Multiple Exponence in Northern Toussian

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Toussian

Two languages

- Northern Toussian
- Southern Toussian

Genetic classification is uncertain

- Traditionally classified as a Gur language (Niger Congo)

Geography

Spoken in southwest Burkina Faso

~20,000 speakers of NT (last surveyed 1995)

Institut Géographique du Burkina Faso, Carte Linguistique, 1988

Goals

Describe an unusual morpheme that is realized as nasalization and tone change

- The puzzle is that it occurs more than once on different words
- Is this repetition phonological copying or morphological multiple exponence

Provide some possible hypotheses for what it might be

Leave plenty of time to discuss it

Relevant information

The primary variety of Toussian I study is the Northern Toussian (NT) of Djigouera

- All data are from this variety

All NT glosses will be narrow transcriptions

Relevant information

Basic Tonology
3 tone system

- H, M, L, (á, ā, à)
- Monosyllabic lexical contours

  HM, HL, LH (á̄, â, ǎ)

Relevant information

Word order
S Aux O V

- Auxiliaries include TAMP markers, auxiliary verbs, etc.

(1) à wū ˧á kə̀ pɛ̌y
3SG.HUM EVID PST 3SG.NONHUM do
‘(it is known that) he/she did it’

Relevant information

M and L triggers downdrift (automatic downstep)

- The pitch range of the speaker is compressed after each instance of M and L

(2) a. sú púpó wé
father sheep see
'Father saw the sheep.'

b. pɛ̄ ˈpī ˈlɛ̰̄ ˈná
husband child speech hear
'The husband heard the child's speech.'

The morpheme

Non-past tense morpheme

- Nasalization
- Tone
- Variable realization

Realization—H subject

1. H → HL
2. Nasalization of the final vowel of the subject

(3) a. Perfective

púpó bú wé
sheep cheetah see

‘The sheep saw the cheetah’

b. Non-past

púpô̰ ˡbú wé
sheep.NP cheetah see

‘The sheep will see the cheetah’

Realization—M subject

1. No tonal change
   - ML appears not to be permissible in NT
2. Nasalization of the final vowel of the subject

(4) a. Perfective

pī ˈbú wé
child cheetah see

'The child saw the cheetah'

b. Non-past

pḭ̄ ˈbú wé
child.NP cheetah see

'The child will see the cheetah'

Realization—slow speech

(5) a. Rapid speech

púpô̰ ˈbú wé
sheep.NP cheetah see

‘the sheep will see the cheetah’

b. Slow speech

púpó nə̀ ˈbú wé
sheep NP cheetah see

‘The sheep will see the cheetah’

Realization—slow speech

(6) a. Rapid speech

pḭ̄ ˈbú wé
sheep.NP cheetah see

‘The child will see the cheetah’

b. Slow speech

pī nə̀ ˈbú wé
child NP cheetah see

‘The child will see the cheetah’

Realization

Normal speech rate
If there is no auxiliary except for the non-past morpheme and the final syllable of the subject is H

- The final vowel of the H subject becomes nasalized
- The final vowel of the H subject receives a falling tone

Otherwise

- The final vowel of the subject becomes nasalized
- The following word is downstepped
    - Is there a floating L?

Slow speech rate
It surfaces as the syllable nə̀

Multiple realization

Rapid speech
If there is a word that appears in the auxiliary position, non-past tense is realized on it and the subject

(7) a. With *tó* 'again'

púpó̰ ˈtó̰ ˈbú wé
sheep.NP again.NP cheetah.NP see

'The sheep will see the cheetah again'

b. With *pī*, a future tense morpheme

púpó̰ (ˈ)pḭ̄ ˈbú wé
sheep.NP FUT.NP cheetah.NP see

'The bird will see the cheetah'

Is there the floating L between púpó̰ and pḭ̄?

Multiple realization

Rapid speech

(8) With *tó* and *pī*

púpǫ́̃	ˈtǫ́̃	(↓)pī̃	ˈbú	wé
sheep.NP	again.NP	FUT.NP	cheetah.NP	see

‘The sheep will see the cheetah again’

Multiple realization

Slow speech
Found as a prenasalized stop on each of the auxiliaries and the object

- Its tone matches that of the previous syllable

Downstep between the prenasalized stop and the word to its right

(9) a. With *tó* 'again'

púpó ńˈtó ḿˈbú wé
sheep again.NP cheetah.NP see

'The sheep will see the cheetah again'

b. With *pī*, a future tense morpheme

púpó ḿpī m̄ˈbú wé
sheep FUT.NP cheetah.NP see

'The bird will see the cheetah'

Multiple realization

(10) With *tó* and *pī*

púpó ń$^{\downarrow}$tó ḿpī m̄$^{\downarrow}$bú wé
sheep again.NP FUT.NP cheetah.NP see

‘The sheep will see the cheetah again’

Comparison of prior examples

Rapid speech

(11) a. Perfective without any auxiliary
púpó bú wé
'The sheep saw the cheetah'

b. Non-past without additional auxiliary
púpô̰ ˩bú wé
'The sheep will see the cheetah'

c. Non-past with additional auxiliary
púpó̰ ˩tó̰ ˩bú wé
'The sheep will see the cheetah again'

Comparison of prior examples

Slow speech

(12) a. Perfective without any auxiliary
púpó bú wé
'The sheep saw the cheetah'

b. Non-past without additional auxiliary
púpó nə̀ ˧bú wé
'The sheep will see the cheetah'

c. Non-past with additional auxiliary
púpó ń˧tó ḿ˧bú wé
'The sheep will see the cheetah again'

Restriction on the repetition

With most other auxiliaries, there are restrictions on the repetition

(13) a. púpó pɰ̃ ˈbú wé
sheep IS.NP cheetah see
'When the cheetah will see the sheep…'

b. púpó sə́̃ ˈtó̰̃ ˈbú wé
sheep DUB.NP again.NP cheetah.NP see
'I doubt the cheetah will see the sheep.'

Location of the non-past morpheme

It appears to be at right edge of the auxiliary complex

wū	EVID	á	PST	sə́(nɔ́)	COND (must occur with á)	rí	JUSS	sə́	DUB	ká	NEG	pɔ̄	IS	tó	‘again’	ꜜpá	IPFV	Ǹ	NONPAST
		à	COND	pə́	COND (must occur with à)					kə́tò	‘not again’					pī	FUT		
										kə́mɛ̄	‘no longer’								
										kə̀pə́	NEG.IMP								

Figure 1: Auxiliary order

Realization summary—rapid speech

If no other auxiliary, morpheme surfaces on subject

(14) a. púpô̰ ˧˩bú wé

b. pḭ̄ ˧˩bú wé

If other auxiliary present

- Multiple realization with certain auxiliaries

(15) púpó̰ ˧˩tó̰ ˧˩pḭ̄ ˧˩bú wé

- Restricted realization with most auxiliaries

(16) a. púpó pɔ̰̄ ˧˩bú wé

b. púpó sə̰́ ˧˩tó̰ ˧˩bú wé

Realization summary—rapid speech

Tone (rapid speech)

1. H → HL on subjects if no other auxiliary
2. Downstep between subject and auxiliaries if auxiliaries are H
3. Unsure otherwise

Realization summary—slow speech

If no other auxiliary, the morpheme surfaces as a separate syllable

(17) a. púpó nə̀ ˩bú wé

b. pī nə̀ ˩bú wé

If other auxiliary present it surfaces as a nasal stop

(18) púpó ń˩tó ḿpī m̄˩bú wé

(19) a. púpó pɔ̄ m̄˩bú wé

b. púpó sə́ ń˩tó ḿ˩bú wé

The quandry

Is the repetition

- Phonological copying?
- Nasal Harmony?
- Morphological multiple exponence?

Nasal harmony?

Nasal harmony is the phonological spreading of nasalization

Segmental trigger
Often, a nasal stop will trigger right- or leftward spreading of nasalization, bounded by certain segments

This phenomenon is well attested (Piggott 1992; Walker 2000)

- South America: Warao, Capanahua
- Africa: Ijo, Urhobo
- Asia: Malay, Sundanese
- Europe: Applecross Gaelic

Segmental trigger

Nasal spreading starting from a nasal consonant

Obstruents and liquids block spreading

(20) Warao—rightward spread

a.	inãw̃ãh̃ã	‘summer’
b.	mõỹõ	‘cormorant’
c.	mẽh̃õkohi	‘shadow’
d.	mõãũpu	‘give them to him’

(21) Capanahua—leftward spread

a.	h̃ãmawi	‘step on it’
b.	h̃ãmãʔõna	‘coming stepping’
c.	wirãnai	‘I pushed it’
d.	cipõŋki	‘down river’

Lexical trigger

Additionally, there are languages where obstruents are transparent to nasal harmony

- Tucanoan language family
- Guaraní

In these languages:

- Nasalization is a lexical property of the word
- Inflectional/derivational morphemes will become nasalized if they are affixed to a nasal word

Lexical trigger

(22) Southern Barasano

Nasal words		Oral words	
mãhã-mã	‘go up!’	wa-^{m}ba	‘come!’
ĩã-mĩ	‘I saw’	wa-^{m}bɨ	‘I went’
hũnĩ-nẽ	‘to hurt’	yi-re	‘to say’
ɲãɲõ-nẽ	‘to speak’	ahe-re	‘to play’
mĩnõ-ŋã	‘leaf stream’	^{ŋ}gahe-ya	‘another stream’

Summary of nasal harmony

Nasal harmony seems to span the phonological word, rather than an entire phrase

It affects every phoneme within its domain

It either:

- Stops at obstruents and/or liquids
- Changes voiced obstruents and approximants to their nasal counterparts.

The Toussian data

Assuming that the non-past is positioned at the right edge of the auxiliary complex, and that [+nasal] spreads leftwards, the leftward movement of the non-past morpheme does not seem to be arrested by any particular consonants

The Toussian data

(23) a. púpǫ́ ⁽ˈ⁾pī̜ ˈbú wé
sheep.NP FUT.NP cheetah.NP see
‘The cheetah will see the sheep.’

b. púpó pɔ̜̄ ˈbú wé
sheep.NP IS.NP cheetah.NP see
‘When the cheetah will see the sheep…’

(24) a. púpǫ́ ˈtǫ́ ˈbú wé
sheep.NP FUT.NP cheetah.NP see
‘The cheetah will see the sheep.’

b. púpó sə̜́ ˈbú wé
sheep DUB.NP cheetah.NP see
‘I doubt the cheetah will see the sheep.’

The Toussian data

Likewise, this does not target each syllable of a word, only the final

(25) púpó kə́tò̰ ˈbú wé
sheep not again.NP cheetah.NP see
'The sheep will not see the cheetah again'

The Toussian data

There are no auxiliaries which begin in voiced stops/liquids which can be tested to see if they become nasalized

Problems with nasal harmony hypothesis

Where the non-past morpheme occurs seems to be more than phonological—only certain auxiliaries appear to transfer it to the left

It can surface variably

- As the syllable nə̀
- As nasalization on the preceding vowel
- As nasalization on a following stop

Multiple exponence

Multiple exponence is when a certain feature is marked morphologically several times in different locations

(26) Batsbi (Nakh-Daghestanian)

y-ox-y-o-y-an^{w} k'ab
CM[1]-rip-CM-PRES-CM-EVID dress.ABS

'Evidently she is ripping the dress'

[1]Class Marker: feminine gender (class II) singular; agrees with 'dress'

Multiple exponence

A morphological explanation is compelling, but what is the actual mechanism behind this morpheme's realization?

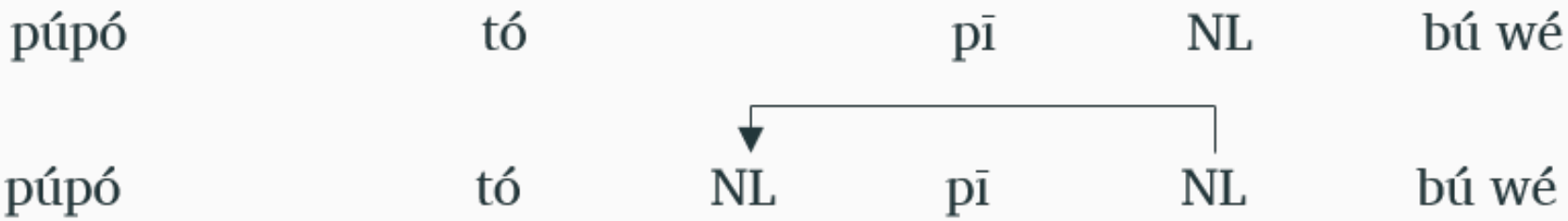
Copying?

Can this be explained by certain auxiliaries (*tó* and *pī*) copying the morpheme and transferring it to the left?

púpó	tó	pī	NL	bú wé

Copying?

Can this be explained by certain auxiliaries (*tó* and *pī*) copying the morpheme and transferring it to the left?



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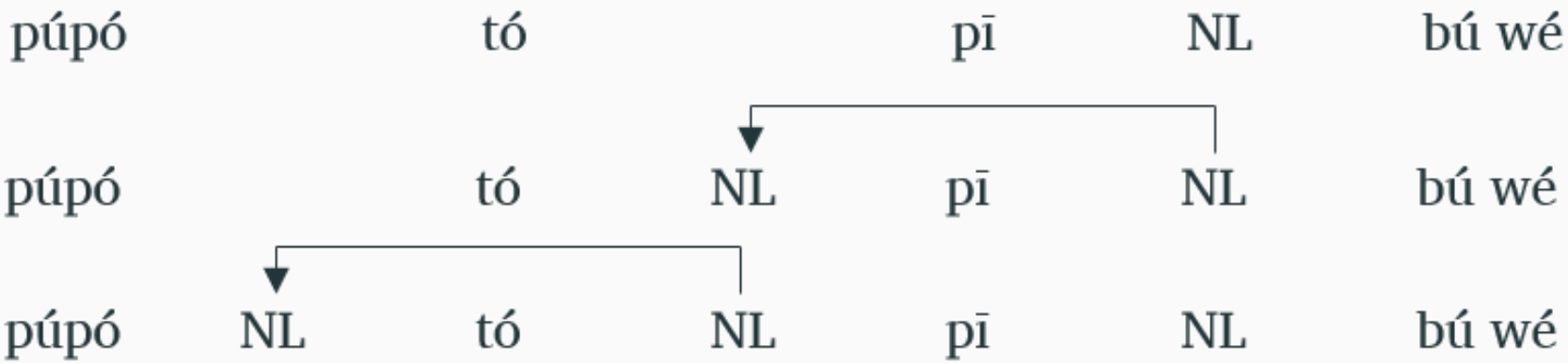

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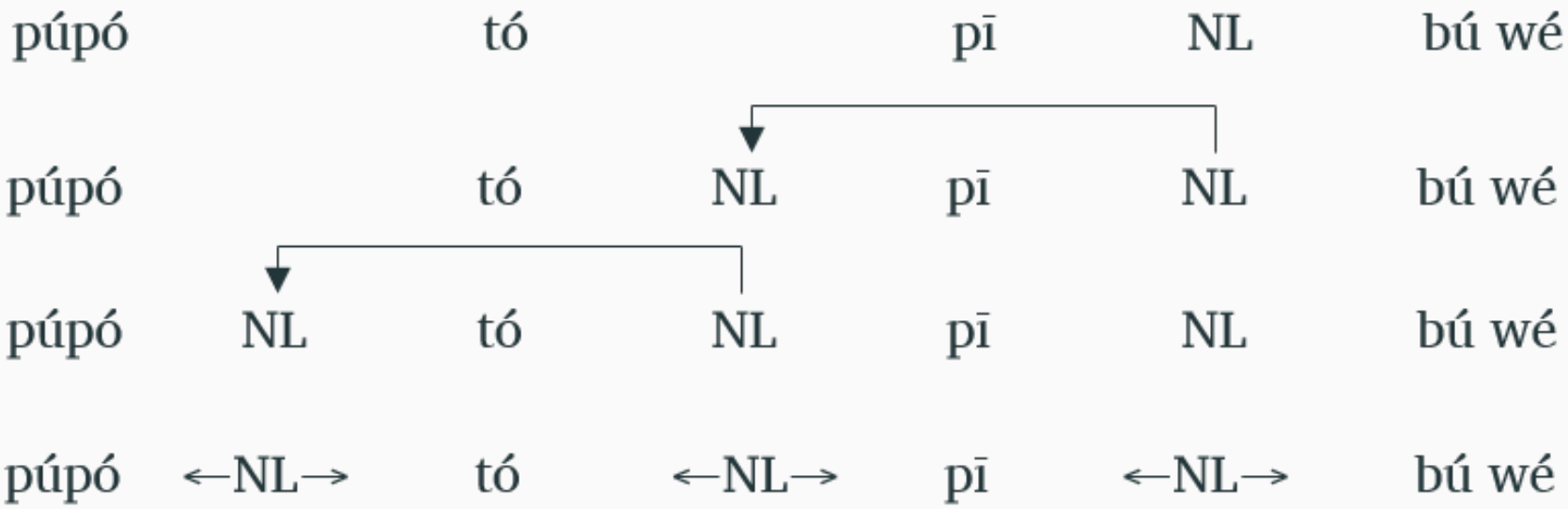

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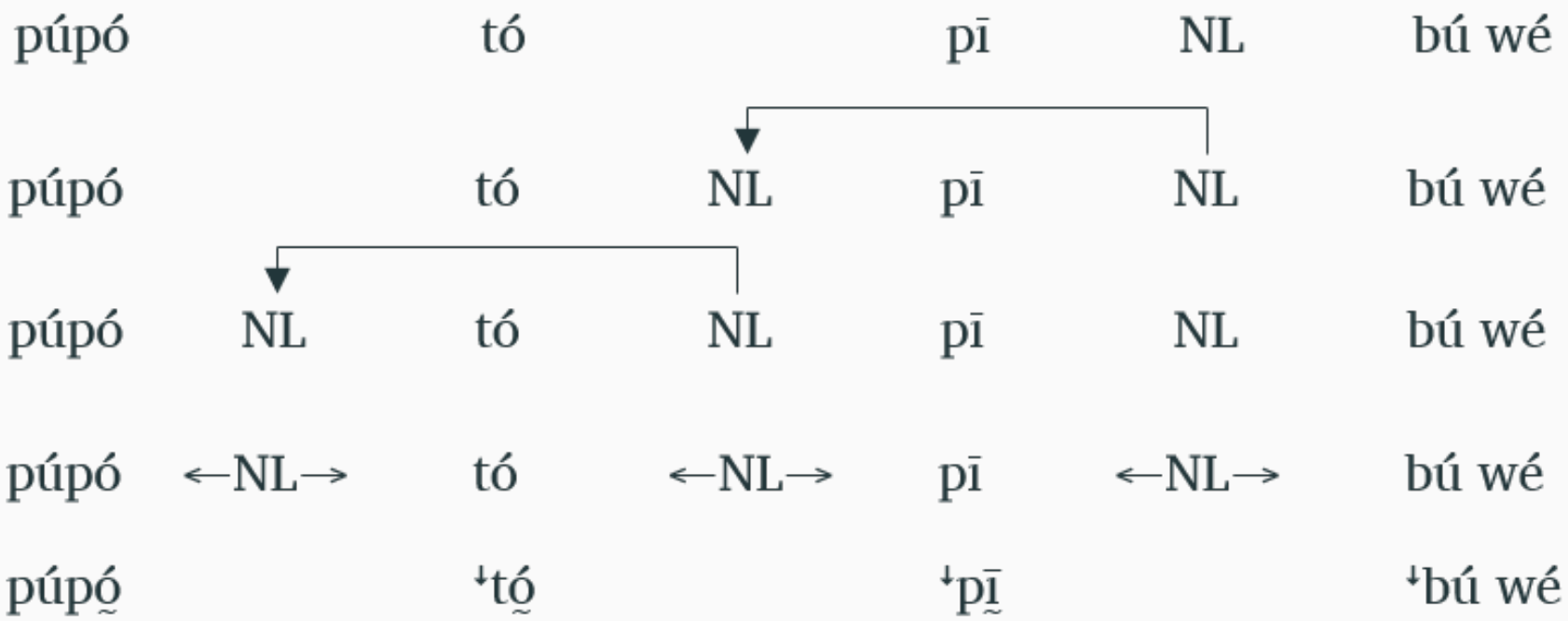
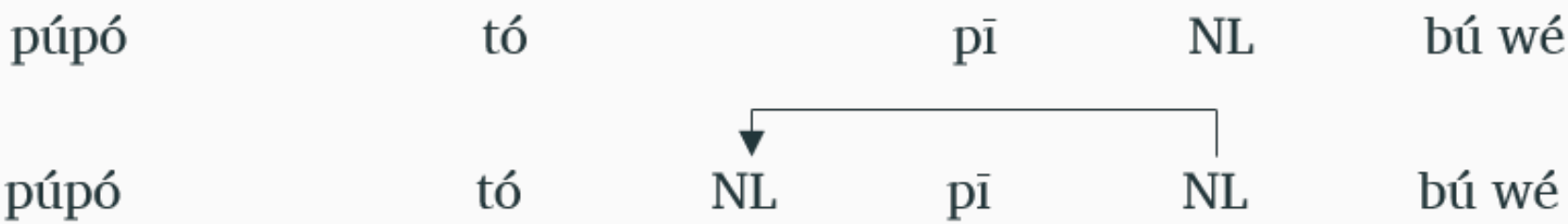


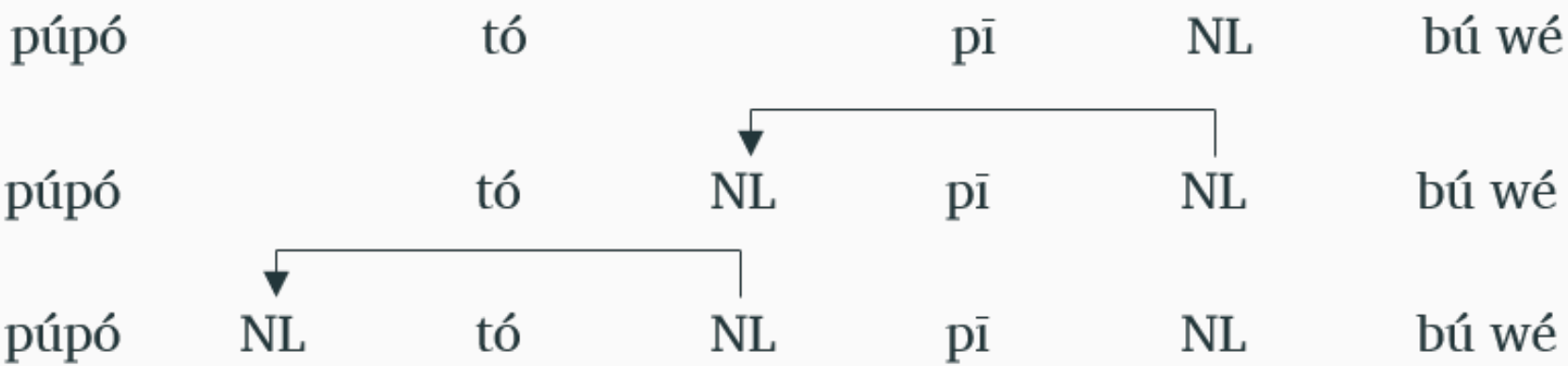
Slow speech

púpó	tó	pī	NL	bú wé

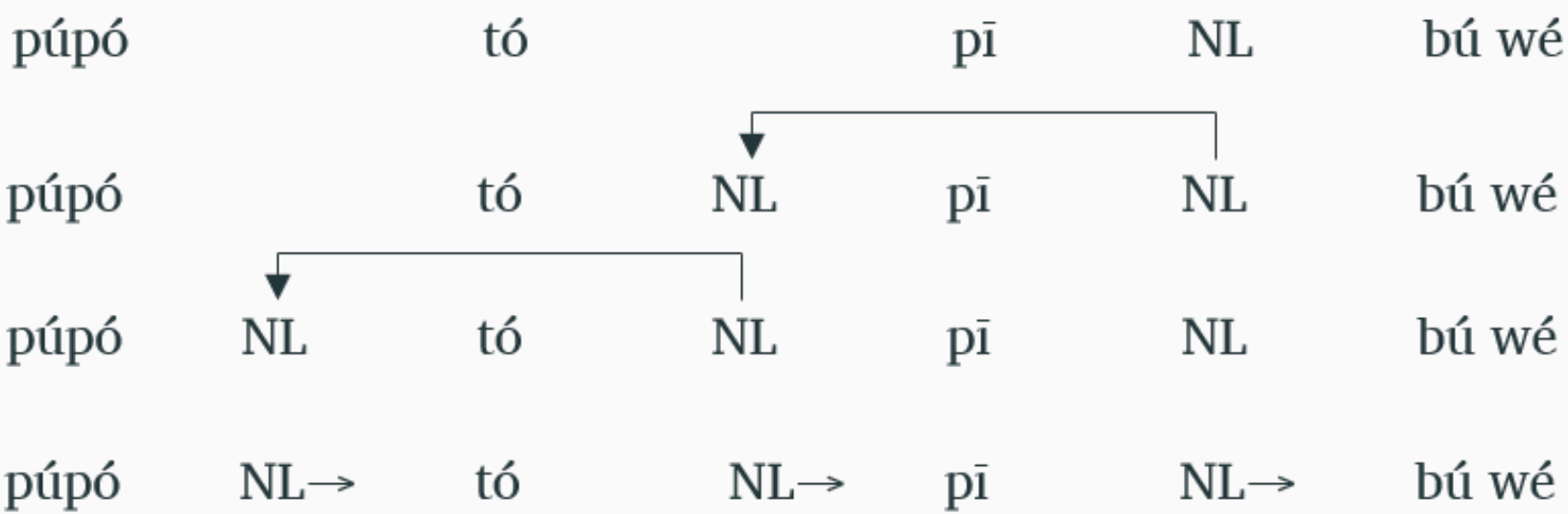
Slow speech



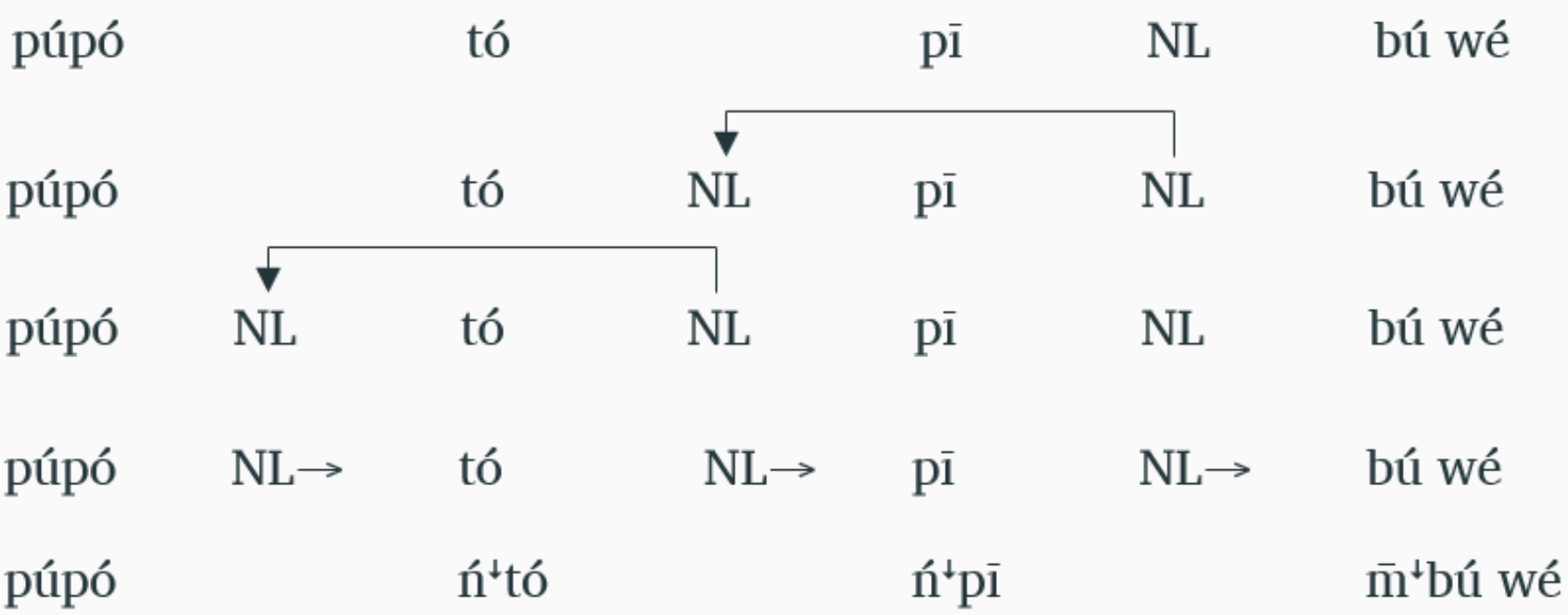
Slow speech



Slow speech


púpó tó pī NL bú wé
púpó tó NL pī NL bú wé
púpó NL tó NL pī NL bú wé
púpó NL→ tó NL→ pī NL→ bú wé

Slow speech


púpó tó pī NL bú wé
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púpó NL tó NL pī NL bú wé
púpó NL→ tó NL→ pī NL→ bú wé
púpó ń↓tó ń↓pī m̄↓bú wé

Future work and other considerations

I don’t understand how the L of the morpheme properly works

- Sometimes there is a falling tone
- Sometimes downstep
- Sometimes nothing
- Does the L copy as well?

I need to explore variation in speech rate further

- I suspect that the two realizations of nasalization at different speech rates are due to a wider phonological rule that is not directly caused by the non-past morpheme

Nasalization and slow speech rate

(27) a. Phonemic transcription

kə̀ŋ = sɛ̄
buffalo = with

'With the buffalo'

b. fast speech

kə̀ŋsɛ̄~kə̀ŋnɛ̄

c. slow speech

kə̀ŋ ǹsɛ̄

Slight differences
[kə̀ŋ ǹsɛ̄] retains the /ŋ/. With the non-past morpheme, there is no nasalization on the left element

Questions?

References

Piggott, G. L. 1992. Variability in feature dependency: The case of nasality. *Natural Language and Linguistic Theory* 10(1). 33–77.

Walker, Rachel. 2000. *Nasalization, neutral segments, and opacity effects* (Outstanding Dissertations in Linguistics). New York: Garland.