

TOWARDS A COMPARISON OF THREE MUSICAL GRAMMARS

in Papua New Guinea

by Vida Chenoweth

Data for this paper has been drawn from three geographic regions of Papua

New Guinea; 1. the Western Highlands Province, represented by the Narak culture
2. the Eastern Highlands Province, represented by the Usaruza culture
3. Rossell Island off the east coast of the mainland, represented
by the Yele culture

An investigation of the musics of these three peoples was made with the aim of discovering the degree of similarity among their musics. Before any comparison could be made, the data from each region was analyzed separately. An investigation of any music system necessitates an examination of both the syntactical and grammatical functions of all components such as intervals, motifs, phrases, and so on. A music system may be defined as a culturally determined musical universe whose elements are related to one another and to their function as components in a larger context, the whole of which is established by a network of controls. Whereas the syntax of musical elements may be thought of as their serial arrangement apart from the consideration of tonality, grammar takes into account the relationship of syntax to tonality. "grammar" is here defined as a consideration of how emic units within a tonal plan are distributed in relation to each other and in relation to larger units within that tonal plan.

~~which is the prerequisite~~ A thorough analysis of the emic status of intervals is prerequisite to grammatical considerations since grammar is concerned with emic units. Therefore, all units discussed in this paper are emic units.

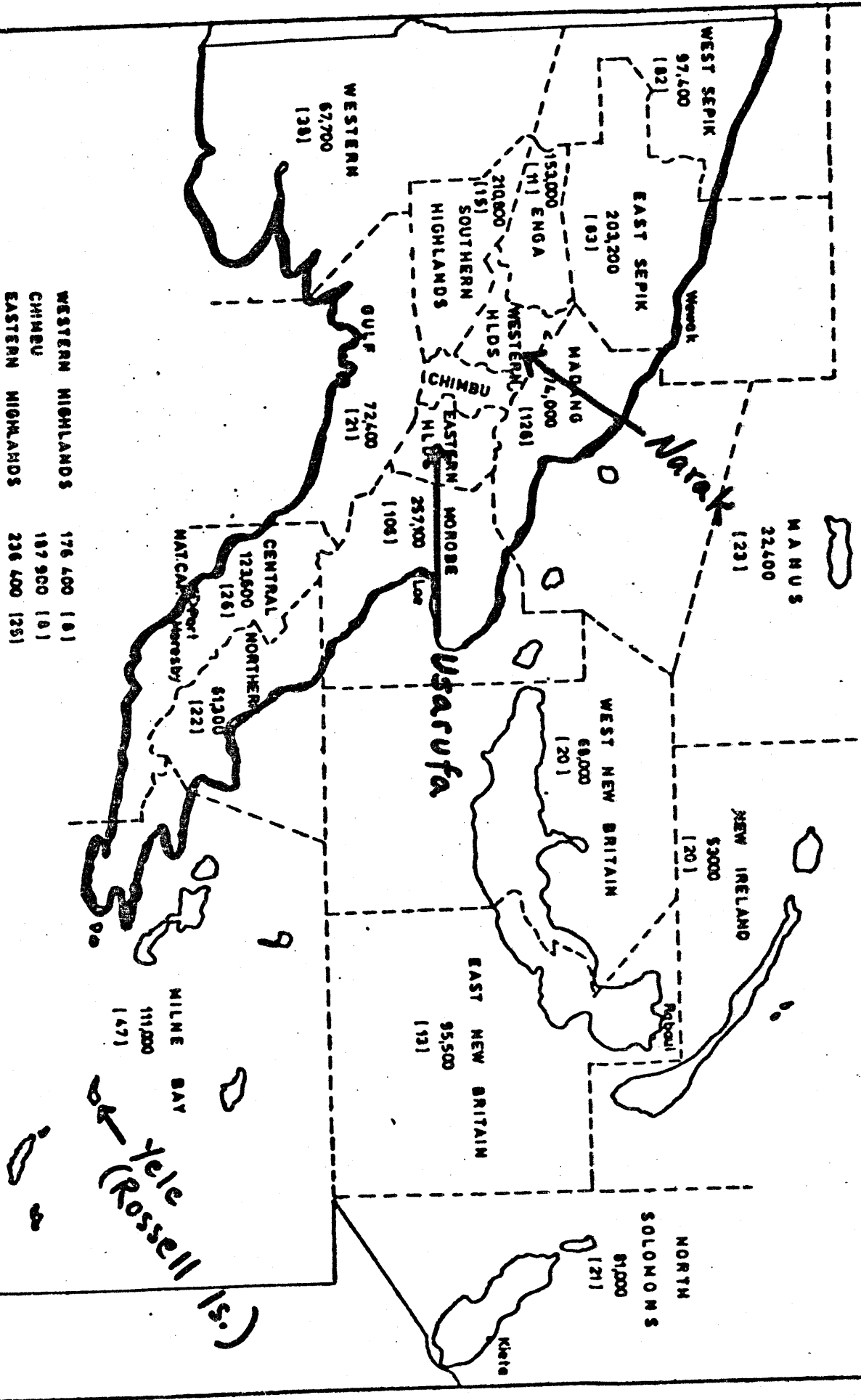
Pitches are ^{here} expressed in terms of emic distances from the tonal center. For example, M2H designates a pitch the distance of a major second above tonal center. m2L designates a pitch a minor second below tonal center.

Tonality gives the dynamic force and organization to melodic syntax. In some cases, there may be dual or triple tonal centers, but once the tonal center has been determined, all pitches in the song can be viewed in relation to it. These relationships can be succinctly displayed and read by means of various sorts of flow

diagrams or formulas. In this presentation, the type of flow diagram is the author's own. Notice that the diagrams are not merely a display of static components. Nor are they a blueprint for reconstructing the song. Rather, they display a kind of network grammar, according to which, each diagram is capable of generating a new melody acceptable to the system. Such new melodies must be offered to members of the culture for their acceptance or rejection in order to finally determine the acceptability^{of songs} as aesthetic and grammatical in the culture.

(Map)
(Compare diagrams from the 3 regions)

MAP SHOWING PROVINCES, THEIR POPULATION (1974) AND NUMBER OF LANGUAGES (IN BRACKETS)



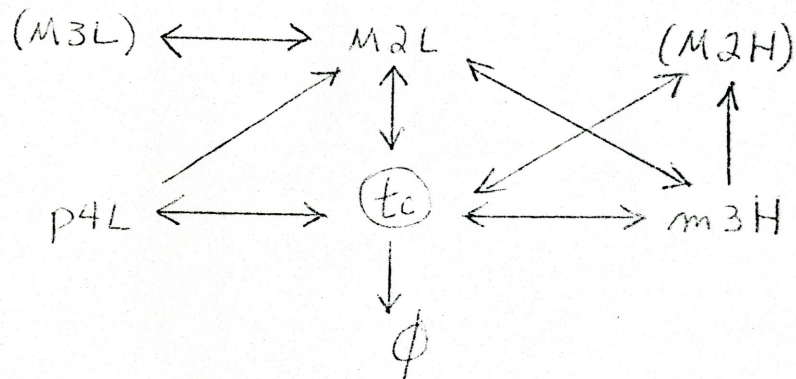
See note at foot of table regarding the Central and National Capital provinces

heading: examples of
development both above
and below tonal center

Usarufa

Song 15

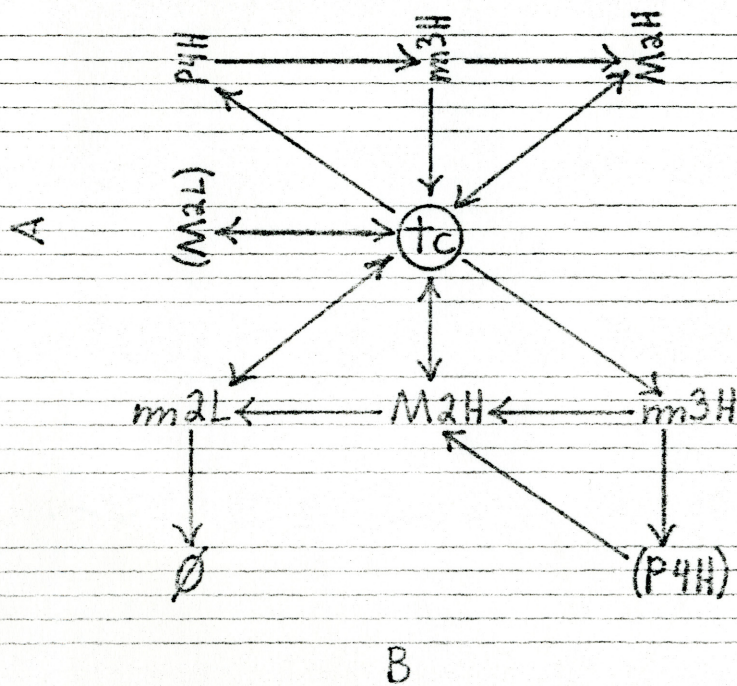
Formula: $p4L, (M3L), M2L, tc, (M2H), m3H$



ex. for 6 + 7

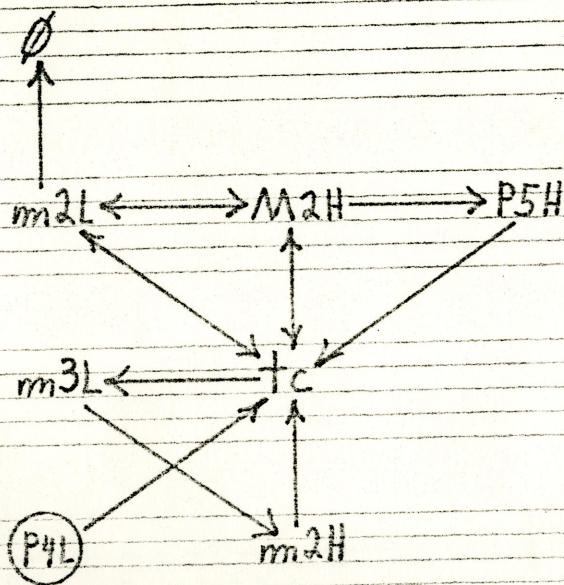
Formula: $M2L, m2L, tc, M2H, m3H, P4H$

Narak



Formula: $P4L, m3L, m2L, tc, m2H, M2H, P5H$

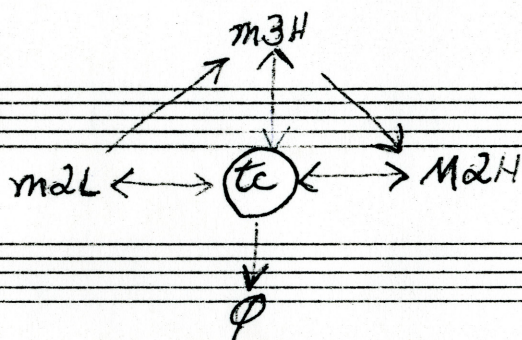
arak



yele

$m_{2L}, t_c, m_{2H}, m_{3H}$

$t_c = G$

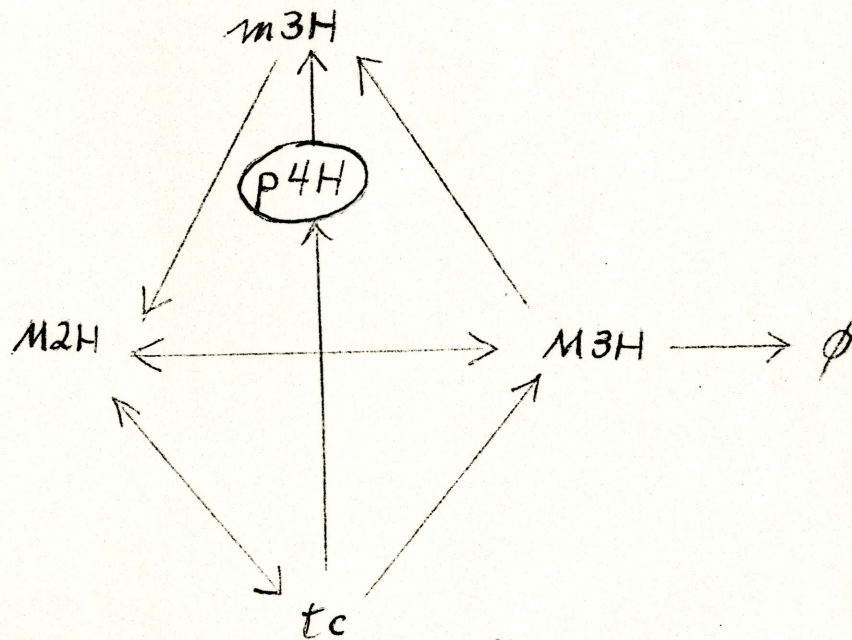


heading: melodies of 5 or more pitches
whose melodic movement is
not between adjacent intervals,
hence, diamond-shape diagrams

Yele

Song 9

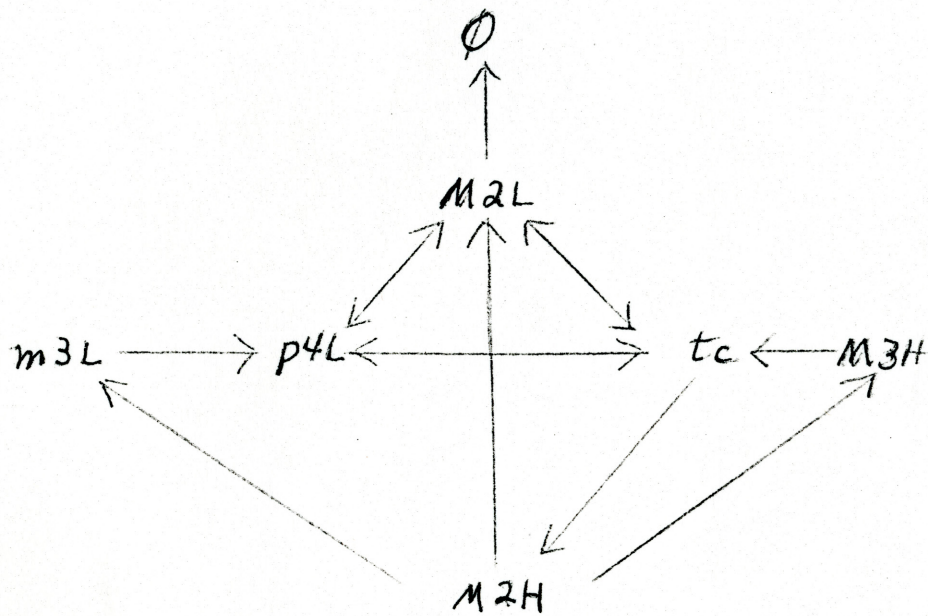
Formula: $tc, M2H, m3H, M3H, p4H$



Usarufa

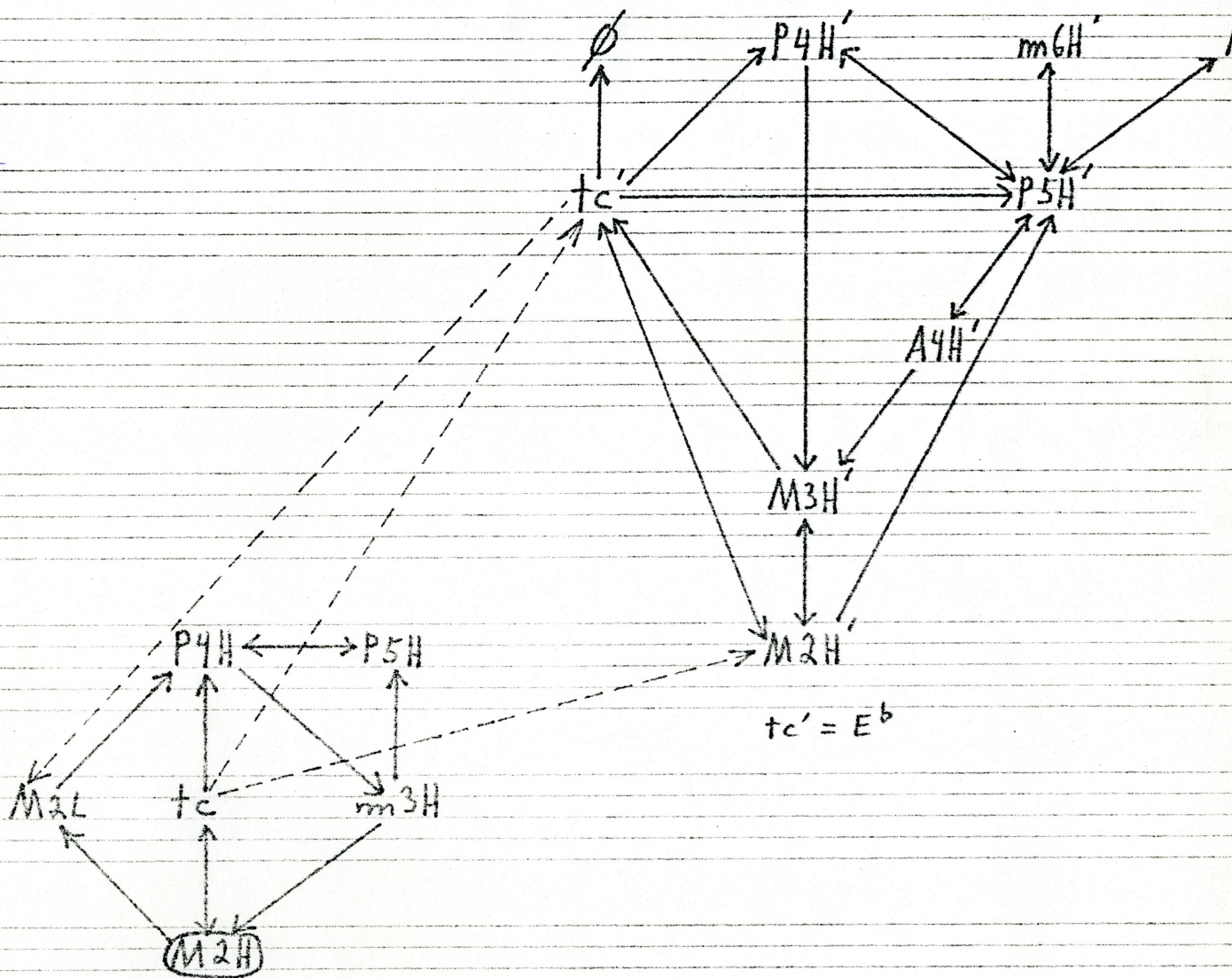
Song 22

Formula: $p4L, m3L, M2H, tc, M2H, M3H$



Formula: $M_{2L}, t_c, M_{2H}, m_{3H}, P_{4H}, P_{5H}, \rightleftharpoons t_{c'}, M_{2H'}, M_{3H'}, P_{4H'}, A_{4H'}, P_{5H'}, m_{6H'}, I$

Narak

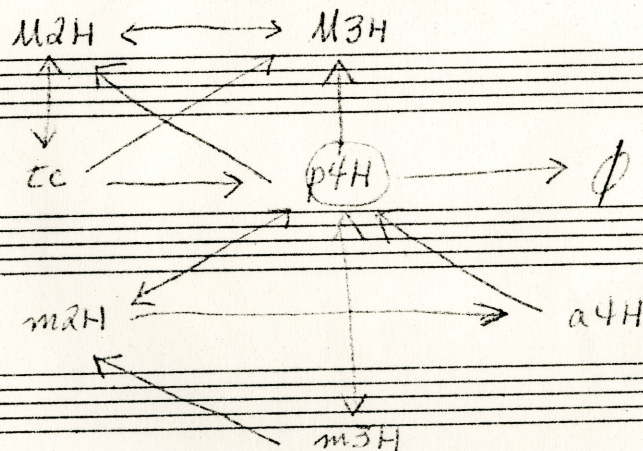


$t_c = F$

Drawn by Dan Limkema

Yele

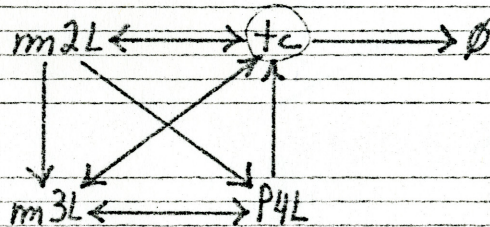
Formula: $t_c, m2H, M2H, m3H, M3H, p4H, a4H$



heading: double back-loop
progressions developed
below tonal center in Usarufa
and Narak but not in Yele

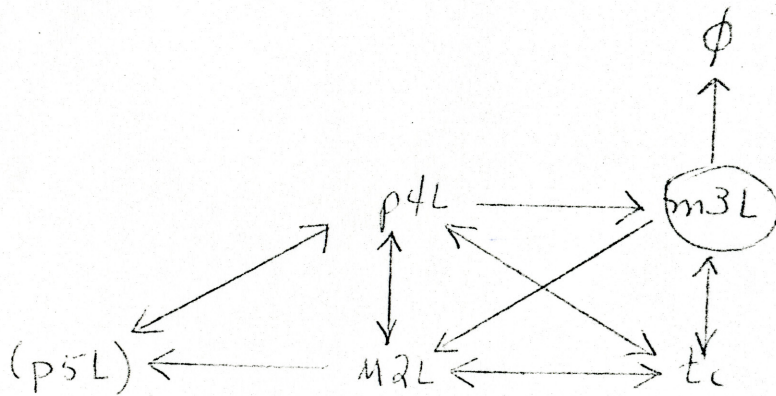
Formula: $P4L, m3L, m2L, t_c$

Narak



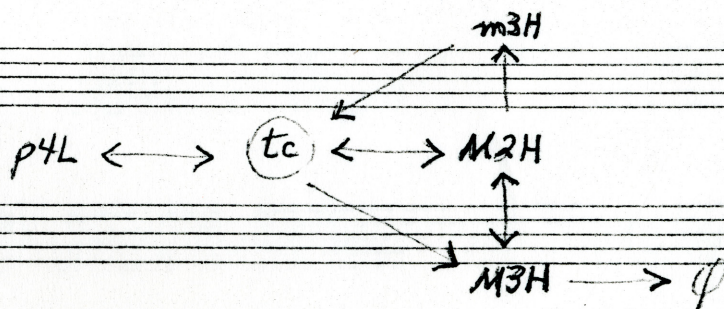
Usarufa
Song 6

Formula: $(p5L), p4L, m3L, M2L, t_c$



ye/e

p4L, tc, M2H, m3H, M3H
B E FH G G#

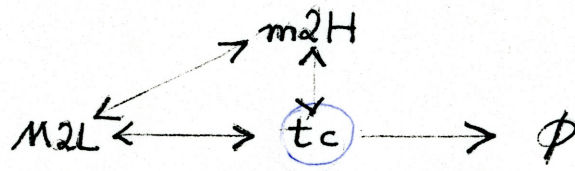


STRUCTURAL OBSERVATIONS

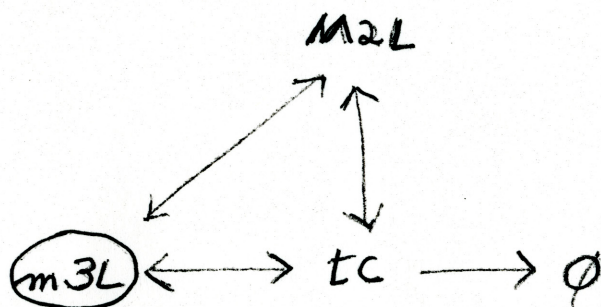
heading: 3-step melodies

Both Usarufa and Narak melodies are developed below tonal center (tc), but 3-step melodies in Yele are developed above tonal center.

Usarufa
Song 20

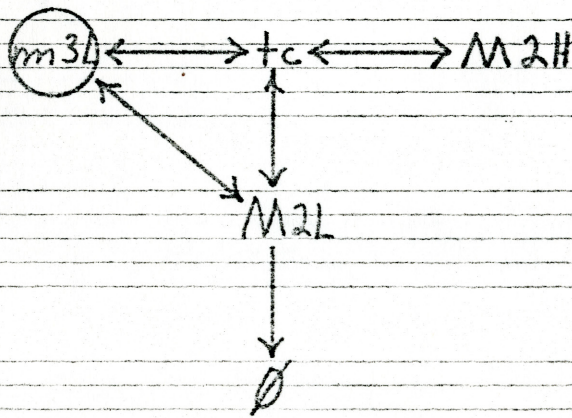


Usaruta
Song 18



Formula: $m_{3L}, M_{2L}, t_c, M_{2H}$

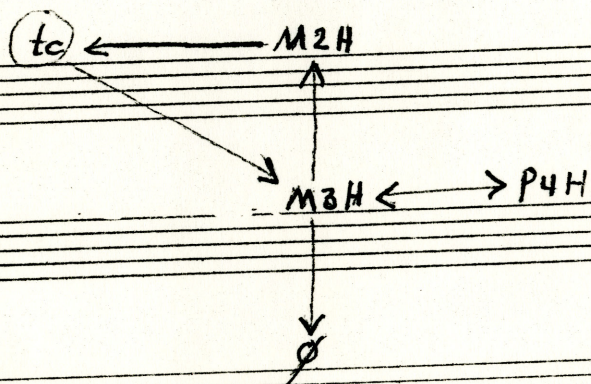
NARAK



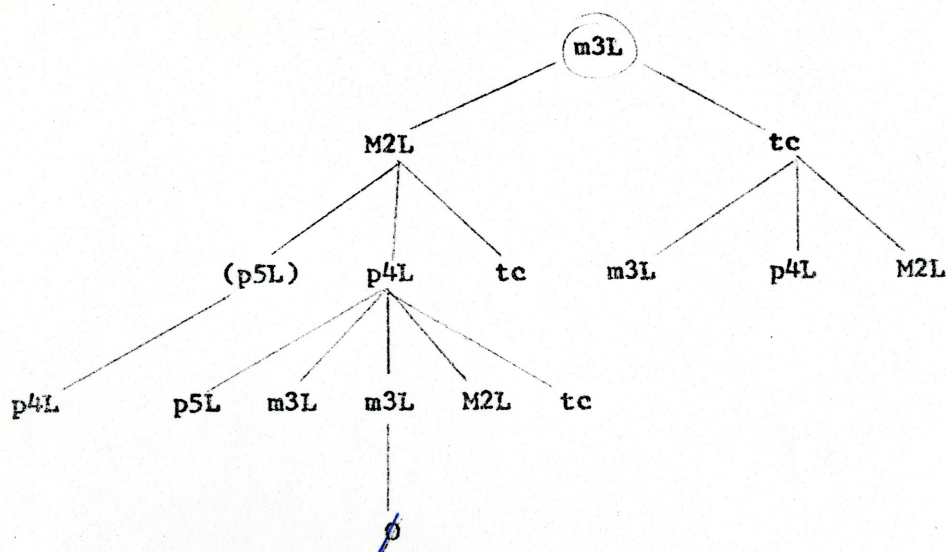
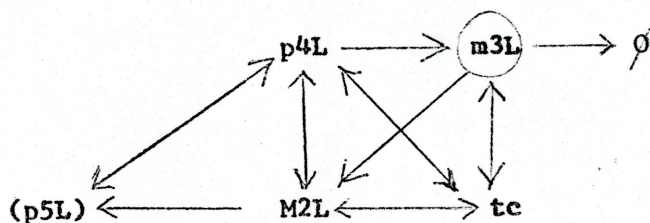
Yele

$t_c = E$

$t_c, m_{2H}, m_{3H}, p_{4H}$



If we were to display these flow diagrams in the shape of tree diagrams which the computer can accommodate through Pascal programming, pitches would form the nodes, and the branches would generally be truncated. Usarufa song no. 6 expressed in both types of diagrams is shown:

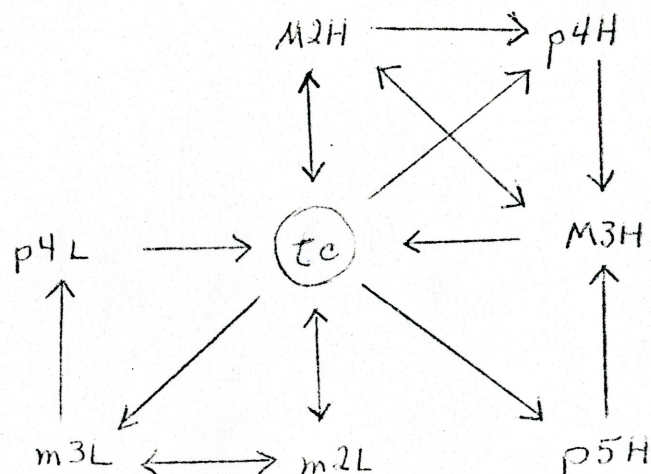


Pitches ending any branch of the tree may backloop to an original occurrence of the same pitch. Again, notice that this tree diagram is not componential as it is in linguistics but is a flow diagram which can generate a new melody. To demonstrate the generative potential of these diagrams the famous Doxology melody will be diagrammed.

Doxology

$t_c = F$

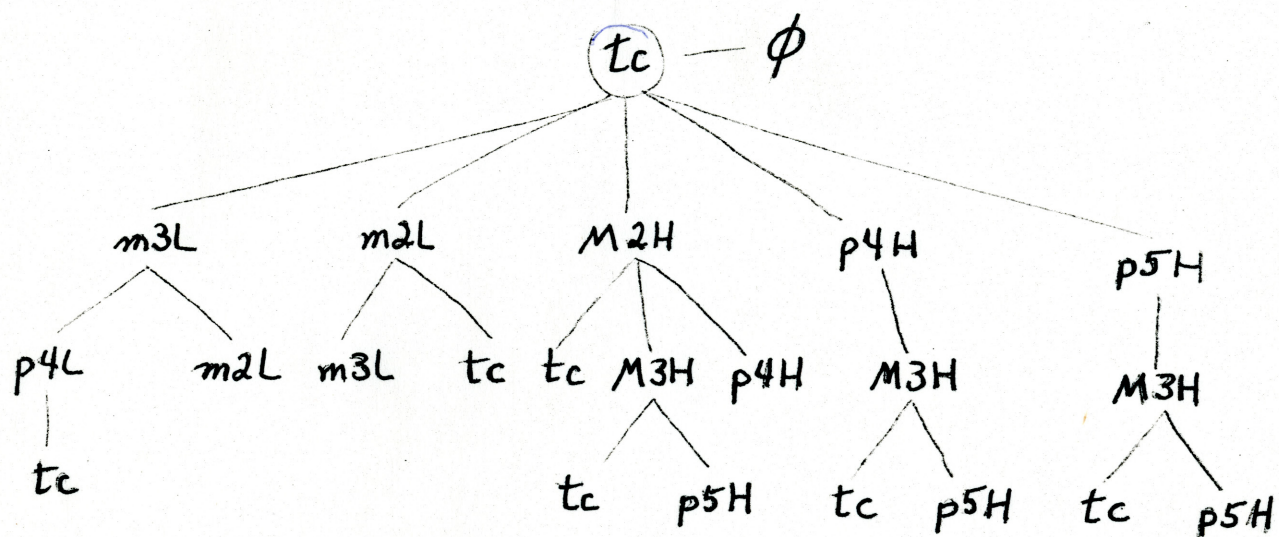
$p4L, m3L, m2L, t_c, M2H, M3H, p4H, p5H$



Restrictions:

- 4 contrastive phrases of equal length
- each syllable = 1 pitch
- each pitch = 1 beat
- except phrase final pitches which are lengthened in each phrase
- pitches repeat a maximum of 2 times within a phrase

Doxology

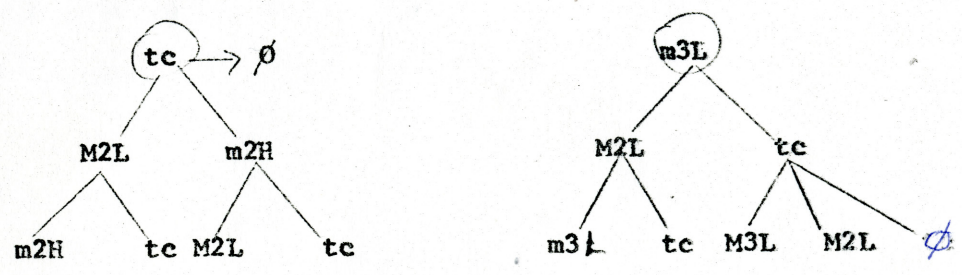




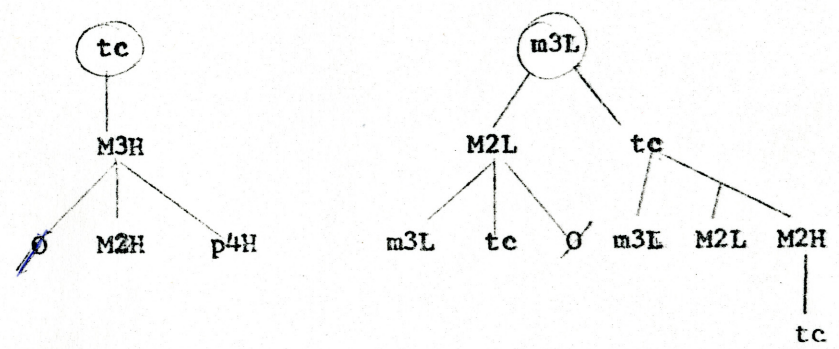
new melody composed according to flow
chart of the Doxology

of melodic progression the three peoples hold in common. In order to present a methodology as briefly as possible, let us assume we have all the data. Our results would show that, given a tonal center, the following inventory of pitches might proceed in relation to it:

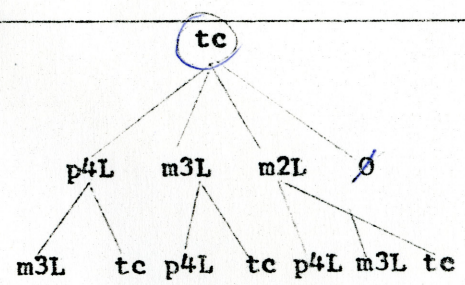
3-step songs



4-step songs formed above tc



4-step songs formed below tc



etc.

S
T
I
S
O
P
M
O
C

In teaching musical literacy, no restrictions need be taught. Melodic restrictions are only needed to explain the system to those outside the culture, but members of the culture know by the experience of oral tradition how to compose a song which is aesthetically and grammatically acceptable.

Pitch Inventories from the Data

Usarufa	Narak	Yele
tc --> m2H, M2H, M2L, m3H m3L, p4L	m2L, M2L, M2H, m3L	M2L, m3L, M2H, M3H, p4H
m2H --> tc, M2L	tc	tc, M2L, m3L, p4H
M2H --> tc, M2L, m3L, M3H	tc, m2L, M2L, p5H	tc, m3H, M3H
m3H --> tc, M2H, M2L	tc, M2H, p4H	tc, M2H, m3H, p4H
M3H --> tc	M2H	M2H, m3H, p4H
M2L --> tc, m2H, m3L, m3H, M3L, p4L, p5L	tc, m3L	tc, m3L
m3L --> tc, M2L, p4L	tc, m2H, M2L, M2H, p4L	tc, m2H
M3L --> xxxxx M2L	xxxxx	xxxxx
p4L --> tc, M2L, m3L, p5L	tc, m3L	xxxxx
p5L --> p4L	xxxxx	xxxxx
p5H --> xxxxx	tc, p4H	xxxxx
a4H --> xxxxx	p4H	m2H, m3H, M2H, M3H

Pitches
in common

tc \rightarrow M2H, m3L

m2H \rightarrow tc

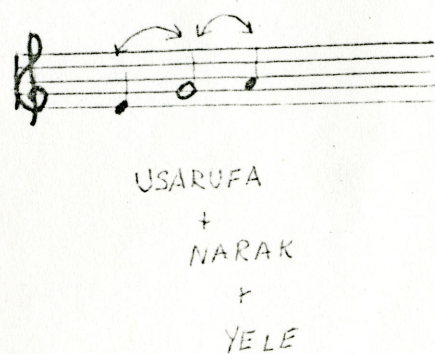
M2H \rightarrow tc

m3H \rightarrow tc, M2H

M2L \rightarrow tc, m3L

m3L \rightarrow tc

Progressions in common



One must conclude that these three music systems are distinctly different and cannot be practicably combined for purposes of musical literacy.

Conclusions:

Diagrams are not only succinct, but they often aid in structural analysis. Visual comparison is more rapid through diagrams ^{than} by means of musical notation. We have observed in diagrams

- 1) inventories of pitches
- 2) simplicity versus complexity in melodic shape
- 3) initial and cadential patterns
- 4) all melodic progressions allowable in the data
- 5) generative capacity
- 6) Structural characteristics which may determine stylistic classes within a system

Another step in the analysis of music systems is in progress. This is a computer project which will print a composite diagram for each of the three music systems.

It is hoped that such diagrams might provide immediate clues as to features shared between systems. Restrictions having to do with song duration, allowable repeats of pitches and phrases, formal arrangement of phrases, speech rhythm and any other idiomatic features of collocation will be considered conjointly with the composite diagrams.

One of the benefits of comparative analysis is to determine whether systems are sufficiently alike to warrant the construction of a ^{composite} music primer for assisting indigenous peoples in musical literacy. What is believed to be the first primer for teaching musical literacy to a people in its own music system was published last summer by the Summer Institute of Linguistics in Papua New Guinea. The desirability of some mechanical help in comparing the music of multiple cultures has given impetus to this paper. The comparisons vital to the construction of a music primer which ^{has} ~~can have~~ the widest distribution possible had to be laboriously done by hand. I hope to have a computer program ready to test within the next three months which will reduce the tedium of comparative analysis.

But for now, if we were to do the ground work for a possible literacy program for Usarufa, Narak and Yele, we would proceed something like this: Confining ourselves to the song data whose diagrams you have seen, we would seek those features