The target and domain of clitic-triggered Low Tone Spread in Kalabari

Nicholas ROLLE (Leibniz-ZAS, Berlin) & Otelemate HARRY (University of the West Indies, Mona)

W10CAL: 10th World Congress of African Linguistics – 2021 June 07

1 OVERVIEW

(1) The focus of today’s talk is a process of LOW TONE SPREAD in Kalabari

a. Ṡe ṣeṣẹ́ ṣeṣẹ́ te*é  →  ó ẹ̀bù́rù́má sèlè te*é

he indigo choose PERF ‘he has chosen indigo’

(2) Our analysis is as follows:

a. Subjects normally form their own phonological phrase (ϕ-P)

b. Certain subject clitics are prosodically deficient – e.g. ṣe ‘he’ – cannot form their own ϕ-P

c. These clitics must incorporate into the following ϕ-P – i.e. ṣe (X)ϕ → (ọ X)ϕ

d. These ϕ-Ps are independently motivated from the scope of Replacive Grammatical Tone

e. Low Tone Spread itself is due to a *LHH restriction within ϕ-Ps, corroborated by other

* LHH effects in the language

2 KALABARI TONE

(3) Kalabari [jin] (Ijoid: Nigeria) has a tonal contrast between L and H (and *H)

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Nouns</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL</td>
<td>bélè ‘light’</td>
<td>báma ‘punish’</td>
</tr>
<tr>
<td>HH</td>
<td>námá ‘meat’</td>
<td>óló ‘cough’</td>
</tr>
<tr>
<td>H*H</td>
<td>ọ̀bà*ráló ‘hand’</td>
<td>ó*ló ‘hold’</td>
</tr>
<tr>
<td>LL</td>
<td>púlò ‘oil’</td>
<td>lègí ‘sit down’</td>
</tr>
<tr>
<td>LH</td>
<td>gáří ‘garri’</td>
<td>dùkó ‘tell, talk’</td>
</tr>
</tbody>
</table>

Table 1: Lexical contrasts in nouns and verbs

(4) Lexical tones are affected by three main tonal processes in the language:

a. Replacive Grammatical Tone

b. Floating Grammatical Tone

c. Clitic-triggered Low Tone Spread

2.1 Replacive Grammatical Tone

(5) REPLACIVE GRAMMATICAL TONE

a. For example, pre-nominal modifiers assign grammatical tone pattern to the head noun

b. Completely replaces the lexical tone (Table 2 below)

c. Note: Replacive Grammatical Tone pattern is indicated with ⇒ arrow
2.2 Floating Grammatical Tone

(6) Floating Grammatical Tone – Found with both nouns and verbs
a. For example, imperative/subjunctive (Table 3 below)
b. Note: floating tones are indicated throughout by circling the tone, i.e. $\mathbb{H}$ and $\mathbb{L}$

<table>
<thead>
<tr>
<th>Lexical tone</th>
<th>Verb</th>
<th>Imperative: ‘__!’ (+$\mathbb{H}$/$\mathbb{L}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>só</td>
<td>→ sóô</td>
</tr>
<tr>
<td>L</td>
<td>sò</td>
<td>→ sóó</td>
</tr>
<tr>
<td>HL</td>
<td>bàmà</td>
<td>‘punish’ → bàmáà</td>
</tr>
<tr>
<td>HH</td>
<td>òlò</td>
<td>‘cough’ → òlòô</td>
</tr>
<tr>
<td>H*H</td>
<td>òló</td>
<td>‘hold’ → òlóô</td>
</tr>
<tr>
<td>LL</td>
<td>lègì</td>
<td>‘sit down’ → lègìì</td>
</tr>
<tr>
<td>LH</td>
<td>ìükò</td>
<td>‘tell, talk’ → ìükòìì</td>
</tr>
</tbody>
</table>

Table 3: Floating Grammatical Tone – In verb phrases  

(7) Docking without replacement:
  a. Floating Grammatical Tones simply dock to the final vowel, creating tone contours\(^1\)
  b. It is unlike Replacive Grammatical Tone – it does not replace all of the lexical tones

2.3 Clitic-triggered Low Tone Spread

(8) Focus for rest of talk: an operation LOW TONE SPREAD (LTS), triggered by subject clitics

(9) Kalabari has two sets of subject pronouns
a. Distribution is based on whether it precedes a consonant or vowel

<table>
<thead>
<tr>
<th>Form</th>
<th>1S</th>
<th>2S</th>
<th>3S.M</th>
<th>3S.F</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td>_C</td>
<td>à</td>
<td>í</td>
<td>ò</td>
<td>á</td>
<td>wá</td>
<td>ó</td>
<td>ñ</td>
</tr>
<tr>
<td>_V</td>
<td>àrì</td>
<td>ìyé</td>
<td>òrì</td>
<td>àrì</td>
<td>ómìnjì</td>
<td>ìnì</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Subject pronouns

(10) The triggers of LTS are the pronouns à 1S ‘I’, ò 3S.M ‘he’, and ñ 3P ‘they’
  a. Consist of a single nucleus (cf. àrì)
  b. Do not have an onset (cf. wá)
  c. Are low-toned (cf. à)

\(^1\) The docking of these floating tone triggers vowel lengthening, because contours are prohibited on a single mora
(11) These clitics (and these alone) trigger a process of LOW TONE SPREAD (in red)
   a. ḏ bụkị té*ē → ḏ bụkị té*ē
      he fall PERF 'he has fallen' [OH202003]

(12) Initial characterization (amended below)
   a. The L spreads to all rightward contiguous H tones except the final one

```
<table>
<thead>
<tr>
<th>L</th>
<th>H</th>
<th>H</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>ḏ</td>
<td>bụ</td>
<td>ik</td>
<td>tē</td>
</tr>
</tbody>
</table>

/ḥ bụkị té*ē/

Figure 1: Autosegmental representation of clitic-triggered Low Tone Spread

(13) Other comparable contexts do not trigger Low Tone Spread (or a process like it)

(14) Low-toned monosyllabic functional morphemes do not trigger Low Tone Spread
   a. mà wà mú à*á (*mà wà ...)
      not.yet we go NEG 'we are not going (there) yet' [J77:539]

(15) Bisyllabic low-toned pronouns do not trigger Low Tone Spread
   a. ḏàř ᵣyé ᵣṛⁱ ṭ*m → ḏàř ᵣyé ᵣṛⁱ ṭ*m (*₄₆ r VARCHAR(255))
      I you see ASP 'I saw you' [J77:268]

(16) Monosyllabic high-toned pronouns do not trigger an equivalent 'High Tone Spread'
   a. á màngi ṣe⁺ři (*₄₆ m VARCHAR(255))
      she run ASP 'she has run away (and not come back)' [HaHy201305]

3 WHAT IS THE PRECISE TARGET OF LOW TONE SPREAD?

(17) The target:
   a. All adjacent contiguous H tones within the same domain
   b. Optionally applies to the final H of the domain under certain conditions

3.1 Target cannot be partial

(18) When Low Tone Spread applies, it never does so only partially within a target domain
   a. Categorical in never leaving two contiguous H’s in the target domain
   b. ḏ bụkúlọ́ (H) → ḏ bụkúlọ́ (*₄₆ bụkúlọ́)
      he embark SBJV 'he should embark' [OH202003]
   c. ḏ bụrúmá sélé tē⁺ē → ḏ bụrúmá sélé tē⁺ē (*₄₆ bụrúmá sélé tē⁺ē)
      he indigo choose PERF 'he has chosen indigo' [OH20200229e]
### 3.2 Variability in targeting the final H in a contiguous string

(19) Variability whether it targets the final H tone before \( ^* H \)
    i.e. (\( ô \ H \ldots H \) \( ^* H \)) \( \rightarrow \) (\( ô \ L \ldots H \) \( ^* H \)) \( \sim \) (\( ô \ L \ldots L \) \( ^{+} H \))

(20) Variability in Low Tone Spread before \( ^* H \)
    a. \( ô \ gbôrù \ wá\( ^{+} rí \) fé \( tê\( ^{+} é \) \) \( \rightarrow \) \( ô \ gbôrù \ wá\( ^{+} rí \) fé \( tê\( ^{+} é \) \)
        he one house buy PERF 'He has bought a house' [OH202003]
    b. \( \sim \) \( ô \ gbôrù \ wàrî \ldots \)
    c. Cf. \( * ô \ gbôrù \ wàrî \ldots \) \( \sim \)
    d. Cf. \( * ô \ gbôrù \ wá\( ^{+} rí \) \ldots \)

(21) Variability whether it targets the final H tone, if the first tone of the next domain is H
    a. i.e. (\( ô \ H \ldots H \)(H\ldots)) \( \rightarrow \) (\( ô \ L \ldots H \)(H\ldots)) \( \sim \) (\( ô \ L \ldots L \)(H\ldots))

(22) (\( ô \ yé \ fî \))(sîmè mî) \( \rightarrow \) (\( ô \ yè \ fî \) \( ^{+} \)sîmè mî) \( \sim \) (\( ô \ yè \ fî \) \( ^{+} \)sîmè mî)
    he thing eat PAST.DUR 'he was eating something' [NR20170719:54]

(23) Note: Low Tone Spread never applies to the final H if it is before a L
    \( ô \ wámĩnà \ sîn \) \( ^{+} \)m \( \sim \) \( ô \ wámĩnà \ldots \)
    he us call ASP 'He called/invited us' [J77:269]

### 4 What is the precise domain of Low Tone Spread?

#### 4.1 Contexts forming a single domain

(24) Contexts where adjacent high-toned words form a single domain for Low Tone Spread:
    a. (\( ô \ [O \ V]_{VP} \))
    b. (\( ô \ [\text{Mod N}]_{NP} \))
    c. (\( ô \ [\text{Mod N}_{NP} V]_{VP} \))

(25) Object + Verb
    a. (CL O V\(_1\) V\(_2\) Aux
        \( ñ \ jùmọ:jùmọ \ ụká \) bó \( \#\#L \) \( \rightarrow \) \( ñ \ jùmọ:jùmọ \ ụká \) bó
        they each other follow come SJTV 'They should follow each other' [OH20210402]

(26) Modifier + Noun + Verb
    a. (CL Mod N V
        \( à \ jèn \ fènì \ fè \) \( τê\( ^{+} é \) \) \( \rightarrow \) \( à \ jèn \ fènì \ fè \) \( τê\( ^{+} é \)
        I another bird buy PERF 'I have bought another bird' [OH20210422]
4.2 Contexts forming separate domains

(27) Contexts where adjacent high-toned words do not form one domain for Low Tone Spread
   a. (ô [N]NP) ([D])
   b. (ô [V]VP) ([V]VP)
   c. (ô [V]VP) ([Aux])
   d. (ô [Adv]) (X) (where X = N, V, etc.)

(28) Noun + Determiner
   a. (CL N) D Q
      (ô din) mé ọmgbà ké ànị yé *m → (ô din) mé ọmgbà ké ànị yé *m
      he night DET all PART it do ASP ‘he spent the whole night doing it’
   b. Cf. * (ô din mè)...
      [OH20210402]

(29) Serial verb construction: V₁ + V₂
   a. (CL VP₁) (VP₂) Aux
      (à bó) (yé fí) ṣà → (à bó) (yé fí) ṣà
      I come thing eat FUT ‘I will come eat’
   b. Cf. * (à bó yé fí) ṣà
      [NR20170719:57]

(30) Verb + Auxiliary
   a. CL V Aux
      Gógó (ô gélè) (wérári) → ... (ô gélè) (wérári) ~ (ô gélè) (wérári)
      Gogo he tall ASP ‘Speaking of Gogo, he is tall’ [J80:30]
   b. Cf. *(ô gélè wèrári)

(31) Adverbials
   a. (CL Adv) (V)
      (ô kpékélé) (bó) á*á → (ô kpékélé) (bó) á*á
      he in.time come NEG ‘he did not come in time’
      [OH20210402]

5 ANALYSIS: SUPPORT FOR THE φ-P IN KALABARI

5.1 Domain is the phonological phrase (φ-P)

(32) Syntactic constituents map to a series of phonological phrases (φ-Ps)
   a. Nominal: (Modifier Noun)φ (Determiner)φ (Quantifier)φ
   b. Clausal: (Subject)φ (Adverbial)φ (Object Verb)φ (Verb)φ (Auxiliary)φ

5.2 Prosodic incorporation

(33) As established, certain subject clitics are different from normal subjects
   a. à 1S, ô 3S.M, and ǹ 3P are prosodically-deficient (low tone, no onset, monosyllabic)
   b. Unlike other subjects, these clitics cannot form their own φ-phrase
(34) Prosodic incorporation
   a. \( \phi (\text{Verb})_\phi \ldots \rightarrow (\phi \text{Verb})_\phi \ldots \)
   b. \( \phi (\text{Object Verb})_\phi \ldots \rightarrow (\phi \text{Object Verb})_\phi \ldots \)
   c. \( \phi (\text{Adverb})_\phi \ldots \rightarrow (\phi \text{Adverb})_\phi \ldots \)

5.3 Domain alignment

(35) Independent evidence that these exact syntactic constituents map to a single \( \phi - \text{P} \) comes from the scope of Replacive Grammatical Tone

<table>
<thead>
<tr>
<th>Structure</th>
<th>Domain for Low Tone Spread</th>
<th>Domain for Replacive Grammatical Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. O V</td>
<td>Y (( \phi [O V]_{\text{VP}} ))</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Mod N</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Mod N V</td>
<td>Y</td>
</tr>
<tr>
<td>b. N Det</td>
<td>N (( \phi [N]_{\text{NP}} )) ([D])</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>V(_1) V(_2)</td>
<td>N (( \phi [V(<em>1)]</em>{\text{VP}} )) ([V(<em>2)]</em>{\text{VP}})</td>
</tr>
<tr>
<td></td>
<td>V Aux</td>
<td>N (( \phi [V]_{\text{VP}} )) ([Aux])</td>
</tr>
<tr>
<td></td>
<td>Adv X</td>
<td>N (( \phi \text{Adv} )) (X)</td>
</tr>
</tbody>
</table>

Table 5: Domain for Low Tone Spread matches domain of Replacive Grammatical Tone

(36) Domain matching across tonal operations
   a. CL O V Aux Replacive GT (\( \Rightarrow \text{H} \)) Low Tone Spread
      \( \phi \text{hörúmá sélè té}^* \text{é} \rightarrow (\phi \text{hörúmá sélè})_\phi \text{té}^* \text{é} \rightarrow (\phi \text{hörúmá sélè})_\phi \text{té}^* \text{é} \)
      he indigo choose PERF 'he has chosen indigo’ [OH20200229c]

(37) Multiple domains also match, i.e. verbs in serial verb constructions form separate domains both for Replacive Grammatical Tone and for Low Tone Spread
   a. O V\(_1\) V\(_2\) Replacive GT (\( \Rightarrow \text{L} \))
      \( \text{ị̀nà nángá sábá} \rightarrow (\text{ị̀nà nángá sábá})_\phi \) \( \phi \text{sábá} \)
      them trample cross ‘cross them by trampling’ [Ha04:88]

5.4 Low Tone Spread applies due to *LHH ban within \( \phi - \text{P} \)

(38) Incorporating a low-toned clitic like \( \phi \) can result in a violation of *LHH, a marked structure for which there is independent evidence in Kalabari\(^2\)

(39) In Kalabari there is a word-level categorical ban on *LHH sequences
   a. No noun of the tone shape *\( \text{ówkipéká} \), no verb of the tone shape *\( \text{kókólo} \)
   c. “R→L association generates the acceptable outputs for Kalabari” (Harry 2004:33)

(40) LHH sequences occur in derived environments, e.g. at word boundaries (\( \phi \)) within a \( \phi - \text{P} \)

\(^2\) A *LHH restriction is very common in the area, found across Ijoid languages (Williamson 1988), such as easterly located Izon dialects (Williamson & Timitimi 1983, Rolle to appear), and in neighboring non-Ijoid languages, e.g. Degema (Kari 2004, Rolle & Kari under review).
For LH#H sequences at a word boundary, there are two general repairs:

a. Repair 1: LH#H → LL#H
   èkpé námà → èkpé námà ~ èkpè námà  
   he-goat meat ‘he goat’s meat’ [HaHy14:686]

b. Repair 2: LH#H → LH#H
   gàràjí màmgbà → gàràjí *màmgbà
   garri all ‘all the garri’ [HaHy14:663]

In fact, Kalabari conspires to avoid L#HH sequences within a phonological phrase

<table>
<thead>
<tr>
<th>‘the child’s’</th>
<th>‘their’</th>
<th>‘which’</th>
<th>‘some’</th>
<th>Cf. *‘MOD’</th>
</tr>
</thead>
<tbody>
<tr>
<td>tòbò (⇒HL)</td>
<td>inà (⇒H%H)</td>
<td>tò (⇒LH)</td>
<td>jà (⇒LL)</td>
<td>*L (⇒HH)</td>
</tr>
</tbody>
</table>

Table 6: A gap in Replacive Grammatical Tone patterns – No modifier which assigns HH

Low-toned subjects clitics are one of the few places where L#HH sequences arise within a φ-P, and are repaired via Low Tone Spread

### 6 SUMMARY

To summarize, our analysis is the following:

a. Subjects normally form their own phonological phrase (φ-P)
b. Certain subject clitics are prosodically deficient – e.g.  ḷ ‘he’ – cannot form their own φ-P
c. These clitics must incorporate into the following φ-P
   – ḷ (X)φ → ( ḷ X )φ
d. These φ-Ps are independently motivated from the scope of Replacive Grammatical Tone
e. Low Tone Spread itself is due to a *LHH restriction within φ-Ps, corroborated by other
   *LHH effects in the language

### 7 REFERENCES


---

3 Two pre-nominal modifiers have low tone but do not obligatorily assign a replacive grammatical tone. This may result in a L#HH pattern. The numeral mà ‘two’ variably lowers a /HH/ lexically-toned noun to all low (in i). This lowering process is also optional for other lexical tone patterns (ii).

(i) mà fẹnì → mà fẹnì ‘two birds’ [HaHy14:657]
(ii) cf. mà wà*řì → mà wàř ‘two houses’

The adjective ṭì ‘big’ also optionally lowers /HH/ nouns to low (iii). Unlike above, however, this does not affect other lexical tone patterns (iv).

(iii) ṭì fẹnì → ṭì fẹnì ‘big bird’ [HaHy14:658]
(iv) cf. ṭì wà*řì (*.addButton) ‘big house’

We leave further scrutiny of these patterns for future work.


8 APPENDIX

8.1 Low-toned monosyllabic lexical nouns do not trigger Low Tone Spread

(45)

a. sò kànákàná tê*ēsky dark PERF

‘the sky is dark’ (usually just before storm) [B08:195]

b. sò bálápu tê*ēheaven twinkle PERF

‘heaven displays a sudden flash of fire’ (=‘lightning’) [B08:320]

8.2 Low Tone Spread is not obligatory

(46) Non-application of LTS is possible, for ‘emphasis’ (unclear semantics at this point)

a. / ò yè tòlúmá sì*mé *m / ‘He used to teach’ [OH20003]

b. ò yè tòlúmá sì*mé *m ← Unmarked pronunciation

c. ~ ò yè tòlúmá sì*mé *m ← For ‘emphasis’

8.3 Target must begin with a H tone

(47) Low tone spread is much more restricted than the other two tonal processes we saw, namely Replacive Grammatical Tone and Floating Grammatical Tone

(48) Unlike Replacive Grammatical Tone (e.g. jà ‘some’ in Table 2 above), Low Tone Spread only affects contiguous sequences of H tone

<table>
<thead>
<tr>
<th>Low Tone Spread</th>
<th>Cf. Replacive Grammatical Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>ò ‘he ’</td>
<td>jà ‘some ’ (=L)</td>
</tr>
<tr>
<td>ò HH ...</td>
<td>jà HH → jà LL</td>
</tr>
<tr>
<td>ò H*H ...</td>
<td>jà H*H → jà LL</td>
</tr>
<tr>
<td>ò HL ...</td>
<td>jà HL → jà LL</td>
</tr>
<tr>
<td>ò LH ...</td>
<td>jà LH → jà LL</td>
</tr>
<tr>
<td>ò LL ...</td>
<td>jà LL → jà LL</td>
</tr>
</tbody>
</table>

Table 7: Low tone spread is more restricted than Replacive Grammatical Tone
### 8.4 Low Tone Spread does not behave like Floating Grammatical Tone \( \text{Ⓒ} \)

(49) Unlike Floating GT, Low Tone Spread does not create super-marked tone contours

a. \( \text{sò ‘cook’} \)
   \[ \text{he cook SBJV} \rightarrow \text{‘he should cook’} \]

b. \( \text{só ‘go’} \)
   \[ \text{he go SBJV} \rightarrow \text{‘he should go’} \]

\[
\begin{array}{cccccc}
  & L & L & H & L & L & H \\
  \mu & \mu & & & & \\
  q & s & o & & & \\
\end{array}
\]

\[
\begin{array}{cccc}
  & L & L & H & L & L & H & L \\
  \mu & \mu & & & & & \\
  o & s & o & & & & \\
\end{array}
\]

Figure 2: Floating Grammatical Tone docking

\[
\begin{array}{cccccc}
  & L & H & H & L & L & H & L \\
  \mu & \mu & & & & & & \\
  o & s & o & & & & & \\
\end{array}
\]

\[
\begin{array}{cccccc}
  * & L & L & H & H & L & L & H & L \\
  \mu & \mu & & & & & & & \\
  o & s & o & & & & & \\
\end{array}
\]

Figure 3: No Low Tone Spread onto single H

(50) We therefore reject a representation like \( \dot{o} + \text{Ⓒ} \) (Figure 4 below)

\[
\begin{array}{cccccc}
  * & L & L & H & H & L & L & H & L \\
  \mu & \mu & & & & & & & \\
  o & s & o & & & & & \\
\end{array}
\]

Figure 4: Low Tone Spread does not behave like a Floating Grammatical Tone
8.5 Exceptional adverbial behavior

(51) Exceptional adverbial behavior
   a. The adverbial use of jén 'another, next' to mean 'again' forms an exceptional adverbial
   b. Adverbial constructions normally form separate domains for Low Tone Spread, e.g. (31)
   c. However, jén forms single domain for Low Tone Spread with following verb (phrase)

(52)
   a. CL Adv    V
      (ò jén hó) á*á → (ò jén hó) á*á
      he again come NEG 'He didn't come again' [OH20210402]
   b. CL Adv    O    V
      (ò jén námá fè) á*á → (ò jén námá fè) á*á
      he again meat buy NEG 'He didn't buy meat again' [OH20210402]

(53) Following Jenewari (1977:192), we assume that this is a (reduced) object of the verb, in a noun phrase with a null head:
   ò jén Ø hó *m → ò jén hó *m
   he [another (N)] come ASP 'he came again'

(54) Similarly, variability is seen with adverbial constructions of frequency
   a. à (tírə sàkì mú) té'é → (à tírə sàkì mú) té'é ~ (à tírə sàkì) (*mú) té'é
      I three time go PERF 'I have gone three times' [OH20210504z]
   b. á mà sàkì mú té'é → á (mà sàkì mú) té'é
      she two time go PERF 'she has gone two times' [OH20210504z]

8.6 Non-derived LHH sequence are not affected

(56) LHH sequences are not subject to Low Tone Spread, only HH sequences:
   a. A few words with LHH sequences exist, e.g. reduplications / lòkòlòkò / 'be prosperous'
      Bènè fí sàkì, ô lòkòlòkò wèràrì (cf. *...ô lòkòlòkò ~ lòkòlòkò wèràrì)
      Bene die time he prosperous ASP
      'When Bene died, he was well off' [J80:152]
   b. LHH found across some word boundaries
      Gògò fí té'é, à wèn ná *m (cf. *...à wèn ná...)
      Gogo die PERF, I PRO hear ASP
      'I heard that Gogo is dead' [J77:394]

8.7 Extra data

(57) Extra data – Subject clitic triggers
   a. ò kúró ↛ ọ̀ kúró
      he land SBJV 'he should land' [OH202003]
   b. ò fè kàl̲à òbìrì ṣè → ò fè kàl̲à òbìrì ṣè (‘ọ̀ fè kàl̲à òbìrì ṣè)
      he buy small dog DEF 'the little dog that he bought' [OH20200303]
c. ọ gbórú wá+rí fé té*é → ọ gbórú wá+rí fé té*é  (*ọ gbórú wá+rí fé té*é)  
he one house buy PERF 'He has bought a house' [OH202003]  
d. (CL O V) Aux  
(ọ yè ff) símè m → (ọ yè ff) *símè m ~ (ọ yè ff) símè m  
he thing eat PAST.DUR 'he was eating something’ [NR20170719-54]  
e. (CL Mod N ...)  
(ọ gbórú wá+rí fé) té*é → (ọ gbórú wá+rí ...) ~ (ọ gbórú wàrí ...)  
he one house buy PERF 'He has bought a house' [OH202003]  
f. (CL N) D  
(ọ bùrùmá) H sélé té*é → (ọ bùrùmá) *sélé té*é  
he indigo DEF choose PERF 'he has chosen the indigo' [OH202003]  
g. (CLVP1) (VP2) Aux  
(ọ gélè) (á něngf) *m → (ọ gélè) (á něngf) *m ~ (ọ gélè) (á *něngf) *m  
he tall her be.more.than ASP 'He is taller than she is’ [J80:30] ~ [OH202003]  
Cf. * (ọ gélè à) (něngf) *m ~ * (ọ gélè à něngf) *m  
h. (CLVP1 and) (VP2) Aux  
(ọ númè súsú té) (sékj) árị → (ọ númè súsù té) (sékj) árị  
he sing sing.REDUP and dance ASP 'He is alternatively singing and dancing’  
Cf. * (ọ númè súsù tè sékji) árị [OH20200303]  
i. (CL Adv) (N)  
(ọ bùrò) (Kalábàři) má bélémá á*á → (ọ bùrò) (Kalábàři) má bélémá á*á  
he RHET Kalabari DET love NEG  
'Does he not love the Kalabari people?!' (surely he does!) [OH20210402]  
j. (ọ gbákúkú) (bíbí nyánà) wérárî → (ọ gbákúkú) (bíbí nyánà) wérárî  
he impolitely mouth have ASP 'he is speaking impolitely’ [OH20210402]  
k. CL Mod N V Aux Replacive GT (=L) Low Tone Spread  
ọ sóná fění ţéř té*é → ọ (sóná fění ţéř) tě*é → (ọ sóná fění ţéř) tě*é  
he five bird see PERF 'he has seen five birds’ [HaHy14:669]  
l. (Cl Mod N ...)  
(à fění minjí kùkù fè) té*é → (à fění minjí kùkù fè) té*é  
I bird water pot buy PERF ‘I have bought a bird’s water pot’ [OH20210422]  

(58) Extra data – Other  
a. túbó mà bǐkí á (*... mà bǐki ...)  
who not.yet fall NEG.Q 'who has not yet fallen?’ [HaHy201305]  
b. á fǐnì-pōkú *k pó té*é (*á fǐnì ...)  
she fire-heap tie PERF 'she has tied the bundle’ [HaHy201305]