
EXCERPTS FROM

FASCINATING RHYTHMS

VOLUME 1—THE FOUNDATION

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MICROBEAT GROUPINGS IN BINARY AND TERNARY METERS

An excellent way to take advantage of solkattu's potential is to vocalize memorized sequences of microbeat groupings.. I like this approach because it builds a strong sense of audiation, kinesthetic hand-foot-voice coordination, and rhythm pattern memory, all without the visual distraction of reading notation.

Chanting the groupings against a metric structure (macrobeats) and trusting the math to "work-out" on the downbeat without seeing the notation might seem intimidating at first, but will become liberating once you gain some aural and kinesthetic trust. "Playing by ear" is an approach often not emphasized in Western music pedagogy, or sometimes the rhythmic structures we do play by ear are so simple as to not optimally challenge us.

I recommend foot tapping macrobeats, chanting the microbeat groupings with solkattu, and counting the meter on your hands as described below in "Counting Meters." Set the metronome to macrobeats, with a distinct downbeat sound. If foot tapping seems difficult to coordinate with solkattu and counting, try larger macrobeat motions (walking, stepping side to side, or marching) until you trust the math. Thereafter, foot tapping should be easier. Eventually, eliminate the meter counting and play the groupings in unison with solkattu and your hands (alternate sticking), accenting the first note of each microbeat group. Once these groupings are "in your ear and hands" you will have entered a new rhythmic dimension. Memorize each phrase group and play it many times to internalize the feeling. Mastering a few phrases will prove more beneficial than merely surveying a large amount. Use whatever solkattu you prefer.

BINARY METER, 2 MACROBEATS, 8 MICROBEATS			
2222	44	332	233
323 - palindrome	35	53	
BINARY METER, 4 MACROBEATS, 16 MICROBEATS			
34333	33334	33343	33433 -Brazilian clave, palindrome
33424 - son clave	44323	43333	44233
44332	34243 - palindrome	33442-gahu gankogui	34324 - rumba clave
43234 - palindrome	4534	4453	5344
3535	5533	5335	5443
5353	3553	3355	
565 - palindrome	655	556	475
547	574	754	457
745	772	727 - palindrome	277
79	97		
BINARY METER, 5 MACROBEATS, 20 MICROBEATS			
(33)(33)44	6644	44444	5555

BINARY METER, 7 MACROBEATS, 28 MICROBEATS			
555544	6679		
BINARY METER, 8 MACROBEATS, 32 MICROBEATS			
33333338	55553333	993344, (9=2223)	4455554
59567	77774		
BINARY, 12 MACROBEATS, 48 MICROBEATS			
33222,33222,33222,33222 – Bernstein-America theme			
TERNARY METER, 3 MACROBEATS, 9 MICROBEATS			
54	45	72	27
522	252	225	432
234	342	324	2223
2232	2322	3222	
TERNARY METER, 4 MACROBEATS, 12 MICROBEATS			
3333	444	22323 - son clave	23223 - rumba clave
75	57	552	525
255	534	543	435
453	345	354	732
723	372	327	273
237	222222		
TERNARY METER, 5 MACROBEATS, 15 MICROBEATS			
44(43)	447	474	744
33333	333222	3222222	
TERNARY METER, 7 MACROBEATS, 21 MICROBEATS			
5 5 5 6	5565	5655	6555
TERNARY METER, 8 MACROBEATS, 24 MICROBEATS			
55554	5559	7773	9753
5559	7755	7557	996

Microbeat Palindrome - "In 4"

Tap foot on each macrobeat (quarter note). Set metronome downbeat to a different timbre.

Unolet Duplet Triplet

4/4

R L R L R L R etc. R L R L R L R L

ta ta ka ta ki da

Quadruplet Quintuplet

R R R R R L R L R L R L

ta ka di mi ta ka ju na ka

Sextuplet

R R R R R R R R R R R R R R R R R R R R R R R R

ta ka di mi ju na

Septuplet

R L R L R L R L R L R L R L R L R L R L R L R L R L R L

ta ka di mi ju na ka

Octuplet

R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R

ta ka di mi ta ka ju na

Nonuplet

R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L

ta ki da din na ka ju na ka

Dectuplet

R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R

ta ka di mi ju na ta ka di mi

R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L R L

Three staves of rhythmic notation. The first staff contains four groups of eighth notes, each with a '7' above it, and two groups of eighth notes with '7' above them. The second staff contains four groups of eighth notes with a '6' above them, and four groups of eighth notes with a '5' above them. The third staff contains four groups of eighth notes, four groups of eighth notes with a '3' above them, and a final group of eighth notes with a '3' above them. The piece ends with a double bar line and a 3/4 time signature.

Microbeat Palindrome - "In 3"

A single staff of rhythmic notation for 'Microbeat Palindrome - In 3'. The piece starts with a 3/4 time signature. It features a series of rhythmic patterns with various fingerings: '3', '5', '6', '7', '9', and '10'. The patterns are arranged in a palindromic structure. The piece ends with a double bar line and a 2/4 time signature.

Ping-Pong Microbeats

Play this call and response exercise eight times with a different call speed each time; i.e. first time the call (dash notation) is interpreted as an unolet and the responses as notated. 2nd time = duplet call, 3rd time = triplet call, etc. Tap foot on each macrobeat.

Call Unolet response Call Duplet response

Triplet Quadruplet

Quintuplet Sextuplet

Septuplet Octuplet

Septuplet Sextuplet

Quintuplet Quadruplet

Triplet Duplet Unolet

TUPLETS

Tuplets are equal length notes that form an irregular number of divisions of one or two macrobeats. Tuplets are sometimes called irrational rhythms, artificial divisions, or irregular divisions. In a binary feel, the first numeral in the ratio is an odd number—3:2 denotes 3 notes in the space of the usual 2. In a ternary feel, the first numeral in the ratio is an even number—2:3 denotes 2 notes in the space of the usual three.

PRACTICE SUGGESTIONS

- Practice two macrobeat speeds:
 - metronome set to quarter notes - each measure feels "in 2"-the normal rate. Remember to set the downbeat to a different timbre than the second macrobeat.
 - half notes - each measure feels "in 1." Learning to feel the tuplet against the longer half note macrobeat (half-time feel) is typically easier.
- When learning unfamiliar tuplets such as 7:4 eighth notes, accurately internalizing the more familiar divisions on either side (6:4 eighths and 8:8 sixteenths) is helpful. Play 6 and accelerate or "slide" into 7. Next, play 8 then decelerate or "slide" into 7. Often this kinesthetic "feel in the hands" proves an effective way to find the desired tuplet speed.
- When playing any tuplet (across macrobeats) such as 3:2, 5:2, 7:2, 9:2, or 10:2, if you audiate, chant, and stick microbeats twice as fast as the desired ratio you will be able to eventually focus on just the lead (right) hand which is playing the desired rhythm pattern. For example, for 5:2, begin by playing 10:2 with both hands the same dynamic. Then reduce the volume of the weak (left) hand as this will allow you to hear and feel the right hand 5:2 ratio.

5:2

Rhythm Pattern

5

10:2

Sticking/Chant

5

ta di ki na tom ta di ki na tom

Macrobeat

Views 1 and 2 illustrate different notational groupings of the ratios 3:2, 9:8, and 5:4. Changing your visual perception and audiation can affect how challenging a tuplet is to execute. For example, reciting a group of 9 as 4+5 is possible, but in most Western style music, I find it easier to think of three groups of 3—a simple triplet base.

	two groups of 3	one group of 9
View 1		
Grouping Rhythm		
View 2		
Grouping Rhythm		

	two groups of 5
View 1	
Grouping Rhythm	
View 2	
Grouping Rhythm	

Top Ten Rhythms Timetable

Duple and Triple Divisions of a 4/4 Measure

Tempi may range from quarter note 40-180 BPM. Repeat each measure as necessary; I recommend starting with 4-bar phrases. Play sequentially through the patterns (ascending) and then back down (descending) to form a rhythmic palindrome. Experiment with various foot ostinati.

Glenn Schaft-2020

2-Half notes 3-Half note triplets 4-Quarter Notes

Hands

Feet

BD HH

4 6-Quarter Note Triplets 8-Eighth Notes 12-Eighth Note Triplets

Hands

Feet

7 16-Sixteenth Notes 24-Sixteenth Note Triplets

Hands

Feet

9 32-Thirty Second Notes

Hands

Feet

10 48-Thirty Second Note Triplets

Hands

Feet

Tuplet Palindrome

Spanning Two Macrobeats

This is the ultimate microbeat rhythm pattern skills test. Repeat each measure as necessary before moving ahead. Use alternated sticking. When playing "in 2," set metronome downbeat to a different timbre than beat two. Slower tempi make the tuplets that cross the second macrobeat (3:2, 5:2, 7:2, and 9:2) more difficult, so I recommend beginning no slower than quarter note = 90-100 bpm. At these tempi and above, feeling each measure "in 1" is easier because the half-note macrobeat is not too slow.

Quarter note = 90+BPM

Felt "in 1" these are the same ratios as the "Microbeat Palindrome's" earlier in this chapter

CHAPTER 3 - MARCHING PERCUSSION PEDAGOGY

Contemporary marching ensembles across the United States utilize a remarkably unified collection of pedagogical methods for technically and rhythmically training their members. I find some of these concepts and exercises valuable in my own playing and teaching and am especially impressed with how marching pedagogues teach many diverse students to relatively quickly achieve a high level of rhythmic competence. Marching exercises are memorized and played many times daily to facilitate physical coordination, technical mastery, and aural/visual uniformity across the ensemble. I would encourage any musician to adapt some of these time-tested exercises for your own purposes.

Marching “warm-up” exercises have a two-fold function, to warm-up the ensemble physically and mentally and to serve as the primary rhythmic and technical training material to prepare members for “show” repertoire. Warm-ups usually include at least three categories: unison rhythms, accent patterns, and timing patterns. All exercises are played while “marking time” i.e. marching-in-place. When marking time, the downbeat begins with the left (weak side) foot; assuming even number measure signatures; but when marching to odd number meters, successive downbeats alternate feet.

Warm-ups typically begin with the famous unison rhythm exercise—“eight-on-a-hand”—a single rhythm and dynamic. It helps establish hand/foot (microbeat/macrobeat) coordination, unified hand technique, ensemble balance, and rhythmic precision throughout the ensemble.

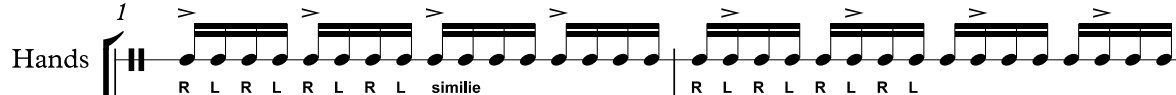
Eight-On-A-Hand

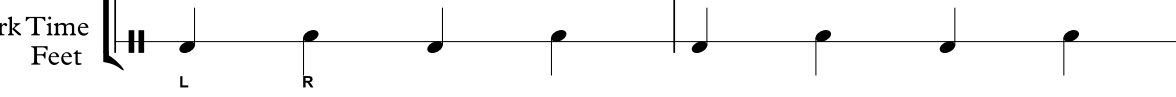
The image displays two systems of musical notation for the 'Eight-On-A-Hand' exercise. Each system consists of two staves: 'Hands' and 'Mark Time Feet'.
 The first system is in 4/4 time. The 'Hands' staff shows a sequence of eight quarter notes: four on the right hand (R) and four on the left hand (L). The 'Mark Time Feet' staff shows a sequence of eight quarter notes: four on the left foot (L-foot) and four on the right foot (R-foot).
 The second system is in 3/4 time. The 'Hands' staff shows a sequence of nine quarter notes: eight on the right hand (R) and one on the left hand (L). The 'Mark Time Feet' staff shows a sequence of nine quarter notes: four on the left foot (L-foot) and five on the right foot (R-foot).

The second pedagogical step is “accent-tap” exercises which introduce binary and ternary rhythm patterns and two dynamic levels— accentuated rhythm patterns over a grid or layer of hand-to-hand “tap” (soft note) motions. This approach builds kinesthetic sticking fluidity and microtiming accuracy via the constant microbeat hand motions. I recommend memorizing these accent-tap grids and practicing them two ways: as written and then omit the taps and just play the accents against your feet marking time.


Binary Accent-Tap Grid

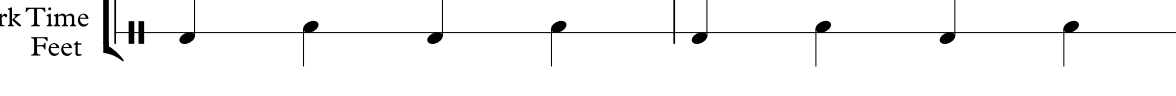
1

Hands 


Mark Time Feet 

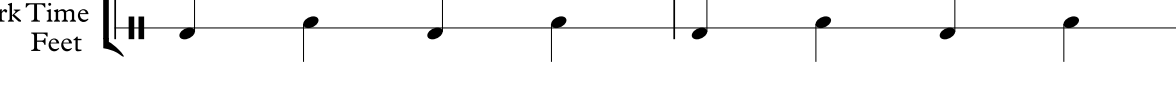
3

Hands 

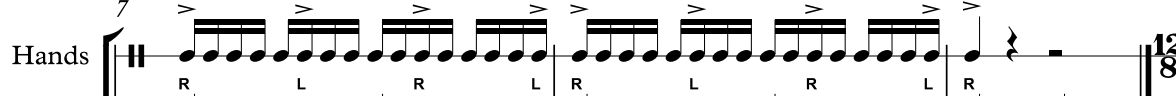
Mark Time Feet 


5

Hands 

Mark Time Feet 

7

Hands 

Mark Time Feet 

Ternary Accent-Tap Grid

1

Hands 

Mark Time Feet 

4

Hands 

Mark Time Feet 

9

Hands 

Mark Time Feet 

12

Hands 

Mark Time Feet 

Timing Exercises

Mark time or tap foot on macrobeat quarter notes

Fundamental Binary Motives

Above line = R, below line = L

<p><i>A</i> 4-note</p> <p>ta ka di mi</p>	<p><i>B</i> 3-note</p> <p>ta ka di</p>	<p><i>C</i></p> <p>ka di mi</p>	
<p><i>D</i></p> <p>ta di mi</p>	<p><i>E</i></p> <p>ta ka mi</p>	<p><i>F</i> 2-note adjacent</p> <p>ta ka</p>	<p><i>G</i></p> <p>ka di</p>
<p><i>H</i></p> <p>di mi</p>	<p><i>I</i></p> <p>ta mi</p>	<p><i>J</i> 2-note non-adjacent</p> <p>ta di</p>	<p><i>K</i></p> <p>ka mi</p>
<p><i>L</i> 1-note</p> <p>ta</p>	<p><i>M</i></p> <p>ka</p>	<p><i>N</i></p> <p>di</p>	<p><i>O</i></p> <p>mi</p>

Binary Comparisons

Insert a Fundamental Binary Motive (from above) into the slash notations. Right-lead sticking is indicated, but other stickings may be used as well.

Insert A

R L R L R R
ta ka di mi ta ka

Insert B

R L R R R
ta ka di ta ka

Insert C

L R L R R
ka di mi ta ka

Insert D

R R L R R
ta di mi ta ka

Insert E

R L L R R
ta ka mi ta ka

Insert F

R L R R
ta ka ta ka

Insert G

L R R R
ka di ta ka

Insert H

R L R R
di mi ta ka

Insert I

R L R R
ta mi ta ka

Insert J

R R R R
ta ka ta ka

Insert K

L L R R
ka mi ta ka

Insert L

R R R
ta ta ka

Insert M

L R R
ka ta ka

Insert N

R R R
di ta di

Insert O

L R R
mi ta ka

Fundamental Ternary Motives

Musical notation for nine fundamental ternary motives (A-I) in 6/8 time. Motive A: ta ki da ta ki da. Motive B: ta ki ta ki. Motive C: ki da ki da. Motive D: ta ka ta ka. Motive E: ta ki da. Motive F: da ta ki. Motive G: ta ta. Motive H: ki ki. Motive I: da da.

Ternary Comparisons

Insert a Fundamental Ternary Motive (from above) into the slash notations. Right-lead sticking is indicated, but other stickings may be used as well.

12/8
A series of slashes representing a rhythmic pattern.

Insert A

R L R L R L R R R
ta ki da ta ki da ta ki da

Insert B

R L L R R R R
ta ki ta ki ta ki da

Insert C

L R R L R R R
ki da ki da ta ki da

Insert D

R R L L R R R
ta ka ta ka ta ki da

Insert E

R R R R R R
ta ki da ta ki da

Insert F

L L L R R R
da ta ki ta ki da

Insert G

R L R R R
ta ta ta ki da

Insert H

L R R R R
ki ki ta ki da

Insert I

R L R R R
da da ta ki da

Hemiola Accent Rotation

(the 5 grouping shifts accents one microbeat later in each bar)

P=17 microbeats, 3+3+3+3+5

ta ki da ta ki da ta ki da ta ki da ta di ki na tom ta ki da ta ki da ta ki da ta ki da ta di ki
Mark Time
L R
na tom ta ki da ta ki da ta ki da ta ki da ta di ki na tom ta ki da ta ki da ta ki da ta ka di mi

P=13 microbeats, 4+4+5

ta ka di mi ta ka di mi ta di ki na tom ta ka di mi ta ka di mi ta di ki
na tom ta ka di mi ta ka di mi ta di ki na tom dah

CHAPTER 4 - BINARY RHYTHMS

BINARY RHYTHMS IN GRAPHIC NOTATION

Partition	Permutations		(●) = onset, (–) = rest	
P=4	A ● — — —	B — ● — —	C — — ● —	D — — — ●
1+3	E ● ● — —	F — ● ● —	G — — ● ●	H ● — — ●
1+1+2	I ● ● ● —	J — ● ● ●	K ● — ● ●	L ● ● — ●
2+2	M ● — ● —	N — ● — ●		
1+1+1+1	O ● ● ● ●	P - zero onsets — — — —		

P=8	A ● — — — — — — —	B — ● — — — — — —
	C — — ● — — — — —	D — — — ● — — — —
1+7	E ● ● — — — — — —	F — ● ● — — — — —
	G — — ● ● — — — —	H — — — ● ● — — —
1+1+6	I ● ● ● — — — — —	J — ● ● ● — — — —
	K — — ● ● ● — — —	L — — — ● ● ● — —
1+1+1+5	M ● ● ● ● — — — —	N — ● ● ● ● — — —

	O — — ● ● ● ● — —	P — — — ● ● ● ● —
2+6	Q ● — ● — — — — —	R — ● — ● — — — —
	S — — ● — ● — — —	T — — — ● — ● — —
2+2+4	U ● — ● — ● — — —	V — ● — ● — ● — —
	W — — ● — ● — ● —	X — — — ● — ● — ●
2+2+1+3	Y ● — ● — ● ● — —	Z — ● — ● — ● ● —
	Aa — — ● — ● — ● ●	Bb ● — — ● — ● — ●
3+1+4	Cc ● — — ● ● — — —	Dd — ● — — ● ● — —
	Ee — — ● — — ● ● —	Ff — — — ● — — ● ●
3+5	Gg ● — — ● — — — —	Hh — ● — ● — — —
	Ii — — ● — — ● — —	Jj — — — ● — — ● —
2+1+5	Kk ● — ● ● — — — —	Ll — ● — ● ● — — —
	Mm — — ● — ● ● — —	Nn — — — ● — ● ● —
1+2+5	Oo ● ● — ● — — — —	Pp — ● ● — ● — — —
	Qq — — ● ● — ● — —	Rr — — — ● ● — ● —

1+2+1+4	Ss ● ● — ● ● — — —	Tt — ● ● — ● ● — —
	Uu — — ● ● — ● ● —	Vv — — — ● ● — ● ●
3+3+2	Ww - tresillo ● — — ● — — ● —	Xx — ● — — ● — — ●
	Yy ● — ● — — ● — —	Zz — ● — ● — — ● —
	Aaa — — ● — ● — — ●	Bbb ● — — ● — ● — —
	Ccc — ● — — ● — ● —	Ddd — — ● — — ● — ●
2+1+2+1+2	Eee - cinquillo ● — ● ● — ● ● —	Fff — ● — ● ● — ● ●
	Ggg ● — ● — ● ● — ●	Hhh ● ● — ● — ● ● —
	Iii — ● ● — ● — ● ●	Jjj ● — ● ● — ● — ●
	Kkk ● ● — ● ● — ● —	Lll — ● ● — ● ● — ●

Binary Rhythm Patterns

4 Microbeat Rhythmic Cell Motives

Elemental binary motives contain partitions and permutations of 4 microbeats, whether onsets or rests. Tap foot on each macrobeat/quarter note. Chant solkattu.

Primary $\frac{1}{4}$ ta ka di mi

Complement $\frac{1}{4}$

5

$\frac{2}{4}$

$\frac{2}{4}$

Compound Phrases - 8 Microbeat Cycles

Built from the cell motives above

9

$\frac{2}{4}$ ta ka di mi ta ka ju na

$\frac{2}{4}$

13

17

V 17

V 111113

21

V

V

V

V

25

V 116

11114

V

V

V

V

29

V

V

V

V

33

V 1115

1115

V

V

V

V

37

V 26

V 211112

V

V

V

V

41

V

V 224

V 22112

48

V

49

V

53

V2213

V2312

V

57

V1124

2114 V

V

61

V

65

V 35

V 121112

69

V

73

V 215

V 31112

77

V

81

V 1214

V 3113

85

V

Cuban tresillo modes

89 $\sqrt{332}$ -mode 1-original ∇ ∇ ∇ ∇

332 ∇ mode 1-original ∇ ∇ ∇ ∇

21212 (Cuban cinquillo modes)

93 ∇ ∇ ∇ ∇

∇ ∇ ∇ ∇

97 ∇ 314 ∇ ∇ ∇ ∇

∇ 13112 ∇ ∇ ∇ ∇

101 ∇ ∇ ∇ ∇

13112 ∇ ∇ ∇ ∇

105 ∇ 3221 ∇ ∇ ∇ ∇

∇ 1223 ∇ ∇ ∇ ∇

109 ∇ ∇ ∇ ∇

∇ ∇ ∇ ∇

16 Microbeat Cycles

113 44332 44323

4/4

115 44233 son clave 33424

4/4

117 gahu gankogui 33442 rumba clave 34324

4/4

119 √Brazilian (bossa) Clave, 33433, palindrome partido alto 3222322

ta ki da ju na ka ta ka di mi ta ki da ju na ka

4/4

121 43234 - palindrome 34243 - palindrome

4/4

123 475 754

4/4

125 745 745

127 547 457

129 5533 5335

131 3355 3553

133 3535 5353

32 Microbeat Cycles - hemiola patterns

135 33333338

CHAPTER 5 - TERNARY RHYTHMS

TERNARY RHYTHMS IN GRAPHIC NOTATION

Partition	Permutations (●) = onset, (-) = rest		
P=3	A ● — —	B — ● —	C — — ●
1+2	A ● ● —	B — ● ●	C ● — ●
1+1+1	● ● ●	P=zero onsets — — —	

P=6	A ● — — — — —	B — ● — — — —	C — — ● — — —
1+5	A ● ● — — — —	B — ● ● — — —	C — — ● ● — —
	D — — — ● ● —	E — — — — ● ●	F ● — — — — ●
1+1+4	A ● ● ● — — —	B — ● ● ● — —	C — — ● ● ● —
	D — — — ● ● ●	E ● — — — ● ●	F ● ● — — — ●
2+4	A ● — ● — — —	B — ● — ● — —	C — — ● — ● —
	D — — — ● — ●	E ● — — — ● —	F — ● — — — ●
2+1+3	A ● — ● ● — —	B — ● — ● ● —	C — — ● — ● ●
	D ● — — ● — ●	E ● ● — — ● —	F — ● ● — — ●
2+2+2	A ● — ● — ● —	B — ● — ● — ●	

Ternary Rhythm Patterns

Tap foot on dotted-quarter note macrobeat

3 Microbeat Rhythmic Cell Motives

Primary $P = 3$

Complement

12 V

111

0

Recite "ta ki da"

Compound Phrases - 6 Microbeat Cycles

5 $P = 6$

11112

Recite "ta ki da ju na ka"

10

V 15

1113 V

15

V 114

114 V

20

V 24

V 2112

25

V 213

V 312

30

V 222

V 222

V

9 Microbeat Cycles

34

V 54

V

V

V 1112112

37

V

V

V

40

V

V

V

43

V 72

V

V

V 1111122

46

V

V

V

49

V

V

V

52

V 531

V 111213

55

V

58

V

61

V 522

V 111222

64

V

67

V

70

V441

V112113

73

76

79

V432

V113112

82

85

88

V4221

V11223

91

94

97

V3222

V12222

100

103

106

V 3321

V 12123

109

112

12/8

12 Microbeat Cycles

115

V 444

V 112112112

12/8

118

V 131313

V 131313

121

V 93

V 111111114

124 V 921

111111123

127 V 84

111111122

130 V 822

11111222

133 V 8211

11111124

136 V 831

V 1111 112 13

139 V 75

V 1111121112

142 V741

V111112113

145 V732

V111112122

148 V7311

V11111214

151 V7221

V11111223

154 V642

V111121122

157 633

111121212

160 V6321

V11112123

163 V6222

V11112222

166 V62211

V1111224

169 V552

V111211122

172 V543

V111211212

175 V5421

V11121123

178 V5331

V11121213

181 V5322

V11121222

184 V53211

V1112124

187 V52221

1112223

190 V44431

V11211213

193 V44211

V1121124

196 4332

V11212122

199 V43311

V1121214

202 V42222

V1122222

205 V422211

V112224

208

Son Clave, asymmetric parts may be perceived as 7 + 5

V22323

V2212212

Rumba clave (a rotation of son clave)
asymmetric parts may be perceived as 5+7

210 V23223

2122212

West African, Afro-Cuban, & Brazilian Rhythms

Glenn Schaft (2021)

Afro-Cuban Rhythms

<p>1 Son Clave-Cuba, Kpanlogo-Ghana, 5 onsets=33424</p>	<p>2 Rumba Clave-Cuba, 5 onsets=34324</p>
<p>3 Tresillo-Cuba, Kinka-Ghana 3 onsets=3,3,2</p>	<p>4 Cinquillo-Cuba, 5 onsets=21212</p>
<p>5 Anticipated Bass-Cuba Bombo (bass drum) 2 onsets=3,5</p>	<p>6 Var. on Changuito's cascara</p>
<p>7 Conga De Comparsa, bass drum</p>	<p>8 bongo bell</p>
<p>9 bongo bell var.</p>	<p>10 cascara variation</p>
<p>11 Guaguanco-conga and tumba</p>	<p>12 Guaguanco quinto solo motives</p>
<p>13</p>	<p>14 Los Munequitos cadence</p>
<p>15</p>	<p>16 Mozambique CB/conga</p>

West African Rhythms

<p>17 Ewe-Ghana-gankogui (bell) 5 onset key pattern</p>	<p>18 bell var.</p>
<p>19 boba dm. solo var.</p>	<p>20</p>
<p>21 Soukous - Republic of Congo</p>	<p>Mode 3 tresillo, Dogarti-Ghana, bawa, 3 onsets=2,3,3</p>
<p>22 Shiko-Nigeria, 5 onsets=42424</p>	<p>Cinquillo-Cuba, 23 5 onsets=21212</p>
<p>24 Timini-Senegal, Milonga-Argentina = mode 7 cinquillo, 5 onsets=12122</p>	<p>Son Clave-Cuba, Kpanlogo-Ghana, 5 onsets=33424 25</p>
<p>26 Brazilian Clave, 5 onsets=33433</p>	<p>Rumba Clave-Cuba, 27 5 onsets=34324</p>
<p>28 Gankogui, bell-Gahu-Ghana, 5 onsets=33442</p>	<p>Kpacha-Ghana, Waka Waka Sam Mangwana, 7 onsets=3232222 29</p>
<p>30 Sikyi-Ashanti-Ghana, Highlife, similar to mode 13 partido alto, 9 onsets=222212212</p>	<p>31</p>

Brazilian Rhythms

32 Partido Alto-Brazil,
7 onsets=3/2223/22

33 partido alto complement

34 Brazilian (bossa) clave
33433

35 2 onsets added to Brazilian clave

36

37 baiiao-BD, same as Cuban tresillo

38 Surdo (bass drum)

39

40

41 samba-funk

42

43 Brazilian clave mode 8