Nasal Spreading as Defective Gestural Deactivation

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INTRODUCTION
- Analyses of nasal harmony as spreading of feature [+nasal] bring up issues regarding:
  - Locality of spreading
  - Representation of transparency
  - Directionality of spreading
- Source of the spreading imperative
- Adopting a gestural representation of phonological forms allows us to address these issues.
- Gestures in Articulatory Phonology (Brown & Goldstein 1986 et seq.): representational units calling for the performance of an articulatory task.
- Gestures are spatiotemporal units:
  - Each has inherent duration that can be manipulated to produce spreading.
  - Multiple gestures existing the same articulator may be active simultaneously, leading to a novel account of transparency in nasal spreading.

GESTURAL DEACTIVATION AND SPREADING
- Coordination and duration of gestures is determined by their intrinsic clocks.
- A typical clock determines a gesture’s start and finish:
  - Start triggers gestural activation according to its coordination with other gestures’ clocks.
  - Finish deactivates a gesture at a specified phase (roughly corresponding to achievement of target specification).
- Some gestures are defective—clock does not determine gesture’s finish/deactivation (or its start/activation in other cases).

TRANSPARENCY IN NASAL SPREADING
- Obstructions can be transparent to nasal spreading, neither undergoing nasalization nor blocking it.
- Tuyuca (Tucanoan, Barnes & Takagi de Sílver (1976)):
  - [mǐlp] ‘badger’ [+nasal] ‘demone’
  - [jũk] ‘yucca soup’ [jũb] ‘bird’
- Transparent obstructions in Guarani are acoustically indistinguishable from oral obstructions, suggesting velum closure (Walker 1999).

Proposition: nasal spreading is the prolonged activation of a gesture calling for opening of the velum

Proposal: nasal spreading results from competition between velum opening and closure gestures

Oral constrictor gestures for obstructions are accompanied by a velum closure gesture.

[λ1 λ2 p3 \[1 ω1] \[1 1 1\]

Velum open

Tongue Body

Labial narrowing

Palatal narrowing

Resul\(\text{ing velum height:}

Hallmarks of co-activation transparency
- Spreading is local: single velum opening gesture remains active throughout a word, in line with proposals by Ni Choisin & Padgett (2001) & Gafos (1996).
- In Optimal Domains Theory (Cole & Kissberth 1994, 1995) and Span Theory (McCarthy 2004, O’Keefe 2005) [+nasal] takes entire harmony span as its domain. However, [+nasal] is not present on transparent segments.
- No derivational opacity: single level of representation contains gestures for velum opening and closure.
- Special status of obstructions: only obstructions are predicted to be transparent due to their accompanying velum closure gesture, in line with typology in Walker (1998/2000).
- Constraints in Optimal Domains Theory and Span Theory predict more possible transparent segments than are actually attested.

MIXED INVENTORIES OF VELUM GESTURES
- Prediction: both a typical and a defective velum opening gesture could be present in a language’s inventory.
- Acehnese (Malayo-Polynesian, Durie (1983)):
  - Typical nasal consonants trigger rightward spreading: ‘funny nasals’ do not.
  - Spreading trigger: [mẽhjõkohi] ‘shadow’
  - Non-trigger: [mẽhjõkōhi] ‘summer’
- Acehnese inventory includes two velum opening gestures: one typical (non-trigger), one defective (trigger).

DIRECTIONALITY OF SPREADING
- Most cases of nasal spreading are progressive/rightward.
- Bias toward rightward spreading is predicted by defective deactivation analysis.
  - Prolonged activation of velum opening gesture results in rightward spreading.
  - Re-coupling of velum opening gesture results in leftward spreading, requiring re-ordering of gestures from input linear ordering specifications.

CONCLUSION
- Locality of spreading is maintained even when obstructions behave transparently to nasality.
- Spreading imperative arises from representational units, providing simple analysis of inventories with both trigger and non-trigger nasals.
- Rightward bias in nasal spreading is predicted by defective gestural deactivation.
- Future work: examination of the mechanisms of leftward spreading.
References


