

ON POLYPHONIC CONSTRUCTION: AN ANALYSIS OF JU|'HOAN¹ VOCAL MUSIC (NAMIBIA)

by

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The Ju|'hoansi people² are one of the few contemporary populations in sub-Saharan Africa who use vocal counterpoint, superposition of voices each with divergent melodic movements and rhythmic articulation. However their music remains largely unknown; only a few isolated articles and recordings have been published, some of these drawing from secondary sources.³ This article aims at bringing to light the procedures used by the Ju|'hoansi in their construction of vocal counterpoint. Beyond the analysis proper, the question is about conception, intention and realisation of polyphony. In other words, how to characterize Ju|'hoan music: by its polyphonic techniques or by the procedures followed to reach the counterpoint? It will become clear that Ju|'hoan counterpoint is not at the root of every song, as is the case with most of other African polyphonic music, but is the result of complex compositional and performing processes.

This article is based on an examination of more than 200 songs collected in the field since 1993.⁴ However, for the sake of clarity, a single song, "Rain" (*g!a tzi*), will be analysed here. This song is part of a vast repertoire of "songs with supernatural energy" (*n|om tzi si*) which are performed in a ritual context, but also for fun or as a lullaby. While the addition of relevant ethnographic data would be of value to understand the role of

¹ In writing Ju|'hoan, the language of the Ju|'hoansi, I have drawn from Patrick Dickens' *English-Ju|'hoan, Ju|'hoan-English Dictionary*. His transcription method has been accepted by the Namibian Ministry of Education and Culture as the official orthography of the language. The characters |, !, ≠ et || denote clicks, consonants performed with the tongue in four palatal positions.

² The Ju|'hoansi are part of the so-called Bushmen or San people and are currently living in Namibia and Botswana. Numerous studies of their material, social and spiritual world have given rise to multiple books and articles about their social organisation, as well as their religion, rituals, oral literature and language (see notably Barnard 1992; Bieseles 1993; Katz 1982; Katz, Bieseles & St Denis 1997; Lee 1979, 1984; Marshall 1976, 1999; Olivier & Valentin 2005; Wilmsen 1989, 1997).

³ See England 1967, 1995; Frisbie 1971; Grimaud 1960; Katz, Bieseles & Shostak 1981; Olivier 1998a, 1999, 2001, 2003, 2004, 2005, 2006; Olivier & Fürniss 1999; Rouget 1980; Rouget, Grimaud & Marshall 1956; Shostak, Bieseles & England 1982.

⁴ The content of this article is the result of several field research visits supported by Lacito-CNRS and the French Ministry of Cooperation, under the Franco-Namibian program "Living Musics and Dances of Namibia: Exploration, Education, Publication". I thank the Ju|'hoansi people of ||Auru and ||Xa|oba villages for having introduced me and guided me into their musical world and more especially |Ui ≠Oma and Kxao Ghau, my main interpreters. The translation of this article from French into English is due to the talent of Prof. Andrew Tracey. May he receive my grateful appreciation.

such music in contemporary Ju|'hoan society, this particular paper intends a narrower examination of musical features.⁵

A transcription of “Rain” is offered here (Exercise 1). It consists of five female voices, accompanied by hand-clapping which materializes an isochronous beat and a specific rhythmic pattern.⁶

Exercise 1. Literal transcription of “Rain”

1.1

⁵ For an anthropological analysis of these songs, cf. Biesele 1993; Katz 1982; Katz, Biesele, and St. Denis 1997; Lee 1968; Lewis-Williams and Biesele 1978; Marshall 1969, 1999. For an analysis of the composition, transmission, diffusion and oblivion processes, cf. Olivier 1999, 2004, 2005.

⁶ This polyphonic song has been transcribed according to the well-known *re-recording* technique (Arom 1976; Olivier 1995).

A musical score consisting of five staves of music. Above the first staff, measures 1 through 14 are numbered. The notation includes various rhythmic values such as eighth and sixteenth notes, and rests. Below the staves, there is a rhythmic notation consisting of a horizontal line with 'x' marks indicating the timing of notes or rests. The 'x' marks are placed above the line, with some grouped by vertical lines. The first staff of the rhythmic notation has 14 'x' marks, and the second staff has 7 'x' marks.

1.2

A musical score consisting of five staves of music, identical to the one above. Above the first staff, measures 1 through 14 are numbered. The notation includes various rhythmic values such as eighth and sixteenth notes, and rests. Below the staves, there is a rhythmic notation consisting of a horizontal line with 'x' marks indicating the timing of notes or rests. The 'x' marks are placed above the line, with some grouped by vertical lines. The first staff of the rhythmic notation has 14 'x' marks, and the second staff has 7 'x' marks.

1.3

The image displays two systems of musical notation, each consisting of five staves. The first system is numbered 1 through 14 above the top staff. The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and beams. The second system also contains 14 measures, with the same notation style. The music is written in a style characteristic of African traditional music, often featuring complex rhythmic patterns and melodic lines.

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1

2

3

4

5

1.4

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1

2

3

4

5

The image displays two systems of musical notation for five voices, numbered 1 to 5. The first system consists of 14 measures, with measure numbers 1 through 14 indicated above the staves. The notation includes treble clefs for voices 1, 2, and 3, and bass clefs for voices 4 and 5. The music features a variety of note values, including quarter, eighth, and sixteenth notes, as well as rests. The second system consists of 4 measures, with measure numbers 1 through 4 indicated above the staves. This system continues the musical notation for the five voices, maintaining the same clef assignments and note values.

Metrics

Before getting into the questions of multi-voicedness, it seems useful to lay out the metric framework of the voices. Most of Jul'hoan songs are measured, that is, made up of durations in proportional values.⁷ These are organised with reference to a standard time measure, the *beat*, triple-divided into three minimal values, the *pulses*, each of

⁷ A few songs performed during the boys' initiation and after the kill of an eland are non measured (*cf.* Olivier 1997).

which is equivalent to the smallest relevant duration.⁸ The songs are sung over a percussive base of hand-clapping (|| 'ám), or instruments, rattles (*icoq`ìngò*) and metal bars struck together (*!aq*), which give the beat (*!àbà*) and a rhythmic pattern (*!ú*).

The musical material of a song is comprised inside a *period*, a metric framework corresponding to a whole number multiple (1:1, 1:2, 1:3, 1:4 or 1:8) of the rhythmic pattern behind the voices. The period can be of different lengths according to the song. It can thus comprise an even number of beats (6, 8, 10, 12, 14, 16, 18, 20, 24, 32) as well as odd (5, 7, 9, 15).

The following table presents the metric structure and the rhythmic accompaniment of “Rain”, made up of a vocal period in a multiple of 7 beats and a specific rhythmic pattern of 7 beats.

Exercise 2. “Rain”: Metric and rhythmic structure

Beat	1		2		3		4		5		6		7	
Rhythm	*		*		*		*		*		*		*	

According to the Ju|'hoansi, the period starts at a fixed point, implicit, but easily actualised by the singers in the form of hand-clapping. This unusual characteristic of Ju|'hoan music brings the understanding that vocal periods may be irregular.⁹ Modifications in the length of the period are not necessarily in a simple ratio with it, as is the case in other geocultural regions of sub-Saharan Africa (particularly Central Africa). They obey precise rules nonetheless. Thus in “Rain”, whose rhythmic pattern numbers 7 beats, the formula is that the period, when modified, consists of a whole-number multiple of the length of the rhythmic pattern + (0.5 rhythmic pattern plus *or* minus 0.5 beat). Thus this song's period can contain 10 ($7 + [3.5 - 0.5]$), 11 ($7 + [3.5 + 0.5]$), 17 ($7 + 7 + [3.5 - 0.5]$), 18 ($7 + 7 + [3.5 + 0.5]$) or 21 ($7 + 7 + 7$) beats, but never 12, 13, 19 or 20 beats.¹⁰ This is shown in the next transcription (Exercise 3).

⁸ The standard measure of time can be regular (the beat is isochronous) or irregular (without isochronous beat). In the second case, we are looking at *aksak*, where binary and ternary pulse groups are juxtaposed. Nicholas England had already noticed this in the early 1960s. In his thesis published some 30 years later he twice mentions the existence of “divisive rhythms” based on a “non-isochronous beat” (England 1995:147).

⁹ That is the reason why I do not use the word “cycle” in the analysis of the metric framework. This irregularity concerns only the pieces which feature isochronous pulsation. Metrical irregularity is signified by two vernacular expressions, the first, *gè'è g'á'ín* (lit. “sing-long”), referring to the lengthening of the period, and the second, *gè'è l'òmà* (lit. “sing-short”), to its shortening.

¹⁰ In the case of songs where the rhythmic pattern has an even total of beats, the modification corresponds to a whole-number multiple of its length. Thus, for example, for a basic vocal period of 16 beats where the rhythmic pattern has 4, the modified periods will be 8, 12 or 20 beats.

Exercise 3. "Rain": Irregular periods

1 2 3 4 5 6 7 8 9 10 11 12 13 14

The image displays a musical score for Exercise 3, titled "Rain", which focuses on irregular phrasing. The score is presented on 11 staves, numbered 1 through 11. Above the first staff, a sequence of numbers from 1 to 14 is placed, with vertical tick marks indicating the end of each measure. The music is written in a single melodic line on a treble clef staff. The phrasing is characterized by irregular bar lengths and groupings, with some measures containing multiple notes and others being rests or single notes. The notation includes various note values such as quarter, eighth, and sixteenth notes, as well as rests and ties. The overall structure is designed to challenge the student's understanding of musical phrasing beyond standard 4-beat measures.



For the same songs, modifications in length differ from one singer to another, and for the same singer, from one performance to another. In the framework of a group song, irregularity concerns only one person at a time, and has the effect of staggering the voice in relation to the others over several periods. This principle gives great liberty to the singers and allows them, by “jumbling” successive metrical guide points, to create complexity at a multivocal level.

Form

The melodic lines unfurl themselves inside a more or less flexible metrical framework. The structure and the combination of the melodic line elements have direct consequences on the multivocal make-up of the song. In other words, understanding of the multivocal system depends upon bringing to light the rules of the “musical grammar”.

Ju|'hoan songs demonstrate an original aspect of the metrical organisation of musical materials, which makes it necessary to put new tools in place for the formal analysis of this type of music. If the metrical framework of the songs is periodic, as it is, it is not in the usual sense of the term: a similar musical utterance is not necessarily reiterated at regular time intervals; moreover as we have seen, the length of periods can vary. Further, the elements which make up the utterance can be re-arranged differently with each reiteration of the period.

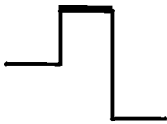
When a melodic line repeats in different ways at regular intervals, it is a matter of taking note, inside this line (which then coincides with the period), of the elements which interchange *in the same position*, and which therefore form an “equivalent class” (Ruwet 1972; Arom 1985:220-286). Conversely, when a different musical utterance occurs in each iteration of the period, it would be in vain to seek to establish equivalent classes on the basis of the position of their elements. Such classes become apparent, however, but disconnected from the metrical system: they regroup the different versions of one element of the utterance, without taking account of its position inside the period. In this case, other questions are raised, especially how to know the criteria for cutting the melodic chain up into elements, what is the morphological structure of these, and how they link.

The starting point of the analysis is what Ju|'hoansi singers say about the descending curve of all melodic lines. “The voice always starts high, then descends progressively to

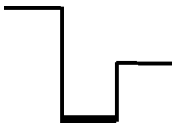
a certain point. At that moment it rises directly up and continues to move downwards”, is the gist of what they say. The same operation repeats until the end of the song.

The validity of this explanation has been shown when reading the musical transcriptions. It appears that every melodic line, whatever its register, consists of a series of sequences, each based on successive degrees of the scale, either moving downwards to the adjacent note, or “skipping” one note. The melodic line can be cut into *segments* on the basis of each repeat of this descending curve.¹¹ When the curve reaches its lowest point, it jumps sharply upwards again and resumes its downward slope. The melodic curve can, however, be interrupted en route and oscillate around a note, or even move upwards several times, skipping a note as before. In spite of this slight irregularity, the overall movement remains downwards.

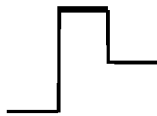
The successive falling degrees of the scale are called *supporting notes*: they trace the melodic contour of each segment. These supporting points can be separated by one, two or three *interpolated notes*, which can move up or down, to adjacent or non-adjacent notes. Their behaviour is illustrated below (the space shown between the supporting notes and the interpolated notes is one or two degrees, but can be more). The interpolated notes, falling between two supporting notes, are shown with a thick horizontal line.



Ascending interpolation between two descending notes



Descending interpolation between two descending notes



Ascending interpolation between two ascending notes



Descending interpolation between two ascending notes

¹¹ Each segment always ends in a breath, which justifies the cut.

The analytical procedure proposed here considers, on one hand, every note in relation to the preceding and the directly following note in the musical chain (the concatenation of supporting notes and interpolations) and, on the other hand, the chain of supporting notes themselves which form the melodic contour, separated as they are by the interpolations. The basis on which I cut the melody line into segments is the repetition of a descending curve, not the length of the period or the underlying rhythmic pattern. Thus the melodic structure is not subordinated *a priori* to the metrical structure.¹²

Before starting the analysis proper, here is a transcription of “Rain”, with each of the five voices written out separately. The segments are marked under each staff and the interpolated notes are shown with empty note-heads.

Exercise 4. “Rain”: Voice 1

¹² Linked to the question of form is that of the identification of songs, especially those based on the same scale which have similar melodic contours. It is thus only the interpolated notes which allow one to differentiate. This question alone could be the subject of an entire article, which is why it is not tackled here in all its complexity.

A musical score consisting of five staves, numbered 8 through 12. Each staff contains a line of music in a single system. The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and bar lines. The music is written in a standard staff with a treble clef.

Exercise 5. "Rain": Voice 2

A musical score for five staves, numbered 1 through 5. Above the first staff, measure numbers 1 through 14 are indicated. The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and bar lines. The music is written in a standard staff with a treble clef.

Musical score for Exercise 6, "Rain": Voice 3, measures 6 through 12. The score consists of seven staves of music in treble clef. Measures 6, 7, 8, 9, 10, and 11 contain musical notation with various note values and rests. Measure 12 is a partial measure containing a single note and a rest. Vertical bar lines indicate the end of each measure.

Exercise 6. "Rain": Voice 3

Musical score for Exercise 6, "Rain": Voice 3, measures 1 through 14. The score consists of three staves of music in treble clef. Measures 1 through 14 are numbered at the top of the first staff. The notation includes various note values, rests, and phrasing slurs. Vertical bar lines indicate the end of each measure.

This block contains the musical notation for exercises 4 through 12 of 'Exercies 7. "Rain": Voice 4'. It consists of ten staves of music. The first staff (labeled 4) is in treble clef, while the remaining nine staves (labeled 5 through 12) are in bass clef. The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and ties, with vertical bar lines indicating the end of each measure.

Exercies 7. "Rain": Voice 4

This block contains the musical notation for exercises 1 through 14 of 'Exercies 7. "Rain": Voice 4'. It consists of two staves of music, both in treble clef. Above the first staff, measures 1 through 14 are numbered. The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and ties, with vertical bar lines indicating the end of each measure.

The musical score consists of 11 staves, numbered 3 through 11. Staves 3, 4, and 5 are in treble clef and contain vocal lines with a 7/8 time signature. Staves 6, 7, 8, 9, 10, and 11 are in bass clef. The music is polyphonic, with multiple voices. The notation includes various rhythmic values, including eighth and sixteenth notes, and rests. There are also some decorative elements like slurs and accents. The score is presented on a white background with black ink.

Exercise 8. "Rain": Voice 5

1 2 3 4 5 6 7

8 9 10 11 12 13 14

15

16 17 18 19 20 21 22 23 24 25 26 27 28

Exercise 13. "Rain": Sequencing of notes inside one octave

The image shows three staves of musical notation for Exercise 13. The first staff is numbered 1 through 14. The second staff has segments labeled A1 and B. The third staff has segments labeled B, A2, and B. The notation consists of eighth and sixteenth notes on a treble clef staff.

LENGTH OF MELODIC SEGMENTS

A melodic line comprises several segments of different durations. Furthermore, the duration of any segment is not fixed: it can vary inside the same song (at each appearance of the segment) or from one song to another.

Exercise 14. "Rain": Voice 4, Periods 1-3

The image shows four staves of musical notation for Exercise 14. The first staff is labeled SOLO and numbered 1 through 12. The second staff is labeled A. The third and fourth staves are both labeled M2. The notation consists of eighth and sixteenth notes on a treble clef staff.

SEQUENCE OF MELODIC SEGMENTS

Melodic segments follow freely, without any pre-established rule. Two segments with the same melodic contour can follow each other. Segments are either separated with a rest (*cf.* Exercise 4, between segments A1 and B; A2 and B) or connected together. In the case of connected segments, there are two types of connection: *direct* and *linked*:

1. When two segments are directly connected, the start of the new segment is marked by an upward-skipping interval. In the following transcription, the start of segment A2 at beat 6 can be seen in the upward skip of a major seventh.

Exercise 15. "Rain": Segments based on supporting notes A-E-D-B

2. Two segments can be linked by one or two interpolated notes, which function as *joiners*. In Exercise 14, segments B and A2 are linked by joiner note A, which rises from the last E of segment B towards the first note D of the next segment.

MELODIC SEGMENTS AND PERIOD LENGTH

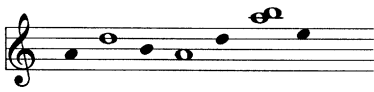
Metrical and melodic structure are often independent, to the extent that the end of a period and of a melodic segment do not necessarily correspond (*cf.* the preceding transcriptions where the melodic segments are shown). In other words, *there is no systematic adequacy between the lengths of the period and the melodic segments.*

This can be shown in several cases:

1. A segment is contained inside one period (it can cover all or part of the period): see segment A1 in Exercise 14.
2. The end of a segment overlaps the beginning of the next period. See Exercise 17: segment A1 ends at the beginning of Period 2.

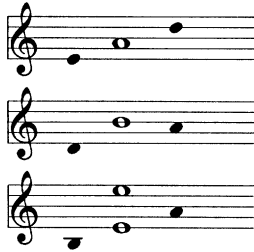
Exercise 16. "Rain": Voice 4, Period 3

Exercise 19. "Rain"



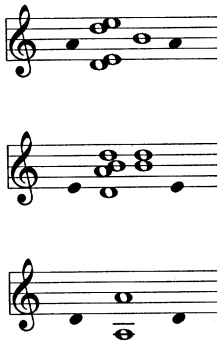
3. of the supporting notes, skipping upwards to non-adjacent notes, with the interpolations (joiners).

Exercise 20. "Rain"



4. of two occurrences of a supporting note, with the interpolated notes.

Exercise 21. "Rain"



With this material at hand, and knowing that any segment can start on any note of the scale and end on any other, it is possible to work out "original" melodic lines acceptable to the Ju|'hoansi.

This analysis has demonstrated that "Rain" (like other Ju|'hoan songs) consists of several melodic segments which follow each other freely. The segments can be distinguished and cut on the basis of the repetition of their melodic contour. This contour is a sequence of some or all of the degrees of the scale, moving downwards, most often to the

adjacent note. These supporting notes are separated by notes interpolated in a different order, so as to produce regularly alternating rising and falling movements. Each singer has ways of combining supporting notes with interpolated notes, in his/her own style, to create a melodic line. In other words, there are no fixed melodies.

This analysis calls for a certain number of comments:

1. The melodic contour of the five transcribed voices is similar: their supporting notes follow in the same order, but shifted higher or lower (by a second, third, fourth, fifth, sixth, seventh, octave or ninth). From a formal point of view the five voices are thus equivalent.
2. As the voices comprise the same set of segments and their sequencing is aleatory, involving random choice, multi-voicedness can only result from:
 - a. Superimposing the same segments, but linked in a different order, as for instance in this imaginary example:¹⁴

Voice 1: a + b + c + d
Voice 2: d + c + b + a
 - b. Superimposing the same segment, but moved to a higher or lower octave, with, in addition, different rhythms.

Given the above points, one can rightfully ask whether Ju|'hoan music is of polyphonic conception.

Multi-voicedness

On hearing a Ju|'hoan group song, a listener foreign to the society is struck by the complex tangle of voices. In spite of the sound density, he/she will distinguish fragments of melody which repeat at more or less regular intervals, but each time with different variations. One singer takes control of the song for a moment, his/her melody line comes into prominence with the other voices interlaced around him/her, only to dissolve back into the mass of sound after a while.

The very luxuriance of this music, which gives the impression of an extremely complex construction, almost impossible to decode, and the present formal analysis showing that the system is based on the superimposition of structurally equivalent voices, merely shifted along the axis of duration and pitch, seem to be contradictory. In fact, how can we accept that such thick counterpoint is merely the result of the superimposition of melodic lines of the same nature?

¹⁴ This procedure is similar to that of the mediaeval *Stimmtausch* “which involves two voices of equal range in the mutual alternation of phrases; it is easily achieved in two-part counterpoint in contrary motion for equal voices” (Sadie 1980 Vol. 20:65). In his 1967 article on Ju|'hoan vocal music, Nicholas England mentions this technique, explaining that it is matter of irregular alternation of the same segments between the different voices.

If the melodic lines are equivalent at a formal level, they are nevertheless different in terms of vocal range. The Ju|'hoansi recognise three vocal ranges,¹⁵ called in the vernacular: *!aici* (lit. "top", high range), *||'ámi* (lit. "centre", middle range) and *bòrò* (low range).¹⁶ Ranges are not assigned to the participants, and further, each is free to change from one range to another during the course of the song, doing this only at the end of any melodic segment.

Now, it is important to stress the fact that *these vocal ranges do not correspond to specific structural parts of the music*: they are only a pitch framework inside which the melodic line can be elaborated. In fact no pitch range is allotted any specific musical line. Moreover, since no melody is fixed in advance, no pre-determined part can exist. For the same reason, one cannot say that the multivocal structure is based on one single melodic line: several melodic lines may belong in the same vocal range, all considered equivalent by the Ju|'hoansi. The vocal counterpoint may be comprised then simply as the result of melodies which are built as the song proceeds, and are up to each individual to create.

In other words, this counterpoint can be characterized as *performative polyphony*. The contrapuntal interplay is both individual (each melodic line must be acoustically different from the others and the often personal variations reinforce this individuality) and collective, since each of these melodic lines is elaborated with reference to those of the others. The mingling voices complement each other: it is not infrequent to see a singer lean over towards one of his/her neighbours better to hear his/her voice and thus be able to respond musically to him/her. The song is thus built step by step, by the interaction of the different performers.

All that is needed to study this multivocal organisation, and to identify the procedures used by the Ju|'hoansi in the creation of their counterpoint, is the melodic contour. This is why the next transcription of "Rain" only shows the supporting notes. This analysis of Period 3 shows the use of "overlapping", parallelism and imitation in the construction of counterpoint.¹⁷

¹⁵ Not specified as to absolute pitch.

¹⁶ Each of these ranges has other names too: the high range is called *dohm cù* (lit. voice - high) or *≠'án* (lit. go ahead, lead, be at the front), the middle range *n≠uù n'áng* (lit. middle - inside), the low range *dohm tih* (lit. voice - heavy), *dohm n/a'án* (lit. voice - fat/big/old) and also *tòànsi* (lit. last).

¹⁷ In other songs, counterpoint may as well result from heterophony, canon and various forms of transposition, as already mentioned by England (1995).

Exercise 22. "Rain"

The musical score for Exercise 22, "Rain", consists of five staves labeled A, M1, M2, G1, and G2. Above the staves, measures 1 through 14 are indicated. Staff A (top) begins with a treble clef and a key signature of one flat. It features a melodic line with notes on the first four staves of the staff, followed by a series of eighth notes with stems pointing up, and a final half note. Staff M1 begins with a treble clef and a key signature of one flat. It features a melodic line with notes on the first three staves of the staff, followed by a series of eighth notes with stems pointing up, and a final half note. Staff M2 begins with a treble clef and a key signature of one flat. It features a melodic line with notes on the first three staves of the staff, followed by a series of eighth notes with stems pointing up, and a final half note. Staff G1 begins with a treble clef and a key signature of one flat. It features a melodic line with notes on the first three staves of the staff, followed by a series of eighth notes with stems pointing up, and a final half note. Staff G2 begins with a treble clef and a key signature of one flat. It features a melodic line with notes on the first three staves of the staff, followed by a series of eighth notes with stems pointing up, and a final half note. The score illustrates polyphonic construction with overlapping segments and imitations.

Segments A, M1 and M2 show “overlapping” at Beat 5: the last D of segment A is superimposed on the first E of segment M1 and the first A of segment M2. When there is “overlapping”, the Ju|’hoansi say that the voices ||*káé* ||*káé khòè* (lit. gather - each), that is, they “join together”.

Voices A and G1 move in parallel an octave apart, from Beats 1 to 4. This doubling at the octave can be considered parallelism here, because the effect the Ju|’hoansi want is just that: their intention is to sing “the same thing but lower”, which they verbalise with two synonymous expressions, *gè ’é kòà aeh kè* (lit. sing - under - this) and *gè ’é tzi aeh* (lit. sing - song - under).

Finally, there are two imitations: the first, between segments M1 and G2, is an imitation a tone lower (E 3 - D 3 - E 3 - D 3 - B 3 D 3 - B 3 - D 3 - B 3 - A 3). The second between segments M2 and G1 is an imitation a fifth lower (A 4 - E 3 - D 3 - B 3 D 3 - B 3 - A 3 - E 2).

As regards the vertical intervals produced by superimposed melodies, these are principally seconds, fourths and fifths. One particular note D, appears, in unison or at the octave, at the beginning and the end of the period, in the first four voices. This note could represent a “harmonic” reference note. On the other hand, inside the period, the consonances are the fortuitous result of the several melodic lines superimposed.

Conclusion

If the whole originality of Jul'hoan music is in the plurivocality, it appears that this cannot be understood without previously examining the formal structure of the songs. Whatever their voice range, the melodic lines are of the same nature: they are all divisible into segments marked by their falling contour, and their internal structure is based on identical principles. The segments are not fixed but elaborated as they go along, starting from the musical material proper to each piece, and following a set of rules known to all.

What is perceived as counterpoint is then the varied and simultaneous repetition of melodic lines which are structurally equivalent. The same melodic material is in fact staggered along the axis of time and spread in the three pitch registers, giving rise to heterophony, "overlapping", parallelism, canon and imitation. Although the musical basis is not polyphonic, in the sense of superimposing structurally different parts, the intention of the Jul'hoansi, as they sing together, is to produce different melodic lines, as many as there are participants, each one of them being perceived both as different and similar to the others.

Glossary

Beat: Most of Jul'hoan songs are measured, that is consisting of durations of proportional length. Durations are organised in relation to a standard measure of time, the isochronous beat, which is a real common denominator for the group of musicians, and can be expressed in the form of hand-clapping or may remain understood. The beat in Jul'hoan songs is always triple-divided into three *pulses*, that is, the smallest relevant durations.

Isochronous: consisting of a series of equal-spaced impulses.

Period: As in many other sub-Saharan African societies, repetition and variation form two of the fundamental principles of Jul'hoan music. The musical material of a song is contained inside a "period" (English speakers usually refer to this as "cycle"), a metric framework corresponding to a whole-number multiple of the rhythmic pattern which supports the voices. This material is reiterated in varied ways at more or less similar intervals. Among the Jul'hoan, the period entails a fixed start, which is implicit but can easily be materialised in the form of hand-clapping.

Heterophony: "Heterophony refers to the simultaneous performance, varied to some extent, of the same melodic material by two or more sound sources, voices and/or instrument(s). In the field of rhythm the result is frequent time discrepancy, as well as slight variations in melody" (Arom, Fernando, Fürniss, Le Bomin, Marandola, Olivier, Rivière, Tourny 2005).

Overlapping: Overlapping is a polyphonic procedure produced when a singer comes in when another singer has not completely finished his part. For a brief moment, the end of one phrase is covered by the beginning of another.

Counterpoint: By counterpoint we understand “any polyphonic structure based on the superimposition of two or more distinct melodic lines whose rhythmic articulation is different”. (Arom *et al.*)

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