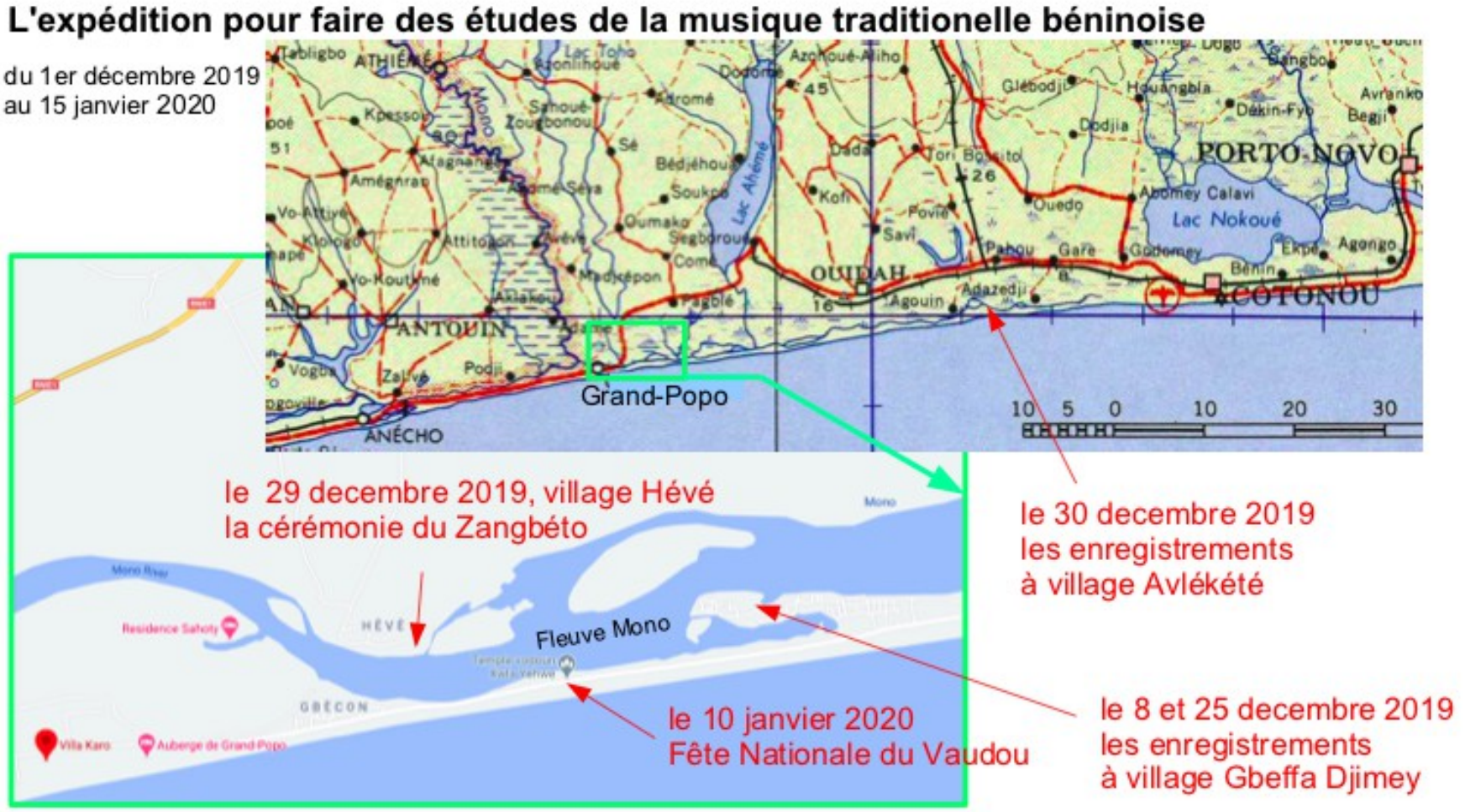
Hans-Gunter Lock

Benini rütmide töötuba | Rhythms of Benin Workshop
Talllinn (Estonia), Estonian Academy of Music and Theatre
11. October 2022

Problems of Understanding Southern Benin Music from a Western Perspective - A Preliminary Report

0. Initial Event

1.12.2019 – 15.1.2020 Expedition to Benin
Field recordings in the villages of Gbeffe Djimey, Avlékété and Hévé



1. Theoretical Problems with Western Music Notation

1) Multiplicative vs Additive Rhythm Construction
2) Onset and Implied Duration Problem / Inter-Onset-Interval (IOI) / Articulation / Theory of Rhythm Recognition

2. Problems Analyzing the Recorded Music

1) fast and very fast tempo
2) very much layers sounding together
3) sometimes diff culties through doubled instruments
3) diff culties while recognizing drum timbres
4) diff culties through quieter or muted strikes:
   video shows a strike but no sound to listen
5) diff culties through immediate variations of the patterns
6) dominating improvising solo drum isn't connected to other rhythmical layers
   while masking the sounds of the other instruments
7) sound masking due to other louder instruments as shaker or
   due to singing voices
8) synchronization of the layers to each other or
   asynchronous layers / polytempic structures

Some solutions:

- Knowledge about playing technics
- Following the video
- Using colored markers in the DAW (Digital Audio Workstation) for analyzing
- Measuring IOIs after waveform in DAW
- Re-Recordings of the Field Recordings with Beninese Musician Steve Abeni

all methods particularly helped and have their advantages and disadvantages

3. Practical Problems and Questions

1) Playing Technique Issues:
   a) using left and right hand
   b) muted strikes while holding hand or stick on skin
   c) muted by the other hand or stick
   d) bell muted on top of the leg, secondary movement
   e) Accentuation as a secondary layer

2) Interpretation of Duration Relations
   a) When Long-Short Relation found: 2:1 3:2 4:3 or something else?
   b) More complicated relationships, e.g. in the solo-drum parts

3) Period Finding Problem:
beginning and end, identification while rhythmic variations

4) Formal Questions
a) how the ensemble starts together
preliminary strike before bell pattern starts (Atchina, Agbadja)
b) how the ensemble ends together
c) the role of the solo drum

4. European Researchers

Artur Morris Jones (1889–1980)
British missionary and musicologist

- term cross-rhythm

Book: A. M. Jones. Studies in African Music
Vol 1 (text), Vol 2 (transcriptions) (Jones 1959a and 1959b)

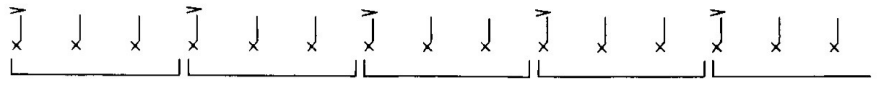
Simha Arom (*1930)
French-Israeli etnomusicologist

“The organisation of rhythm implies diverse forms of periodicity, i.e., the predictable recurrence of an event in essentially identical but existentially different form. This is what 'rhyme' means (a doublet of 'rhythm' dating from the twelfth century). Periodicity, which is initially perceived in the equality of time between beats, suggests that measurable units can be found in rhythm. From the metric standpoint, rhythm, once established, is measured as an object by assigning the number into a pure duration, which can be summed if it is short, or divided if it is long.” (Arom 1991: 194)

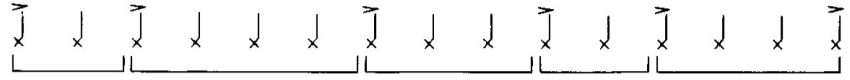
“The pulsation ... is not rhythm”. (Arom 1991: 202)

Fig. 1

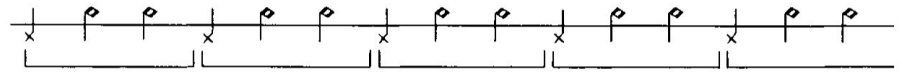
Type a Identical durations with regular accentuation



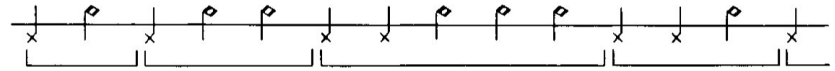
Type b Identical durations with irregular accentuation



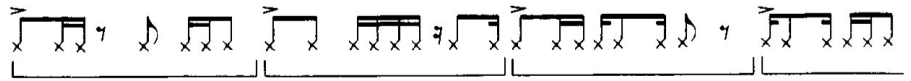
Type c Identical durations with no accentuation but *regular* alternation of tone colour



Type d Identical durations with no accentuation but *irregular* alternation of tone colour

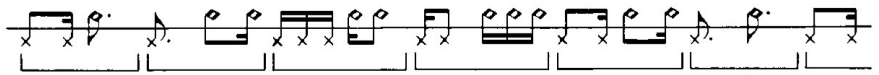


Type e Differing durations with regular accentuation



Type f Differing durations with irregular accentuation

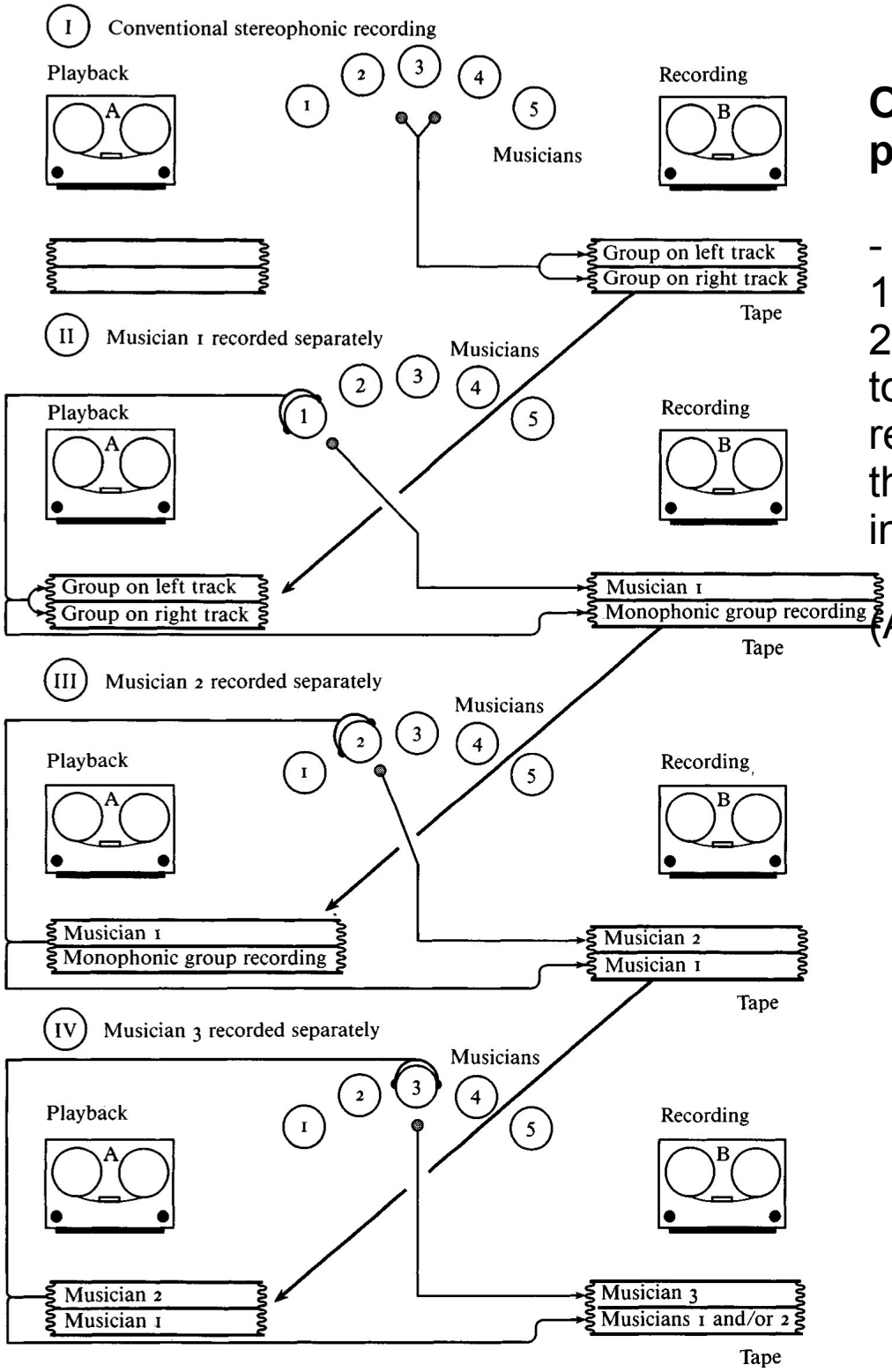
Type g Differing durations with no accentuation but *regular* alternation of tone colour



Type h Differing durations with no accentuation but *irregular* alternation of tone colour

Type i Differing durations *with neither accentuation nor change of tone colour*

Arom's nine types of producing rhythm (Arom 1991: 203)



Overcoming the struggles of previous researchers:

- Aroms solution:
1) tape recording of the whole ensemble
2) headphone playback of a recorded piece to a member of the ensemble and recording now the separate part along the ensemble recording, doing this instrument by instrument

(Arom 1991: 110)

Gerhard Kubik (*1934)

Austrian musicologist

“Concept 1

The overall presence of a mental background pulsation consisting of equal-spaced pulse units elapsing *ad infinitum* and often at enormous speed. These so-called elementary pulses (Kubik 1969) function as a basic orientation screen. They are two or three times faster than the beat or gross pulse, which is the next level of reference.

Concept 2

Musical form is organized so that patterns and themes cover recurring entities of a regular number of these elementary pulses, usually 8, 12, 16, 24 or their multiples, more rarely 9, 18 or 27 units. These are the so-called cycles, and the numbers we call form or cycle numbers.

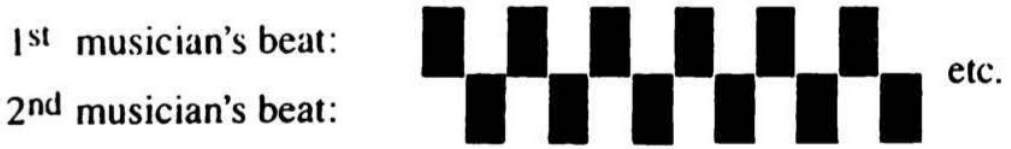
Concept 3

Many of the form or cycle numbers can be divided or split in more than one way, thus allowing for the simultaneous combination of contradictory metrical units. For example, the number 12 which is the most important form number in African music, can be divided by 2, 3, 4 and 6.

(continues)

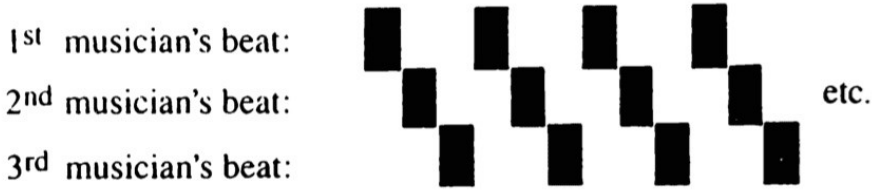
Concept 4

Patterns inside the same form number can be shifted against each other in combinations so that their starting points and main accents cross. This is called ‘cross rhythm” (Jones 1934, 1959b). In certain instances they cross so completely that they fall between one another or interlock so no two notes sound together. There are two basic types of interlocking employed in various instrumental ensembles, from drums to xylophones, (a) duple-division and (b) triple-division interlocking. ...”



Ill. 15. Duple-division interlocking

Ill. 16. Triple-division interlocking performed by two musicians (or opposing groups)



Ill. 17. Triple-division interlocking performed by three musicians

(Kubik 1994 [Vol I]: 43-46)

“Concept 5

In certain areas there is yet a further principle of timing to be found: the so-called time-line patterns. These constitute a specific category of struck motional patterns, characterized by an asymmetric inner structure, such as 5 + 7 or 7 + 9. They are single-note patterns struck on a musical instrument of penetrating sound quality, such as a bell, a high-pitched drum, the rim of a drum, the wooden body of a drum, a bottle, calabash or percussion beam, concussion sticks (such as the Cuban claves) or a high-pitched key of a xylophone.”

(Kubik 1994 [Vol I]: 44)

These are some of the most important time-line patterns:
a) the 12-pulse seven-stroke pattern
version a (mainly west African)

⑫ [x . x . xx . x . x . x]

version b (mainly central African)

⑫ [x . x . x . xx . x . x]

b) The 12-pulse five-stroke pattern

⑫ [x . x . x . . x . x . .]

Distribution: central Africa, especially in Congo-Brazzaville, Zaïre, Zambia, Malawi; in West Africa, for instance, among the Baule of the Ivory Coast.

c) A 16-pulse time-line pattern

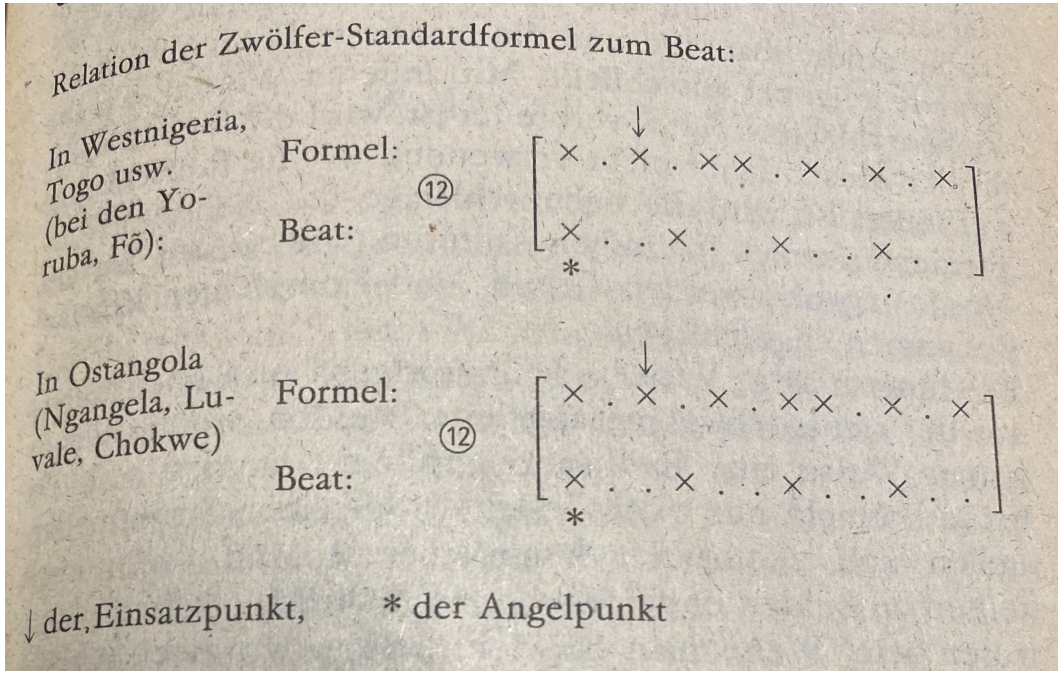
⑯ [x . x . x . x . xx . x . x . x]

The longest time-line pattern used in African music was observed among the pygmies of the Upper Sangha river in the Central African Republic.[16] It is a 24-pulse pattern struck on a percussion beam, showing the following structure:

(24) [x.x.x.x.x.xx.x.x.x.x.xx.]

It is used among the Bangombe pygmies in the accompaniment of a dance called *moyaya* in which pelvis motion predominates.

(Kubik 1984 [Vol 1]: 44-45)



Angelpunkt = pivot point
Einsatzpunkt = starting point

(Kubik 1988: 92-93)

Double Elementary Pulse Line

Some African and African-American musical genres seem to accommodate a double elementary pulse-line. This is the case, for example, in some xylophone traditions of Moçambique, among the Chopi (H. Tracey 1948a) and the Shangana-Tsonga. Another case discussed is certain "batuque" drum-patterns recorded in Brazil (cf. Kubik 1986a:139–43; 1990). There are two possible relationships within a double elementary pulse-line: 3 against 4 and 6 against 4, usually doubled to form 6 against 8 and 12 against 8, respectively (Fig. 3a–b).

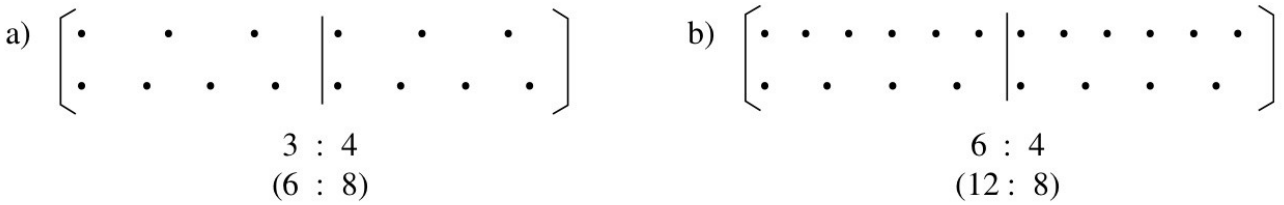


Figure 3a–b. Double elementary pulse-lines

(Kubik 2010 [Vol II]: 34)

5. Recordings from Gbeffa Djimey Village

8.12.2019

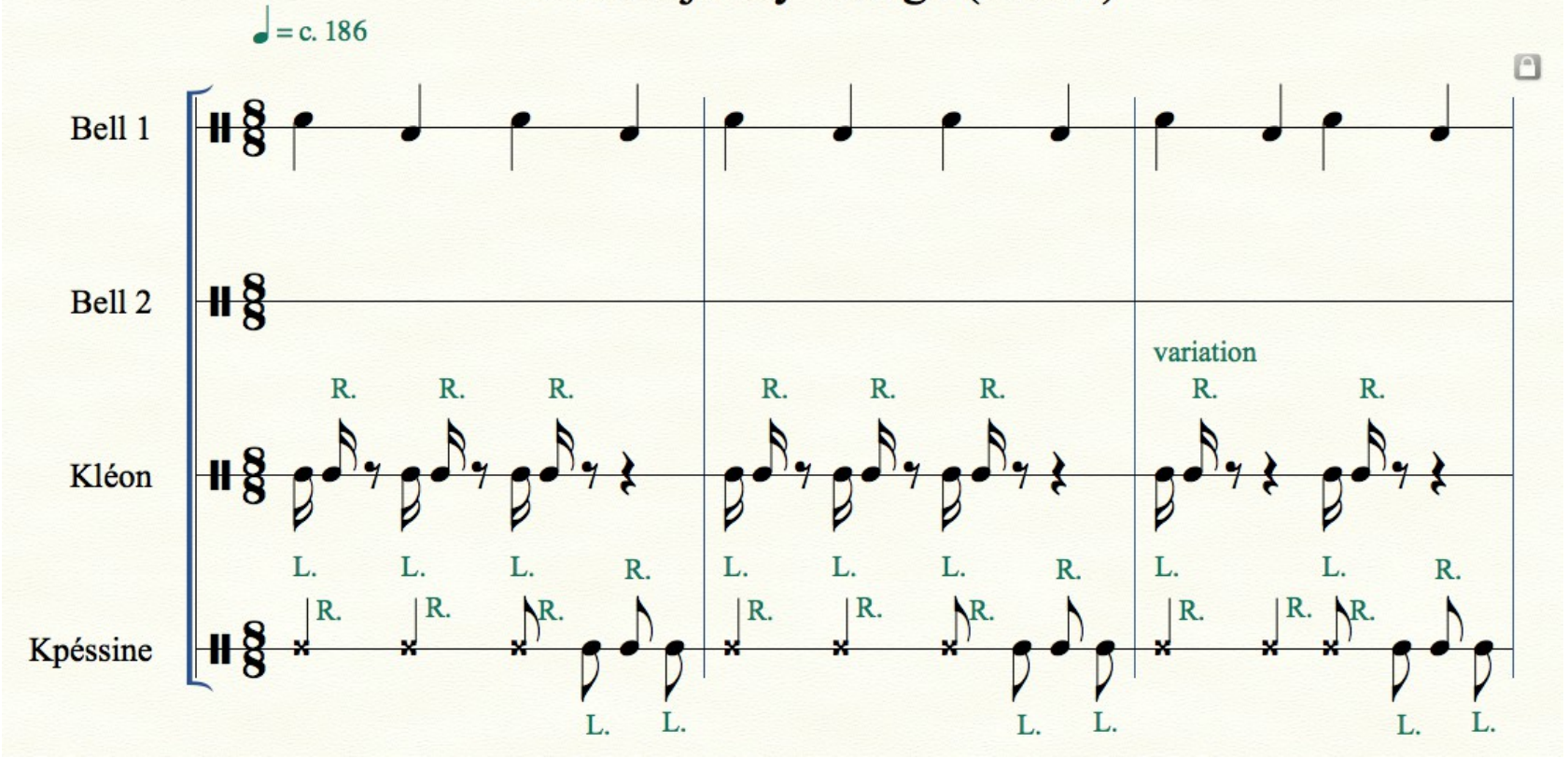
1) Atchina
2) Azandro
3) Toba 1
4) Agbadja
5) Káká 1

25.12.2019

1) Káká 2
2) Toba 2
3) Blékété

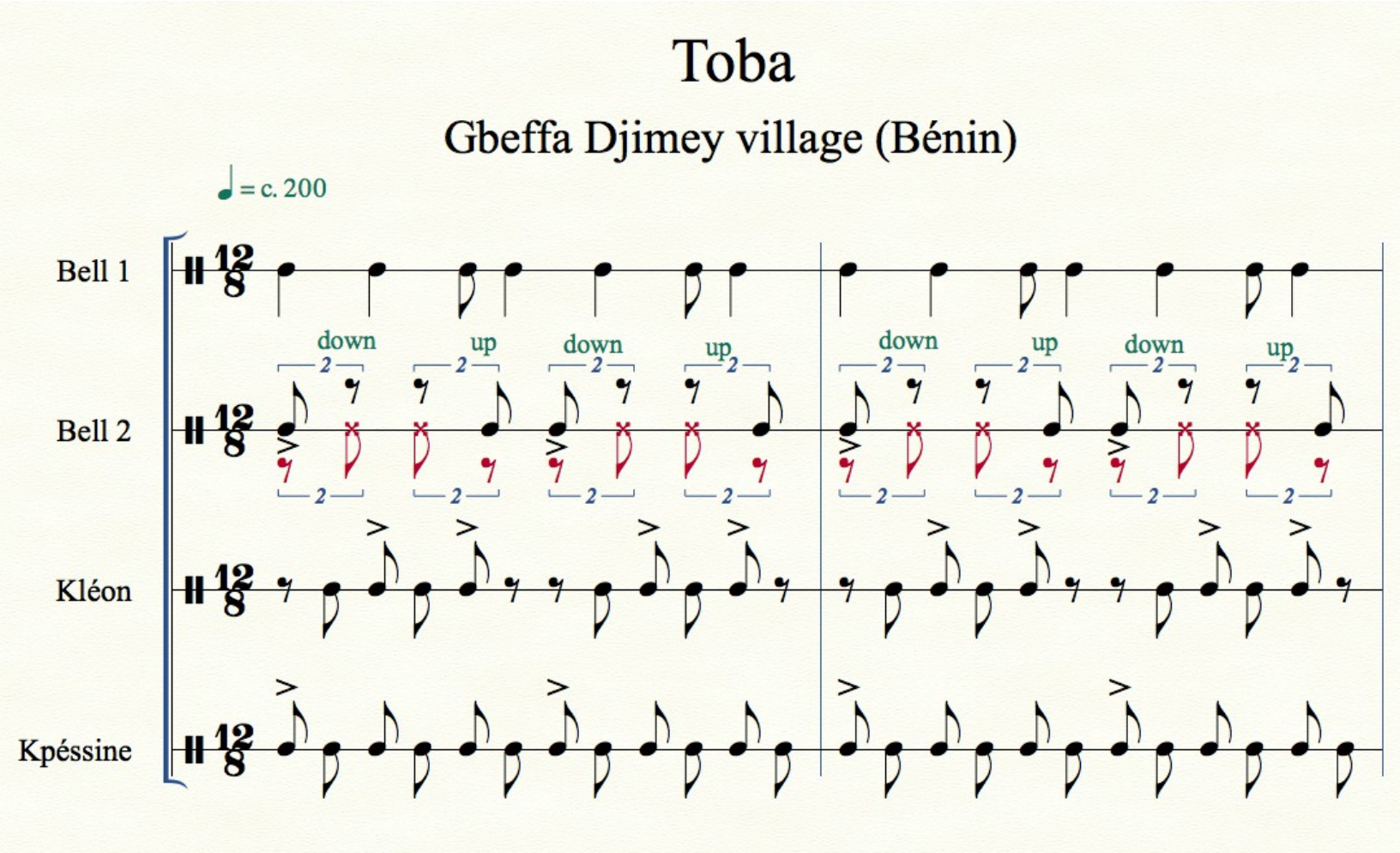
Atchina

Gbeffa Djimey village (Bénin)



Toba

Gbeffa Djimey village (Bénin)

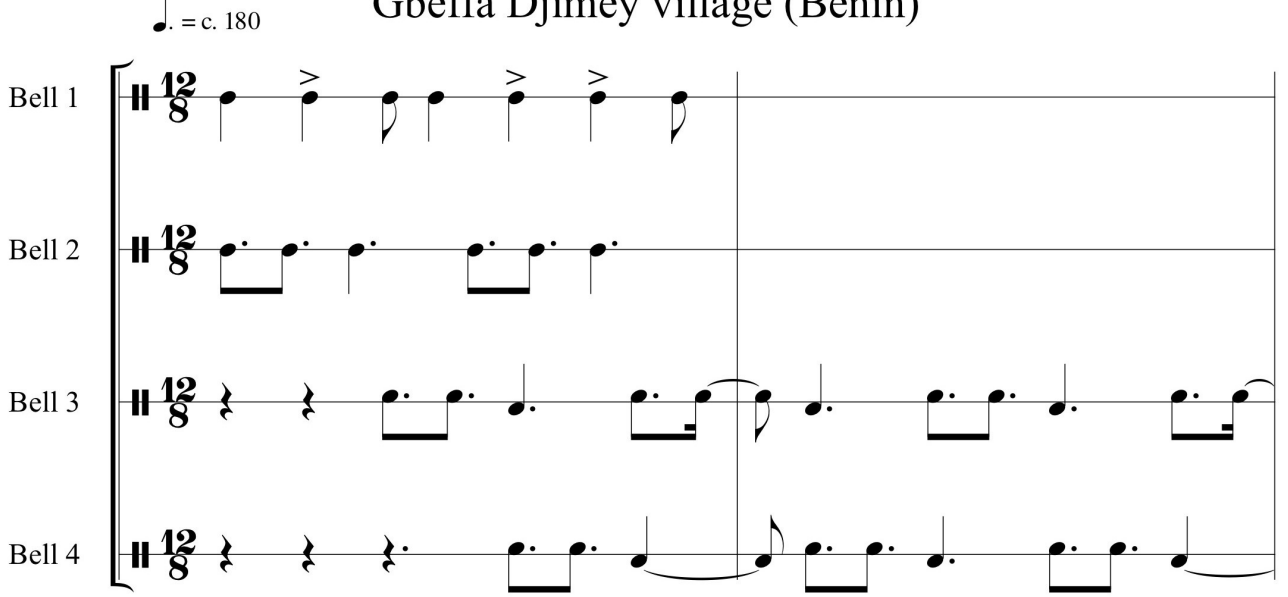


Agbadja

Gbeffa Djimey village (Bénin)

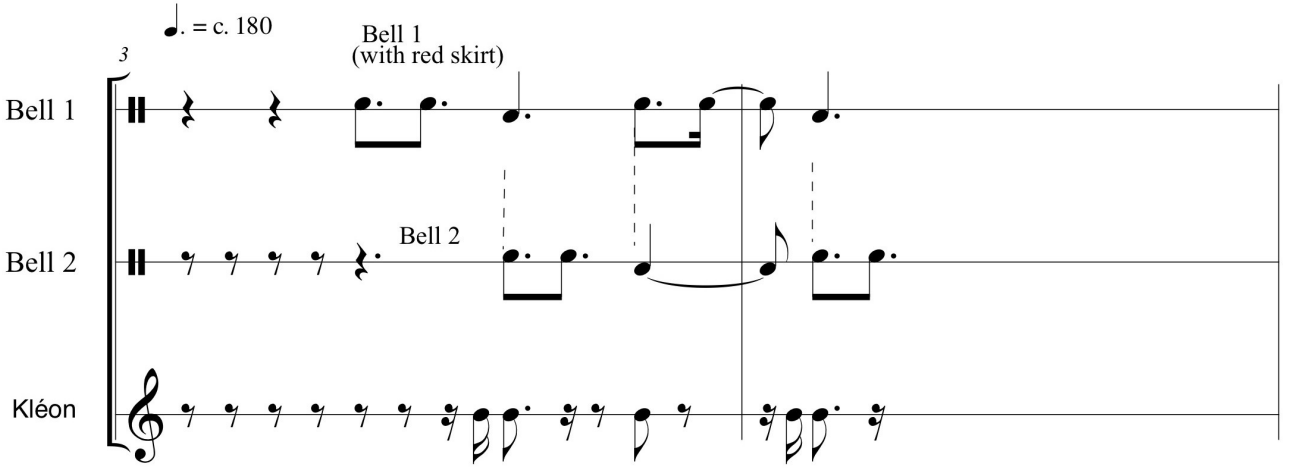
Káká 1

Gbeffa Djimey village (Bénin)



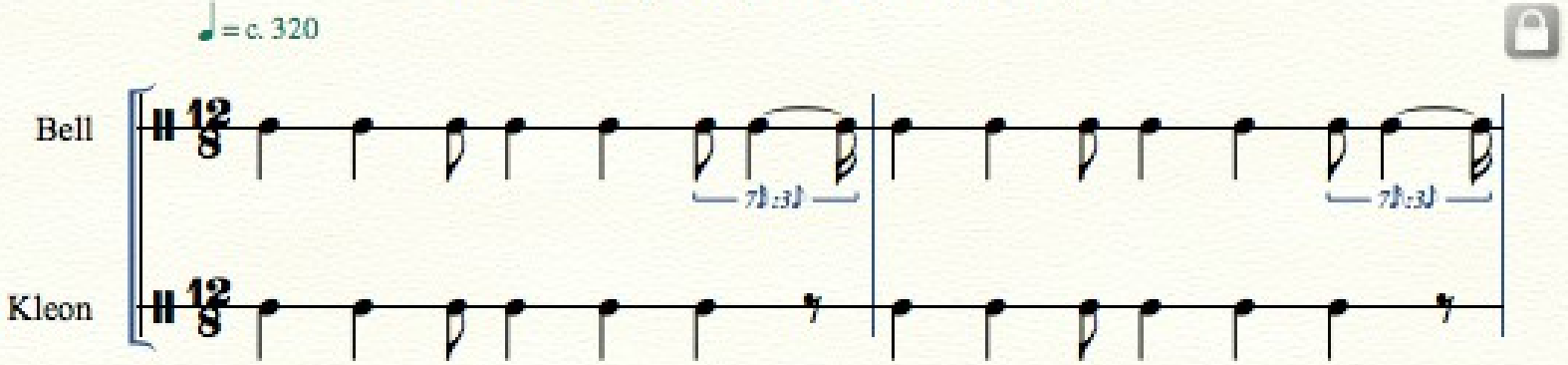
Káká 2

Gbeffa Djimey village (Bénin)



Blékété

Gbeffa Djimey village (Bénin)



5. Studies of Pitch and Singing Voice Parts

(a pilot study in very beginning)

Gbessi Zolawadji Agbadja Genre pieces from Youtube
- Agbdja Zolawi: https://m.youtube.com/watch?v=um7tGiSmZG4
- La Meilleure Agbadja: https://www.youtube.com/watch?v=t-wBXXoMLZU
- Sodabi Agbadja: https://www.youtube.com/watch?v=1suuyK4NCCY

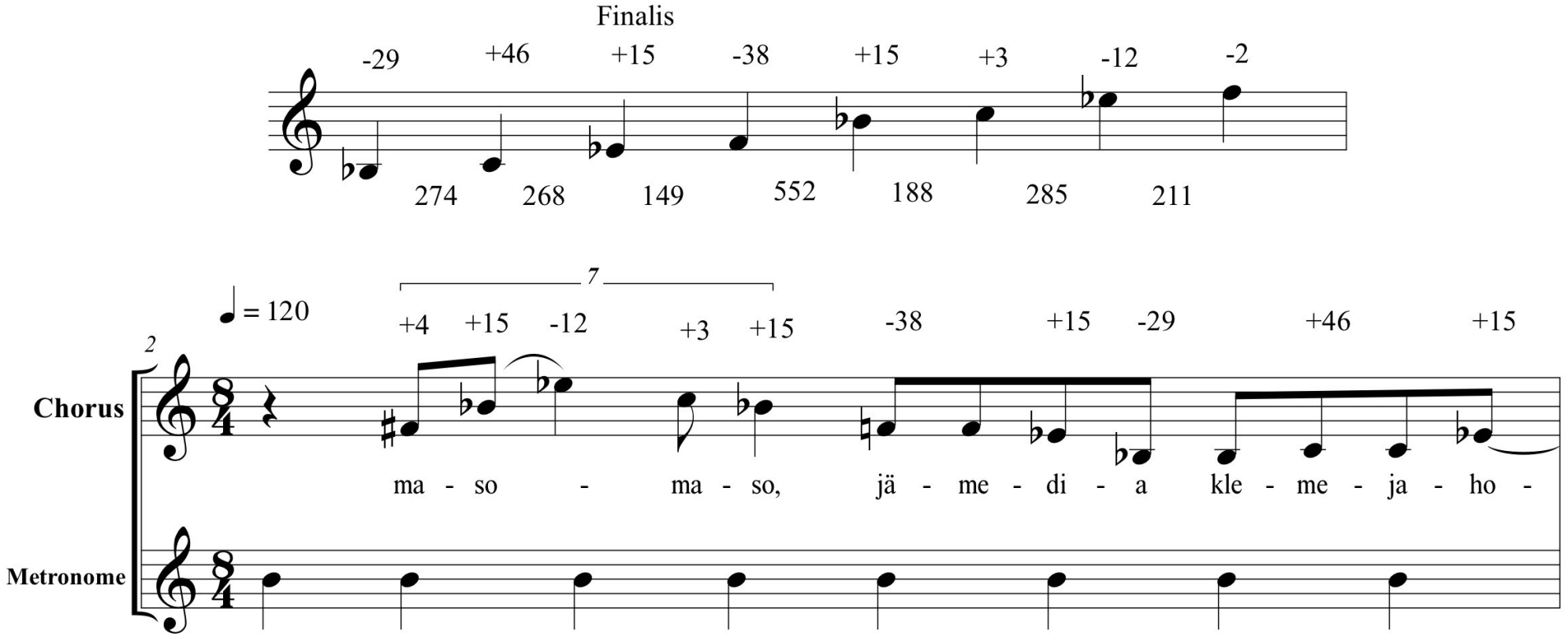
Pitches of the chorus parts of these songs has been analyzed by looping a certain pitch while tuning a triangle wave oscillator (with MaxMSP programming software) to exactly the same pitch. Then the reached MIDI-pitch have been read out. Eventually from the collected pitches a synthesizer instrument has been created, which offered the possibility to play along the song (for checking, if the found pitches sound right).

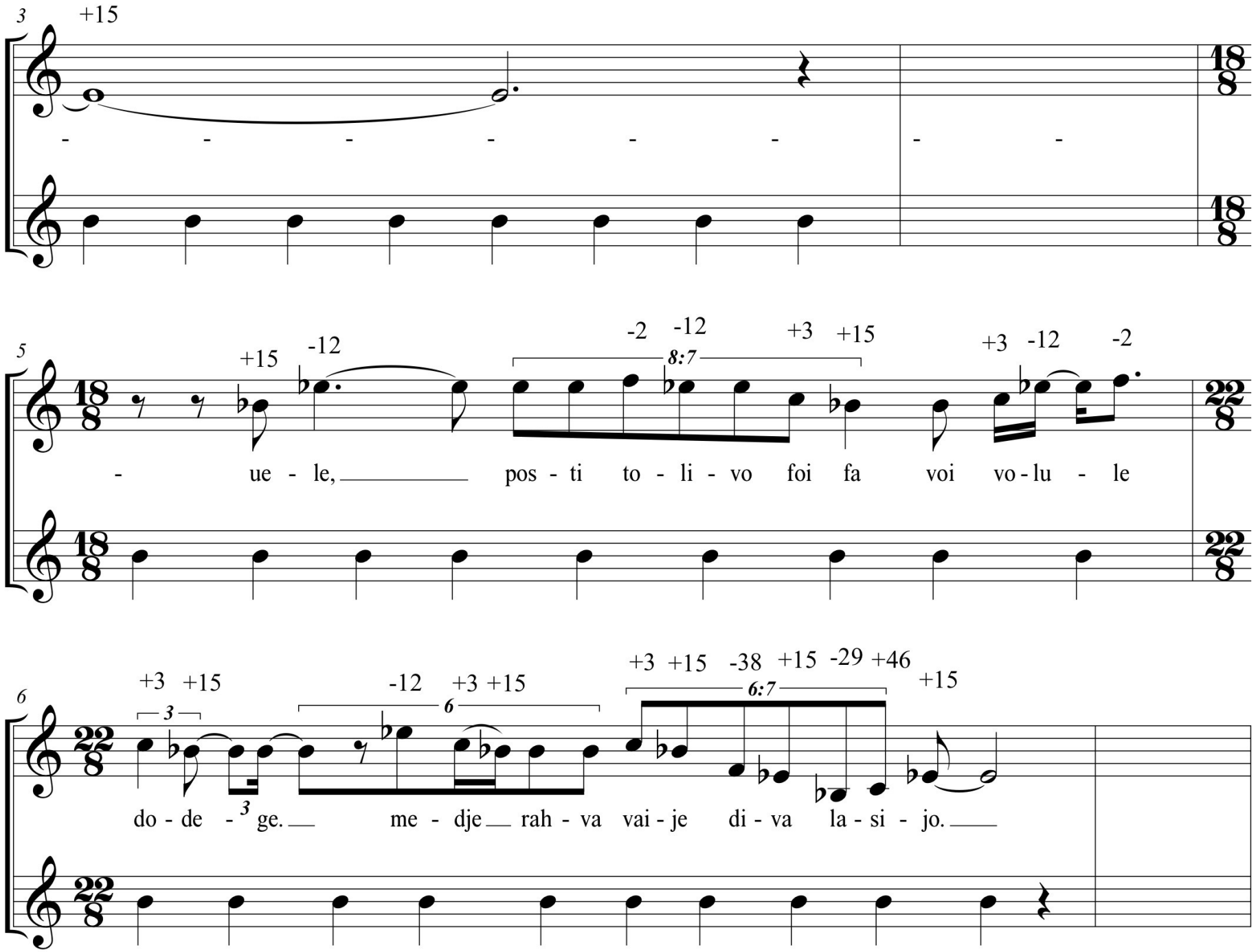
(The songtexts are purely phonetically written down, because the author don't know the langiage of these songs. It is just for orientation purpose. There are used Estonian language characters for the sponatnously recognized phonems, spontaneous grouping of syllables are not mentioned as word borders.)

Agbadja Zolawi

Gbessi Zolawadji

Measured pitches in MIDIcent (base 6900 = 440Hz): 5772 6046 6314 6463 7015 7203 7488 7699

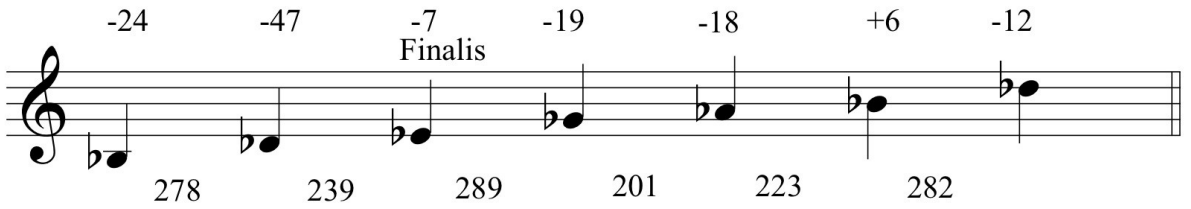


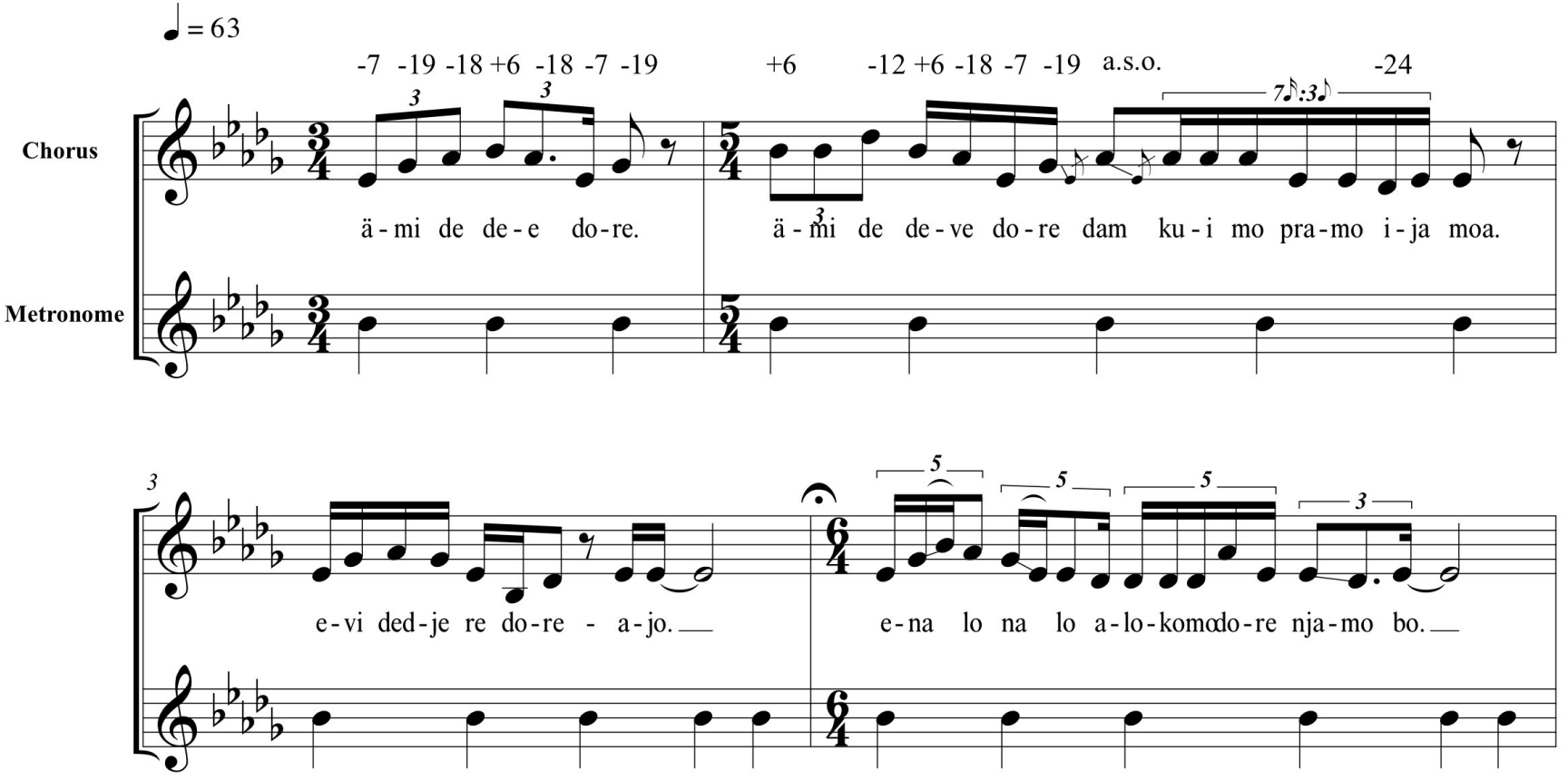

3
+15
- - - - - - - -
5
+15
-12
-2
-12
8:7
+3
+15
+3
-12
-2
- ue - le, pos - ti to - li - vo foi fa voi vo - lu - le
6
+3
+15
3
-12
+3
+15
6
+3
+15
-38
+15
-29
+46
6:7
+15
do - de - ge. me - dje rah - va vai - je di - va la - si - jo.

La meilleure Agbadja

Gbessi Zolawadji

Measured pitches in MIDIcent (base 6900 = 440Hz): 5776 6054 6293 6582 6783 7006 7288

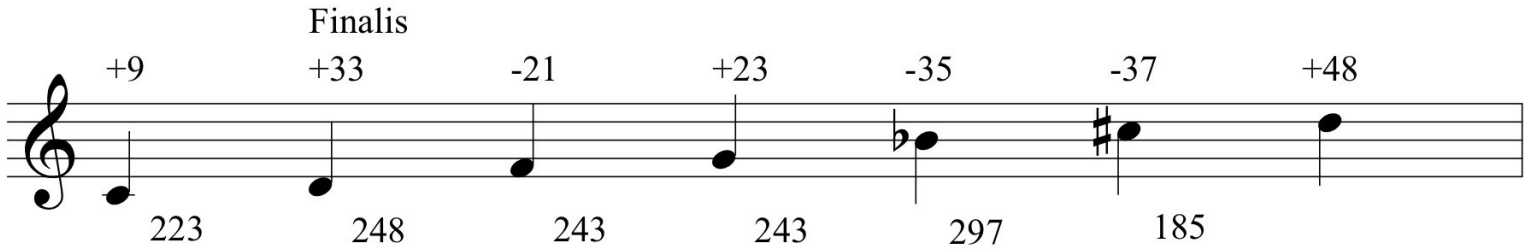




Sodabi Agbadja

Gbessi Solawadji

Measured pitches in MIDIcent (base 6900 = 440Hz): 6009 6232 6480 6723 6966 7263 7448



3
+33 +23 +33 +23 -21 a.s.o.
+9
so - da - bi ku - fo - fo de vau so bõ - ne džo - a - me.
m - gu - gi bla džä - džä - džä so - da - bi
5
3
bu - fo fo di rau - sog mi - li to - me
6
m - gu - gi bla džä - džä - džä ga ga - va braj dži - ga le - do ko - le

7
go - gu ku - no vja - do so džu - do
so - da - bi - va
9
dže - go - a da - da me - o - mü
se kau - kva so džu - ma.
11
džu - kva vi - vo - ja - je - si - na vil - ja me - le mu - ka - va dvoa vi - von - ja - va.

Merci pour votre attention !

References

Arom, Simha (1991). *African Polyphony and Polyrhythm. Musical Structure and Methodology*. Cambridge [and others] : Cambridge University Press; Paris: Editions de la maison de sciences de l'homme

Jones, Arthur Morris (1934). African Drumming - A Study of the Combination of Rhythms in African Music — *Bantu Studies* 8(1):1-16.

Jones, Arthur Morris (1959a). *Studies in African Music. Volume 1*. Glasgow [and others] : Oxford University Press, Amen House, London E.C.4.

Jones, Arthur Morris (1959b). *Studies in African Music. Volume 2* [transcriptions]. Glasgow [and others] : Oxford University Press, Amen House, London E.C.4.

Kubik, Gerhard (1969). Composition Techniques in Kiganda Xylophone Music — *African Music* 4(3):22-72. Corrigenda in African Music 4(4):136-7 [1970].

Kubik, Gerhard (1988). *Zum Verstehen afrikanischer Musik. Ausgewählte Aufsätze*. Leipzig : Reclam

Kubik, Gerhard (1994). *Theory of African Music. Volume 1*. Chicago, London : The University of Chicago Press

Kubik, Gerhard (2010). *Theory of African Music. Volume 2*. Chicago, London : The University of Chicago Press