A phonological typology of glottalization in Amazonian languages
The case of Yukuna

Magdalena Lemus Serrano
Lyon 2 Lumière – DDL
1. The phonetics of glottalization

- Glottalization: strong degree of vocal fold constriction.
- Includes both complete glottal closure and laryngealized phonation « [...] Glottal stops are apt to fall short of complete closure, especially in intervocalic positions. In place of a true stop, a very compressed form of creaky voice or some less extreme form of stiff phonation may be superimposed on the vocalic stream » (Ladefoged et Maddieson 1996, 75)
- Excludes sounds produced with the glottalic airstream mechanism (ejectives and implosives)

Figure 1. Continuum of phonation types

(Gordon and Ladefoged 2001, 384)
2. The phonology of glottalization

Depending on the language, glottalization can be described as:

- A consonantal phoneme /ʔ/
- A phonemic set of laryngealized vowels /Ṽ/
- A suprasegmental feature
- Non–phonemic glottal stop epenthesis
## 3. A phonological typology of glottalization

<table>
<thead>
<tr>
<th>Phonemic status</th>
<th>Type</th>
<th>Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Phonemic</td>
<td>1. Glottal stop /ʔ/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PANOAN Shipibo (Elías-Ulloa 2016)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 Set of laryngealized vowels /Y/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TUPI Mundurukú (Picanço 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Suprasegmental feature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3.1 Included in tonal tier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISOLATE Tikuna</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3.2 Independent from tonal tier</td>
</tr>
<tr>
<td>2.</td>
<td>Non-phonemic</td>
<td>2.1 Epenthetical [ʔ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ARAWAK Yukuna (Lemus Serrano 2016)</td>
</tr>
</tbody>
</table>
3.1 Phonemic glottalization

3.1.1 Glottalization as a glottal stop consonant /ʔ/ : Shipibo (Panoan)

- Glottalization surfaces mostly as laryngealized phonation
- Analyzed as a consonant because of its interaction with syllabification, phonotactics, nasalisation and stress (Elías-Ulloa 2016, 185)

(1) a. /bîkon-ʔati/ → [bi.'kôn.ʔa.ti] → [bi.'kô.ʔa.ti] (Shipibo)
   myopic -vz1
   ‘to steam up’ (Elias-Ulloa 2011)

   b. /bîkon-ʔa/ → ['bi.kô.na] (Shipibo)
   myopic -pp2
   ‘for one’s vision to become clouded over’ (PP2) (Elias-Ulloa 2011)
3.1 Phonemic glottalization

3.1.2 Set of laryngealized vowels /ʔ/ : Mundurukú (Tupi)

- Four series of vowels: oral and nasal modals, oral and nasal creaky
- Analyzed as a vowel feature because of phonotactic constraints: only /p, t, k/, /m, n, N/, and /w, y/ may occupy the coda position, complex onsets and codas are not allowed
- Additional presence of phonemic /ʔ/

(5) (a) Modal voice
   wida ‘clay’
   áy  ‘rodent, sp.’

(b) Creaky voice
   wjdą ‘jaguar’
   ay  ‘sloth’ (monkey, sp.)

(Picanço 2005, 16)
3.1.3 Suprasegmental feature: Wanano (Tukanoan)

- Surfaces as glottal closure with laryngealization of preceding vowel only
- Analyzed as a third suprasegmental feature, independent from tone and nasality. Appears once per morpheme, after the first mora of root morphemes specified as [+constricted glottis].

\[(31)\quad d\#’te\quad [d\#\acute{\text{t}}\acute{\text{e}}] \quad \text{‘tie up’}\]
\[\sim wa’ka\quad [w\acute{\text{a}}\acute{\text{k}}\acute{\text{a}}] \quad \text{‘wake up’}\]

\[(39)\quad \sim kha’ba\quad [k\acute{\text{h}}\acute{\text{a}}\acute{\text{m}}\acute{\text{a}}]_H \quad \text{‘want/need’}\]
\[ka’s\#\quad [k\acute{\text{a}}\acute{\text{s}}\acute{\text{c}}]_HL \quad \text{‘be lying down’}\]

(Stenzel 2007)
3.2 Non-phonemic glottalization

3.2.1 Glottal stop

[ʔ] epenthesis: Yukuna (Arawak)

- Glottal stops and laryngealized vowels are often in free variation

\[ V_1 \cdot \hat{\epsilon} V_1 \sim V_1 \cdot \hat{\epsilon} V_1 \sim \hat{\epsilon} V_1 \sim \hat{\epsilon} \sim \hat{\epsilon} \sim V \]

\[
/\text{naka}'ri/ \text{ ‘to tremble’} \quad [\text{naka}'ri]
/\text{naka}'ri/ \quad [\text{naka}'ri]
/\text{naka}'ri/ \quad [\text{naka}'ri]
/oo'we/ \text{ ‘older brother’} \quad [\text{o}'o'we]
/oo'we/ \quad [\text{o}'o'we]
/oo'we/ \quad [\text{o}'o'we]

Lemus Serrano (2016)
3.2.1 Glottal stop [ʔ] epentheses: Yukuna (Arawak)

- [ʔ] mostly appears mostly in V₁.ʔV₁ position
- [V] mostly appears word medially, between two consonants
- If analyzed as /ʔ/: defective distribution (*#_, *V₁_ – V₂), incompatible with phonotactics (no complex codas) (['ɲop̃hlo] ‘thick’)
- If analyzed as /V̰/: defective distribution (*_#, *V₂_ ), doubles size of vowel inventory, cannot account for /V₁ʔV₁/
Conclusion: limits

- Lack of in-depth phonetic descriptions and phonological analyses of Amazonian languages
- Many ambiguous cases and problematic analyses
- Types are not mutually exclusive
Conclusion: solutions

- Need for a more in-depth discussion of competing analyses for the same language/phenomenon: Macaulay and Salmons (1995), Stenzel (2007)
- Methodological strategies:
  - if consonantal/vocalic: position within the word, adjacent segments, phonotactics, type of morpheme, number of possible occurrences per morpheme
  - If suprasegmental: bearer unit (mora/syllable/morpheme), type of association with bearer unit, interaction with other suprasegmentals (stress/tone/nasalisation)
References

References