Identifying glides in Haitian Creole's determiner allomorphs

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The Haitian Creole determiner morpheme displays an unusual allomorphy, surfacing as [la] following consonant-final nouns, and as [a] following vowel-final nouns (Bonet et al., 2007; Cadely, 2002; Klein, 2003; Lahrouchi & Ulfsbjorninn, 2024; Lefebvre & Fournier, 1979; Nikiema, 1999; Nikiema & Bhatt, 2003; Picard, 2001), as in table 1. This pattern maximizes markedness in all contexts, as opposed to either reducing markedness (markedness constraints) or ignoring markedness (faithfulness constraints). This phenomenon, which we can call anti-markedness, is difficult to account for theoretically, as shown by Klein (2003) in tableaux 1 & 2.

According to the literature (Bonet et al., 2007; Cadely, 2002; Klein, 2003; Nikiema, 1999; Nikiema & Bhatt, 2003; Picard, 2001; Valdman, 1978, 2015), this anti-markedness process is disturbed by a secondary allomorphic process: glide insertion after a (mid-)high noun, as in table 2. If correct, this complicates the morphophonological analysis of this morpheme. Haitian selects maximally marked forms, only to reduce markedness in some of these forms. Whichever mechanism can explain Haitian's anti-markedness must thus be violated within this same environment.

However, this insertion is not described in any standard description or learning materials for Haitian, it is instead only stated to occur in a handful of studies. Most of these studies are citing other works (Bonet et al., 2007; Cadely, 2002; Klein, 2003; Nikiema, 1999; Nikiema & Bhatt, 2003; Picard, 2001). These cited works either themselves cite other works, or merely claim this to be true without thorough justification (Valdman, 1978, 2015). Given the general acoustic similarities between glides and high-vowel transitions, it cannot be ruled out that the claims come from a misinterpretation of what researchers heard when interacting with Haitian speakers. Due to this uncertainty, paired with the theoretical relevance, a detailed investigation of the vowel hiatus regions in Noun-Determiner segments in Haitian must be undertaken.

Spoken data from the Radio Haïti corpus (Havard et al., 2025) is analyzed for this investigation. Contexts with high-vowel-final nouns are compared to ones with mid-high-vowel-final nouns. If there is no glide, it would be expected that the F1 of these vowels would simply rise towards [a]. If there is a glide, there would not be a very pronounced change in the F1 from [i] to [j] and from [u] to [w], before it rising towards [a]. However, there would be a notable drop in F1 from [e] to [j] and from [o] to [w], prior to it rising towards [a].

To test this, 159 individual noun-final vowels to determiner [a] transitions are found in the corpus. In Praat (Boersma & Weenink, 2025), they are first each broken into 100 segments. A measurement of the F1 is then taken at each segment boundary (for 101 total measurements per transition). Two methods are used to analyze the data. First, a general comparison of the F1 trajectories of the two groups is conducted using a general additive model (GAM) in RStudio (Wood, 2017). The GAM uses the measurements to reconstruct each formant trajectory, and compares the different trajectories on the basis of the first vowel's quality (90 have high vowels, 69 have mid-high vowels), to look for any non-random deviance between the two groups (Hastie & Tibshirani, 1987). This reveals significant differences in the trajectories. Second, the amount of the trajectory that is below the starting point (F1 dip) is measured for each F1 trajectory. These measurements are compared between groups using a linear model. No significant difference is found between them, and 70.7% of mid-high vowel sequences feature no F1 dip at all. Thus, although there are statistically meaningful differences in the shape of the trajectory of the F1 in [ia] & [ua] versus [ea] & [oa], these do not correspond to the expected effects an apparent glide between the noun-final vowel and the determiner's [a].

A second study is currently underway, using the same corpus to compare Noun-Determiner environments to word-internal Vowel-Glide-Vowel environments, and using the same GAMs analysis method (with Praat and R) to test for differences in those trajectories. If there are no glides in the determiner environment, then it is expected that the F1 trajectories from this context will be different to those in the word-internal Vowel-Glide-Vowel environment.

Figures

Table 1: Haitian Determiner Allomorphy

/liv + DET/	/papa + DET/
[livla]	[papaa]
the book	*the father*

Adapted from Klein (2003).

Table 2: Haitian Determiner Allomorphy with Hiatus

/lapli + DET/	/papje + DET/	/vɛ + DET/	/tu + DET/	/bato + DET/	/bɔkɔ + DET/
[laplija]	[papjeja]	[vɛa]	[tuwa]	[batowa]	[bɔkɔa]
the rain	*the paper*	*the glass*	*the hole*	*the boat*	*the sorcerer*

Adapted from Klein (2003).

Tableaux 1 & 2

Markedness and Faithfullness constraints leading to the wrong outputs

papa+la	Onset	NoCoda	Max
a. ☞ pa.pa.la			
b. pa.pa.a	∗!		∗

liv+la	Onset	NoCoda	Max
a. liv.la		∗!	
b. ☞ li.va			∗

*A*dapted from Klein (2003).

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