

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 set-ups 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 musical 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, so 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 website—RhombusPublishing.com—and selecting the link to “Articles” one will find the “Harmonic Time” pdf and also 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.

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 while also being 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 2-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 8th note pulse, 4 sticks for every 2 steps. To establish the fast tempo (16th notes), count from 1-8 for each pair of steps (below).

ex. #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)

It is the voice that 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 above exercise accent the numbers 1, 3, 5, and 7 to connect the voice to the 4-stick pattern. Alternate between accented and unaccented numbers to shift intellectual focus (ex. 2). Do the same exercise now accenting the 1 and 5 to connect with the 2-pulse stepping (ex. 3). Alternate all

combinations of non-accented 8-pulse, accented 4-pulse, and accented 2-pulse. Gradually, your awareness of each time layer will become enhanced and strengthened.

ex. #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

ex. #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 (ex. #4). Accent the number "1" to each group. Shuffle numbers to become 3+2+3, and 2+3+3. Finally, change the steady 4-stick pattern to line up (syncopate) with all accented "1"s of the patterns 332 (below), 323, 233. Shuffle all combinations.

ex. #4

<u>1</u>	2	3	<u>1</u>	2	3	<u>1</u>	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 (#5 and #6) and 6/8 (#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 (#6 below).

ex. #5

ex. #6

ex. #7

Practice Formats

The above 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 3-tiered kinesthetic method (step, stick, voice) allows one to fully internalize time layers, mathematics, and groove. It is a total emersion 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 the phrase below, the 2 (bottom line) has been given a second 8th note stroke following its primary stroke. The 3 (top line) is reshaped to create a 2-bar phrase that turns over in the 2nd bar before returning to its starting point. The resulting phrase is a fascinating weave of syncopation, independence, and elegance.

ex. #8 ta ta ki ta ta ki ta ta ki

ta ka ta ka ta ka ta ka

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 (ex. 9). **Ta-ki-ta** aligns with the 3, **ta-ka-di-mi-** with the 4. Doubling the tempo of the voice also causes syllables to switch to the alternate pattern (ex. 10). Example 11 below illustrates a 3 against 4 notated in 12/8 with the “4” receiving beat prominence. This establishes a 3-cross rhythm—an accentual element, not a total metric change—commonly found in African 12/8 time cycles.

ex. #9 ta ka di mi

ta ki ta

ex. 10 ta ki ta ta ki ta ta ki ta ta ki ta

ta ka di mi ta ka di mi ta ka di mi

ex. 11 ta ki ta

ta ka di mi

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.

ex. 12 ta ki ta ta ki ta

ta ka ta ka ta ka etc....

ex. 13 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 (ex. 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 #14 recite each part several times then move to the next. Again, vocalization establishes focus on each time layer. 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.

ex. 14

3/4
ta ka di mi ta ka di mi
ta ki ta ta ki ta
ta ka ta ka

ex. 15

3/4
ta ka di mi ta ka di mi
ta ta ki ta ta ki ta ta ki

In the drum set phrase below (ex. 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 ex. 15 above).

ex. 16

3- ta ta ki ta ta ki ta ta ki
4- ta ka di mi ta ki di mi
3-
4-
2-
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, 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.

PART II: AFRICAN BELL AND SUPPORT PATTERNS

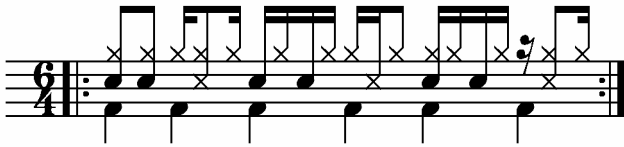
African Perspectives of 2:3:4

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 example #17 below, 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 (ex. 17, a rather daunting image), the same phrase can be notated in 6/4 (ex. 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.

ex. 17

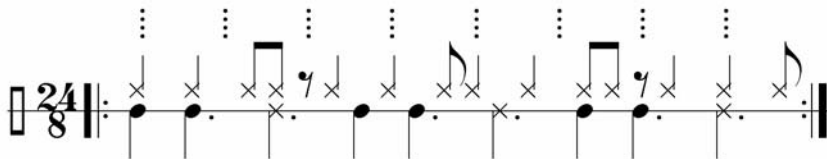
24/8
ta ka di mi ta ka di mi
ta ki ta ta ki ta

ex. 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 (ex. 19). The dashed line (8-beat tactus) and the drum (bottom line) align on only 3 out of 8 beat positions: 1st, 7th, and 8th. The two begin together on '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 away. At this point, the concept of anchor points is helpful and necessary for navigating through the phrase. Indeed, until you are able to "feel" the phrase below, visual and kinesthetic anchor points are what keep it alive and well.

ex. 19



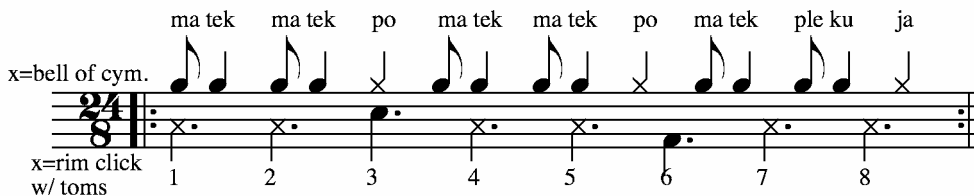
Adjogbo Bell, Beat, and Support

*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 Univ.) 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 meter. After seeing Locke's transcriptions I was inspired to learn that the bell should be felt with 8-pulses (beats) per cycle, not 6. 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 8th notes that fit into each of the three subunits that comprise the phrase. Each bell subunit has 5 strokes and 3 non-strokes (rests): [x x -] [x x -] [x -] (3+3+2 structure with syncopation). Interestingly, the beat rotates⁶ position with each subsequent bell subunit.

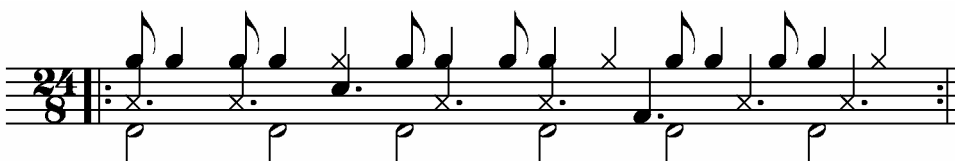
In examples 20 and 21 an "X" note head (top line) represents a muted staccato bell tone whereby the player presses the stick against the bell, producing a shorter tone. The spoken Ewe syllables "*matekpo kple ku dza*" are borrowed from the standard 12/8 bell (learned from Locke) now applied to the strokes of the adjogbo bell. Phonetic spelling is used to clarify the pronunciation words. Although challenging to execute, counting the beats 1-8 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 below. As always, mix up the combinations.

ex. 20



Example 21 below 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 1–8 and 1–6 to establish keen focus on each time layer.

ex. 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 1-beat *kagan* (drum) rhythm, and the foot in a 2-subunit phrase using the rhythm of the *totodzi* from Agbekor (ex. 22). This foot pattern divides the standard 12/8 bell thusly: the first portion is in a 6 feel, the second in 4. Example 23 incorporates the traditional 2-beat *kagan* pattern. When proficient with the two hands, add the bass drum playing either the steady beat (from above) or the syncopated *totodzi* rhythm below, establishing a complex 2 (*kagan*), 3 (*bell*), and 4 (*totodzi*) harmonic time layer.

ex. 22

Musical notation for example 22, showing a melody and a bass line in 24/8 time. The melody has lyrics: ma tek ma tek po ma tek ma tek po ma tek ple ku ja. The bass line consists of quarter notes.

ex. 23

Musical notation for example 23, showing a melody and a bass line in 24/8 time. The melody has 'x' marks above some notes. The bass line consists of quarter notes.

The intricate puzzle of the above phrases is solved only by truly feeling the alignment of unique parts: knowing and not seeing their shape. As mentioned, strive to divide the mind into time categories with each layer always in keen focus, resulting in a multi-tasking of time layers. The underlying 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 3 strokes and 5 non-strokes (rests). The first subunit has 4 strokes and 4 rests and shares the same beginning as the standard 12/8 bell before shifting to the 233. This variance provides a clear shape to the overall cycle, allowing one to hear the actual “1” without getting “flipped around” (a phenomenon that can easily happen with the first Adjogbo bell comprising three identical subunits). Example 24 below outlines the beat using rim clicks and toms. Example 25 includes the traditional 1-beat *kagan* with the foot playing the *totodzi* rhythm. Example 26 introduces the 2-beat *kagan* for added challenge. When the hands are fully locked in add the foot beat of #24, or *totodzi* rhythm shown in 25 and 26.

ex. 24

Musical notation for example 24, showing a melody and a bass line in 24/8 time. The melody has lyrics: pa pa pa pa pa pa ti pa pa ti. The bass line consists of quarter notes with 'x' marks above some notes.

ex. 25

Musical notation for example 25, showing a melody and a bass line in 24/8 time. The melody has lyrics: pa pa pa pa pa pa ti pa pa ti. The bass line consists of quarter notes with '7' marks above some notes.

ex. 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 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 everyday, by dissecting fragments of a longer phrase, processing each area of focus, the discipline acquired will, in fact, be equaled by the total freedom that is gained. Indeed, discipline = freedom.

Footnotes

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 for 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 Univ. 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 masters thesis (Tufts Univ. 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
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