ordered intervallic pattern from beginning to end. Pressing himself meant the analogy—not homology—to be suggestive. He surveyed the seven-stroke, 12-set time lines and found their equivalence in the seven modes (ionian, dorian, phrygian, lydian, mixolydian, aeolian, and two forms of locrian). Special generative powers accrue to the diatonic major scale and its complement, the pentatonic scale, just as the five-stroke, 12-set pattern described long ago by Jones stands behind the seven-stroke standard pattern. Pressing speculates on why these properties are common to different world cultures, and concludes that they appear to respond to certain cognitive constraints that are expressed in different material forms.

As before, we must ask whether there is any cultural support for the idea of pitch-rhythm isomorphism. We have already noted that the quantitative orientation that facilitates interdimensional—not intersemiotic—comparison is not characteristic of African musical discourse. It seems unlikely, therefore, that African musicians would recognize an isomorphism between pitch and rhythm if they saw one. But Pressing’s framing of the insight shares with African thought systems an entangled, potentially holistic approach to building relationships in music. Although the notion of “pure rhythm” seems to have some currency in Western thought,<sup>36</sup> there is nothing like pure rhythm from an African point of view; rather, rhythm almost always incorporates melody or timbre—hence Nzewi’s introduction of the concept of melo-rhythm as a central category into the analysis of African music.<sup>37</sup> Definitionally, in other words, rhythm is always already yoked to at least one other dimension. The parallelism of procedure enshrined in the notion of an isomorphism may well be consistent with the across-the-dimensions thinking enshrined in African vocabularies. If isomorphisms between pitch and rhythm reflect a present reality, it may be—and this is no more than a wild speculation—that the

36. Benjamin Boretz, “In Quest of the Rhythmic Genius,” *Perspectives of New Music* 9, no. 2, and 10, no. 1 (Spring 1971): 150. The genius in question is not an African master drummer but a cosmopolitan Russian by the name of Igor Stravinsky.

37. Meki Nzewi, “Melo-Rhythmic Essence and Hot Rhythm in Nigerian Folk Music,” *The Black Perspective in Music* 2 (1974): 23–28.

two dimensions existed together in a distant past. And it may be that current African practice retains vestiges of that past.

## Meter and Dance

Like all other time lines, the standard pattern emerges primarily in the context of dance music, not contemplative, danceless music. While this circumstance seems obvious enough, it continues to be ignored by the majority of analysts of African rhythm, especially those who encounter African music on audio recordings and who do not seek out the choreographic element sedimented in the sounding parts. Yet, without some sense of how individual African communities domesticate the standard pattern in dance, it is not possible to arrive at a correct, culturally sanctioned understanding. This is not necessarily a plea for the use of dance notation (already undertaken by Hewitt Pantaleoni, Locke, and others, but with limited influence<sup>38</sup>); it is only an appeal to analysts to draw insight from a competent dancer's modes of expressing sound in movement.<sup>39</sup>

The role of dance in fostering rhythmic understanding is not a uniquely African problematic. Think how greatly our understanding of the eighteenth-century minuet is enhanced by practical knowledge gained from dancing to it. Understanding form as process, for example, is heightened when one experi-

38. Hewitt Pantaleoni, "Three Principles of Timing in Anlo Dance Drumming," *African Music* 5, no. 2 (1972): 50–63; David Locke, "The Music of Atsiagbeko" (PhD diss., Wesleyan University, 1978).

39. African communal dances are far too numerous to cite in a single footnote, but readers who require a point of reference might consult the three-volume *JVC/Smithsonian Folkways Video Anthology of Music and Dance of Africa* (VTMV-218E, VTMV-219E, VTMV-220E; distributed by Multicultural Media, 1996) for excerpts from dances originating in Egypt, Uganda, Senegal, The Gambia, Liberia, Ghana, Nigeria, Kenya, Malawi, Botswana, and South Africa. Not all excerpts are designed to portray the dance, but a number provide vivid illustration of beat awareness as expressed in foot (and body) movement. In clip 2-3, for example, children's games from Liberia feature an intermittent externalization of the regulative beat. The basic movement of the hunters' dance in 2-4 reinforces the beat, but there are occasional departures as dancers respond to the narrative obligations of the dance. In clips 2-14 and 2-15B, participants may be seen stepping directly on the beat. A particularly vivid example is the Ostrich Mating Dance-Game from Botswana excerpted in 3-8. The basic clap pattern is a 12/8 time line based on the <33222> archetype but expressed as <121221111>. Men and boys alternate between stepping on the dotted-quarter beats (as they await their turn) and passing a lifted leg over a bent body (as they simulate the mating act). Especially pertinent to the discussion in this article are the excerpts from Ghanaian dances featuring prominent time lines: Adowa (2-17); Agbadza (2-19); Bobobo (2-20); Gome (2-21) and Bawaa (2-28). It should perhaps be emphasized that *orientation to the beat* rather than slavish enactment of it is the point at issue. Ojo Rasaki Bakare and Minette Mans set out some of the interpretive issues raised by African dance in "Dance Philosophies and Vocabularies," in *Musical Arts in Africa: Theory, Practice and Education*, ed. Anri Herbst, Meki Nzewi, and Kofi Agawu, 215–35 (Pretoria: University of South Africa Press, 2003).

ences a reprise not as large-scale repetition—as scorism prescribes—but as physical movement of bodies back to a point of departure, in effect, retracing a known, previously traversed space. (This is not the only way to dance a minuet, of course; Z and S formations would deliver a more linear view of form.) Similarly, the rhythmic essence of African dance drumming is conveyed in the dancing that expresses sound in movement, dancing that embodies the rhythm’s conditions of possibility. As Nketia puts it, “It is generally the rhythmic structure that influences the pattern of [a dancer’s] movement. He derives his motor feeling from this rhythmic structure, whose elements he articulates in his basic movements.”<sup>40</sup> In rendering sound as physical action, the dancer captures the essence of a rhythmic texture.

Dance and meter are thus closely related. Dancers are often guided by an emergent beat that embodies, reflects, or points to the metrical configuration. In general, feet rather than hands, head, or buttocks provide the primary locus of metrical articulation. This is not to say that a dancer literally steps on each of the beats of a given measure—although some dances or moments within them feature precisely such direct metrical interpretation—but that the dancer conveys an essential component of the meter in foot movement. The function of the feet is not merely to mark the beat, however. Patterns of foot (and body) movement operating temporally within a spatial dimension acquire additional modes of articulation. Moving a foot, hand, or head through space engenders a more complex profile than the movements and gestures employed by drummers as they beat their instruments. In drumming, movement is a means to an end, the end being the delivery of a rhythmically mediated message. For the dancer, on the other hand, rhythm guides the production of gesture; the gesture, together with the meanings it makes possible, is an end, not a means. And since dance as a form of social intercourse entertains other obligations, the normative enactment of the music’s main beats cannot be the dancer’s only responsibility.

To restore the dance to drumming and thence to rhythmic analysis would deliver a perspective that might cause us to question certain rhythmic properties whose reality we have long taken for granted. The most basic of these is the almost universal reckoning of the ensemble rhythm of characteristic West African genres in 12/8 meter. Although it might seem almost sacrilegious to question its validity, such a critique may well point to ways in which scholars have privileged representational convenience over conceptual accuracy.

In Southern Ewe dances, the feeling of a beat occurs at or near the dotted-quarter level, not the eighth-note level. Although moments of intensity in performance may be marked by animated movement, no dancer thinks in cycles of 12 when interpreting the standard pattern. The evidence of the rate at which the dance feet move is that 4, not 12, is the reckoning that most

40. Nketia, *The Music of Africa*, 210.

closely approximates the regulative beat.<sup>41</sup> This underlying beat feeling would prompt us to rewrite the standard pattern as shown in Example 5, replacing the earlier additive conception with a divisive one. For if it is normally felt with a regular dotted quarter beat in attendance (as shown in the lower line of Ex. 5), then the pattern is meaningless without this ecological support. This particular representation should not lead one to infer that the four dotted-quarter beats are articulated by any individual instrument within the ensemble—this may or may not be the case, depending on the dance in question; what can be said for sure is that the cycle of four beats is felt and thus relied upon. This is cultural knowledge that players and especially dancers possess; without such knowledge, it is difficult to perform accurately.

Example 5 Standard pattern metrically interpreted



Example 6 Equivalence between 12/8 and 4/4 versions of the standard pattern



If dancers do not dance in 12, why have scholars adopted 12/8 as the most felicitous meter for representing the dance? One explanation may be definitional: being a compound meter, 12/8 implies an underlying four-beat structure. 12/8 thus represents a cycle of 4, not a cycle of 12. But if 12/8 represents a cycle of 4, then why not use 4/4? The reason is that subdivisions of the dotted quarter abound such that a rendition in 4/4 would include numerous triplet markings; this, presumably, would give the transcription a clumsy look. 12/8 naturally acknowledges the subdivision and therefore dispenses

41. Nketia's discussion of the regulative beat links it to physical movement: "The regulative beat may be described as a 'motor' beat in the sense that it may be articulated in bodily movement—in the lurching of the shoulders, wagging of the toes, shaking of the head, stamping of the foot and so forth" (*African Music in Ghana*, 78). See also the discussion in Gerhard Kubik, "The Emics of African Musical Rhythm," in *Cross Rhythms 2*, edited by Daniel Avorgbedor and Kwesi Yankah, 26–66 (Bloomington, IN: Trickster Press, 1985). Of special interest is Vijay S. Iyer, "Microstructures of Feel, Macrostructures of Sound: Embodied Cognition in West African and African-American Musics" (PhD diss., University of California, Berkeley, 1998).

with 4/4's triplet markings. So, although the acoustic traces resulting from rendering the standard pattern as 4/4 and 12/8 are absolutely identical (this is shown in Ex. 6), scholars have preferred 12/8 for reasons of convenience—ease of reading.<sup>42</sup>

Meters signify different things depending on the stylistic conventions governing their use by composers and their interpretation by performers. Since African cultures are primary oral cultures, there are no conventions of metrical writing to be invoked. Representational conventions therefore arise from the common practice of scholars. What a given meter means to an individual scholar is not always clear, however. It would seem that Western usage is often—and generally by default—a reference point for African usages. And yet it is not clear, for example, that 4/4 might signify march or gavotte, 12/8 the pastoral, or 3/4 the waltz. Although supportable in some contexts, these associations, even within a relatively stable common-practice period, are somewhat fragile; as such, it would be deeply problematic to apply them to a complex and diverse African context. It would seem that the only certainty about the use of meter in transcriptions of African music is as a grouping mechanism; no stable qualitative, psychological, or cultural associations are enshrined in meter. This explains attempts to erase the normative internal accentual schemes of individual meters by arguing, for example, that beat 1 in 4/4 does not necessarily bear the superior accent, or that the four dotted-quarter beats in 12/8 are not differentially weighted, that they are accentless. Meter in this understanding is little more than a grouping mechanism; it is emptied of all conventional association.<sup>43</sup>

The appropriateness of 12/8 is further undermined by one aspect of its history. In earlier studies by Jones, Pantaleoni, and James Koetting, attempts to represent the metrical structure of African dance music often laid great store by a fastest-moving pulse or elementary pulse, the so-called density referent famously described by Koetting.<sup>44</sup> Ignoring the dance feet, Koetting reckoned that, given the fast pace at which rhythmic events

42. Toussaint mentions the isomorphism between 12/8 and 4/4; Nzewi's brief inventory of time lines acknowledges the equivalence (*African Music: Theoretical Content*, 36), as does the more comprehensive inventory supplied by Bertram Lehmann in his excellent study, “The Syntax of ‘Clavé.’” Readers who are secure in their understanding of 12/8 as a four-beat cycle may well object to the present discussion. Yet the twelve-ness of 12/8, the feeling that the eighth note is the primary referential value, appears as a permanent temptation for a number of writers on African music, especially those who use the Time Unit Box System (see, for example, James T. Koetting, “Analysis and Notation of West African Drum Ensemble Music,” *Selected Reports in Ethnomusicology* 1, no. 3 (1970): 115–46; and Stone, *Music in West Africa*). In other words the apparent four-ness of 12/8 is not as secure in reference to African music as it perhaps is in reference to other traditions.

43. David Temperley sheds much light on the analysis of meter and grouping in African music generally, and on the standard pattern specifically. See his “Meter and Grouping in African Music.” See also Justin London, *Hearing in Time: Psychological Aspects of Musical Meter*.

44. Koetting, “Analysis and Notation.”

unfold in Ewe and Ashanti dance-drumming, and given the density of micro-articulation, something close to an eighth-note pulse would serve as the structural reference. But this curious concept of a density referent has never been a reliable guide to metric understanding anywhere in the world. Suppose, for example, that you are listening to the melody of the opening bars of Beethoven's Piano Sonata, Op. 2, no. 3, for the first time (Ex. 7). You are asked to notate it. Instead of the clear feeling of four (or perhaps two), you look for the smallest note value to guide your transcription. You proceed to count out the passage in sixteenth notes! The first half note would therefore sound like eight sixteenth notes tied together (as shown in the example)—an obviously absurd conceptualization to anyone who understands the beat structure of the passage.

**Example 7** Beethoven, Piano Sonata in C Major, Op. 2, no. 3, first movement

(a) Mm. 1-2

**Allegro con brio**

(b) Mm. 1-2, rhythm of melody only, with sixteenth-note “density referent”

Yet the reasoning implied here is not so far removed from that which insists on the eighth-note pulse in African music, the eighth note being the shortest of the three most active durations—dotted quarter, quarter, and eighth. It might be argued that the busy nature of the textures in West African music—the fact that something literally happens on each eighth note—is adequately conveyed by 12/8 meter. But if the aim is to convey such busyness, then one might imagine J. S. Bach rewriting the first of his two-part inventions as 16/16 in order to indicate the predominance of sixteenth notes. We know, however, that the sixteenth-note level marks a subdivision; it is not the primary beat division. In short, if it indicates a cycle of 12, then 12/8 is more correctly understood as a subdivision of the beat; if, however, it is understood as quadruple meter, then it conveys the beat division. Attention to these dif-

ferent levels of metrical depth should help transcribers in rendering African musical realities more accurately.<sup>45</sup>

An enduring obstacle to developing a reliable set of preference rules to facilitate the assignation of meter to West African dance music stems from the fact that meter is not a statistical or material measure reflecting the confluence of sounding parts. While a given metrical cycle *may* be reinforced statistically or phenomenally by an accretion of parts, it may also employ silence as marker of the regulative beat. Rhythmic groups do not necessarily reinforce the ruling meter. A group may traverse a metric boundary and do so persistently, or give prominence to an ostensibly weak beat or offbeat. Indeed, as both Kolinski and Arom have argued, contrametrical organization (where accents conflict with the metric pulsation) predominates over commetrical organization (where accents coincide with the metric pulsation) in African music, but this does not violate the integrity of the basic metrical cycle.<sup>46</sup> Although not every African dance displays these tendencies in equal measure, it is fair to say that in the case of a standard-pattern territory like the Southern Ewe—which, incidentally, is also the site of the most influential theorizing about African rhythm—the refusal to assign material weight to the regulative beat in performance (by employing long, high, stressed, timbrally differentiated, or otherwise marked notes) indexes an aesthetic-structural preference.

The most reliable way to determine meter, then, is to be guided by the feeling of beat expressed in the dancer’s feet.<sup>47</sup> (Competent amateurs are more likely to convey dance beats directly, whereas seasoned professionals may sometimes take those beats for granted.) Within the larger polyrhythmic ensemble, the beat is often closest to the beat level expressed in hand claps and therefore to the tactus level that the majority of participants feel. Meter has to be postulated on the basis of these larger considerations; it cannot (always) be inferred from the sounding forms alone. One brings a metric attitude—perhaps even a metric prejudice—to the performance.<sup>48</sup>

For those who understand analysis as an examination of the internal properties of a work, the idea that something as basic as meter depends on factors that lie “outside” the work may seem troubling. But there is nothing unusual about this way of proceeding. All listeners bring any number of predispositions to the act of listening. Listeners of tonal music, for example, rely fundamentally

45. For a clear description of the nature of metrical levels see Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, MA: M.I.T. Press, 1983).

46. Mieczyslaw Kolinski, “A Cross-Cultural Approach to Metro-Rhythmic Patterns,” *Ethnomusicology* 17 (1973): 494–506; and Arom, *African Polyphony and Polyrhythm*, 208.

47. Kubik refers to “a regulative beat, often externalized in the form of dance steps” and notes that “the Beat accepted by the listeners can be found quite easily by looking at the dancers” (“The Emics of African Musical Rhythm,” 38, 35).

48. Martin Scherzinger clarifies this distinction without necessarily endorsing the viewpoint. See his “Notes on a Postcolonial Musicology: Kofi Agawu and the Critique of Cultural Difference,” *Current Musicology* 75 (2003): 223–50.

on certain internalized or naturalized conventions in order to interpret one moment as tense, another as resolving, one as a beginning, another as an end, one as dancelike, another as proselike. Not all of these are immanent properties of the individual works; some are perspectives formed from certain ways of world-making. Without this kind of cultural knowledge (often simply taken for granted), one's interpretation is likely to be impoverished.

### Uninterpreted versus Interpreted Chains

As a further illustration of the metrical attitudes that listeners bring to acts of interpretation, Example 8 lists six time lines in two different notations. On the left is an uninterpreted series of onsets and durations. In practice, each complete series is of course repeated as an ostinato. On the right is the metrical interpretation as expressed in various forms of cultural behavior, notably the dance. Each series is now re-notated and rendered as a metrical cycle, complete with a time signature to convey grouping and a normative accentual scheme. The uninterpreted chain depicts what any listener hears; the interpreted chain shows what an acculturated listener understands. How do we get from the uninterpreted to the interpreted? We will turn in a moment to the Highlife time line in order to explore one such mode of appropriation. For now, we might simply note certain kinds of preference. Only in one case does the longest duration occur on the downbeat. Onsets are often suppressed, thus giving prominence to offbeats, backbeats, and afterbeats. Patterns frequently straddle bar lines. Some include a "disruptive" element that endows the pattern as a whole with a dynamic feel; often, such dynamism takes the form of a postponement of closure. These are emphatically not (yet) rules because the sample of six is far too small to support any large claims about African rhythmic practice. They are informal observations that speak to structural choices made within a specific cultural milieu. While they may well reflect deeper expressive impulses, they may also represent historically arbitrary choices that have hardened into convention. In any case, the point of juxtaposing the uninterpreted with the interpreted is to display the "what" of metrical choice rather than speculate on "why."

### Metric Tendency in the Highlife Time Line

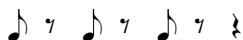
The need to postulate rather than infer meter may be illustrated further by examining another time line, this one associated with the popular-music genre Highlife.<sup>49</sup> If we represent its sounding elements as a sequence of durations

49. On the history of the genre, see John E. Collins, *Highlife Time* (Accra, Ghana: Anansesem Publications, 1994).





## Example 9 Highlife time line without metrical interpretation



0, 2, 4, and (to a lesser extent) 6 as a group seem more felicitous in 4/4 than rotations 1, 3, 5, and 7. Rotation 0's one-two-three-rest pattern might invoke a march, rotation 2 also begins on a downbeat but incorporates syncopation, rotation 4 gives the "march" a longer starting note, and rotation 6 suppresses the downbeat of the march but retains a steady succession of onbeats thereafter. By contrast, and from an equally "Western" perspective, rotations 1, 3, 5, and 7 appear less conventional because, like rotation 6, they each begin not with sound but with silence, thereby suppressing their downbeats. Unlike rotation 6, however, whose subsequent articulations are onbeats, those of rotations 1, 3, 5, and 7 are offbeats. The exceptional form is rotation 5, which delays an onset by as much as a beat and a half. This, incidentally, is the maximum delay possible within this particular durational economy of eighths and quarter notes.

The African conception of this time line (as conveyed by dancers) is the apparently exceptional version shown as rotation 5 in Example 10. We might explain the pattern by saying that if the normative sequence of 4/4 expressed in eighth notes is rendered mnemonically as one-and-two-and-three-and-four-and, then the Highlife time line articulates only the last three *ands* and renders all the other beats as silences. The dance feet meanwhile mark a 4/4 time as the regulating framework.

For many Western listeners, perhaps, this particular domestication of the pattern features an unexpected accentuation. And that is because habits of metrical understanding tend to privilege onbeats over offbeats, sound over silence, and longer notes over shorter ones. Therefore, a listener formed within such a sonic and experiential milieu would not be inclined to infer rotation 5 of Example 10 as the preferred interpretation.

By contrast, a listener enculturated into the African world of rhythm is likely to approach the uninterpreted chain shown in Example 9 armed with cultural notions of play. The use of strongly articulated offbeat articulation is one such notion.<sup>50</sup> And the possibility that silences are just as likely to mark beats as sounds is another. In devising a series of preference rules for West African metric analysis, then, we ought to incorporate such notions. In short, structural features revealed by rotation and grouping need to be supplemented by cultural features emanating from notions of play in order to yield a fuller understanding. Structural analysis explicates possibilities; cultural analysis unveils particularities.

50. David Locke, "Principles of Offbeat Timing and Cross-Rhythm in Southern Ewe Dance Drumming," *Ethnomusicology* 26 (1982): 217–46.



in the Highlife ensemble. An offbeat interpretation emphasizes the forward dynamic, while a backbeat hearing emphasizes the backward dynamic as a kind of playful confirmation. In both cases, the energy in the margins—the energy off the beat—is maximized.

Finally, we might attach these structural features to a specific historical circumstance. Highlife is the supreme popular music of West Africa. As music for the elite in the postindependence era (1957 on), Highlife is invested with a bundle of attributes that include personal and communal pride, stateliness, self-satisfaction, and a strategic complacency. The Highlife ethos is essentially different from that of the traditional dances (like Agbadza or Atsiagbeko) whose time lines we have been talking about. Traditional dances exhibit the sort of anxiety that facilitates the attainment of catharsis in performance; they are marked by a foundational tension that is in principle resolved, dissolved, or otherwise rationalized in the dance. The verbal exchanges and song texts that animate a village performance of traditional music all model community life as theater with deep philosophical roots, a life whose actors and spokespersons are historically self-aware, unafraid to exploit and extend conventional realms of creativity, and, above all, ethically committed. While Highlife may exhibit some of these themes, it is more committed to exploring—with a mixture of optimism and irony—the recent urban or modern turn in African history. Highlife is inflected by European ways of musical doing; it enshrines syncreticism as a creative force. This bundle of attributes may be read into the Highlife time line, which occupies a lighter register in the hierarchy of African expressive forms.<sup>51</sup>

## Toward a Generative Approach

Of the numerous competing approaches to the analysis of African rhythm in general and time lines in particular, the one most consonant with African ways of proceeding is a generative approach. A generative approach recognizes a model and its elaboration, a deep structure—be it real or postulated—that supports a ruling surface. Jones in 1959 and Nketia three years later pointed the way to a generative approach. Jones maintained that the five-stroke version of the standard pattern, <22323>, could be heard elaborated as the more familiar seven-stroke one, <2212221>.<sup>52</sup> Nketia's exposition of time lines like-

51. For a good sampling of classic Highlife, listen to the *Giants of Ghanaian Danceband Highlife: 1950s–1970s* (compact disc OMCD011; Tivoli, NY: Original Music, 1990); and *Classic Highlife: The Best of Ghanaian Highlife Music* (compact disc AIM 1053 CD; Byron Bay, Australia: AIM Records, 1995). I outline an approach to analysis in chapter 6 of *Representing African Music*.

52. Jones, *Studies in African Music*, 1:212.

wise recognizes the standard pattern’s origins in a simpler clap pattern, <22233>, said to be a mixture of duple and triple rhythm.<sup>53</sup> A number of subsequent researchers—Locke, Pressing, Anku, Touissant—have advocated approaches that may be described as generative. Among them, it is Jeff Pressing who has undertaken the most explicit and comprehensive discussion yet of derivational techniques. In summarizing his study of time lines and their scalar equivalents, he notes that “all the patterns found may be derived from a few basic patterns (primarily 22323 [or 2212221], 322, 323) by one or more . . . rules of transformation.” There are five such rules: cyclic permutation; element fission or fusion; complementation, or figure-ground reversal; maximally similar analogue approximation, as for example the relation of 22323 to 33424; and element permutation. According to him, “Those transformations are more common and basic which preserve the pattern in a holistic sense.”<sup>54</sup>

To what extent are Pressing’s five “rules of transformation” readily resonant with African modes of musical thought? To pose this question is to suggest that logical and internally coherent procedures within one intellectual economy may or may not find ready corroboration in other systems of thought. For example, as previously remarked, the idea of rotation or “cyclic permutation” does not appear to be a feature of African expressive vocabulary. However, when allied with notions of circularity—to which we will turn in a moment—possibilities for building bridges across conceptual worlds emerge. “Element permutation” (a procedure by which the same elements are subject to reordering) has such radical musical consequences—including a basic challenge to perception—that it seems unlikely to be an authentic mode of temporal structuring. Indeed, Pressing himself recognizes that element permutation produces a “structural derangement” more drastic than that produced by the other transformational techniques. The rule of “maximally similar analogue approximation” captures the kind of analogical structuring that is fully resonant with traditional African habits of aligning precise or nearly precise segments in order to convey similarity and difference, complementation and competition, call and response. Complementation as an expression of productive dependency seems similarly compatible. Most resonant of all is the technique of element fission or fusion. The processes of dividing things up or conflating previously separate elements, while maintaining their spans or temporal extents, lie at the heart of African modes of rhythmic expression. Pressing’s rules, recalled here in abstract form, hold considerable promise for codifying certain aspects of African musical behavior and thereby promoting a cross-cultural understanding. While a comprehensive application is not possible within the confines of this article, there is room to explore one kind of

53. Nketia, *African Music in Ghana*, 83–85.

54. Pressing, “Cognitive Isomorphisms,” 52.

transformation, element fission and fusion. We will do so under the aegis of generative understanding.<sup>55</sup>

Delight in improvising embellishments is characteristic of aesthetic response in many African communities. The notion that performance involves doing something with or to something else that we know already is axiomatic; it conveys ingenuity and spontaneity. The Ewe will sometimes say “de atsia eme,” meaning “put style into it.” By this they mean something like “turn the familiar around” in a way that enriches it and delights the audience. James Burns glosses *atsiadodo* as “improvising,” thus reinforcing the common understanding of the procedure as using the known as point of departure in creating something new.<sup>56</sup> The analytical proceeding that conveys this practice most directly, then, is one that juxtaposes the unadorned (or minimally adorned) with the adorned (or more fully adorned), the background with the foreground, the simple with the complex. And it is the actions entailed in journeying between the two poles that I have described as a generative approach.

The minimum number of steps necessary for a generative proceeding is two. The first of these is generally postulated on the basis of familiarity with the second (or last, if there are more than two steps involved). The unadorned could be an archetype known within the culture, or a pattern that is readily compatible with existing patterns. Certain clap patterns employed in traditional music performance function in this ordinary capacity. It should be emphasized that the generative process being advocated here is not a report on existing compositional practices as such—although it certainly could be that—but an imaginative reconstruction. At best, a generative proceeding makes explicit the logic of structure inherent in a given cultural product.

A simple example of a generative process involving the Highlife time line discussed previously is shown in Example 11.<sup>57</sup> We might postulate the pattern’s conceptual origins in the dance feet that mark main beats. Step 1 displays the four main beats; in step 2, the downbeat is suppressed; at step 3, we subdivide the remaining beats; finally, at step 4, we suppress the onbeats, leaving the three offbeats and rests that make up the pattern as we know it.

55. A generative approach to the analysis of African rhythm is pursued in different ways by different authors. Compare, for example, Simha Arom’s way (*African Polyphony and Polyrhythm*) with David Locke’s (*Drum Gahu: A Systematic Method for an African Percussion Piece* [Crown Point, IN: White Cliffs Media Co., 1987]) and Willie Anku’s (“Circles and Time”). My own approach is inspired by Schenker (see my *African Rhythm: A Northern Ewe Perspective*). However, in the absence of a tonal-harmonic framework, the transfer can only be accomplished within a restricted sense. In assessing the potential of Pressing’s rules of transformation below, I have (strategically) overlooked ethnographic specifics. Nzewi’s authoritative digest of the dimensions of creativity in Black African music may provide some of what is excluded here. See Meki Nzewi, “Acquiring Knowledge of the Musical Arts in Traditional Society,” in *Musical Arts in Africa: Theory, Practice and Education*, ed. Anri Herbst, Meki Nzewi, and Kofi Agawu, 13–37 (Pretoria: University of South Africa Press, 2003).

56. Burns, “The Beard Cannot Tell Stories to the Eyelash,” 189.

57. This discussion is drawn from my *Representing African Music*, 77–78.

**Example 11** Generating the Highlife time lineStep 1:  $\frac{4}{4}$  ||: ♩ ♩ ♩ ♩ :||Step 2:  $\frac{4}{4}$  ||: ♩ ♩ ♩ ♩ :||Step 3:  $\frac{4}{4}$  ||: ♩ ♩ ♩ ♩ :||Step 4:  $\frac{4}{4}$  ||: ♩ ♩ ♩ ♩ :||

What, one might ask, justifies this construction, this fictional text? Beginning with the main beats ensures that interpretation is grounded in the choreographic supplement, here a straightforward foot movement, expressed as an alternation between left and right. The thought behind the suppression of beats is to introduce an element of play—we know where the beat is but we articulate it silently. Strategic inaction of this sort is one manifestation of an aesthetic of play found in a variety of guises in numerous African communities. So, even though African musicians do not normally frame their actions in these terms, the generative process is valid as a speculative projection to the extent that it is consistent with known habits of rhythmic composition.

Consider a second, simple transformation. The clap pattern shown in Example 12 (<22233>) is widely used in Africa. (Nketia accords it archetypal status, as we have noted, because it displays a primal duality in combining duple [222] and triple [33] articulation.) If we regard the pattern as a background, we can construct a foreground from it by subdividing its fourth element—a transformation by element fission, as Pressing would say (Ex. 13). This new pattern is a well-known time line associated with the Akan genre Mmensoun, music played by elephant-horn ensembles. The Mmensoun time line preserves the underlying linear “hemiola” structure of the archetype, but embellishes it slightly.<sup>58</sup>

We may now put forward a generalized four-step procedure for generating time lines:

1. Establish the beat on the basis of the dance feet.
2. Establish the metrical cycle on the basis of repetition. (The cycle might be based on an archetype within the culture [such as the <22233> clap pattern], or a normative two- or four-beat span.)

58. For an ethnographic context for Mmensoun, see Roger Vetter’s jacket notes to the CD *Rhythms of Life, Songs of Wisdom: Akan Music from Ghana, West Africa* (compact disc CD 40463; Smithsonian Folkways, 1996).

## Example 12 Archetypal clap pattern



## Example 13 Mmensoun (elephant-horn ensemble) time line derived from archetypal clap pattern



becomes



3. Invoking cultural notions of playing, maneuvering, and teasing, embellish the pattern established in step 2 by, for example, denying the articulation of one or two prominent onbeats, subdividing beats (sometimes evenly, other times unevenly), or extending onsets into adjacent beat areas.
4. Repeat any of the procedures in step 3 as necessary in order to obtain the target time line.

Example 14 summarizes the application of the procedure to seven time lines: Mmensoun, Kinka, Gahu, Gabada, Kpanlogo, Agbadza, Yoruba konkonkolo.<sup>59</sup> (The standard pattern occurs in sixth and seventh positions, representing the Ewe and Yoruba versions respectively.) Two iterations of each time line are given in order to accommodate those time lines that straddle a bar line. (The exception is Kinka, which is given three times.) For the sake of conciseness, the first two steps of the procedure outlined above are combined under Step 1. The recursive third and fourth steps in the procedure are represented as

59. Audio recordings of the time lines abstracted in Example 14 include the following: Mmensoun may be heard on track 7 of *Rhythms of Life, Songs of Wisdom* and also on track 3 of *The Pan-African Orchestra, op. 1* (compact disc CAR2350, Real World Records, 1995); Kinka is on track 16 of *Togo: Music from West Africa* (compact disc CD 5004, Rounder Records 1978/1992); Gahu is featured extensively on the CD accompanying Locke's *Drum Gahu*; and Gabada appears on several uncatalogued field recordings at the Archives of the International Center for African Music and Dance, University of Ghana, Legon. Versions of the Kpanlogo time line (which is identical to the clavé pattern) may be heard as "Akpese" on track 8 of CD 1 accompanying *Populäre Musik in Afrika*, edited by Veit Erlmann (Berlin: Museum für Völkerkunde, 1991); and also on track 1 of *Côte d'Ivoire: Baule Vocal Music* (compact disc UNESCO D 8048, 1972/1993). Agbadza is available on track 2 of *Ghana: Rhythms of the People: Traditional Music and Dance of the Ewe, Dagbamba, Fante, and Ga People* (compact disc Multicultural Media 3018, 2000). For extensive use of the standard pattern, listen to *Ewe Drumming from Ghana: The Soup Which Is Sweet Draws the Chairs In Closer* (compact disc TSCD924, Topic Records, 2004).



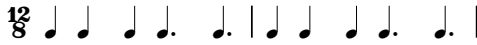
**Example 14** Generating seven West African time lines

(a) Mmensoun

1 Establish the beat and the metrical cycle:



2a Vary the first half of the pattern:



2b Subdivide the fourth element in the varied pattern:



(b) Kinka

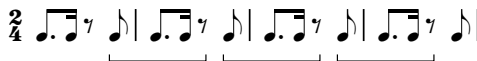
1 Establish the beat and the metrical cycle:



2a Tease the listener by withholding part of beat 2:



2b Embellish beat 1 with a long-short figure:



(c) Gahu

1 Establish the beat and the metrical cycle:



2a Add density by subdividing each beat:



2b Vary the first beat of the cycle:



2c Play by withholding the onsets of beats 2, 3, and 4:



Example 14 continued

(d) Gabada

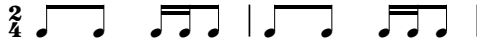
1 Establish the beat and the metrical cycle:



2a Add density by subdividing the beats:



2b Embellish beat 2:



2c Embellish beat 1 (with a different figure):



2d Play by withholding the onset of beat 2:



(e) Kpanlogo

1 Establish the beat and the metrical cycle:



2a Add density by subdividing beats 1, 2, and 3:



2b Embellish beat 1:



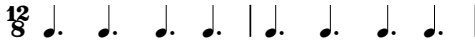
2c Play by withholding the onsets of beats 2 and 3:



**Example 14** continued

(f) Agbadza

1 Establish the beat and the metrical cycle:



2a Add density by subdividing beats 1 and 4:



2b Add further density by subdividing beats 2 and 3:

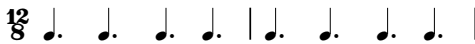


2c Play by withholding the onset of beats 2 and 3:

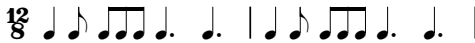


(g) Yoruba konkonkolo pattern

1 Establish the beat and the metrical cycle:



2a Add density by subdividing beats 1 and 2:



2b Add further density by subdividing beats 3 and 4:



2c Play by withholding the onset of beats 2 and 3:



substeps within Step 2 (2a, 2b, 2c, 2d). The number of substeps varies from time line to time line. Needless to say, alternative paths to the same time line are conceivable. In addition to its possible analytical value, Example 14 may serve as a pedagogic aid. Readers are encouraged to tap out or speak these rhythms in order, first, to verify the generative process, and second, to experience some of the basic figuræ of African rhythm.

## Paper Rhythms?

Fascination with time lines in general and the standard pattern in particular stems, in part, from their numerical features, which, as we have observed, have elicited a mechanical manipulation of numbers within closed groups in order to uncover an impressive array of connections, associations, and properties. Such abstract exercises are generally not linked immediately to African-cultural modes of expression; they are assumed to be valid to the extent that the counting systems that support them are valid. I have insisted here, however, that features that are deemed musically pertinent must be consistent with the ways of world-making that obtain within individual African cultures. This is more easily said than done, however. The domains of the structural and the cultural are not fixed or immutable; they may expand and take in other features. Should we therefore abandon the distinction and absorb any and all insights into a single, unified pool? Is there nothing to be gained from separating the domain of structural analysis from that of cultural analysis, even if the terms themselves are somewhat imprecise?

Mediating between the requirements of structural and cultural analysis is a longstanding part of the history of ethnomusicology, so it seems unlikely that anything said here can have more than a symbolic or token effect. I will therefore forego the opportunity to review that history here, and close by considering a few more features of time lines, the thought being that continued accumulation of empirical observations may facilitate future assessment of the relative value of a given mode of analysis.

Consider one consequence of hearing a time line backwards. Example 15 writes out the Adowa time line as an uninterpreted chain. Play this in reverse and you obtain another well-formed time line, Mmensoun (Ex. 16), which was earlier generated from an archetypal clap pattern (Ex. 13). Both are 12/8 time lines, as Example 17 shows. As far as I can tell, this particular retrograde relation has gone unremarked in the literature. Why? Probably because ideas of retrogradation in the rhythmic realm have so far not been shown to be characteristic of African expression. No composer or performer within the traditional sphere proceeds by playing things in reverse; no listeners have reported such hearing. So although both Adowa and Mmensoun are products of the same Akan ethnic group, the relationship of their time lines may have nothing to do with processes of retrogradation. The retrograde relation may

Example 15 Adowa time line as uninterpreted chain



Example 16 Mmensoun (elephant horn ensemble) time line as retrograde of Adowa time line shown in Example 15



Example 17 Adowa and Mmensoun time lines aligned in 12/8



be entirely fortuitous—an accidental byproduct of other compositional intentions, paper rhythms with no living reality.<sup>60</sup>

The idea of paper rhythms is not intended to carry a perjorative connotation, only to bring to view the fact that rhythmic patterns produced within oral compositional cultures may differ from those produced in cultures in which thought is reduced to writing. Time lines are composed and performed within the dynamics of orality. The fact that an anti-temporal technique like retrogradation has not risen to the top of the list of favored techniques is noteworthy. Retrogradable rhythms in Messiaen, for example, originate in a written economy; apparent retrogradation among Benin drummers works within an oral economy. While the outcome or trace may appear to be the same, the motivation is different. Those for whom only the trace matters will think sameness; those who invest in the how of the trace will think difference.

But consider an alternative derivation. Suppose we rotate the Adowa time line three times to produce the pattern shown in Example 18. This pattern is quite close to the Mmensoun pattern, the difference being that the subdivision in its second half is performed on beat 4, not 3. And consider, further, the fourth rotation of the Adowa time line shown in Example 19. This produces a new version of the standard pattern, a fusion, perhaps of the Lala and Yoruba

60. I am alluding here to the impact of writing on composing and to the nature of composing within primary oral cultures—including the African cultures whose music forms the subject of this article. For a recent discussion with cross-cultural content, see Dániel Peter Biró, “Reading the Song: On the Development of Musical Syntax, Notation and Compositional Autonomy; A Comparative Study of Hungarian *Síratók*, Hebrew Bible Cantillation and Ninth Century Plainchant from St. Gall” (PhD diss., Princeton University, 2004).

## Example 18 Rotation 3 of Adowa time line



## Example 19 Rotation 4 of Adowa time line



versions. Since the Adowa pattern has six attack points, some fission is necessary in order to produce a seven-stroke version. Could it be, then, that the pronounced differences in character between these dance compositions notwithstanding, the three time-line patterns—Adowa, Mmensoun, and the standard pattern—are variants of one another on some deep level?

Consider, in a similar light, the relationship between the standard pattern and another widely used time line, the clavé pattern (Ex. 20) found in much popular music and common, also, in African-diasporic communities in Cuba, Haiti, Jamaica, and Brazil. As previously noted, the seven-stroke version of the standard pattern can be compressed to a five-stroke version by element fusion. The latter version has a durational pattern of <22323>. The five-stroke clavé pattern, on the other hand, although it belongs to a different beat structure, displays a <33424> pattern. Pressing has pointed out that if we allow some approximation and render the two patterns as short-short-long-short-long, then they are virtually identical. He calls it an “analogue transformation.”<sup>61</sup> But is this more than a product of paper rhythm-making? The prospect of a deep parallel between the standard pattern in 12/8, which is generally—though by no means exclusively—associated with older, precolonial African music, and the clavé pattern in 4/4, which is associated with modern, postcolonial or neotraditional genres, not to mention numerous African-diasporic manifestations, is attractive. According to this explanation, the two patterns are mere transformations of each other, the latter representing a “binarization” of the former.<sup>62</sup>

61. Pressing, “Cognitive Isomorphisms,” 43.

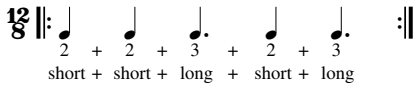
62. The binarization of African ternary rhythms in Latin American music is the subject of a comprehensive study by Rolando Antonio Pérez Fernández, *La binarización de los ritmos ternarios africanos en América Latina* (Havana: Ediciones Casa de las Américas, 1987). Steven Loza summarizes and critiques Pérez Fernández’s thesis in a review-essay in *Latin American Music Review* 11 (1990): 296–310. See also Burns, “The Beard Cannot Tell Stories to the Eyelash” for discussion of binarization in contemporary Southern Ewe drumming practices.

**Example 20** Standard pattern and clavé pattern compared

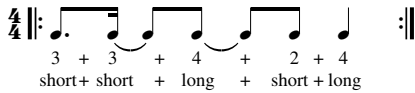
(a) 7-stroke version



(b) 5-stroke derivative (by element fusion)



(c) Analogous 5-stroke clavé pattern



## Circularity

Frequent reference to rotation in this article sits uneasily beside the skepticism I have expressed about the cultural relevance of the technique. But since rotation implies circularity, might we fare better by considering the circular element in African music? The idea that African music is circular at the core has found many advocates among scholars. A recent and original “theory of structural organization of rhythm in African music” is offered under the title “Circles and Time.” “Much of African music is circular,” writes Willie Anku, who reasons that “circles have an important philosophical significance in the perception of the African reality of time.”<sup>63</sup> Circular representations of African music abound. In a 1967 study of Nguni vocal polyphony, David Rycroft provided what I believe to be the first-ever circular representation of an African song, this one a Xhosa wedding song.<sup>64</sup> Rycroft’s diagram was later given an iconic boost by Klaus Wachsmann and Peter Cooke in their reference article on Africa for the 1980 *New Grove Dictionary of Music and Musicians*.<sup>65</sup> David Locke has used a similar representation to explain the nature of the Ewe version of the standard pattern in an introductory article,<sup>66</sup> while Meki Nzewi’s

63. Anku, “Circles and Time.”

64. David Rycroft, “Nguni Vocal Polyphony,” *Journal of the International Folk Music Council* 19 (1967): 88–103.

65. Klaus Wachsmann and Peter Cooke, “Africa,” in *The New Grove Dictionary of Music and Musicians* (1980), 1:149.

66. Locke, “Africa,” 90.

demonstration of cyclic tendencies in African music in general (and Igbo music in particular) is accompanied by diagrams of full, quarter, half, and three-quarter circles.<sup>67</sup>

Yet circularity as a typological feature of African music is highly suspect. *Any* music marked by extensive repetition could be described as circular in principle. If we grant that circularity is manifest at several levels, some micro and others macro, then several examples come readily to mind. Ravel's *Boléro* may be cited alongside ground basses, passacaglias, and themes and variations as circular. Compositions based on the twelve-bar blues may be described as circular. At the level of detail, a work like the opening movement of Beethoven's Fifth, heard as a rhythmic discourse, manifests circular tendency because of the persistence of a single rhythmic motif. Twelve-tone music may likewise be thought of in terms of circularity when it features in succession or in combination a regular circulation of the aggregate. If repetition alone is the feature that suggests circularity, then without denying that African music displays circular tendencies, one should also acknowledge that a great deal of the world's music is circular. Why, then, should African music be marked and indeed celebrated as especially circular?

Circularity may have been adduced to register an absence, specifically, the absence of the kind of narrative curve that one typically encounters in Western melodies and forms of the nineteenth century, whose dynamic trajectory begins at a modest or low level, rises to a high point, and rapidly falls from there. This shape may suggest a different temporal projection from the endlessly repeating African drum patterns. Yet, the dynamic curve is hardly absent from African music. Nketia's study of the "intensity factor" in African music performance shows how an accumulation of micro-activity in different dimensions often produces climactic moments.<sup>68</sup> And we might add that ingenuity in the manipulation of rhythmic sets by the lead drummer, in the execution of certain steps by a skilled dancer, or in the spontaneous incorporation of topical themes by the lead singer or mother of song all contribute to a heightening of the emotional temperature. This is not to deny that the tonal material of certain Western forms conveys that trajectory more readily or superficially than the kind of intensification that comes from rhythmic reiteration, but if this is a difference at all, then it is one of degree, not of kind.

Only in the restricted sense in which the last three elements of the standard pattern, for example, embody a prolonged anacrusis that discharges into its immediate repetition might we be justified in invoking the metaphor of circle. Even at this local level, however, circularity is not an invariant attribute of all time lines, only of some. The familiar five-stroke clavé pattern (associated with various popular forms in Africa, including the neotraditional dance Kpanlogo

67. Nzewi, *African Music: Theoretical Content*, 45–50.

68. Nketia, "The Intensity Factor in African Music," *Journal of Folklore Research* 25 (1988): 53–86.



shown as the fifth time line in Example 14), for example, is internally closed, and carries a temporal profile marked by a beginning (elements 1–2), a middle (elements 2–3–4), and an ending (elements 4–5). The Mmensoun time line (Ex. 16) likewise attains internal closure by enclosing its single eighth note and finishing on a long note, a dotted quarter. Therefore a succession of the clavé or Mmensoun patterns in the course of performance might acquire a successional feel different from the circular feeling engendered by the standard pattern. In any case, if circularity is to remain a useful concept for analysis, it will need to be framed in terms of degrees of circularity.

### **Structural Analysis or Cultural Analysis?**

This article began with a focus on the analytical issues raised by a single, brief rhythmic pattern, the so-called standard pattern of West and Central African rhythm. I then went on to incorporate observations about other time lines. The emphasis has been on the analytical issues raised by these patterns. While rehearsing some well-known formal properties of certain African rhythms, I have also commented on their possible significance. I have maintained both a structural perspective—by analyzing patterns in terms of their morphology—and a cultural perspective—by recalling habits of perception and expression that impinge on music-making. From a cultural perspective on the one hand, I have stressed that because these are dance repertoires, knowledge of the basic movement patterns is crucial for correct analysis. From a structural perspective on the other, we have seen a number of connections between time lines, some of them previously unremarked in cultural discourse; these connections lead us to imagine a limited number of historically sedimented fundamental forms. I have been especially concerned to evaluate the cultural relevance of certain structural concepts. Additive construction, rotation, permutation, and isomorphism between pitch and rhythm are problematic when viewed from an African perspective, while variation, embellishment, and broad notions of generation find widespread resonance.

Should priority be given to cultural analysis over structural analysis? This question has been much debated, sometimes implicitly, other times explicitly, but it has not yielded—and is unlikely to yield—one definitive answer. Analysts working with historical materials—including analysts of so-called early music—have asked (and been asked) whether our hearing, which presumably means a modern hearing mediated not only by exposure to all historically subsequent repertoires but also by the metalanguage of contemporary criticism, should supersede their hearing, which presumably refers to a reconstructed and often idealized hearing pieced together circumstantially from contemporaneous documents. Others have charged that the specific application of principles of voice leading—such as those promulgated by Schenker—to early music is anachronistic. Similarly, ethnomusicologists, presuming an essential or essentialized

difference between Western music and other world musics, have questioned the applicability of certain metropolitan methods of analysis to music that originated without reference to those methods. My particular burden in this article has been to deny that any structural feature of African rhythm has an *a priori* validity that excuses it from a cultural test, while also denying that the essential aspects of a cultural view resist structural translation. Questions of priority in research cannot be answered outside the purview of ideology, however—what we believe the enterprise to be about, what we get out of it as practicing analysts or theorists, and how what we do facilitates or impedes intellectual (or other forms of) domination. The moral here is none other than the age-old one: exercise greater self-awareness in assigning attributes to African rhythm, be they of a structural or cultural cast.

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### Abstract

Polyrhythmic dance compositions from West Africa typically feature an ostinato bell pattern known as a time line. Timbrally distinct, asymmetrical in structure, and aurally prominent, time lines have drawn comment from scholars as keys to understanding African rhythm. This article focuses on the best

known and most widely distributed of these, the so-called standard pattern, a seven-stroke figure spanning twelve eighth notes and disposed durationally as <2212221>. Observations about structure (including its internal dynamic, metrical potential, and rotational properties) are juxtaposed with a putative African-cultural understanding (inferred from the firm place of dance in the culture, patterns of verbal discourse, and a broad set of social values) in order to further illuminate the nature of African rhythm, foster dialogue between structural and cultural perspectives, and thereby contribute implicitly to the methodology of cross-cultural analysis.