Harmony Triggering as a Contrastive Property of Segments

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### Exceptionality in Harmony Triggering
- Many languages have harmonies triggered by subset of potential triggers:
  - Backness harmony in Hungarian (Vago 1980)
  - Nasal harmony in Achehese (Durie 1985) and Rejang (Coady & McGinn 1982)
  - Tongue root harmony in Classical Manchu (Zhang 1996)

<table>
<thead>
<tr>
<th>Harmony</th>
<th>No Harmony</th>
</tr>
</thead>
<tbody>
<tr>
<td>[kɪmuŋ] 'harboring hatred'</td>
<td>[hloŋ] 'lying straight'</td>
</tr>
<tr>
<td>[nɪso-ku] 'sieve'</td>
<td>[nɪnasa-ku] 'two-man boat'</td>
</tr>
<tr>
<td>[nɪhu-a] 'somewhat heavy'</td>
<td>[nɪhu-a] 'somewhat easy'</td>
</tr>
</tbody>
</table>

- Morpheme indexation (Pater 2000, 2009) to harmony imperative constraints (e.g. \( \text{SPREAD}(F) \) (Padgett 1995)) over- and under-generates patterns of harmony triggering.

#### Proposals:
1. Idiosyncratic ability of some segments to trigger harmony is an encoded property of those segments
2. Encoded by deactivation parameter of subsegmental gestures

### Representing Harmony with Gestures
- Gestures (Browman & Goldstein 1986, 1989): phonological units specified for multiple parameters (goal articulatory state, articulators, strength, etc.)
- Additional gestural parameter encodes whether gesture is self-deactivating or not (Smith 2016)
- Self-deactivating (non-harmony-triggering) gesture:
  - Activation duration
  - Target articulatory state reached, gesture self-deactivates

- Non-self-deactivating (harmony-triggering) gesture:
  - Activation duration
  - Target articulatory state reached, gesture does not self-deactivate

- Non-self-deactivating gesture (harmony trigger) overlaps other gestures (harmony targets)

### Triggering Patterns & Inventory Shaping
- Harmony is not driven directly by harmony-driving constraint
- Harmony results from non-self-deactivating gesture in language’s phonological inventory and surface forms
- Inventory shaped by markedness and faithfulness constraints to include (non-self-deactivating gestures):
  - \( \text{NONSELFDEACTIVATE(Gest)} \): penalizes self-deactivating (\( \bullet \)) gestures of type X (e.g. tongue root advancement)
  - \( \text{IDENT(deactivation)} \): preserves underlying gestural deactivation parameter setting

- **Across-the-board triggering:** grammar manipulates self-deactivation parameter to allow a single gestural type to surface
  - Classical Manchu inventory:
    - Manchu triggering /\( i \)/
    - Manchu non-triggering /\( i \)/

- **Surface gestural score for vowels of [kɪso-ku] ‘sieve’:**
  - \( [i \ a \ u \ i] \)

- **Surface gestural score for vowels of [hloŋ] ‘lying straight’:**
  - \( [i \ a \ u \ i] \)

- **Conditioned triggering:** grammar restricts co-occurrence of (non-)self-deactivating gestures
  - \( \ast (\text{Tongue Root advanced, Tongue Body pal. wide}) \rightarrow \text{IDENT(deactivation)} \)

- Classical Manchu inventory:
  - Manchu triggering /\( a \)/

### Constraint Indexation & Undergeneration
- **Constraint indexation cannot generate different distributional patterns of triggering and non-triggering segments**
- Classical Manchu: harmony-triggering /\( i \)/, /\( u \)/, /\( a \)/ restricted to initial syllable; non-triggering /\( i \)/ and /\( u \)/ unrestricted (Zhang 1996)
- **Affix agreement with initial/final syllable of root: triggering segments restricted to root-edge syllables** (Finley 2010)

- **Morpheme indexation:** segment with harmonizing feature in indexed morpheme will trigger harmony in any position

- **Segment indexation:** constraint indices cannot be referenced by positional faithfulness/markedness constraints (unlike gestural parameters)

### Constraint Indexation & Overgeneration
- **Constraint indexation:**
  - \( \text{SPREAD}(F) \) (Padgett 1995): drives harmony by penalizing non-undergoers (segments not associated with harmonizing F)
  - Constraint indexation (Pater 2000, 2009) to \( \text{SPREAD}(F) \) can generate patterns of exceptional triggering:
    - \( \text{SPREAD}(F) \) > \( \text{IDENT}(F) \) > \( \text{SPREAD}(F) \)
  - Indexed roots trigger harmony; non-indexed roots do not

- **Problem:** potential targets of harmony may also be indexed to \( \text{SPREAD}(F) \)
- **Indexation of an affix to \( \text{SPREAD}(F) \), incorrectly predicts harmony within otherwise disharmonic roots:**
  - \( [s \ s \ s] \rightarrow [s \ s \ s] \)

- Exceptionally targeted suffixes never induce harmony in otherwise disharmonic roots (Finley 2010)

Indexation to \( \text{SPREAD}(F) \) produces unattested patterns not generated by contrastive triggering analysis
References


