Two phenomena: **Final stop/affricate aspiration** and **final sonorant devoicing**

- **Tz’utujil**: aspiration, devoicing, nasals devoice only word-finally
  
  (1) Examples of final aspiration and final devoicing
  
  a. **[zipó] '**animal’
  b. **[sakb’ach] '**hailstone’
  c. **[wa] ‘tortilla’
  d. **[wamnaq] ‘he has gone to sleep’
  e. **[mem] ‘mute’  
  (Dayley 1985)

- **Kaqchikel**: aspiration, devoicing, nasals don’t devoice
  
  (2) Examples from Kaqchikel
  
  a. **[kusok] ‘he cut it’
  b. **[sokane] ‘barber’
  c. **[mem] ‘mute’  
  (Bennett 2016)

**Several languages** have variations of final aspiration, but not final sonorant devoicing
- **Majority** of Mayan languages
- **Sierra Popoluca** (Elson 1947)
- **Kashmiri neutralization** (Vaux and Samuels 2005)

Positional [spread glottis] ([SG]) constraints account for the Tz’utujil data and predict typological patterns seen across the Mayan family and beyond.

- **Apparent implicational relationships**
  
  **FIN. nasal devoicing** ⇒ **FIN. sonorant devoicing** ⇒ **FIN. aspirated aspiration**
  
  × **Raises questions about phonetic motivation, contrast, and features**

### Analysis

<table>
<thead>
<tr>
<th>Constraints</th>
<th><strong>Final stop/affricate aspiration</strong></th>
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<tbody>
<tr>
<td><strong>SG</strong></td>
<td>Assign one violation mark for every consonant that occurs in the coda of a syllable and is [-SG].</td>
</tr>
<tr>
<td><strong>IDNT(SG)</strong></td>
<td>AOV for every corresponding input-output pair with differing values for [SG].</td>
</tr>
<tr>
<td><strong>IDNT(CG)</strong></td>
<td>AOV for every corresponding input-output pair with differing values for [CG].</td>
</tr>
<tr>
<td><strong>Final[-SG]</strong></td>
<td>AOV for every consonant that occurs word-finally and is [-SG].</td>
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<tr>
<td><strong>Final[-SG]</strong></td>
<td>AOV for every consonant that is [-voice].</td>
</tr>
<tr>
<td><strong>Voiceless Nasal</strong></td>
<td>AOV for every nasal consonant that is [-voice].</td>
</tr>
<tr>
<td><strong>Voiceless Sonorant</strong></td>
<td>AOV for every sonorant consonant that is [-voice].</td>
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<tr>
<td><strong>[+SG]</strong></td>
<td>AOV for every segment that is [+SG].</td>
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(3) **/wamnaq/ → [wamnaq]** ‘he has gone to sleep’

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<tr>
<td><strong>[+SG]</strong></td>
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</table>

The ranking of constraints like *R* and **N** relative to spread glottis constraints can account for typological variation.

(4) **/finwaʔ/ → [finwaʔ]** ‘I have eaten’

<table>
<thead>
<tr>
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<th>/fiːnwaʔ/</th>
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The UCSC linguistics research center 2010 laboratory report

### Discussion

**Implicational relationships**
- **Current constraint set predicts**
  
  **sonorant devoicing** ⇒ **obstructed aspiration** - **Is this true?**

  - Final aspiration is much more widely attested within the Mayan family.
  
  - **Similarly,** final nasal devoicing ⇒ **other final sonorant devoicing**

**Complex onsets**
- **Preconsonantal obstructed aspiration** in Tz’utujil
  a. **t-kam-i** ‘[kam-i] that he die’
  b. **ch-paan** ‘[pan] in it’  
  (Dayley 1985)

- Not clear that these are truly complex onsets **(morphology)**

- Is distribution different from sonorant devoicing?

**Underlying [+SG]** (Vaux and Samuels 2005)
- Unaspirated simple obstruents only appear before vowels, aspirated elsewhere
- Additional high-ranked “CV” constraint will produce attested outputs regardless of input.

**Phonetic motivation**
- Some accounts of final aspiration as phonetically motivated - enhances contrast between simple and glottalized obstruents where those contrasts would be obscured. (e.g. Bennett 2010)

- **Does not apply to sonorant devoicing**

**Contrastivist hypothesis** (Hall 2007, Dresher 2009)
- **Features active in the phonology should be the features that create phonemic contrasts.**

- **Neither [voice] nor [SG] appears to be contrastive in the phonemic inventory of Tz’utujil, yet at least one of them is active in the phonology.**

### References

- **Prince, Alan; Bruce Tesar; and Nazarré Merchant.** 2018. *OTWorkplace*. Online: https://sites.google.com/site/otworkplace/
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