Bidirectional Nasal Harmony in Toro Tegu

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Toro Tegu

Mali, West Africa

- Dogon Languages
  - approximately 20 languages
  - Mali and northern Burkina Faso

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- Dogon Languages Project
  - systematic documentation of Dogon languages by eight fieldworkers since 2004
  - PI: Jeff Heath, U of Michigan
  - funding: NIH, NSF-DEL
  - lexical, grammatical, and textual documentation with cultural undertones
  - `http://dogonlanguages.org`

Nasalization Hierarchy

Walker 1998

(+) 1 vowels 2 glides 3 liquids 4 fricatives 5 stops 6 (−)

- universal hierarchy for nasalize-ability
  - targets vs. blockers

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- universal hierarchy for nasalize-ability
  - targets vs. blockers
- implicational by ordering ∗NasStop, ∗NasLiq, ∗NasV. . .

Harmonic Serialism

McCarthy 2009

- OT-internal theory of harmony
  - one change at a time
  - spreading occurs in steps
    - SHARE(F): assign a violation mark for each pair of adjacent segments that are not linked to the same token of the privative feature F.

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  - privative feature [NAS] rather than binary [±NAS]
  - spread until *more spreading = more violations*
- supported by Walker 1998

"no language [with direction-specific blocking] has ever been reported. . . Serial Harmony would be threatened if some language had leftward and rightward spreading processes that differed only in their blockers" (McCarthy, 2009:40-43)

- each language has a fixed ordering of ∗NASSEGMENT constraints and SHARE(F)
- if a violation is incurred by ∗NASSEGMENT when spreading one way, the same will be true of the opposite way

Argument

I argue that Toro Tegu exhibits bidirectional nasal harmony that is asymmetric.

[NAS] Segments in Toro Tegu

- nasal stops /ñ m̃ ñ̪ ŋ̪̃ /
- nasal vowels
- nasal sonorants /w̃ ỹ r̃/

Rightward Nasal Harmony

monomorphemic

- vowels, glides, and rhotics are targets:

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  (1) /m̃arey/ → [m̃ẽr̃ẽỹ] ‘injury’

- laterals, fricatives, and stops are blockers:

  (2) /m̃olu/ → [mõlu] ‘resin’

Rightward Nasal Harmony

multimorphemic

- vowels, glides, and rhotics are targets:

(3) /uñɔ + yara/ → [ũñĩỹãr̃ã] 'go up + *fut*'

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- laterals are also targets and are re-paired to [n]:

  (5) /añña + li/ → [ãññũñɔ̃] 'urinate + *perf.neg*'

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  (5) /añña + li/ → [ãññũñɔ̃] 'urinate + *perf.neg*'

- fricatives and stops are blockers:

  (6) /uñɔ + sɔ/ → [ũñũsɔ] 'go up + *perf*'

Leftward Nasal Harmony

monomorphemic

- vowels and glides are targets:

(7) /yaaɲa/ → [ỹããɲã] ‘night’

Leftward Nasal Harmony

monomorphemic

- vowels and glides are targets:

  (7) /yaaŋ̃a/ → [ỹããŋ̃ã] ‘night’

- stops, fricatives, rhotics, and laterals are blockers:

  (8) /leŋ̃e/ → [lẽŋ̃ẽ] ‘sweet’

Leftward Nasal Harmony

multimorphemic

- vowels, glides, and laterals are targets (usually):

(9) /ya + ñu/ → [ỹãñũ] 'woman + *sg*'

(10) /lu + ño/ → [ñũñõ] 'go in + *imperf.neg*'

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- stops, fricatives, and rhotics are blockers:

(11) /ɛrɛɛ + ñu/ → [ɛrɛ̃ɛ̃ñũ] 'strapping young man + *sg*'

Summary

segment	rightward		leftward	
	mono	multi	mono	multi
stop	block		block	
fricative	block		block	
vowel	target		target	
glide	target		target	
rhotic	target		block	
lateral	block	target	block	target

RV-Deletion

overview

- -rv and -r̃v syllables are deleted before an affix:

  (12) /dɔrɔ + tɔ/ → [dɔtɔ] 'sell + *imperf*'

  (13) /zeri + li/ → [zeːli] 'bring + *perf.neg*'

- multimorphemic words only

RV-Deletion

rightward effects

- rv-deletion **does not** block rightward nasal harmony onto vowels, glides, or rhotics

(14) /ñaɾ̃u + yara/ → [ñãỹãɾ̃ã] ‘lay mortar + *fut*’

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  (14) /ñaɾ̃u + yara/ → [ñãỹãɾ̃ã] 'lay mortar + *fut*'

- rv-deletion **does** block harmony onto laterals

  (15) /ñãɾ̃ã + li/ → [ñãli] 'chase + *perf.neg*'

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- rv-deletion **does** block leftward nasal harmony onto vowels, glides, or rhotics

  (16) /wara + ña/ → [wañã] 'cultivate + *imperf.neg*'

- rv-deletion **does not** block harmony onto laterals, which are re-paired to [n]

  (17) /lurɔ + ñɔ/ → [ñũñɔ̃] 'be hurt + *imperf.neg*'

Summary

- stops and fricative are always blockers

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- unless they're to the left of rv-deletion:

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- rhotics are targets for rightward nasal harmony:

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- but blockers for leftward nasal harmony:

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- laterals are blockers for monomorphemic nasal harmony in both directions:

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- but targets for multimorphemic harmony:

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- but rv-deletion blocks rightward harmony:

  (15) /ñãr̃ã + li/ → [ñãli] 'chase + *perf.neg*'

- but rv-deletion does not block leftward harmony:

  (17) /lurɔ + ñɔ/ → [ñũñɔ̃] 'be hurt + *imperf.neg*'

Implications

Nasalization Hierarchy

(+) 1 vowels 2 glides 3 liquids 4 fricatives 5 stops 6 (–)

- if liquids, then glides
  - *not always*
  - leftward nasal harmony after rv-deletion

Implications

Nasalization Hierarchy

- distinction between rhotics and laterals
  - impossible to assimilate into nasalization hierarchy
  - multimorphemic rightward harmony: both target
  - monomorphemic leftward harmony: both block
  - monomorphemic rightward harmony: rhotics target, laterals block
  - multimorphemic leftward harmony: rhotics block, laterals target

Implications

Harmonic Serialism

- HS is incompatable with Toro Tegu by nature of the SHARE(F) constraint
- no ranking of the ∗NASSEGMENT constraints accounts for the data

Jumping to Conclusions

- languages with different blockers in different directions do exist
- contrary to Walker (1998) and McCarthy (2009)

Jumping to Conclusions

- Walker's (1998) implicational nasal hierarchy cannot account for nasal harmony in Toro Tegu

Jumping to Conclusions

- McCarthy's (2009) theory of Harmonic Serialism needs to be reworked
- tweak the SHARE(F) constraint?

Jumping to Conclusions

- harmony is not understood as fully as previously thought
- more creative, outside-the-box accounts are needed

Looking Forward

- account for this data in OT
  - van Oostendorp (2006) Theory of Morphosyntactic Colours
  - McCarthy (2009) Harmonic Serialism
- search for similar languages within nasal harmony
- look for parallel languages within other kinds of feature harmony