

# The Gradual Deletion Hypothesis: Evidence from Nasality Agreement in Hixkaryana



Millie Hacker mghacker@ucsc.edu  
University of California, Santa Cruz

Linguistics Undergraduate Research Conference, 2024

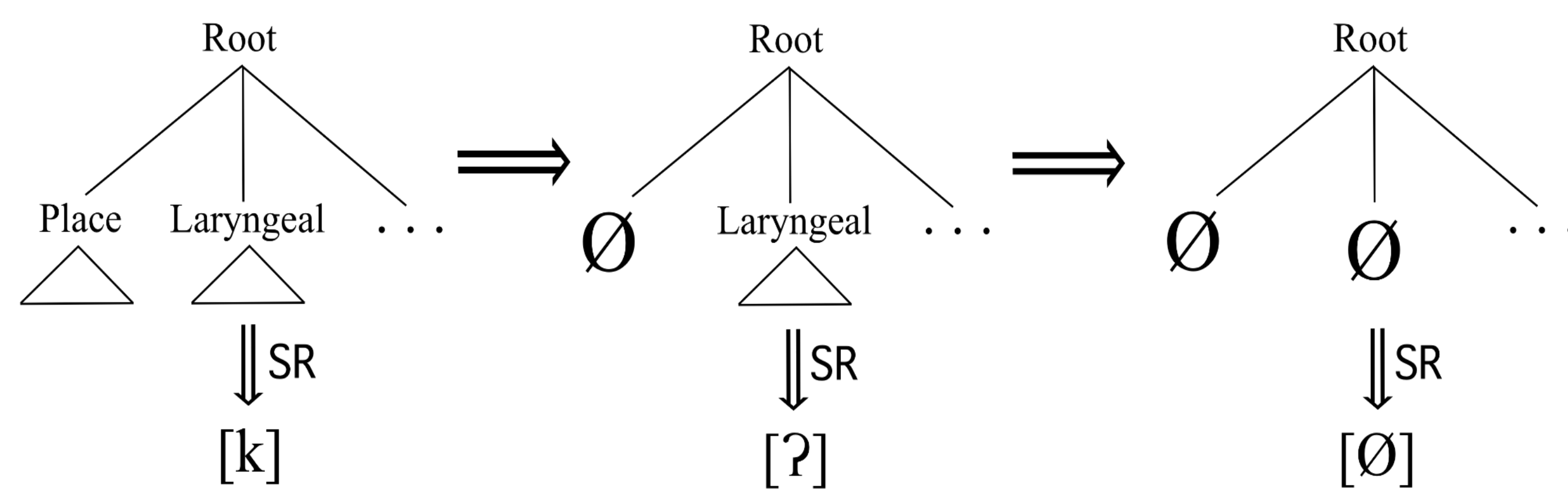
## Overview

- ❖ Hixkaryana speakers sometimes debuccalize C to ? pre-nasally
- ❖ Single-consonant prefixes have Ø allomorphs before nasal-initial stems, and only before those stems
- ❖ Pre-nasal debuccalization and pre-nasal deletion are analyzed as two extensions of the same overarching system of gradual deletion

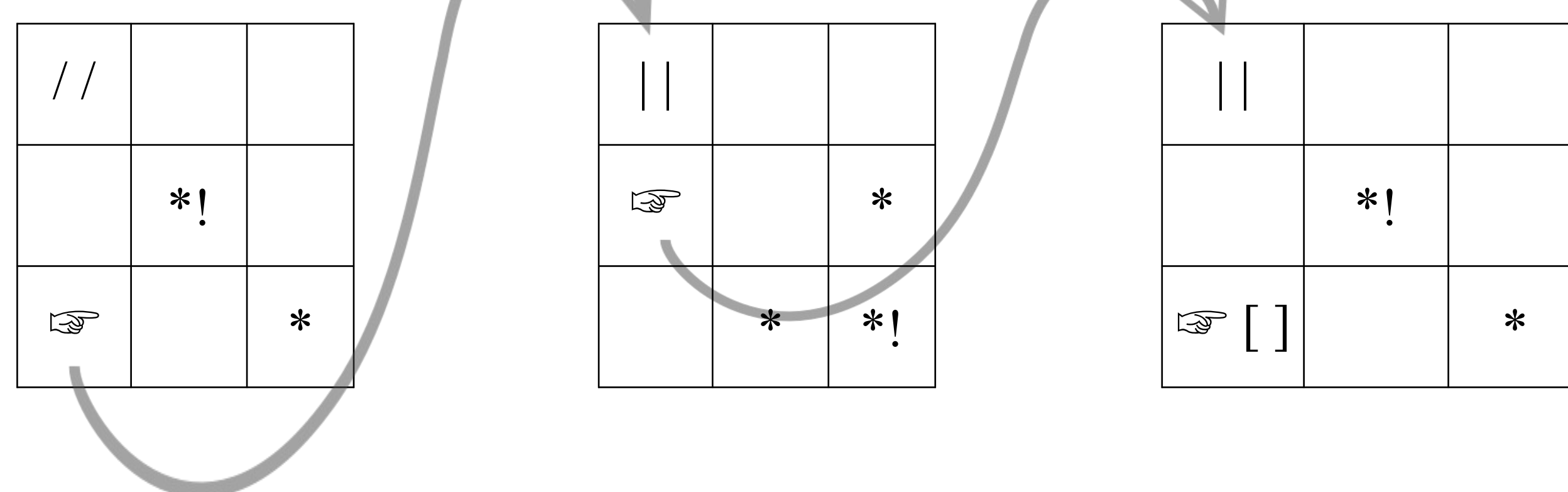
❖ Hixkaryana is a Cariban language spoken by ~1,000 people around the Nhamundá river in Northern Brazil

## Background: Gradual Deletion

- ❖ **Laryngeal** and **supralaryngeal** consonants show an **asymmetric** relationship in their vulnerability to deletion
- ❖ **Gradual deletion** is the idea that full deletion may entail an **intermediate partial deletion step**<sup>[4]</sup>
  - In the segment's internal geometry, this means first deleting the **place node**, then the rest of the segment's articulation
- ❖ For consonants, place deletion is equivalent to **debuccalization**



- ❖ The theory is situated in **harmonic serialism**, meaning the **output** of each derivational step feeds into the **input** of the next until the most optimal output is reached<sup>[3]</sup>

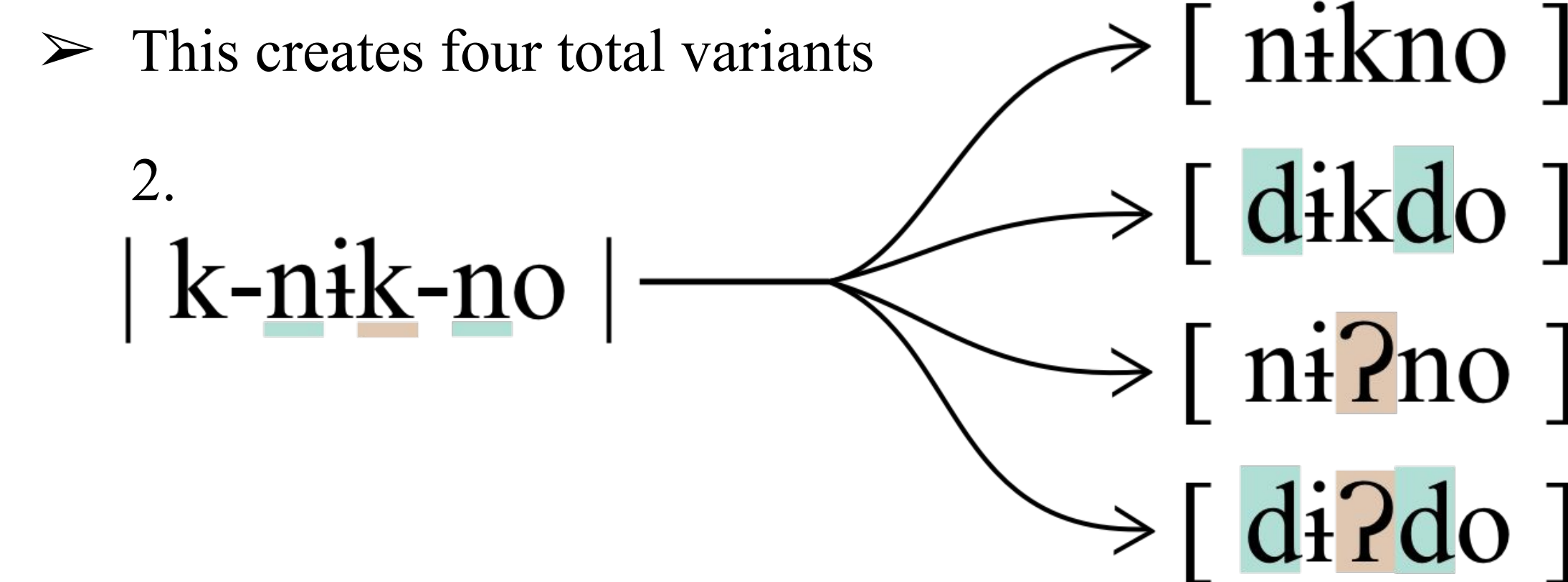


## Nasality Agreement

- ❖ In Hixkaryana, **nasal consonants following obstruents are marked** (\*kn)
- ❖ Nasals (n, m, ŋ) typically transform to **oral equivalents** (d, b, dʰ) in this environment so that the sequence agrees for [-nas]

1. /k-nik-no/ → [dikdo] 'I slept'  
/k-manho-no/ → [banhono] 'I/we danced'  
/k-ŋake-jaʔhe/ → [dʰakejaʔhe] 'he will send us'

- ❖ There is **inter-speaker variation**: while some speakers change the nasal segment, others **debuccalize** the preceding obstruent<sup>[1]</sup>



➢ This creates four total variants

- ❖ Notice that the inflectional prefix /k-/ **also deletes in this environment**
  - ...which does **not** occur for stems beginning with non-nasals

3. **ki-tajma-no** 'I pushed you'  
*Here, the /ki-/ allomorph is chosen as an alternative to deletion*  
**k-hoka-mohso-no** 'I made you rest'  
**k-ratano** 'I wept'  
**k-owa-ni** 'our chest'

- ❖ The debuccalizing variant is the **only** source of glottal stop in Hixkaryana
- ❖ In all other place-deletion contexts in the language, we get [h], not [ʔ]
  - 4. /i-esnoku-su → [wesnohsu] *reduction of /k/ to /h/*
  - /n-ekati-jaha/ → [nekahtaha] *h-insertion for mora preservation*
- ❖ [h] occurs preceding nasals in non-derived environments, therefore there cannot be an across-the-board rule that pre-nasal laryngeals take the form [ʔ]

5. nakpohno 'he burned it'    nahmeko 'he gave them food'

## Hypotheses

- Place node deletion **resolves** the markedness for [ʔN]-variant speakers
- Pre-nasal null-allomorphy of prefixes **shares an underlying mechanism** with pre-nasal debuccalization - namely, gradual deletion

## Analysis

- ❖ Place node deletion takes place at nasality disagreement sites
- ❖ Debuccalization quells the markedness of nasality disagreement because there is **less overall disagreeing content** (place nodes exacerbate disagreement)
- ❖ Variants correspond to minimal re-rankings of relevant constraints:

### KN

*Ident[nas] and Max[place] are dominant over markedness*

| k-nik-no   | ID[nas] | Max(pl) | M    |
|------------|---------|---------|------|
| ☞ k-nik-no |         |         | **** |
| k-niʔ-no   |         | *!      | ***  |
| k-nik-do   | *!      |         | **   |

### KD

*Markedness is dominant  
Denasalization is the most efficient path*

| k-nik-no   | M     | ID[nas] | Max(pl) |
|------------|-------|---------|---------|
| k-nik-no   | ****! |         |         |
| k-niʔ-no   | ***!  |         | *       |
| ☞ k-nik-do | **    | *       |         |

### ʔN

*Max[place] is low  
Ident[nas] is dominant*

| k-nik-no   | ID[nas] | M     | Max(pl) |
|------------|---------|-------|---------|
| k-nik-no   |         | ****! |         |
| ☞ k-niʔ-no |         | ***   | *       |
| k-nik-do   | *!      | **    |         |

ʔD Probably results from diachronic overlapping of other variants

- Full deletion of prefixes:

| k-nik-no   | M     | Max(pl) |
|------------|-------|---------|
| k-nik-no   | ****! |         |
| ☞ ʔ-nik-no | ***   | *       |

| ʔ-nik-no   | M    | Max(pl) |
|------------|------|---------|
| ʔ-nik-no   | ***! |         |
| ☞ Ø-nik-no | **   |         |

## Conclusion

- ❖ A gradual deletion analysis simultaneously explains why some speakers debuccalize to [ʔ] pre-nasally and why null-allomorphy of prefixes takes place before nasal-initial stems

*Thank you to Ryan Bennett, whose ongoing guidance since the beginning has been truly invaluable to the development of this analysis.*