

## Phonologically conditioned suppletive allomorphy in Haitian as morphological optimization

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**1. Introduction.** In Haitian, personal pronouns have unreduced and reduced variants. Their distribution is by large prosodically and phonologically conditioned (Cadely 1995): pronouns at the end or beginning of a prosodic unit (PU) appear under their unreduced variant when adjacent to a consonant and under their reduced variant when adjacent to a vowel, as shown in Table 1 for Standard Haitian (SH)

Phonological context	Standard Haitian	Urban Northern Haitian	Rural Northern Haitian
a. [PU_#C	li	i	i
b. [PU_#V	l	l	y
c. C#_]PU	li	li	li
d. V#_]PU	l	y	y

li/l (SH form)    i/y (NH native form)

Table 1: 3SG ‘she, he, it’ in three Haitian varieties

*li/l* 3SG. In Northern Haitian (NH), 3SG follows this general tendency, but with the added complexity that its paradigm uses two pairs of unreduced/reduced variants: the native NH form *i/y* ‘3SG’ and the form *li/l* ‘3SG’ borrowed from SH. The SH form was borrowed only in some contexts, resulting in a puzzling pattern of phonologically conditioned suppletive allomorphy (PCSA), shown in the two rightmost columns of Table 1 for urban and rural NH speakers (Valdman et al 2015).

**2. Proposal.** This paper argues that this puzzling PCSA pattern can be analyzed as resulting from morphological optimization.

**2.1. Paradigmatic contrast.** Paradigmatic contrast describes cases where the phonological grammar conspires to avoid a homophony between distinct forms within a morphological paradigm (e.g. Kenstowicz 2005). The reduced variant of the native NH 3SG pronoun (*y* [j]) happens to be homophonous with the reduced form of the corresponding 3PL pronoun *yo/y* [jo]/[j]

Context	SH and NH
a. [PU_#C	yo
b. [PU_#V	y
c. C#_]PU	yo
d. V#_]PU	yo

Table 2: 3PL in SH and NH

‘they’ (Table 2). Borrowing the reduced SH variant *l* ‘3SG’ before vowels (Table 1b) allows urban NH speakers to avoid this homophony: *y* ‘3PL’ (Table 2b) contrasts with *l* ‘3SG’ in this context instead of contrasting with homophonous *y* ‘3SG’, as in rural NH. The SH reduced form does not need to be borrowed in the other reduction context (Table 1d, after vowel) because there is no homophony in this context in NH: indeed, the reduction of *yo* to *y* ‘3PL’ happens to be blocked independently postvocally, as shown in Table 2d (Cadely 1995:36; *yo* does not reduce postvocally in any Haitian variety, regardless of whether 3SG and 3PL are homophonous). In other words, urban NH speakers have gotten rid of their native singular reduced form in the only context where it was homophonous with the plural. This homophony is still tolerated by the rural NH speakers though (Table 1b vs. 2b).

**2.2. Morphological segmentability.** Morphological segmentability describes cases where the phonological grammar favors a form that facilitates morpheme segmentation (cf. ‘boundary signals’; Trubetzkoy 1939), possibly in violation of the language’s phonotactics. The unreduced NH variant of the 3SG pronoun (*i* [i]) starts with a vowel whereas the unreduced SH variant (*li* [li] ‘3SG’) starts with a consonant. Using *li* after a consonant (Table 1c) results in the formation of a C#C cluster whereas using *i* creates a C#V sequence. Because consonant clusters are much less likely than CV sequences morpheme-internally in Haitian due the language’s CV structure, *li* should be easier to segment than *i* in this context (see Hay 2003 for evidence that listeners use phonotactics as cues to morphological boundaries). The borrowing from SH can therefore be interpreted as a strategy to increase morpheme segmentability. This strategy is attested elsewhere in Haitian, namely in the well known pattern of determiner allomorphy: *la/a* ‘the’ appears under its consonant-initial variant after consonants (e.g. *pitit la* ‘the child’) and under its vowel-initial variant after vowels (e.g. *papa a* ‘the father’; Cadely 1995:23). Consonant clusters ([tl] in *pitit la*) and vowel hiatuses ([aa] in *papa a*) are both relatively infrequent

morpheme-internally in Haitian and therefore can be used as boundary signals. This parallel suggests that the analysis in terms of morphological segmentability is on the right track. However, in the NH 3SG/3PL paradigms, hiatuses are not allowed to increase morpheme segmentability (Table 1b,d), contrary to what is observed with the determiner. This asymmetry can be derived if the constraints favoring salient morpheme boundaries can be indexed to specific morphemes (Pater 2007).

**3. OT analysis.** To make sure that this analysis can derive all the patterns in Table 1, the proposal is formally implemented in OT. The grammar evaluates 3SG/3PL paradigms jointly, due to the presence of a paradigmatic constraint (Magri & Storme 2021), and optimizes their phonology and morphology in parallel (phonological optimization drives the distribution of reduction, morphological optimization accounts for the PCSA pattern in NH). There are 8 pronoun paradigms to consider in each of the 4 contexts illustrated in Table 1 ([li, l, i, j] for 3SG × [jo, j] for 3PL). Two morphophonological constraints \*HOMOPHONY and \*C#V<sub>pro</sub> account for the PCSA pattern. \*HOMOPHONY penalizes homophonous exponents for 3SG and 3PL. \*C#V<sub>pro</sub> disfavors morpheme junctures involving pronouns (on the left/right) and with high morpheme-internal probability (C#V). A lexical constraint NATIVE-FORMS penalizes the use of non-native forms (it penalizes *li/l* in NH and *i/y* in SH). Four phonological constraints account for the distribution of reduction. REDUCE penalizes unreduced pronoun variants. C//V penalizes consonants that are not adjacent to any vowel, therefore blocking reduction in consonantal contexts at the end/beginning of prosodic units. Two phonological constraints are needed to block the reduction of *yo* ‘3PL’ postvocally (see 2.1). Here it is assumed that *yo* reduces prevocally due to an anti-hiatus constraint (\*VV) but does not reduce postvocally because a faithfulness constraint MAX([-high]) blocks the deletion of a [-high] feature (this constraint does not block the reduction of *li* and *i*, which both contain a [+high] feature). \*VV also penalizes the use of vowel hiatuses as a strategy to facilitate morphological segmentation. The tables below show how the pattern in urban NH can be derived in this analysis. The paper also shows (i) that the other patterns (SH and rural NH) can be derived with the same constraint set and (ii) how the analysis can be extended to the determiner *la/a* with constraints referring to morpheme junctures involving the determiner (\*C#V<sub>det</sub>).

**4. Conclusion.** The paper concludes with a discussion of the implications of this analysis for (i) theories of PCSA (these theories tend to focus on phonological optimization, but morphological optimization may also be at play, as in Haitian) and (ii) the role of channel/analytic biases in morphophonological optimization (optimization via borrowing is more directly compatible with the analytic-bias hypothesis).

{i,li}#C		jo#C	*Homophony C//V	*VV	Max([-high])	Reduce	*C#V <sub>pro</sub>	NativeForms
li#C	jo#C				2		1	
li#C	j#C		1	1	1		1	
l#C	jo#C		1		1		1	
l#C	j#C		2	1			1	
<b>i#C</b>	<b>jo#C</b>				2			
i#C	j#C		1	1	1		1	
j#C	jo#C		1		1			
j#C	j#C		1	2				

{i,li}#V		jo#V	*Homophony C//V	*VV	Max([-high])	Reduce	*C#V <sub>pro</sub>	NativeForms
li#V	jo#V				2		1	
li#V	j#V		1	1	1	1	1	1
l#V	jo#V		1		1	1	1	1
<b>l#V</b>	<b>j#V</b>				1		2	1
i#V	jo#V				2			
i#V	j#V		1	1	1	1	1	
j#V	jo#V		1		1	1	1	
j#V	j#V		1	1		2		

C#{i,li}		C#jo	*Homophony C//V	*VV	Max([-high])	Reduce	*C#V <sub>pro</sub>	NativeForms
<b>C#li</b>	<b>C#jo</b>				2		1	
C#li	C#j		1	1	1		1	
C#l	C#jo		1		1		1	
C#l	C#j		2	1			1	
C#i	C#jo				2	1		
C#i	C#j		1	1	1	1		
C#j	C#jo		1		1			
C#j	C#j		1	2				

V#{i,li}		V#jo	*Homophony C//V	*VV	Max([-high])	Reduce	*C#V <sub>pro</sub>	NativeForms
V#li	V#jo				2		1	
V#li	V#j			1	1		1	
V#l	V#jo				1		1	
V#l	V#j			1			1	
V#i	V#jo				1	2		
V#i	V#j		1	1	1	1		
<b>V#j</b>	<b>V#jo</b>				1			
V#j	V#j		1	1				