

Harmonic Time: Multidimensional Awareness of Polyrhythms, Polytempo and Polyfeels

By Jerry Leake

“Harmonic Time” is a deeply profound awareness of multidimensional layers of rhythmic activity. In tonal harmony, musical notes are combined to represent interval relationships that define the quality of a given chord. A minimum of three notes is needed to form a triad. Similarly three layers of time awareness form the framework of a harmonic time sensibility. This can be achieved using two methods: (1) body kinesthetics with drum vocables that establish intellectual focus on a given time structure, and (2) African bell and support patterns to achieve limb independence for applying multiple time layers on musical instruments.

As a multiple percussionist I am regularly creating alternate instrumental setups to complement diverse styles of contemporary music. In these situations, alternate ways of realizing rhythm, independence of voices, and applications also become necessary tools. This article examines how the mind divides into categories for establishing multiple time perspectives—that is to say, harmonic layers of time that may help to free the body, mind, and soul of unwanted tension and hesitation.

ANCHOR TO INSTINCT

Visual and kinesthetic anchor points are an important initial step for understanding (unlocking) complex phrases like those that follow. Notation provides an intellectual solution to the rhythm puzzle long before the body becomes comfortable from hours of repetition and assimilated kinesthetic muscle memory. In order to release the crutch of needing to see the shape on paper, one must deeply explore the self to understand how one learns. Ultimately, it comes down to a complete surrender of all tension to achieve relaxation and the ability to “float” as one plays. One must ignore the desire to render what is familiar and step outside of the box of comfort. Initially, it is necessary to acutely focus on analytical aspects of whatever “rhythm constellation” is being explored. Gradually, almost hypnotically through long meditative (yogic) practice sessions, one will find that as the mind works less and less (decreasing mental sweat) the heart and soul absorb the phrase until it is as much a part of you as you are to it. Rhythm puzzles are wonderful and inspiring, as long as we are not puzzled in return.

WEB LINK TO THE VISUAL AND SONIC

The complexity of the notated examples in this article warrants the need to see the body kinesthetic exercises from Part I, and to hear the African bell and support rhythms from Part II. By visiting the PAS website and clicking the link shown in the Web Extra box at the beginning of this article, one will find MPEG video files for each example. Ankle bells are worn for the body kinesthetics to enhance the underlying pulse with an added musical element. Part II incorporates an African bell, *kagan* drum, and a foot shaker playing the “bass drum” rhythm. This combination of three unique sounds (bell, drum, shaker) allows the separate parts to be distinct and the harmonic time layers to be fully revealed.

Visit www.pas.org/publications/January2011webextras.aspx for links to video clips that illustrate the notated examples in this article.

Web Extra

PART I: BODY KINESTHETICS

Slow, Medium and Fast Harmonic Time

By using consistent side-to-side stepping motions, various sticking patterns, and the recitation of drum syllables—the primary basis of my teaching world rhythm theory—one is able to establish harmonic time awareness through kinesthetic activity. In this practice one is fully immersed into all layers of time (meter and tempo), resulting in a challenging coordination exercise that can also be viewed as a “yogic” practice of surrender and growth, building confidence.

The most basic way to realize harmonic time is to establish three rhythm speeds—slow, medium, and fast. Begin by stepping in a slow two-pulse (quarter notes), right foot in then right foot out, left foot in then left foot out: R R L L (1, 2, 1, 2). While stepping in 2, clap or hit sticks together in a medium eighth-note pulse, four sticks for every two steps. To establish the fast tempo (sixteenth notes), count from 1 to 8 for each pair of steps (Example 1).

Example 1

1	2	3	4	5	6	7	8	voice
X	-	X	-	X	-	X	-	stick
R (in)	-	-	-	R (out)	-	-	-	step

(repeat similarly with the left foot)

The voice allows the mind to focus on the specific time layers taking place. Without the voice, the body may fall into an autopilot (muscle memory) mode of repetition. As you render the exercise in Example 1, accent the numbers 1, 3, 5, and 7 to connect the voice to the four-stick pattern. Alternate between accented and unaccented numbers to shift intellectual focus (Example 2).

Example 2

<u>1</u>	2	<u>3</u>	4	<u>5</u>	6	<u>7</u>	8	voice
X	-	X	-	X	-	X	-	stick
R (in)	-	-	-	R (out)	-	-	-	step

Do the same exercise now accenting the 1 and 5 to connect with the 2-pulse stepping (Example 3). Alternate all combinations of non-accented eight-pulse, accented four-pulse, and accented two-pulse. Gradually, your awareness of each time layer will become enhanced and strengthened.

Example 3

<u>1</u>	2	3	4	<u>5</u>	6	7	8	voice
X	-	X	-	X	-	X	-	stick
R (in)	-	-	-	R (out)	-	-	-	step

More complex combinations result by dividing the 1–8 vocal pattern into groups of 3+3+2 (Example 4). Accent the 1 in each group. Shuffle numbers to become 3+2+3 and 2+3+3. Finally, change the steady four-stick pattern to line up (syncopate) with all accented 1's of the patterns 3+3+2, 3+2+3, and 2+3+3. Shuffle all combinations.

Example 4

1	2	3	1	2	3	1	2	voice
X	-	-	X	-	-	X	-	stick
R	-	-	-	R	-	-	-	step

3:2 polyrhythm

The 3:2 polyrhythm can be notated many ways with two shown below: 3/4 (Examples 5 and 6) and 6/8 (Example 7), depending upon the primary pulse. In addition to rendering each part, recite Indian drum syllables¹ (rhythm *jatis*) in both 2 and 3 for establishing intellectual focus. The limbs are probably comfortable with the 3:2 phrase; it is the voice that centers the mind onto a specific time value. Speak *ta-ki-ta* (ta ki tuh) for the 3 and *ta-ka* for the 2. Interestingly, when rendered in a double tempo the syllables shift position: fast takita now aligns with the 2, fast *taka* aligns with the 3 (Example 6).

Example 5

Example 6

Example 7

Practice Formats

The previous examples can be played using the two hands and/or feet on different drums/surfaces, with limbs switching roles when comfortable. Also stand up and step to the 3 while sticking the 2 and reciting syllable layers. Reverse this by stepping in 2 and sticking in 3. This three-tiered kinesthetic method (step, stick, voice) allows one to fully internalize time layers, mathematics, and groove. It is a total immersion of the body into all implicit and implied layers of activity.

3:2 syncopated pattern

With a solid grounding of 3:2 we can explore more sophisticated applications. In Example 8, the 2 (bottom line) has been given a second eighth-note stroke following its primary stroke. The 3 (top line) is re-

shaped to create a two-bar phrase that turns over in the second bar before returning to its starting point. The resulting phrase is a fascinating weave of syncopation, independence, and elegance.

Example 8

3:4 polyrhythm

As with the previous 3:2 study we can establish a 3 against 4 by using both hands in separate meters, as well as stepping to the 3-pulse while sticking the 4 (Example 9). *Ta-ki-ta* aligns with the 3, *ta-ka-di-mi* with the 4.

Example 9

Doubling the tempo of the voice also causes syllables to switch to the alternate pattern (Example 10).

Example 10

Example 11 illustrates a 3 against 4 notated in 12/8 with beat 4 receiving prominence. This establishes a 3-cross rhythm—an accentual element, not a total metric change—commonly found in African 12/8 time cycles.

Example 11

Another harmonic time perspective results when speaking 3 in the pulse of the 2 or 4, and speaking 2 or 4 in the pulse of the 3. As shown in Examples 12 and 13, this approach produces multi-bar phrases. A seemingly endless combination of possibilities can be explored by further varying syllable speed, switching hands, stepping in the 4-pulse while sticking the 3, etc.

Example 12



5A DUAL-TONE

5A wood tip with a durable synthetic felt mallet head attached to the butt end.



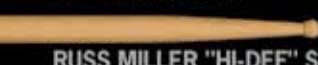
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Rubber tip with an elongated taper to simulate the balance of the 5B.



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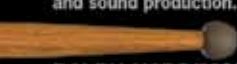
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Example 13

3/4

ta ki ta ta ki ta ta ki ta ta ki ta

ta ka di mi ta ka di mi etc..

2:3:4 possibilities

Things become increasingly more interesting by introducing a 4-layer into the previous 2:3, establishing a 2-against-3-against-4-time harmony (Example 14). Notice that the 2 (bass drum) assumes half the value of the 4 (cymbal), resulting in strong, identifiable anchor points between the two parts. While rendering all three layers of Example 14, recite each part several times, then move to the next. Again, vocalization establishes focus on each time layer.

Example 14

3/4

ta ka di mi ta ka di mi

ta ka di mi ta ka di mi

Example 15 shows how the 4 can be effectively interlaced within the syncopated 3 pattern first introduced in Example 8. The resulting composite can be played on any surface or combination of instruments.

Example 15

3/4

ta ka di mi ta ka di mi

ta ka di mi ta ka di mi

In the drumset phrase shown in Example 16, the bass drum renders the syncopated 2, the cymbal the syncopated 3, and the snare the 4 to thread the entire matrix together. Although challenging, syllables continue to provide the solution to the puzzle, thereby eliminating phrase "approximation" for achieving complete mastery. When comfortable, switch the snare and cymbal so that the cymbal is in 4 and the snare in the syncopated 3 (as shown in Example 15).

Example 16

3- ta ta ki ta ta ki ta ta ki

4- ta ka di mi ta ka di mi

3- ta ta ki ta ta ki ta ta ki

4- ta ka di mi ta ka di mi

2- ta ka ta ka ta ka ta ka

The 16 examples we have examined represent a tiny fraction of possibilities when combining 2:3:4, hands and feet, and traditional and non-traditional instrument combinations. Before moving on to Part II, explore new ideas to discover your own voice using Harmonic Time awareness. The body is the ultimate musical instrument with all rhythm puzzles solved by kinesthetic internalization of time, mathematics, and groove. Next we will examine even more potent aspects of Harmonic Time using traditional West African bell patterns and support instruments.



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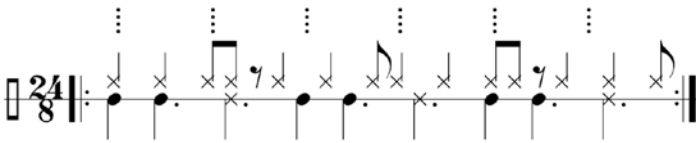
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PART II: AFRICAN BELL AND SUPPORT PATTERNS

African Perspectives of 2:3:4

Recent studies of Ewe music from the people of coastal Ghana have exposed me to unusual bell patterns and other relative time-line components including the off-beat *kagan* drum and syncopated *totodzi* drum.² My book *African Bell Ritual* explores cross-rhythm possibilities with the standard African 12/8 bell, as well as the advanced concept of 24/8³. The 24/8 pattern shown in Example 17, as first presented by Bertram Lehmann, may impact one's familiarity with the bell pattern creating what I call "rhythm culture shock" when trying to find something familiar to lock onto. This occurs because the phrase can be simultaneously felt in both a binary (2) and ternary (3) metric pulsation. Although notated in 24/8 (Example 17, a rather daunting image), the same phrase can be notated in 6/4 (Example 18), easing the "unlocking" process and helping to achieve more pattern familiarity. In the 24/8 example, vertical lines represent the 6-beat tactus. In the 6/4 schematic, one may see, hear, and feel a samba in six. Indeed, the 6-samba is strengthened by the bass drum that drives home the beat.

Example 17

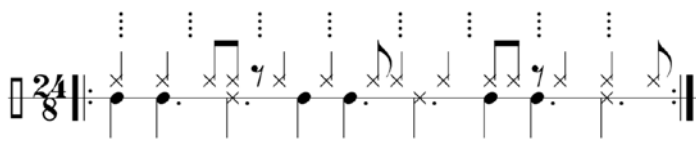


Example 18



A more intricate treatment of the above pattern is derived by retaining the original 4-pulse for the foot, which is the traditional alignment with the 12/8 bell (Example 19). The dashed line (8-beat tactus) and the drum (bottom line) align on only three out of eight beat positions: 1st, 7th, and 8th. The two begin together on beat 1, then enter a lengthy stage of tension (beats 2–6) before achieving partial resolution on beat 7 and full resolution on beat 8. At this point, pattern familiarity with the 12/8 bell may completely dissolve, so the concept of anchor points is helpful and necessary for navigating through the phrase. Indeed, until you are able to "feel" the phrase in Example 19, visual and kinesthetic anchor points keep it alive and well.

Example 19



Adjogbo Bell, Beat and Support

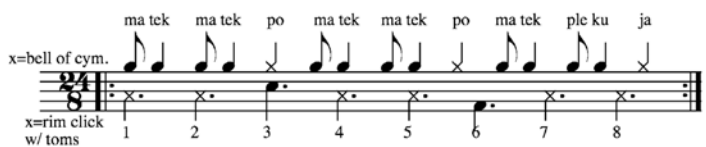
*Adjogbo*⁴ originally functioned as a spiritual preparation for war, but today it is more a cultural and social event. It originated from Benin and now is regularly played by the Ewes⁵. Through studies with David Locke (Tufts University) I became exposed to two *Adjogbo* bell patterns for conceiving harmonic time awareness.

When one hears the *Adjogbo* bell, on the surface it may sound as if it were patterned in 2/4 meter. Indeed, each of the three bell subunits could

be felt in a binary pulse with one bell cycle notated in 6/4. After seeing Locke's transcriptions, I was inspired to learn that the bell should be felt with eight pulses (beats) per cycle, not six. The bell pattern rendered in a long 3-feel also fits into the category of 24/8 to complete one time cycle. The math is simple: 24 divided by 3 equals 8—the number of eighth notes that fit into each of the three subunits that comprise the phrase. Each bell subunit has five strokes and three non-strokes (rests): [x x -] [x x -] (3+3+2 structure with syncopation). Interestingly, the beat rotates⁶ position with each subsequent bell subunit.

In Examples 20 and 21, an "X" notehead (top line) represents a muted staccato bell tone whereby the player presses the stick against the bell, producing a shorter tone. The spoken Ewe syllables *matekpo kple ku dza* are borrowed from the standard 12/8 bell (learned from Locke), now applied to the strokes of the *Adjogbo* bell. Phonetic spelling is used to clarify the pronunciation of the words. Although challenging to execute, counting the beats 1 to 8 while playing the pattern will focus the mind onto the beat. Play the beat using one drum before attempting the rim click and tom arrangement shown in Example 20. As always, mix up the combinations.

Example 20



Example 21 shows the bass drum playing the 6-tactus against the 8-tactus of the drum, resulting in two sets of 3:4 for each 24/8 cycle. Continue speaking *matekpo* syllables and counting numbers 1 to 8 and 1 to 6 to establish keen focus on each time layer.

Example 21



Adjogbo 2:3:4: adding drum and foot patterns

The overall matrix of the long 3-bell with support instruments (*kagan*, *totodzi*) results in a rather "crazy"⁷ opposing structure that even traditional African ensembles avoid. An alternate bell pattern would be the standard 12/8 bell that locks parts together.⁸ The goal in achieving harmonic time awareness is to render the *Adjogbo* "crazy" bell in the long 3 (24/8), the one-beat *kagan* (drum) rhythm, and the foot in a 2-subunit phrase using the rhythm of the *totodzi* from *Agbekor* (Example 22). This foot pattern divides the standard 12/8 bell thusly: the first portion is in a 6 feel, the second in 4.

Example 22



Example 23 incorporates the traditional two-beat *kagan* pattern. When proficient with the two hands, add the bass drum playing either the steady beat (from Example 22) or the syncopated *totodzi* rhythm from Example 23, establishing a complex 2 (*kagan*), 3 (*bell*), and 4 (*totodzi*) harmonic time layer.

Example 23

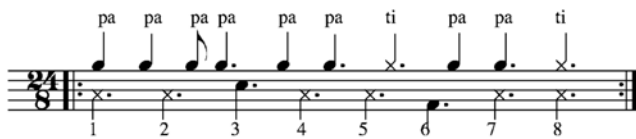


The intricate puzzle of the previous phrases is solved only by truly feeling the alignment of unique parts; knowing and not seeing their shape. Strive to divide the mind into time categories with each layer always in keen focus, resulting in a multi-tasking of time layers. The underling point is that if one can hear the entire time harmony of the phrase, one will be able to hear (and respond to) other musical elements in an ensemble context that may support any or all the existing layers.

Adjogbo bell #2

A second *Adjogbo* bell (usually heard in the last movement of the piece) is also rendered in a 24/8 time cycle, built using a 2+3+3 structure with three strokes and five non-strokes (rests). The first subunit has four strokes and four rests and shares the same beginning as the standard 12/8 bell before shifting to the 2+3+3. This variance provides a clear shape to the overall cycle, allowing one to hear the actual beat 1 without getting “flipped around” (a phenomenon that can easily happen with the first *Adjogbo* bell comprising three identical subunits). Example 24 outlines the beat using rim clicks and toms. Example 25 includes the traditional one-beat *kagan* with the foot playing the *totodzi* rhythm. Example 26 introduces the two-beat *kagan* for added challenge. When the hands are fully locked in, add the foot beat of Example 24, or *totodzi* rhythm shown in Examples 25 and 26.

Example 24



Example 25



Example 26



CONCLUSION

As I progress deeper into alternate ways of understanding and applying harmonic time perspectives, I am reminded of Picasso’s “cubist” approach to painting. A paper presented by David Locke at the Society of Ethnomusicology (1996) related the concept of “cubism” in art to some forms of African music. Locke’s profound thinking also applies to this article. In cubist artworks, objects are broken up, analyzed, and re-assembled in an abstracted form. Instead of depicting objects from one viewpoint, the artist depicts the subject from a multitude of viewpoints to represent the subject in a greater context.

In music, harmonic layers of time—simultaneous constructs of a 2, 3, 4,

and 6, and 8 awareness—create profoundly different angles of time orientation and perspective. Admittedly, a great deal of discipline is needed to unlock many of these examples. However, by taking small steps every day, dissecting fragments of a longer phrase, and processing each area of focus, the discipline acquired will, in fact, be equaled by the total freedom that is gained. Indeed, discipline = freedom.

ENDNOTES

1. I am indebted to friend and scholar George Ruckert, senior *sarod* disciple of Ali Akbar Khan, for introducing me to the rhythm *jatis* of Indian music. Rhythm *jatis* provide unlimited application to all forms of world music theory.
2. The *totodzi* drum, from the Ewe warrior rhythm “*Agbekor*,” is not normally used in *Adjogbo*. However, its unique 6+4 feel lends itself well to the contemporary applications in this article.
3. Prior research of the African bell pattern has been conducted by Kofi Agawu, A.M. Jones, James Keotting, Robert Kauffman, Kobla Ladzekpo, David Locke, Alan Merriam, J.H. Kwabena Nketia, and Jeff Pressing. In particular, my close work with David Locke has resulted in deeper insights into bell cross-rhythms and rotations. Bertram Lehmann’s master thesis (Tufts University 2002) “The Syntax of ‘Clavé’: Perception and Analysis of Meter in Cuban and African Music” first introduced the concept of 24/8 time cycles.
4. Faith Conant’s master’s thesis (Tufts University 1985), “The Ethnomusicology of *Adzogbo*,” provides an in-depth study of *Adzogbo* (alternate spelling) of the Ewe people of Ghana.
5. *Adjogbo* text taken from Nani Agbeli’s web page. Nani is a skilled Ewe dancer and drummer who was my teacher in Ghana. He is the youngest son of the great, late Godwin Agbeli, teacher of David Locke, and many students across the world.
6. The term “rotation” is commonly used in music theory for 12-tone music. Willi Anku uses the term in his extensive material on African music.
7. A term used by Elana Cohen-Khani (student of David Locke) to describe the unusual *Adjogbo* bell phrase set to a 24/8 cycle.
8. Conversation with Nani Agbeli during a 2008 residency at Tufts.

SOURCES

- Leake, Jerry. *African Bell Ritual*. Rhombus Publishing, Boston, MA. 2004
- Locke, David. “The Music of *Atsiagbekor*.” Ph.D dissertation. Middletown, CT: Wesleyan University, 1978.
- _____. *Worlds of Music: An Introduction to the Music of the World’s Peoples*. Wadsworth Publishing, Pap/Com edition (July 27 2004).
- _____. “Principles of Off-beat Timing and Cross Rhythm in Southern Ewe Dance Drumming,” *Ethnomusicology* 26, 2:217–246. 1982.
- Merriam, Alan P. “African Musical Rhythm and Concepts of Time-reckoning.” In *African Music in Perspective*. New York, NY: Garland Publishers, 1982. 443–461.

Jerry Leake leads the world-rock-fusion band “Cubist” (www.cubistband.com), which performs compositions from his 2010 CD, *Cubist*. He is co-founder of the world-music ensemble *Natraj*, whose four recordings feature his diverse percussion talents. He also performs with Club d’Elf, R.A.R.E, Moksha, and the *Agbekor* Society. He is featured on dozens of CDs and has released several CDs of his own music. Jerry has written eight widely used texts on North Indian, West African, and Latin American percussion, and on rhythm theory (www.Rhombuspublishing.com). He is on the faculty of the New England Conservatory of Music and substitute teacher for Jamey Haddad at the Berklee College in Boston. Jerry is former president of the Massachusetts PAS Chapter and has been a composer and member of the Portland Symphony Kinder Konzert percussion ensemble since 1984. PN