Suffix independence in Paraguayan Guarani nasal harmony

stress, nasality, and nasalization

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  - Language has oral/nasal contrast and both leftward and rightward nasalization.

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  1. Oral/nasal contrast and nasalization are ***right-aligned***, rather than specified at ***stressed syllables***.
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  2. Cyclic morphological structure for suffixes.
- Stressed syllable positional faithfulness (Beckman 1997; 1998), the prominent analysis for decades, is no longer supported.

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- Paraguayan Guarani (Tupi-Guarani, Tupian) is spoken by 5-6 million in Paraguay and neighboring areas of Argentina and Brazil.

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- Learned as a first language for many children. Around 80% of the population speak Guarani at home.
- Guarani has been described for decades (Gregores & Suárez 1957, Estigarribia 2020) and has significantly contributed to phonological theory (Beckman 1998; Piggott 2003)

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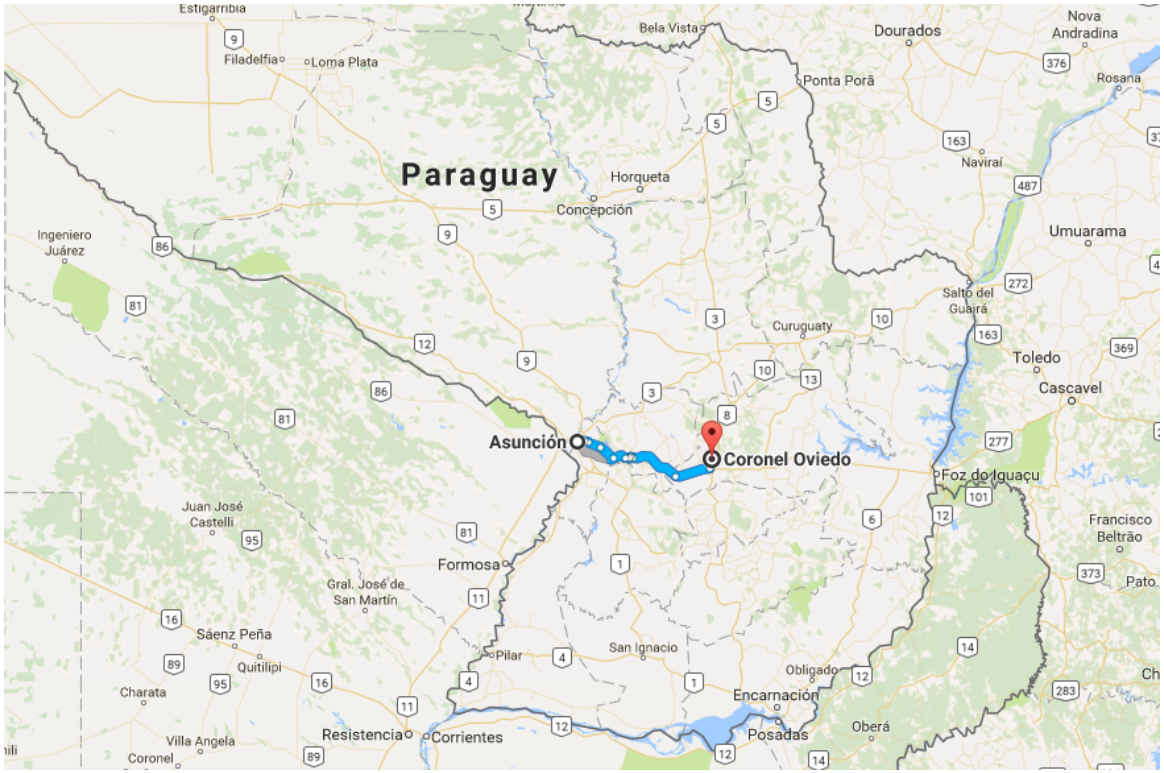
- All data collected in consultation with **8** native speakers.
- **6**: in-situ fieldwork in Coronel Oviedo, Paraguay.
- **2**: virtual fieldwork; Asunción and Concepción.



Basic phonology

Guarani phonemic inventory:

(3)

p	t			k	ʔ ʻ
m^b	n^d			$ŋ^g$	
m	n		ɲ *ñ*	ŋ *g̃*	
			ʤ *j*		
	s	ʃ *ch*			
ʋ *v*	ɾ *r*			ɯ̨ *g*	

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i, ĩ	ɨ, ɨ̃ (*y*, *ỹ*)	u, ũ
e, ẽ		o, õ
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- Guarani has nasal-oral stops instead of voiced stops.
- These contrast with voiceless stops.
- 6 phonemic vowel qualities, all oral and nasal counterparts.

Basic phonology

- All Guarani syllables are type CV.
- Nasal-oral stops are legal onsets and occur word-initially.

(5) a. mbokaja
'coconut'

b. ndu
'noise'

c. ngotyo
'towards'

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b. a-karu-'se
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'I will want to eat'

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- Prefixes are never stressed.

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σ́-positional faithfulness in nasality

- In roots and prefixes, the nasal/oral contrast and regressive nasalization are closely tied to ***stress***.

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1. Vowel nasality only contrastive at stressed syllables, and these trigger leftward (regressive) nasalization.
   - *"positional neutralization, triggering"* (Beckman 1998)

(7) a. tuˈpa 'bed' b. $\overleftarrow{\text{tũˈpã}}$ 'god' c. *tuˈpã d. *tũˈpa

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   - voiceless segments are *transparent*

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2. Leftward nasalization is blocked by other stressed syllables.
   - "*positional blocking*" (Beckman 1998)

(8) a. avat**i**-m**ĩ**'**r̃ĩ**
corn-small
'wheat'

b. a**va**-**ñẽ**'**ʔẽ**
man-word
'Guarani' (lang.)

c. pɨ'**a**-p**õ**'**r̃ã**
heart-pretty
'kindness'

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Beckman's (1998) proposal for Guarani nasality and nasalization:

- IDENT-ó(NASAL): protect input nasality/orality at stressed syllables.

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(9)

/tũpa/	IDENT-ó(NASAL)	*Ṽ	IDENT(NASAL)
a. tũpa		*!	
☞ b. tupa			*
c. t←ũpã	*!	**	*

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/tupã/ 'god'	ID-ó(NAS)	ALN-L(NAS)	*Ṽ	ID(NAS)
a. tupã		*!	*	
b. tupa	*!			*
☞ c. tũpã̀			**	*

$\acute{\sigma}$-positional faithfulness in nasality

- This ranking also predicts "positional blocking" in compounds.

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/pɨ'a-porã/ 'kindness'	ID-ó(NAS)	ALN-L(NAS)	*Ṽ	ID(NAS)
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b. pɨ̃'ã-põr̃ã	*!		****	****
☞ c. pɨ'a-põr̃ã		**	**	**
d. pɨ̃'a-põr̃ã		**	***!	***

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- Non-local spread also ruled out (Candidate d)

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1. In full complementary distribution with nasal consonants.
2. Trigger regressive nasalization in any position (regardless of stress)

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    - nasal-oral stops before ***oral*** vowels
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   - alternations reflected in the orthography of the language.

The status of nasal-oral stops

2. Nasal-oral stops trigger regressive nasalization in stressed and unstressed positions.

(14) a. $\overleftarrow{\text{pãnã'}\mathbf{m}^{\text{b}}\text{i}}$
'butterfly'

b. $\overleftarrow{\tilde{\text{a}}\mathbf{ŋ}^{\text{g}}\text{i'ru}}$
'friend'

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(14) a. pãnã'mbi
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b. ãŋgi'ru
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→ As with Ṽ, they trigger regressive nasalization at a long distance.

(15) a. ndaʔa-ja-jo-haʔi'hu-ʔi
NEG-1PL.IN-REC-love-NEG
'we don't love each other'

b. nãʔã-ñãʔã-ñõ-hẽ'nõʔ-ĩʔ
1PL.IN-REC-call-NEG
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(16) nã-ñã-ñõ-hẽˈnᵈu-ⁱ
NEG-1PL.IN-REC-listen-NEG
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(17)

/mimi/ 'radiant'	***NV**	ID-*ó*(NAS)	ALN-L(NAS)	*Ṽ	ID(NAS)	***CNTR**
a. mimi	*!*		*			
b. m^bi**m^b** i			*!			**
☞ c. $\overleftarrow{\text{mĩ}}$**$m^b$**i				*	*	*

→ Supported by previous work (Stanton 2017).

Directionality of nasalization

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(18) a. ñãn^{d}e-ja'gua
1PL.IN-dog
'our dog'

b. nẽ-m^{b}araka'ja
2SG-cat
'your cat'

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Nasalization in suffixes

- Recall that prefixes are clear targets of regressive nasalization, for both nasal vowel and nasal consonant triggers.

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(19) a. [n^{d}]a-[j]a-[j]o-ha^{i}'hu-^{i}
NEG-1PL.IN-REC-love-NEG
'we don't love each other'

b. ←[n]ã-[ñ]ã-[ñ]õ-hẽ'n**õ**-^{ĩ}
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- Such analysis that stressed and unstressed suffixes are different in nasality/nasalization, due to IDENT-$\acute{\sigma}$(NASAL).

Nasalization in suffixes

1. **Unstressed suffixes are contrastively oral/nasal.**

   → they also fail to regressive nasalize preceding roots and prefixes.

(20) a. a-jaˈpo-m̃ã

1SG-work-CMPL

'I already worked'

b. *a-jaˈpo-mᵇa

c. *ã-ñãˈpõ-mã

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d. e-ˈ[j]u-[←n]**ã**
   IMP-come-REQ
   'please come!'

e. *e-ˈju-n^{d}a

f. *[←]ẽ-ˈñũ-n**ã**

Nasalization in suffixes

- ★ *σ́* positional faithfulness incorrectly predicts that unstressed suffixes neutralize their oral/nasal contrast.

(21)

/a-japo-mã/ 'I already worked'	ID-*σ́*(NAS)	ALN-L(NAS)	*Ṽ	ID(NAS)
a. ã-ñãpõ-mã	*!		****	***
☹ b. a-japo-mã		****	*!	
💣 c. a-japo-m^{b}a		****		*

→ prefer candidates with less nasal vowels (c over b on *Ṽ).

Nasalization in suffixes

- But, $\acute{\sigma}$-positional faithfulness makes the right predictions for *stressed* nasal suffixes.

  → they fail to neutralize oral/nasal contrast

  → and they fail to nasalize preceding roots and prefixes.

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(22) a. h-ẽn^{d}u-ˈʔ**ɨ̃**
3POSS-listen-PRV
`deafness'

b. *h-ẽnũ-ʔ**ɨ̃**

(23) a. o-jehu-r**õ**
3-happen-if
`if it happens'

b. *õ-ñẽhũ-ˈr**õ**

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(25) a. mĩtã-'ŋgᵘera-ndi
child-PL-with
'with the children'

b. *mĩtã-'ŋgᵘeẽrã-ndi

Nasalization in suffixes

- ★ *σ́*-positional faithfulness incorrectly predicts that unstressed suffixes are targets of nasalization.

(26)

/che-si-pe-guarã/ ‘for my mother’	ID-σ́(NAS)	ALIGN-L(NASAL)	*Ṽ	ID(NAS)
a. che-si-pe-guara	*!			*
b. chẽ-sĩ-pẽ-gũãrã̃	*!		*****	
💣 c. che-si-pẽ-gũãrã̃		**	***	*****
☹ d. che-si-pe-gũãrã̃		***!	**	****

- Not the case when preceding suffix is stressed: protected by IDENT-*σ́*(NASAL).

Roadmap

1. Language background and basic phonology
2. $\acute{\sigma}$ positional faithfulness in roots and prefixes (Beckman 1998)
3. Nasality and nasalization in suffixes
4. **Analysis**
   - Right-edge faithfulness + OO-correspondence
   - Reevaluating $\acute{\sigma}$ positional faithfulness
5. Progressive harmony
6. Discussion
   - Typology of prefix-suffix asymmetries
   - A possible prosodic analysis
   - Dialectal variation in progressive harmony

Goals for the analysis

- Two problems with $\acute{\sigma}$-positional faithfulness that require fixing:
  1. All suffixes retain oral/nasal contrast regardless of stress.
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  2. ***Output-output Correspondence*** (Benua, 2000): language's cyclic morphological structure forces suffix-internal spread of nasalization.
- These will be added to the existing σ́-positional faithfulness analysis.

  → which we will reevaluate later on.

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- Prevent suffixes from neutralizing via high-ranked faithfulness at the right edges of words.

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(27) **IDENT-R(NASAL)**
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(28)

/a-japo-mã/ 'I already worked'	**ID-R(NAS)**	ID-*ó*(N)	ALN-L(N)	*Ṽ	ID-(N)
a. ã̃-ñãpõ̃-mã̃		*!		****	***
☞ b. a-japo-mã̃			****	*!	
c. a-japo-m^{b}a	*!		****		*

Right-edge faithfulness

- Unstressed bisyllabic suffixes are similarly protected from neutralization.

  → they also trigger suffix-internal regressive spread.

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1SG-POSS-listen-if
'if you hear me'

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1SG-POSS-listen-if
'if you hear me'

(30)

/che-r-enu-ramõ/ 'if you hear me'	ID-R(N)	ID-*ó*(N)	ALN-L(N)	*Ṽ	ID(N)
a. che-r-en^{d} u-ramõ			9!	1	
b. che-r-en^{d} u-ram^{b}o	*!		9		1
c. chẽ-r̃-ẽnũ-r̃ãmõ		*!		5	6
☞ d. chẽ-r̃-ẽn^{d}u-r̃ãmõ			4	5	5

Output-output correspondence

- Protect preceding suffixes from nasalization via output-output correspondence (Benua, 2000).

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(31) OO-IDENT(NASAL)
Assign a violation to each segment in an output whose specification for nasality is not identical to its corresponding segment in the base.

Output-output correspondence

- ★ Protect preceding suffixes from nasalization via output-output correspondence (Benua, 2000).

(31) OO-IDENT(NASAL)
Assign a violation to each segment in an output whose specification for nasality is not identical to its corresponding segment in the base.

(32)

/che-si-pe-guarã/ 'for my mother' BASE: (che-si-pe)	ID-R(N)	**OO-ID(N)**	ID-σ(N)	ALN-L	*ṽ	ID(N)
a. che-si-pe-guara	*!		*			*
☞ b. che-si-pe-g̃ũãr̃ã				***	**	***
c. che-si-pẽ-g̃ũãr̃ã		*!		**	***	****

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- Suffixes show cyclic morphological structure.

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- Prefixes can theoretically be ordered anywhere in the derivation.

★ ALIGN-L(NASAL) will require left-aligned nasalization even if prefixes aren't in the base of correspondence.

(33)

/ja-jo-henõi-se/ 'we want to call e.o.' BASE: (hẽnõ$^{\tilde{i}}$)	ID-R(N)	**OO-ID(N)**	ID-*ó*(N)	ALN-L	*Ṽ	ID(N)
a. ja-jo-$\overleftarrow{\text{hẽnõ}^{\tilde{i}}}$-se				*!***	1	1
☞ b. $\overleftarrow{\text{ñã-ñõ-hẽnõ}^{\tilde{i}}}$-se					4	5
c. ja-jo-hen^{d}o^{i}-se		*!	*	***		1

Output-output correspondence

- ⋆ But, prefixes should be ordered first in the derivation to avoid the "missing base" problem (Benua 2000).
- • The base of correspondence must be a legal output in the language

Output-output correspondence

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- The base of correspondence must be a legal output in the language

(34) a. ñã-ñõ-hẽnõ$^{\tilde{i}}$-ˈse-mã

1PL.IN-REC-call-DES-CMPL

'we already want to call each other'

b. Illegal base:
*hẽnõ$^{\tilde{i}}$-ˈse

Legal base:
ñã-ñõ-hẽnõ$^{\tilde{i}}$-ˈse

Interim summary

- I introduced two new mechanisms added to the existing analysis of σ́ positional faithfulness.

  1. **Right-edge faithfulness**: IDENT-R(NASAL)
     → prevents the neutralization of nasality in unstressed suffixes.

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- But, ***there are crucial redundancies*** with σ́ positional faithfulness.

  → Ultimately, I argue that σ́ positional faithfulness is both unsupported and unnecessary.

Removing σ́ positional faithfulness

Redundancy 1: IDENT-R(NASAL) and IDENT-σ́(NASAL).

- Completely overlap in their violations in any form with a final lexically stressed syllable (roots, forms with a final stressed suffix).

  → stress is overwhelmingly final in Guarani.

Removing *ó* positional faithfulness

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  → stress is overwhelmingly final in Guarani.

- Assuming stress is always right-aligned, roots and final suffixes no longer need the protection of IDENT-*ó*(NASAL).

Removing $\acute{\sigma}$ positional faithfulness

Redundancy 2: OO-IDENT(NASAL) and IDENT-$\acute{\sigma}$(NASAL).

- Nasalization of any preceding stressed syllable already violates both OO-IDENT(NASAL) and IDENT-$\acute{\sigma}$(NASAL).

Removing σ́ positional faithfulness

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- Nasalization of any preceding stressed syllable already violates both OO-IDENT(NASAL) and IDENT-σ́(NASAL).

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/che-r-enu-ramõ/ BASE: [ẽn^{d}u]	ID-R(N)	**OO-ID(N)**	**ID-σ́(N)**	ALN-L	*Ṽ	ID(N)
a. ←chẽ-r̃-ẽnũ-r̃ãmõ→		*!	*		5	6
☞ b. ←chẽ-r̃-ẽn^{d}u-r̃ãmõ→				4	4	5

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- ⋆ Not entirely clear if stress is indeed lexically specified: it's overwhelmingly final in Guarani.

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- But, it seems to be...

1. Guarani has a few words with non-final stress, and a handful of stress-based minimal pairs.

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- But, it seems to be...

1. Guarani has a few words with non-final stress, and a handful of stress-based minimal pairs.

(36)	a.	a'va	b.	'ava	(37)	a.	e^{i}'ra	b.	e'ira
		'person'		'hair'			'wild cat'		'honey'
(38)	a.	a'pe	b.	'ape	(39)	a.	mbo'i	b.	'mbo^{i}
		'surface'		'here'			'to undress'		'snake'

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2. Suffixes are "stressable" or "unstressable" in an unpredictable manner.

   → another asymmetry between prefixes and suffixes: prefixes are never stressed.

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- Suffixes are the only morphemes that require a true lexical specification for stress.

  → assuming that minimal pairs and others are exceptions.
- But, suffixes fail to show σ́-positional faithfulness
- σ́-positional faithfulness would gain more support if the morphemes that require lexical stress are also those that show σ́-positional faithfulness.

Removing $\acute{\sigma}$ positional faithfulness

- Investigate prediction of proposed analysis for morphemes with non-final stress vs. analysis with only $\acute{\sigma}$ positional faithfulness.

Removing σ́ positional faithfulness

- ⋆ Investigate prediction of proposed analysis for morphemes with non-final stress vs. analysis with only σ́ positional faithfulness.
- Consider hypothetical input CVCṼ:

Removing *ó* positional faithfulness

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- Consider hypothetical input CVCṼ:

(40)

/CVCṼ/	Id-R(nas)	Id-*ó*(nas)	Align-L(nas)	*Ṽ	Id(nas)
w/ ☞ a. CVCṼ			*	*	
b. CṼCṼ		*!		**	*
c. CVCV	*!				*

Removing *σ́* positional faithfulness

- ⋆ Investigate prediction of proposed analysis for morphemes with non-final stress vs. analysis with only *σ́* positional faithfulness.
- Consider hypothetical input CVCṼ:

(41)

/CVCṼ/	Id-R(nas)	Id-*σ́*(nas)	Align-L(nas)	*Ṽ	Id(nas)
w/ ☞ a. CVCṼ			*!	*	
w/o ☞ b. CṼCṼ		*		**	*
c. CVCV	*!				*

Removing $\acute{\sigma}$ positional faithfulness

- ⋆ Investigate prediction of proposed analysis for morphemes with non-final stress vs. analysis with only $\acute{\sigma}$ positional faithfulness.
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(41)

/CVCṼ/	ID-R(NAS)	ID-$\acute{\sigma}$(NAS)	ALIGN-L(NAS)	*Ṽ	ID(NAS)
w/ ☞ a. CVCṼ			*!	*	
w/o ☞ b. CṼCṼ		*		**	*
c. CVCV	*!				*

→ with IDENT-$\acute{\sigma}$(NASAL): word-internal disagreement in nasality

→ without IDENT-$\acute{\sigma}$(NASAL): full agreement in nasality

Removing σ́ positional faithfulness

- Consider another hypothetical input, C<u>Ṽ</u>CV:

Removing σ́ positional faithfulness

- Consider another hypothetical input, C̲Ṽ̲CV:

(42)

/C̲Ṽ̲CV/	Id-R(nas)	Id-σ́(nas)	Align-L(nas)	*Ṽ	Id(nas)
w/ ☞ a. C̲Ṽ̲CV				*	
b. C̲Ṽ̲CṼ	*!			**	*
c. C̲V̲CV		*!			*

→ with Ident-σ́(nasal): word-internal disagreement in nasality

Removing *ó* positional faithfulness

- Consider another hypothetical input, CṼCV:

(43)

/CṼCV/	ID-R(NAS)	ID-*ó*(NAS)	ALIGN-L(NAS)	*Ṽ	ID(NAS)
w/ ☞ a. CṼCV				*!	
b. CṼCṼ	*!			**	*
w/o ☞ c. CVCV		*			*

Removing *σ́* positional faithfulness

- Consider another hypothetical input, CṼCV:

(43)

/CṼCV/	Id-R(nas)	Id-*σ́*(nas)	Align-L(nas)	*Ṽ	Id(nas)
w/ ☞ a. CṼCV				*!	
b. CṼCṼ	*!			**	*
w/o ☞ c. CVCV		*			*

→ with Ident-*σ́*(nasal): word-internal disagreement in nasality

→ without Ident-*σ́*(nasal): full agreement in nasality

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- ★ Guarani lexicon has ~14 words with non-final stress that distinguish analyses with and without *ó*-positional faithfulness (Estigarribia 2020).

Removing *ó* positional faithfulness

- Guarani lexicon has ~14 words with non-final stress that distinguish analyses with and without *ó*-positional faithfulness (Estigarribia 2020).

(44)

a.	*hikó*$\boxed{n}$*i*	freq. aspect	*mára*$\boxed{m}$*o*	'never'
	hí$\boxed{n}$*a*	prog. aspect	*mé*$\boxed{n}$*a*	'husband'
	ká$\boxed{m}$*a*	'scrabies'	*nahá*$\boxed{n}$*iri*	'no'
	liméta	'bottle'	*ne'ĩra*	'yet'
	mamó$\boxed{n}$*e*	'papaya'	*pohã*$\boxed{n}$*o*	'cure'
	máva	'who'	*tẽra*	'or'
b.	*ánga*	'soul'	*ténge*	'slowly'

Removing σ́ positional faithfulness

- Guarani lexicon has a few words with non-final stress that distinguish analyses with and without σ́-positional faithfulness (Estigarriba 2020)

(45)

a.	*hikáⁿi*	freq. aspect	*máraᵐo*	‘never’
	híⁿa	prog. aspect	*méⁿa*	‘husband’
	káᵐa	‘scrabies’	*nahánⁱiri*	‘no’
	limẽta	‘bottle’	*neˊĩra*	‘yet’
	mamáⁿe	‘papaya’	*pohãⁿo*	‘cure’
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	mamáⁿe	'papaya'	*pohãⁿo*	'cure'
	máva	'who'	*tẽra*	'or'
b.	*ánga*	'soul'	*ténge*	'slowly'

→ find full nasal consonants to the right of the stressed syllables.
→ so, ***rightmost syllable must be fully nasal.***

Removing *ó* positional faithfulness

- But, rightmost syllables in these words could be nasal due to ***bidirectional*** spread form the stressed syllable.

Removing ó positional faithfulness

- But, rightmost syllables in these words could be nasal due to ***bidirectional*** spread form the stressed syllable.
- I argue that Guarani ***does not show bidirectional spread***.

Removing $\acute{\sigma}$ positional faithfulness

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  → Nasal-oral stops and nasal consonants would require different URs - but these are in complementary distribution.

Removing ó positional faithfulness

b. *á**ng**a* ‘soul’ *té**ng**e* ‘slowly’

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- Stressed syllable clear target of regressive nasalization when followed by a nasal-oral stop.
- More clearly observed when these forms have prefixes to their left.

(46) a. ñã**nd**e-jagua
1PL.IN-dog
'our dog'

b. ñã**n**ẽ-'ã**ng**a
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'our soul'

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★ ***Stressed syllables cannot be protected by* IDENT-ó(NASAL)**, since they would fail to nasalize in presence of nasal-oral stop trigger.

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- Proposed right-edge faithfulness + OO-Correspondence analysis explains the independence of suffixes in nasality and nasalization.

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- An analysis with ***solely*** these mechanisms additionally predicts nasalization pattern in roots with non-final stress.

  → they show full agreement in nasalization that may only be attributed to right-edge faithfulness.

Roadmap

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Progressive nasalization

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	Regressive	**Progressive**
Triggers	rightmost nasal vowels, nasal consonants	nasal vowels
Targets	voiced segments	voiceless stops
Locality	local	non-local
Productivity	productive, exceptionless	lexically-specific

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★ I'll show that the proposed IDENT-R(NASAL) & OO-IDENT(NASAL) analysis is compatible with progressive harmony.

→ progressive nasalization as phonologically conditioned suppletive allomorphy (Russell 2021).

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(48) a. jagua-ˈ[k]uera
dog-PL
'dogs'

b. mĩtã-ˈ[ŋᵍ]uera
child-PL
'children'

(49) a. a-kaˈru-[t]a
1SG-eat-FUT
'I will eat'

b. ãĩ-pɨtɨˈvõ-[t]a
1SG-help-FUT
'I will help'

Progressive nasalization

2. Morpheme targets are affected differently by progressive nasalization.

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(50) a. o-karu-ˈpa
3-eat-TOT
'he finished eating'

b. õ-ñẽ'ẽ-ˈmᵇa
3-talk-TOT
'he finished talking'

(51) a. ˈplasa-pe
plaza-LOC
'at the plaza'

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kitchen-LOC
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→ ***phonologically conditioned:***

- nasal roots select for nasal-initial allomorphs
- oral roots select for oral-initial allomorphs

Progressive nasalization

- Progressive harmony only triggered by phonemic nasal vowels.

(52) a. $\overleftarrow{\text{pãnãm}}^{\text{b}}\text{i-}'\boxed{\text{k}}\text{uera}$
butterfly-PL
'butterflies'

b. $*\overleftarrow{\text{pãnãm}}^{\text{b}}\text{i-}'\boxed{\text{ŋ}^{\text{g}}}\text{uera}$

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b. *p̃ãnãm̃^{b}i-'[ŋ^{g}]uera

- Alternations may stack and occur non-locally.

(53) a. o-karu-se-[p]a-[p]o'ta-[pe]ve
3-eat-DES-TOT-INCIP-until
'until he is about to finish wanting to eat'

b. õ-ñẽ'ẽ̃-se-[m^{b}]a-[m^{b}]o'ta-[mẽ]ṽẽ̃
3-talk-DES-TOT-INCIP-until
'until he is about to finish wanting to talk'

Progressive nasalization

- Verbal and nominal roots also show lexically-specific progressive harmony alternations.
- Examples from compounds:

(54)

a.	b.	c.	d.
o-ˈkɨ	h-ãsẽ-ˈŋgɨ	hũ-ˈŋgɨ	ãmã-ˈŋgɨ
3-rain	3POSS-rain	black-rain	rain-rain
‘it rains’	‘weep’	‘grey, brown’	‘rain’

Progressive nasalization

- Examples from causative constructions:

(55) a. o-ˈ[p]aɨ
3-wake.up
'woke up'

b. õ-mõ-[mᵇ]aɨ diego-pe
3-CAUS-wake.up Diego-DOM
'he woke up Diego'

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- Also lexically specific: causatives otherwise follow the general pattern of regressive nasalization.

(56) a. ã-m^{b}o-puˈpu
1SG-CAUS-hot
'I boiled your water'

b. ã-mõ-kãnẽˈˀõ
1SG-CAUS-tired
'I made (someone) tired'

Progressive nasalization

- ⋆ Two possible analyses for causative constructions.
  1. Nasal-initial allomorph exceptionally selected regardless of nasality of causative prefix.

     (57) a. õ-mõ-'**m**^{b}a^{ɨ}
     3-CAUS-wake.up

  2. Causative prefix is exceptionally nasal and selects for nasal-initial root allomorphs.

     (58) a. õ-m**õ**-'[m^{b}]a^{ɨ}
     3-CAUS-wake.up

- ⋆ Alternative 2 is more compatible with analysis of progressive harmony in suffixes.

  → *phonologically conditioned*: phonemic nasal vowel selects nasal-initial allomorphs

Progressive nasalization

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- ⋆ ***Major takeaway:*** IDENT-R(NASAL) and OO-IDENT(NASAL) make the right predictions for progressive harmony (as allomorphy).
- No suffix-external regressive nasalization even when nasal allomorph is selected.
- Allomorphs follow the general phonotactic restrictions: regressive nasal spread, nasal-oral stop / nasal consonant alternations, etc.

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   - Typology of prefix-suffix asymmetries
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- So, Guarani has a special place in the typology of prefix-suffix asymmetries.

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  → Guarani regressive and progressive nasalization are entirely different processes.
- Additional prefix-suffix asymmetry in lexical specification for stress.

  → suffixes are "stressable" or "unstressable", but prefixes can never be stressed.

A possible prosodic analysis

- Proposed analysis recruits ***morphophonological mechanisms*** to account for prefix-suffix asymmetry: OO-Correspondence

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★ Prosodic analysis for Guarani asymmetry is possible, but only when assuming ***recursive***.

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- ***Non-recursive*** prosodic analysis:

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★ Not committed to morphophonological analysis.

  → prosodic analysis possible, but full range predictions should be evaluated

  → still need right-edge faithfulness (and not IDENT-σ́(NASAL)) regardless!

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3-talk-DES-TOT-INCIP-until

'until he is about to finish wanting to talk'

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- But, ***only in suffixes***.
- Otherwise, they show alternations in roots (compounds, causatives, etc.) consistent with Coronel Oviedo speakers.

Dialectal variation in progressive harmony

- Asunción and Concepción speakers may also show variation within the same form.

(62) a. jagua-ˈ[k]uera-[pe]
dog-PL-DOM
‘dogs’

b. m̃ĩtã̀-ˈ[ŋᵍ]uera-[pe]
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- No comprehensive studies on dialectal variation of Guarani yet - more work is needed of course!

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- Further evidence for right-edge faithfulness: nasal roots with non-final stress
- (potential) further evidence for general suffix independence: dialectal variation in progressive harmony.

Closing

Aguyjevete!

Thank you!

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Appendix

- *ó*-positional faithfulness also predicts suffix-internal spread of nasalization.
- More clearly observed in bisyllabic nasal suffixes.

(63) a. n^{d}a-ika**tu**-**mõ'ã**-ĩ
NEG-1SG-able-NEG.FUT-NEG
'I won't be able to'

b. re-**ju**-**ṽã'ẽ'rã**
2SG-come-must
'you must come'

Appendix

- *ó*-positional faithfulness also predicts suffix-internal spread of nasalization.
- More clearly observed in bisyllabic nasal suffixes.

(63) a. n^{d}a-ikatu-mõ''ã-$^{\tilde{i}}$
NEG-1SG-able-NEG.FUT-NEG
'I won't be able to'

b. re-ju-ṽã'ẽ'rã
2SG-come-must
'you must come'

(64)

/n-a-ikatu-mo'ã-i/ 'I won't be able to'	ID-*ó*(NAS)	ALN-L(NAS)	*ṼV	ID(NAS)
a. n^{d}-a-ikatu-m^{b}o'ã-$^{\tilde{i}}$		9!	1	
☞ b. n^{d}-a-ikatu-mõ'ã-$^{\tilde{i}}$		4	2	*
c. n-ã-ĩkãtũ-mõ'ã-$^{\tilde{i}}$	*!		5	****
d. n^{d}-a-ikatu-m^{b}o'a-^{i}	*!	4		*

Progressive nasalization

- What makes the nasal allomorph of the causative prefix control for allomorphy selection of roots?
  1. It is stressed, and stressed syllables select nasal allomorphs

     → it is only the root that selects nasal allomorphs in suffixes.

     (65) a. õ-ñẽ'ẽ-se-m^{b}a-'ta-mẽṽẽ
     3-talk-DES-TOT-INCIP-until
     'until he is about to finish wanting to talk'

  2. Morphological structure: rightmost elements selects nasal allomorphs

     → prefixes are never the rightmost element: they are added first in the derivation