Syllable structure and lexical markedness in creole morphophonology: Determiner allomorphy in Haitian and elsewhere

Thomas B. Klein, The University of Manchester

The postposed definite determiner (DET) in French-lexified Antillean Creoles such as Haitian and St. Lucian displays an unexpected pattern of allomorphy. Its C-initial form *la* appears after consonant- and glide-final stems (*pitit la* 'the child') whereas a vocoid-initial form appears after stems ending in vowels. Glides are inserted after non-low vowels (*ru^{w}a* 'the wheel'), but *a* is used after low vowels resulting in vowel hiatus as in *papa a* 'the father'. Syllable markedness as conceived of in standard OT would predict a preference for CV sequences throughout instead of the observed pattern involving consonant clusters and vowel hiatus. This challenge to conventional OT is addressed exploring the model of Lexical Representation as Pure Markedness (LRPM) developed in Klein (2000), based on Golston (1996). In LRPM, violations of constraints serve to encode inputs. Such lexical constraint violations are kept track of through faithfulness constraints. Outputs which do not respect input constraint violations may be suboptimal through the faithfulness violation. Thus, this model is able to encode morpholexical idiosyncrasies by using only constraints and constraint violations and without increasing the overall number of constraints.

Creole languages are often claimed to have no phonological or morphological processes of noteworthy complexity. By the same token, the phonology and morphology of creole languages is alleged to be simple or unmarked in some significant sense. In contrast to the prevailing view, patterns of considerable complexity and markedness may be found in linguistic descriptions of creole languages. One such pattern is the well-documented morphophonology of the postposed definite determiner (DET) in French-lexified Antillean creoles such as Haitian and St. Lucian. In these languages, DET appears as a CV or V allomorph depending on the phonology of the preceding stem. Interestingly, the CV allomorph is chosen with stems ending in consonants or glides, e.g. *pitit la* 'the child' (cf. *pitit* 'child'), whereas the V allomorph appears with stems ending in vowels as in *ru a* 'the wheel' (cf. *ru* 'wheel') (data from Valdman 1978: 80 ff.). In essence, the allomorphy of DET in Antillean Creoles shows a typologically unusual preference for consonant clusters and vowel hiatus in external sandhi environments. Syllable structure markedness would lead us to expect the opposite pattern, namely a preference for CV structures and, hence, the avoidance of consonant clusters or vowel hiatus. Thus, we would expect ungrammatical forms such as **petit a* and **ru la*. The allomorphy of the English indefinite determiner, for instance, follows markedness expectations much more neatly. The VC allomorph appears essentially before vowel-initial stems, e.g. *an apple*, whereas the V allomorph appears before consonant-initial stems as in *a book*. If the allomorphy of English *a/an* behaved analogously to Antillean DET, English would be expected to license ungrammatical forms such as **a apple* and **an book*.

Creole languages are often claimed to be characterised by a strong tendency towards CV sequences, that is, open syllables with onsets of single consonants, although French-lexified creoles are sometimes said to be excluded from this supposed trend (Holm 1988, 2000, McWhorter 2000). In Romaine's work, for instance, one reads:

> "Creoles […] have no initial or final consonant clusters. They have a simple syllable structure which consists of alternating consonants and vowels, e.g. CVCV. " (Romaine 1988: 63)

However, recent detailed investigations of the syllable structure of individual creole languages such as Aceto (1996) for Saramaccan, Alber & Plag (2001) for Sranan and Sabino (1993) for Negerhollands have shown that the syllable structure of creole languages may exhibit onset clusters and, hence, appears to be more complex than generally assumed. Thus, the present paper may be understood as a contribution towards the better understanding of the occurrence of vowel and consonant clusters in creole sound structure.

It is considered a truism by many language scientists that creole languages exhibit no morphology to speak of, in particular as far as inflection is concerned. It is surprising to such views that there should be a significant set of creole languages in which phonologically conditioned allomorphy may be found. Thus, the data from Antillean DET are striking pieces of evidence against traditional views of the supposed simplicity and unmarkedness of creole language phonology and morphology. Instead, DET allomorphy in French-lexified Antillean creoles is an intricate pattern that deserves detailed formal analysis.

The aim of this paper is to examine the morphophonology of DET in French-lexified Antillean creoles with particular reference to syllable-related effects. Much of the data is drawn from discussions of Haitian Creole, but data from other creoles are also prominent. A critique of earlier formal analyses of DET allomorphy is presented and it is shown how this pattern presents a challenge to conventional Optimality Theory (OT). An alternative analysis invoking Lexical Representation as Pure Markedness (LRPM) is presented. Finally, implications of this allomorphy for current notions of creole simplicity as in McWhorter (2001a, b) are discussed.

1. Typology of definite determiner allomorphy

The allomorphy of DET in Haitian is richly documented in sources such as Valdman (1978), Bernabé (1987), Cadely (1995, 2002) and Nikiema (1999). Analogous facts are found in St. Lucian French Creole (Carrington 1984, Bhatt & Nikiema 2000a,b) and Dominican French Creole (Taylor 1977). The shape of DET in these languages varies under the influence of three different morphophonological and phonological processes: V/CV alternation, glide insertion and nasalisation.

(1)   Consonant- and glide-final stems

(a)   /malad/   'sick'   [malad+la]   'the sick (person)'
(b)   /ʃat/   'cat'   [ʃat+la]   'the cat'
(c)   /liv/   'book'   [liv+la]   'the book'
(d)   /bagaj/   'thing'   [bagaj+la]   'the thing'
(e)   /kaw/   'crow'   [kaw+la]   'the crow'

The data in (1) show that DET appears as the CV allomorph *la* after stems ending in a consonant as in (1) (a) - (c) or a glide as in (1) (d) and (e).

(2)   Vowel-final stems
(a)   /papa/   'father'   [papa+a]   'the father'
(b)   /bujwa/   'kettle'   [bujwa+a]   'the kettle'
(c)   /papje/   'paper'   [papje+ja]   'the paper'
(d)   /lapli/   'rain'   [lapli+ja]   'the rain'
(e)   /bato/   'boat'   [bato+wa]   'the boat'
(f)   /tu/   'hole'   [tu+wa]   'the hole'

The data in (2) show that DET appears as the (G)V allomorph after stems ending in vowels. The glide *j* is inserted after front vowels, as in (2) (c) and (d), whereas the glide *w* occurs after back rounded vowels as in (2) (e) and (f). No glide appears after stem-final *a*, as shown in (2) (a) and (b). Instead, DET appears as the V allomorph *a* which results in vowel hiatus.[1]

There appears to be interesting phonological variation with respect to glide insertion. Valdman (1978) has reported that glide insertion depends on whether the final vowel is tense/close or lax/open.

(3)   Glide insertion (Valdman 1978: 75)
(a)   /ru+a/   [ru^{w}a]   'the wheel'
(b)   /po+a/   [po^{w}a]   'the skin'
(c)   /diri+a/   [diri^{j}a]   'the rice'
(d)   /pje+a/   [pje^{j}a]   'the foot'
(e)   /papa+a/   [papaa]   'the father'
(f)   /bɔkɔ+a/   [bɔkɔa]   'the sorcerer'
(g)   /vɛ+a/   [vɛa]   'the glass'

Valdman's data in (3) (a) - (d) show that stem-final tense vowels license glide insertion with postposed DET, whereas stem-final lax vowels do not appear with inserted glides, as shown in (3) (e) - (g). This particular distribution of inserted glides does not appear to be observed in all varieties. Thus, Nikiema (1999: 71) transcribes lax non-low vowels as subject to glide insertion as in his example [lapɛ̃jã] 'the rabbit' (cf. / lapɛ̃/ 'rabbit'). A detailed investigation of this variation is beyond the scope of this chapter. However, two important points can be made for the present purposes. First, the data in (3) (e) and (3) (f) are a good indication that phonetic vowel hiatus may result from postposed DET. Secondly, the distribution of glide insertion in Valdman's data is evidence for another creole pattern of interesting complexity that comes as a surprise to proponents of the view that creole languages are in some significant sense radically simple.

Note that the inserted glide in (2) and (3) above breaks up vowel sequences if the first vowel is non-low (or tense, in the case of Valdman's data). I make the uncontroversial assumption that the constituent dominating the glide in these contexts is the syllable onset. Overall, then, there are conflicting trends as to markedness in the morphophonology of DET. On the one hand, marked V and C clusters occur. On the other hand, homorganic glides are inserted to create unmarked onsets. Thus, apart from homorganic glide insertion, the phonological structures in the DET phrase show a reversal in comparison to ordinary

---

[1] It is not entirely clear from the available descriptions if a true vowel cluster or perhaps a long vowel surfaces in the *a+a* environment. Note that phonetically long vowels may occur in some varieties of French-lexified Antillean creoles as in St. Lucian [la:pɛ̃] 'rabbit' (Carrington 1984: 19). The phonetic appearance of vowel hiatus is not crucial for the purposes of this paper, however. The fundamental fact is that there are two adjacent vowel slots across the morpheme boundary.

markedness. Given that a V allomorph of DET is available, the fact that it is not used with consonant- and glide-final stems to create a CV structure runs counter to markedness expectations. Analogously, the fact that the CV allomorph of DET is not used with vowel-final stems to create an unmarked CVCV sequence is the opposite of what is predicted under markedness. The account of these anti-markedness effects is laid out further below.

Nasalisation produces three additional surface allomorphs of DET, [lã], [na] and [nã], after local nasal vowels and consonants (see, in particular, Bhatt & Nikiema 2000a, b and Cadely 2002 for extensive discussion). Whereas nasalisation is outside the scope if this paper and distinct from the present focus on the cluster-related effects of DET morphophonology, I wish to note that this nasalisation is of considerable complexity in that the consonant, the vowel or both may be nasalised. Phonological processes of such complexity are unexpected in languages that are supposedly very simple and straightforward in their grammatical structure.

Given that French-lexified Antillean creoles allow word-initial obstruent plus liquid clusters as in *glas* 'ice' and *klu* 'nail' (see Valdman 1978: 57f. and Carrington 1984: 30f. for discussion of permissible syllable types), the question arises as to how sequences of this kind are syllabified across word boundaries. As far as the syllabification of DET and the preceding word is concerned, I follow the unanimous view in the previous literature (Tinelli 1981, Nikiema 1999, Bhatt & Nikiema 2000a, Cadely 2002) that the morpheme boundary in these contexts coincides with a syllable boundary. That is, the allomorphs of DET constitute their own syllable and do not include material from the preceding morphological unit. This is does not mean that there is never any resyllabification in the languages at hand. Thus, Cadely (1995, 2002) has argued that vowel elision with Haitian clitics is accompanied by resyllabification into the clitic host.

Assuming traditional syllabic constituency, the syllabification of DET and its preceding morphological unit may be represented as in (4) (see also Cadely 2002).[2]

(4)   Syllable structure representations
(a)   σ   σ   (b)   σ σ σ   (c)   σ   σ
         /| /| /| /| | /|\   /|
         po + w a   p a pa + a   ʃ a t + l a

The representations in (4) exemplify the conflicting trends in the syllable structures licensed in the morphophonology of DET. On the one hand, marked vowel hiatus and closed syllables occur via heterosyllabic V and C clusters as in (4) (b) and (c), respectively. On the other hand, homorganic glides are inserted to create unmarked onsets as in (4) (a).

The definite determiner does not alternate in all French-lexified Antillean creoles. Consider the DET typology presented in table 1.

---

[2] Nikiema (1999) and Bhatt & Nikiema (2000a) have presented an analysis of Haitian and St. Lucian syllable structure in terms of Government Phonology (see below). However, the fundamental ideas that DET makes up a syllable distinct from the preceding morphological unit and that the inserted glide occupies the syllable onset are shared between their approach and the present one.

	Guyanese	Guadeloupean; N Dominican	Haitian; S Dominican; St. Lucian *etc*.
After vowel	a	la	a
After consonant or glide	a	la	la

Table 1. Forms of DET in French-lexified Antillean creoles (Bernabé 1987: 14)

Table 1. shows that the definite determiner in the French-lexified creole of Guyana is non-alternating *a*, whereas Guadeloupean and Northern dialects of Dominican have non-alternating *la*. All other French-lexified Antillean creole varieties exhibit the alternation under discussion. Note that any formal analysis of DET allomorphy should be able to account for this typology straightforwardly.

This section has shown that the allomorphy of DET in Haitian, St. Lucian and other French-lexified Antillean creoles is of considerable complexity. The V allomorph occurs after stem-final vowels, whereas the CV allomorph is found after stem-final consonants, thus displaying an anti-markedness effect. Homorganic glide insertion takes place to provide a syllable onset after front and back rounded vowels or, in some varieties, only after non-low tense vowels. Not all Antillean French-lexified creoles show this alternation, however. Following the earlier literature, DET and the preceding stem are in distinct syllables. In the next section previous formal analyses of the DET allomorphy are reviewed and critiqued.

2.   Critique of previous analyses

It is clear from the preceding description of the allomorphy of DET that markedness and the licensing of vowel and consonant sequences are indispensable parts of the understanding of this pattern. Previous analyses may be evaluated in terms of how well they capture this connection.

Most of the previous analyses of DET allomorphy have interpreted the observed V/CV change as some kind of phonological *l/Ø*-alternation. In the literature employing linear rules (Fournier 1978, Valdman 1978, Tinelli 1981), it has been proposed that DET has the underlying representation /la/ which is then subject to a rule of *l*-deletion to derive the V allomorph in the correct environment. Fournier (1978) proposes the rule in (5); a similar, but more complex rule is found in Tinelli (1981: 69).

(5)   Definite article truncation (obligatory) (Fournier 1978: 103)

$$C \longrightarrow Ø\ /\ [+\text{syll}]\ \#\ [_{\text{Det}}\ \_\_\_\_\_$$

The rule in (5) states that a consonant is deleted at the left edge of the determiner after a vowel-final word. First, it is surprising to find *C* in the input to this rule, given that only *l* is supposed to be subject to it. Secondly, this rule is merely a technical restatement of the facts without providing any real insight into the phenomenon. In particular, there is no link to markedness which is so decisive in understanding the allomorphy of DET.

It has been pointed out in Valdman (1978) that the account of DET allomorphy as a *l/Ø*-alternation is complicated by the fact that the *l* in the homophonous adverbial *la* 'there' never deletes even though the phonological environment may be identical otherwise (see Valdman 1978: 84). The comparison with the adverbial *la* is important because it shows that DET allomorphy is subject to a degree of lexical idiosyncrasy which must be captured in any

viable account of the alternation. Obviously, the linear rule deleting C does not affect the adverbial *la* because the rule only applies to determiners. However, it seems fairly clear that the presence versus absence of *l* in the determiner *la* is not due to the syntactic category of this item, but instead has something to do with lexical information. Consequently, linear rules such as (5) are not suited to capture the lexical boundedness of DET allomorphy and its connection to markedness.

Syllable structure is essential in the Government Phonology (GP) (Kaye, Lowenstamm and Vergnaud 1990, among others) analysis of DET allomorphy presented in Nikiema (1999). In this analysis, the underlying representation of alternating DET includes *l* as a floating consonant, as shown in (6).

(6)   Underlying representation of alternating DET (Nikiema 1999: 84)

```
        O       R
        |       |
        |       N
        |       |
        x       x
                |
        l       a
```
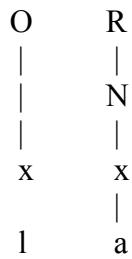
The consonant in (6) is floating in the sense that is not associated to the timing slot *x*. Given this representation, the central idea of Nikiema's analysis is that *l* is realised if proper government is not possible, but that it is not realised if proper government obtains. The reader is referred to Nikiema (1999) and Bhatt & Nikiema (2000a) for full details. To summarise their analysis, forms with surface hiatus such as [papaa] are licensed because the empty onset of DET is properly governed by the following vowel. Word-final consonants in words like [ʃat] are not in coda position, but instead are onsets of syllables with an empty nucleus. Attachment of DET to such a word creates a sequence of two empty positions that cannot both be properly governed. The floating consonant is anchored and, hence, pronounced at the surface to ensure proper government of the stem-final empty nucleus. Anchoring of the floating consonant results in the observed form [ʃatla]. Note that this analysis may capture the non-alternating nature of adverbial *la* easily by saying that the segmental melodies in the representation of this element are associated to their timing slots at all levels of representation. Whereas this analysis assigns an essential role to syllable structure and improves considerably on the linear rule analysis by capturing the lexical idiosyncrasy, the connection to markedness is not explained. Thus, it is unclear how the GP account of Haitian and St. Lucian DET squares with the less marked and more common constellation in which consonant clusters and vowel hiatus are avoided.[3]

The framework of Optimality Theory (OT) (McCarthy & Prince 1993 *et seq.*, Prince & Smolensky 1993) appears in principle well suited to account for allomorphy involving cluster constraints and markedness because both notions play a prominent role in the theory. However, as is argued in the next section, no viable account of DET allomorphy is available in conventional OT. Instead, Lexical Representation as Pure Markedness (LRPM) as

---

[3] Cadely's (2002) analysis represents no improvement over the GP analyses. Using floating *l* similar to the representation in (6), he simply stipulates (p. 460) that "in Haitian Creole a floating consonant preceded by another consonant generally associates to a timing unit." (my translation)

developed in Klein (2000) based on Golston (1996) is invoked in order to present a viable and insightful analysis of DET allomorphy.

3. The DET allomorphy challenge to OT

Syllable structure in OT flows from the conflict between *faithfulness* and *structural well-formedness* (a.k.a. *markedness*) constraints. The basic syllable structure constraints ONSET and NOCODA in (7) and (8) demand unmarked syllables, that is, syllables with onsets, but without codas (Prince & Smolensky 1993; see Kager 1999 for discussion).

(7)   ONSET
       Syllables must have onsets.

(8)   NOCODA
       Syllables are open.

Faithfulness constraints such as MAXIO are ranked high in languages in which more complex syllabic structures such as closed syllables are allowed.

(9)   MAXIO (McCarthy & Prince 1995)
       Every input element has a correspondent in the output.

A basic consequence of this system is that marked structures may be permitted, but are never required to the exclusion of unmarked structures. Thus, this system predicts that no language as a whole requires codas but excludes onsets (see Hammond 1997 for further discussion). The system further predicts that unmarked structures may be preferred in processes of prosodic morphology such as reduplication even though the language as a whole allows marked structures. This effect is dubbed *the emergence of the unmarked* (TETU; McCarthy & Prince 1994). For example, under TETU a language may have exclusively CV reduplicative affixes, even though codas commonly occur elsewhere.

The anti-markedness effect observed in the allomorphy of DET in French-lexified Antillean creoles presents an immediate challenge to the conventional OT approach just outlined. Recall that DET allomorphy prefers consonant sequences and vowel hiatus, even though less marked options are in principle available. This is in sharp contrast to the conventional OT system where marked structures are allowed, but not required in lieu of unmarked structures. On the other hand, the OT approach cannot be dismissed outright, given that glide insertion supplying onsets is fully compatible with the OT predictions, as in Rosenthall's (1994) analysis, for instance.

The challenge to OT may be understood better by comparing the Antillean facts to French elision and liaison which are close to the mirror image of DET allomorphy in the creoles. Consider the data in (10).

(10)   Elision and liaison in French
       (a)   l'ami   'the friend'   le camarade   'the comrade'
       (b)   /lezami/   'the friends'   /lekamarad/   'the comrades'

Note that vowels in the French determiners are elided before vowel-initial stems, as shown in (10) (a), thus satisfying the ONSET constraint. On the other hand, final consonants inherent in the French determiners surface before vowel-initial stems, but are suppressed before consonant-initial stems, as shown in (10) (b), satisfying ONSET and avoiding violation of the NOCODA constraint. In other words, elision and liaison avoid vowel hiatus and consonant clusters. This is in sharp contrast to Antillean DET allomorphy where vowel hiatus and consonant clusters are preferred.

The conventional OT account works well for French elision and liaison, as shown in Tranel (1994, 1995). But note that it is impossible under this account to arrive at the structures needed for Antillean DET allomorphy. Consider the tableaux in (11) and (12) where the sad face symbol ☹ indicates a candidate that is incorrectly optimal.

(11)

Input: papa, DET	ONSET	NOCODA
a. papa+la		
b. papa+a	*!	

☹ is placed beside row a.

Given that *a* and *la* are in principle available as phonological representations of Antillean DET, the syllable structure constraints ONSET and NOCODA optimise the ungrammatical CV candidate, as shown in (11).

(12)

Input: bagaj, DET	ONSET	NOCODA
a. bagaj+la		*!
b. bagaj+a		

☹ is placed beside row b.

Just like for vowel-final stems, the incorrect result obtains for stems ending in consonants and glides, as exemplified in (12). Note that no ranking of the constraints ONSET and NOCODA or other commonly invoked syllable structure constraints is able to render vowel hiatus and consonant clusters as in (11) (b) and (12) (a), respectively, optimal at the expense of the less marked CV-type structures in (11) (a) and (12) (b) (see Lapointe 2001 for related discussion). Consequently, an alternative approach must be sought. As demonstrated in the next section, such an alternative is available through the Lexical Representation as Pure Markedness (LRPM) approach developed in Klein (2000).

4.   Lexical constraint violations, homorganic glide insertion and the distribution of DET allomorphs

The preceding sections have highlighted a number of significant issues that need to be addressed in any viable formal analysis of Antillean DET allomorphy. First, the analysis should give a clear account of the anti-markedness effect. Secondly, it should be obvious from the analysis how DET induces the observed allomorphy, but not homophonous items such as the location adverbial *la*. Thirdly, there should be a transparent formal connection between the non-alternating and alternating forms of DET in the various French-lexified creoles. Finally, the insertion of the glides [j] and [w] after non-low vowels to supply an onset for DET needs to be accounted for. The following proposal for an OT analysis of DET allomorphy is designed to address these issues. The analytical framework is also shown to be of use beyond the account of DET allomorphy and argued to have significant advantages over

competing models such as morpholexical listing in OT (Lapointe 2001) and Sympathy theory (McCarthy 1999).

4.1.   Input allomorphy and Lexical Representation as Pure Markedness (LRPM)

Recall that there are two non-alternating phonological surface forms of DET, *a* and *la*, which are also prominent in the alternating creoles. Thus, it makes sense to propose two input allomorphs, roughly /a/ and /la/, for the creoles with non-alternating and alternating DET. Under this proposal, the non-alternating creoles have /a/ or /la/, as appropriate, whereas the alternating creoles have both. The task of the grammar, then, is to produce the correct distribution of these allomorphs.

    Analyses based on linear rules (Fournier 1978, Valdman, 1978, Tinelli 1981) did not take the non-alternating patterns into account and are, thus, at an empirical disadvantage. In contrast, Nikiema (1999) has proposed the inputs in (13) to account for the DET typology.

(13)   DET inputs according to Nikiema (1999: 84)
(a)   [la]   (b)   [la]/[a]   (c)   [a]

```
        O      R              O      R              O      R
        |      |              |      |                     |
        |      N              |      N                     N
        |      |              |      |                     |
        x      x              x      x                     x
        |      |              |      |                     |
        l      a              l      a              l      a
```

The plain input in (13) (a) is a straightforward representation of non-alternating *la*. The input for alternating DET in (13) (b) has been discussed above. (13) (c) is proposed to underlie non-alternating *a*. This form includes the melody for *l*, but is distinct from (13) (b) through the absence of the timing slot *x*. Note that this input is highly counter-intuitive given that the floating *l*-melody never surfaces anywhere in the varieties with non-alternating *a* and, thus, introduces unwarranted redundancy. Consequently, the simple /a/ input proposed below is preferable for non-alternating *a*.

    I propose that the input allomorphs /a/ and /la/ are enhanced through a lexical constraint violation in the alternating creoles. This lexical constraint violation flows from the model of Lexical Representation as Pure Markedness (LRPM) proposed in Klein (2000). This model has been developed to account for the phonology - morphology interactions of *umlaut* in German and the Austronesian language Chamorro. LRPM is based on the two-level OT model in which inputs are mapped to outputs (McCarthy & Prince 1995) and on Golston's (1996) idea that phonological and morphological structure may be represented through constraint violations. In this model each constraint violation mark in the representation encodes linguistic markedness. Morphemes may carry constraint violations as part of the input representation so that they are distinguished in part by the presence versus absence of such violations. The lexical constraint violations or *desiderata* are kept track of in the output through faithfulness constraints such as MaxIO. The maintenance of an input violation mark in the output satisfies faithfulness, whereas the cancellation of an input violation in the output is a violation of faithfulness. Candidates with a cancelled lexical constraint violation may be suboptimal because of the concomitant faithfulness violation. A given constraint may only be

violated once in a given input representation. Furthermore, no constraint ranking may be determined through any input representation. This limits the power of potential input representations considerably. Note that markedness is represented directly in this model. Any lexical constraint violation encodes markedness that a representation without it lacks.

I follow Rubach & Booij (2001) and Tranel (1994) in assuming that allomorphs are freely available in the input and that the correct surface allomorph is chosen through the constraint hierarchy. Note, however, that I do not endorse the idea of *Richness of the Base* (Smolensky 1996) which does not allow any specific property to be stated at the level of input representations. Thus, the LRPM model may be seen as a development of other OT approaches in which representationally specified inputs have been proposed. Examples of specific properties assigned to input representations in earlier OT work include the underspecified 'empty' morpheme RED in standard OT treatments of reduplication (McCarthy & Prince 1995 *et seq.*), inputs of varying degrees of syllabification (Sprouse 1997), latent input segments (Zoll 1998) and catalectic input moras (Stiebels and Wunderlich 1999). The advantage of LRPM is that inputs in this model utilise elements that make up the stuff of OT grammar elsewhere, namely, constraints and constraint violations.

I propose that /la/ in the alternating creoles, but not /a/, carries a lexical constraint violation of the constraint STEM-FINAL-NOCODA as part of the input.

(14)   STEM-FINAL-NOCODA: 'Stems must end in an open syllable.'
           Align the right edge of the stem with the right edge of a syllable nucleus.

STEM-FINAL-NOCODA is a Generalised Alignment (GA) constraint (McCarthy & Prince 1993a) and is a member of the family of NOCODA constraints (Itô & Mester 1999). An analogous constraint has been invoked in Hume (1998) to account for phrase-final metathesis in Leti (e.g., /urun/ → [urnu] 'breadfruit').

I propose that the desideratum for alternating /la/ consists of its phonological form and a lexical violation of the constraint STEM-FINAL-NOCODA as shown in (15).

(15)   Desideratum for alternating [la]

/la/

STEM-FINAL-NOCODA
*

Note that the lexical violation of STEM-FINAL-NOCODA can only be respected through the presence of a stem-final coda in the output. Resyllabification from the stem into DET is prevented through the GA constraint R-ALIGN-STEM-SYLL given in (16).

(16)   R-ALIGN-STEM-SYLL: 'Stems must end in a syllable.'
           Align the right edge of the stem with the right edge of a syllable.

Given LRPM, the typology of DET in French-lexified Antillean creoles is represented through the inputs in table 2.

Alternants	Input	Creoles
[a]	/a/	Guyanese
[la]	/la/	Guadeloupean; N Dominican
[la]/[a]	/la/ with *lexical constraint violation*; /a/	Haitian; S Dominican; St. Lucian *etc*.

Table 2. Typology of DET inputs

According to table 2, the alternating varieties of French-lexified creoles have two input allomorphs for DET (cf. Carrington 1984: 55). In the present proposal, the markedness of the morphophonology of alternating DET is expressed through the presence of a lexical constraint violation on /la/, whereas /a/ lacks this part of the lexical representation. Non-alternating /la/ in varieties such as Guadeloupean is represented in the input only through its phonological form and, thus, is predicted not to show marked behaviour like in the alternating creoles. Similarly, homophonous items like the adverbial *la* have no lexical constraint violation and, hence, are predicted to show no morphophonology out of the ordinary in any of the creoles. Overall, there is a close match between the number of DET inputs and its surface typology. The presence of only one DET input corresponds to a single DET allomorph at the surface as in Guyanese, Guadeloupean and Northern Dominican, whereas two DET inputs correspond to two surface alternants as in Haitian, Southern Dominican and St. Lucian.

4.2.   The distribution of V and CV allomorphs

The input representations and constraints introduced to this point suffice to arrive at the correct distribution of DET in environments with consonant sequences and vowel hiatus. The tableau in (17) shows how the preference for vowel hiatus is obtained in the LRPM system.

(17)

Input 1: /papa+la/				STEM-FINAL-NOCODA
				*
Input 2: /papa+a/				
Candidates:	R-ALIGN-STEM-SYLL	MAXIO	ONSET	STEM-FINAL-NOCODA
a. [pa.pa.+la]_{Input1}		*!		<*>
☞ b. [pa.pa.+a]_{Input2}			*	

Both DET allomorphs are available in the input, as shown in the upper half of the tableau in (17). /la/ carries the lexical violation of STEM-FINAL-NOCODA whereas /a/ carries no such violation. The constraint hierarchy evaluates forms based on both input representations of DET as shown in the lower half of tableau (17). Candidate (17) (a) makes perfect sense from the point of view of syllable markedness because it employs CV syllables at the juncture between the stem and DET, and yet this form must be ruled out in the alternating creoles. In

the present system, (17) (a) is suboptimal and, hence, correctly ungrammatical because the lexical constraint violation from the /la/ input is not respected in the output. The stem in (17) (a) ends in an open syllable which means that the input violation of STEM-FINAL-NOCODA has been cancelled. This cancellation, indicated by putting the violation mark between angled brackets, represents a departure from the input and, consequently, is a violation of the faithfulness constraint MAXIO. Given that MAXIO is ranked fairly high, this faithfulness violation renders the form suboptimal in comparison to the vowel hiatus. The form with vowel hiatus from the /a/ input in (17) (b) is optimal even though it violates the syllable structure constraint ONSET. /a/ has no input constraint violation and, hence, passes the higher-ranked constraint MAXIO. As a result, vowel hiatus is correctly optimal in comparison to CV syllables at the juncture of DET and the stem. The same system of representations and constraints is able to correctly favour consonant clusters with /la/ in the alternating creoles.

(18)

Input 1: /liv+la/				STEM-FINAL-NOCODA
				*
Input 2: /liv+a/				
Candidates:	R-ALIGN-STEM-SYLL	MAXIO	ONSET	STEM-FINAL-NOCODA
☞ a. [liv.+la]$_{Input1}$				*
b. [li.v+la]$_{Input1}$	*!	*		<*>
c. [li.v+a]$_{Input2}$	*!			*
d. [liv.+a]$_{Input2}$			*!	

The choice of the V allomorph as the exponent of DET is correctly suboptimal in the alternating creoles after stem-final consonant or glide. Alignment of the end of the stem with a syllable is suboptimal in this environment because the V allomorph of DET induces a fatal violation of ONSET as shown in (18) (d). Resyllabification to form a CV syllable, as seen in (18) (c), is suboptimal because it causes the high-ranking constraint R-ALIGN-STEM-SYLL to be fatally violated. Analogously, resyllabification with the CV allomorph of DET is also suboptimal as shown in (18) (b). The heterosyllabic consonant cluster with the CV allomorph of DET correctly emerges as optimal as seen in (18) (a) because this form passes the two high-ranking syllable structure constraints and respects the lexical constraint violation. Note that the NOCODA constraint adduced in (8) above is ranked low so that it plays no role in the morphophonology of DET.

The tableaux in (19) and (21) are presented to give a sense of the morphophonology of DET in the non-alternating creoles.

(19)   DET as non-alternating CV (Guadeloupean, Northern Dominican)

Input: /papa+la/	R-ALIGN-STEM-SYLL	MAXIO	ONSET	STEM-FINAL-NOCODA
☞ a. [pa.pa.+la]				
b. [pa.pa.+a]		*!	*	

In the non-alternating creoles, only one form of DET is available in the input. None of these inputs contains a lexical constraint violation. Thus, in the creoles preferring CV throughout, a V allomorph of DET can only result through the deletion of input /l/ which results in a fatal violation of the high-ranking faithfulness constraint MAXIO, as shown through the comparison of (19) (a) and (b). Analogously, creoles with V throughout could exhibit ungrammatical *[la] only through the insertion of [l]. This insertion may easily be ruled out by ranking an appropriate faithfulness constraint from the DEPIO family such as DEPIO-C in (20) sufficiently high.

(20)   DEPIO-C: 'No consonant insertion' (cf. McCarthy & Prince 1995, among others)
            Output consonants must have input correspondents.

(21)   DET as non-alternating V (Guyanese)

Input: /papa+a/	R-ALIGN-STEM-SYLL	MAXIO	DEPIO-C	ONSET	STEM-FINAL-NOCODA
a. [pa.pa.+la]			*!		
☞ b. [pa.pa.+a]				*	

In the creoles preferring V throughout, a CV allomorph of DET can only result through the insertion of [l]. However, this insertion is correctly ruled out through the ranking of DEPIO-C, the constraint prohibiting insertion of consonants, above the constraint demanding onsets.

Checking the analytical objectives outlined at the beginning of this section, the analysis in this section has accounted for the anti-markedness effect as an outcome of marking DET through a lexical constraint violation in the input. Homophonous forms such as adverbial *la* and non-alternating forms of DET simply lack this part of the input representation and have been shown to surface correctly. To complete the analysis, the next section demonstrates how glide insertion supplies homorganic onsets.

4.3.   Agreement and onset-driven glide insertion

It has been noted above that the allomorphy of DET in French-lexified Antillean creoles exhibits conflicting trends in terms of syllable structure. On the one hand, heterosyllabic consonant clusters and vowel hiatus are preferred in certain environments, on the other hand glide insertion supplies onsets with stem-final front and round back vowels to result in unmarked CV syllables. The analytical challenge is to demonstrate why glide insertion takes

place with front and round back vowels, but not with stem-final /a/. The fundamental idea that I would like to invoke is that glide insertion is demanded by the ONSET constraint as argued in Rosenthall (1994), but that it is also counteracted by agreement constraints. These agreement constraints demand a match between distinctive features of the stem-final vowel and the inserted glide. Homorganic glide insertion after stem-final /a/ is not possible in this approach because there is no glide available to meet the agreement requirements in this particular environment. I invoke the agreement constraints in (22) (a) and (b) based on the syntagmatic constraints proposed in Pulleyblank (1997).

(22)   Featural agreement constraints
        (a) AGR-FRONT: A vowel and a following glide must agree in [FRONT].
        (b) AGR-ROUND: A vowel and a following glide must agree in [ROUND].

The demand for onsets outranks the avoidance of inserted segments expressed through the constraint DEPIO in (23).

(23) DEPIO: 'No insertion' (McCarthy & Prince 1995)
            Output segments must have input correspondents.

The tableaux accounting for homorganic glide insertion in (24) - (26) are simplified in that only the relevant constraints and the /a/ input for DET are shown.

(24)	Input: /papje+a/	AGR-FRONT	AGR-ROUND	ONSET	DEPIO
☞	a. [pa.pje.+ja]				*
	b. [pa.pje.+a]			*!	
	c. [pa.pje.+wa]	*!	*		*

The vowel-glide sequence at the DET-stem juncture in (24) (c) disagrees in frontness and roundness and is, hence, correctly suboptimal. There is no featural disagreement in the hiatus form in (24) (b), but there is also no onset for DET. The insertion of the homorganic glide [j] in the onset of DET, which agrees in the feature [FRONT] with the stem-final front vowel, is correctly optimal even though material has been inserted, as shown in (24) (a). Note that forms such as (24) (a) pass AGR-ROUND trivially because there is no [ROUND] feature in the adjacent vocoids.

(25)	Input: /bato+a/	AGR-FRONT	AGR-ROUND	ONSET	DEPIO
	a. [ba.to.+ja]	*!	*		*
	b. [ba.to.+a]			*!	
☞	c. [ba.to.+wa]				*

The account of the insertion of [w] after round stem-final vowels is analogous to the insertion of [j] above. The homorganic glide is the best option given the agreement constraints and the demand for a syllable onset, as shown in the tableau in (25).

(26)	Input: /papa+a/	AGR-FRONT	AGR-ROUND	ONSET	DEPIO
☞	a. [pa.pa.+a]			*	
	b. [pa.pa.+ja]	*!			*
	c. [pa.pa.+wa]		*!		*

Glide insertion with *a*-final stems is worse than vowel hiatus because no glide agrees with *a* in terms of [FRONT] or [ROUND]. Consequently, [j]-insertion introduces disagreement with respect to the feature [FRONT], whereas the insertion of [w] disagrees in terms of [ROUND], as shown in (26) (b) and (c), respectively. Vowel hiatus with stem-final *a* as in (26) (a) is optimal because it avoids violating the agreement constraints, even though it is at odds with the lower-ranking ONSET constraint. In sum, glide insertion is driven by the demand for onsets, but is suspended where homorganic glides are not available.

4.4.   Wider functionality

Given the analysis of DET allomorphy proposed in this section, the resulting constraint hierarchy is as in (27).

(27)   Partial constraint hierarchy for French-lexified Antillean creoles
R-ALIGN-STEM-SYLL, AGR-FRONT, AGR-ROUND » MAXIO, DEPIO-C » ONSET »
DEPIO, STEM-FINAL-NOCODA » NOCODA

Note that the constraint hierarchy in (27) is identical in alternating and non-alternating creoles. The typology of the allomorphs of DET results from this constraint hierarchy together with the input representations summarised in table 2. Given the number of constraints employed in the present analysis, one may wonder about the utility of the constraints in (27) beyond the present account of DET allomorphy. Note that the alignment constraint R-ALIGN-STEM-SYLL, the faithfulness constraints MAXIO, DEPIO and DEPIO-C and the syllable structure constraints ONSET and NOCODA are all very basic and are commonly invoked in OT analyses of a great variety of languages. Given that homorganic glide insertion is quite widespread in the languages of the world (see Rosenthall 1994 for discussion), the approach invoking agreement constraints proposed in this paper has considerable potential for cross-linguistic utility. Note that there are other cases of homorganic glide insertion matching the Antillean facts very closely. In Dutch, for instance, homorganic glides are inserted in vowel hiatus contexts except after /a/ (Booij 1995: 65ff.). Finally, the constraint STEM-FINAL-NOCODA is a straightforward member of the NOCODA constraint family (Itô & Mester 1999) and, furthermore, akin to Hume's (1998: 164) constraint for Leti phrase-final metathesis.

Interestingly, versions of the anti-markedness effect found with Antillean French-lexified DET allomorphy are observed in the morphophonology of other creole and non-creole languages, lending further utility to the LRPM analysis proposed in this paper.

According to Huttar (1996), the appearance of the transitive suffix *-mi* in the Atlantic English-lexified creole language Ndyuka depends on a complex set of phonological conditions. Verbs after which this suffix may occur are nearly always monosyllabic and must have a final high tone. In addition, *-mi* is found before constituents of the object phrase if they

are monosyllabic and vowel-initial, but not if they are polysyllabic or consonant-initial. Consider the minimal pair in (28), taken from the data in Huttar (1996).

(28)   Morphophonology of *-mi* in Ndyuka (*fón* 'hit')
        (a)   a fón den pikín   'he hit the children'
        (b)   a fó+mi en pikín   'he hit his child'

The comparison between (28) (a) and (b) shows that *-mi* in Ndyuka displays an anti-markedness effect similar to DET in Antillean French-lexified creoles. *-mi* does not occur where a CV structure would have been obtained at the juncture with the consonant-initial object phrase, as in (28) (a), but it does occur in the vowel hiatus environment in (28) (b). This minimal pair shows that an account invoking LRPM is likely to play a central role in a viable OT analysis of the transitive suffix *-mi* in Ndyuka.

Lapointe (2001) has reported facts from Korean which are strikingly similar to the allomorphy of Antillean DET although he is not aware of these data. On the one hand, as expected under conventional OT, the Korean topic-focus marker *-un/-nun* and the accusative marker *-ul/-lul* appear in their C-initial forms when attached to V-final stems and in their V-initial forms when attached to C-final stems (cf. *Kim-ul* 'Kim-ACC' and *ai-lul* 'child-ACC'). On the other hand, the Korean nominal conjunctive particle *-wa/-kwa* behaves unexpectedly. Under conventional OT, we would expect that the C-initial allomorph *-kwa* attaches to V-final stems and that the glide-initial *-wa* attaches to C-final nouns. However, we find just the opposite, e.g., *pap+kwa* 'rice and' and *ai-wa* 'child and'. As a solution, Lapointe (2001) proposes to employ pre-OT morpholexical listing as exemplified in (29).

(29)   Morpholexical listing in OT (Lapointe 2001: 273)
        Korean nominal conjunctive suffix:
        + /kwa/ /[+cons] ___
        + /wa/   /[-cons] ___

According to Lapointe (2001), morpholexical restrictions such as (29) function to bleed the inputs available to GEN. In his model, only forms meeting the lexically and morphologically listed restrictions are used as inputs to GEN. Lapointe's model seems retrograde because it mixes aspects of rule-based phonology and morphology with an OT-type grammar, resulting in an exponential increase in the power of the model. The LRPM model advocated in this chapter could easily accommodate the Korean data and avoids the drastic step of mixing rule-based phonology and morphology with OT. Instead, it addresses the issue of anti-markedness effects employing essential OT techniques, that is, only general and cross-linguistically valid constraints, constraint violations and faithfulness. Other competing approaches such as the Sympathy model (McCarthy 1999) also increase the power of the OT grammar much more fundamentally. The set of Sympathy constraints is added to the set of conventional constraints, resulting in a significant inflation of the factorial typology. In contrast, only standard constraints are used to encode input representations in LRPM and their number does not increase in comparison to the conventional model. In sum, the constraints and the LRPM approach invoked in the present analysis are not specific to DET allomorphy, but instead can easily be shown to be useful in other languages. Given the analysis of creole morphophonology presented in this section, it is instructive to return to the theme of the supposed simplicity of creole languages.

5. Complex morphophonology in simple creoles?

Recently, McWhorter (2001a, b) has made a much noted argument designed to demonstrate the supposed simplicity of creole grammars. McWhorter (2001a) includes the following claims.

> "[C]reoles display less complexity than the rest of the world's natural grammars. (p. 133) [T]he least complex grammars in the world are all creoles. […] [I]f all of the world's languages could be ranked on a scale of complexity, there would be a delineable subset beginning at the "simplicity" end and continuing towards the "complexity" one all of which were creoles. […] [I]n the final analysis, there would be a healthy band of languages beginning at the "simplicity" pole which would all be creoles." (p. 162)

McWhorter (2001a) makes two caveats to his thesis that "the world's simplest grammars are creole grammars" that are important in the context of the present paper. First, according to McWhorter (2001a: fn. 20) French-lexified creoles which have heavily borrowed from the French lexicon are to be excluded from the list of creoles with simple grammars. Unfortunately, McWhorter (2001a) does not provide an explanation for the special status of French-lexified creoles in terms of their lack of simplicity. Secondly, McWhorter (2001b: 391) admits that the phonology of creole languages had been addressed superficially and preliminarily in McWhorter (2001a) and that non-creole languages may easily have less complex phonologies than creoles. Thus, McWhorter's (2001a, b) claims concerning the supposed simplicity of creole grammars appear to be compromised as far as creole phonology is concerned. *A forteriori*, the results presented in the current chapter represent evidence against McWhorter's simplicity hypothesis. Thus, this paper, relying to a considerable degree on earlier research, has demonstrated that the morphophonology of the definite determiner in Antillean French-lexified creoles is of considerable complexity. There are at least three intricate processes involved in arriving at the surface shape of DET, V/CV alternation, homorganic glide insertion and nasalisation, and they may exhibit conflicting trends and anti-markedness effects. Furthermore, the complex morphophonology of *-mi* in Ndyuka summarised above suggests that English-lexified creole languages closely related to McWhorter's prime example of Saramaccan have complex morphophonologies as well.

6. Conclusion

The phonology and morphology of creole languages has been one of the least studied areas in linguistics to date. This volume has been designed in part to redress this imbalance. The present paper has shown that the detailed investigation of the morphophonology of creole languages brings to light intricate patterns of interest and significant consequence to descriptive linguistics, typology, phonological and morphological theory and to general claims concerning the structure of creole languages. I have demonstrated in this paper that the morphophonology of the definite determiner in creoles such as Haitian presents a challenge to conventional Optimality Theory and I have proposed to resolve this challenge by invoking the Lexical Representation as Pure Markedness model developed in Klein (2000). The preference for consonant sequences and vowel hiatus instead of less marked CV structures in the allomorphy of the creole definite determiner is an anti-markedness effect that represents an interesting issue for any formal theory of phonology and morphology. This anti-markedness is counteracted in part by the creation of unmarked syllable onsets via glide insertion. The

analytical challenge has been to work out a model that is able to balance these conflicting trends correctly. It is hoped that the present paper contributes to showcasing creole phonology and morphology as a legitimate and rewarding area of inquiry for creolists and theoretical linguists alike.

References

Aceto, Michael (1996): Early Saramaccan syllable structure: An analysis of Schumann's 1778 manuscript. - In: Journal of Pidgin and Creole Languages 11, 23-44.

Alber, Birgit, and Ingo Plag (2001): Epenthesis, deletion and the emergence of the optimal syllable in creole: The case of Sranan. - In: Lingua 111, 811-840.

Archangeli, Diana, and D. Terence Langendoen (eds.) (1997): Optimality Theory. An overview. Oxford: Blackwell.

Bernabé, Jean (1987): Grammaire créole. Fondas Kréyol-la. Éléments de base des créoles de la zone américano-caraïbe. Paris: L'Harmattan.

Bhatt, Parth, and Emmanuel Nikiema (2000a): Nasality and the definite determiner in St. Lucia Creole. - In: Proceedings of the 13th biennial conference of the Society of Caribbean Linguistics, Jamaica, 61-73.

Bhatt, Parth, and Emmanuel Nikiema (2000b): Le statut de la nasalité en créole de Sainte-Lucie. - In: Revue québécoise de linguistique 28, 23-45.

Booij, Geert (1995): The phonology of Dutch. Oxford University Press.

Cadely, Jean Robert (1995): Élision et agglutination en Créole haïtien: Le cas des pronoms personnels. - In: Études créoles 18, 9-38.

Cadely, Jean-Robert (2002): Le statut des voyelles nasales en Créole haïtien. - In: Lingua 112, 435-464.

Carrington, Lawrence (1984): St. Lucian Creole. A descriptive analysis of its phonology and morpho-syntax. Hamburg: Buske.

Fournier, Robert (1978): De quelques anomalies dans le traitement de l'article defini par H. Tinelli (1970): Generative phonology of Haitian Creole. - In: Amsterdam Creole Studies 2, 101-113.

Golston, Chris (1996): Direct Optimality Theory: Representation as Pure Markedness. - In: Language 72, 713-748.

Hammond, Michael (1997): Optimality Theory and prosody. - In: D. Archangeli & T. Langendoen (eds.), 33-58.

Holm, John (1988): Pidgins and creoles. Volume I: Theory and structure. Cambridge University Press.

Holm, John (2000): An introduction to pidgins and creoles. Cambridge University Press.

Hume, Elisabeth (1998): Metathesis in phonological theory: The case of Leti. - In: Lingua 104, 147-186.

Huttar, George (1996): Epenthetic -*mi* in Ndyuka: A transitive marker? - In: SIL Electronic Working Papers 1996. [http://www.sil.org/silewp/1996/003/silewp1996-003.html]

Itô, Junko, and R. Armin Mester (1999): Realignment. - In: R. Kager et al. (eds.): The prosody-morphology interface, 188-217. Cambridge University Press.

Kager, René (1999): Optimality Theory. Cambridge University Press.

Kaye, Jonathan, Jean Lowenstamm, and Jean-Roger Vergnaud (1990): Constituent structure and government phonology. - In: Phonology 7, 193-231.

Klein, Thomas (2000): Umlaut in Optimality Theory. A comparative analysis of German and Chamorro. Tübingen: Niemeyer.

Lapointe, Steven (2001): Stem selection and OT. - In: G. Booij & J. van Marle (eds.): Yearbook of morphology 1999, 263-297. Dordrecht: Kluwer.

McCarthy, John (1999): Sympathy and phonological opacity. - In: Phonology 16, 331-399.

McCarthy, John, and Alan Prince (1993a): Generalized Alignment. - In: G. Booij & J. van Marle (eds.): Yearbook of morphology 1993, 79-153. Dordrecht: Kluwer.

McCarthy, John, and Alan Prince (1993b): Prosodic morphology: Constraint interaction and satisfaction. [ROA #482]

McCarthy, John, and Alan Prince (1994): The emergence of the unmarked: Optimality in prosodic morphology. - In: M. Gonzàlez (ed.): Proceedings of the North East Linguistic Society 24, 333-379. University of Massachusetts, Amherst: GLSA.

McCarthy, John, and Alan Prince (1995): Faithfulness and reduplicative identity. - In: J. Beckman et al. (eds.): Papers in Optimality Theory, 249-384. University of Massachusetts, Amherst: GLSA.

McWhorter, John (2000): The missing Spanish creoles. Recovering the birth of plantation contact languages. Berkeley: University of California Press.

McWhorter, John (2001a): The world's simplest grammars are creole grammars. - In: Linguistic Typology 5, 125-166.

McWhorter, John (2001b): What people ask David Gil and why: Rejoinder to the replies. - In: Linguistic Typology 5, 388-412.

Nikiema, Emmanuel (1999): De la variation du déterminant /la/ dans les créoles haïtien et st-lucien. - In: Lingua 107, 69-93.

Prince, Alan, and Paul Smolensky (1993): Optimality Theory: Constraint interaction in generative grammar. Technical report no. 2, Rutgers University Center for Cognitive Science.

Pulleyblank, Douglas (1997): Optimality Theory and features. - In: D. Archangeli & T. Langendoen (eds.), 59-101.

Romaine, Suzanne (1988): Pidgin and creole languages. London: Longman.

Rosenthall, Samuel (1994): Vowel/glide alternation in a theory of constraint interaction. Ph.D. dissertation. University of Massachusetts, Amherst. [ROA #126]

Rubach, Jerzy, and Geert Booij (2001): Allomorphy in Optimality Theory: Polish iotation. - In: Language 77, 26-60.

Sabino, Robin (1993): On onsets: Explaining Negerhollands initial clusters. - In: F. Byrne & J. Holm (eds.): Atlantic meets Pacific. A global view of pidginization and creolization, 37-44. Amsterdam: Benjamins.

Smolensky, Paul (1996): The initial state and 'richness of the base' in Optimality Theory. Ms., Johns Hopkins University, Baltimore. [ROA #154]

Sprouse, Ronald (1997): A case for enriched inputs. Ms., University of California, Berkeley. [ROA #193]

Stiebels, Barbara, and Dieter Wunderlich (1999): Second stems in Hungarian nouns. - In: The Linguistic Review 16, 253-294.

Taylor, Douglas (1977): Languages of the West Indies. Baltimore: The Johns Hopkins University Press.

Tinelli, Henri (1981): Creole phonology. The Hague: Mouton.

Tranel, Bernard (1994): French liaison and elision revisited: A unified account within Optimality Theory. [ROA #15]

Tranel, Bernard (1995): Exceptionality in Optimality Theory and final consonants in French. [ROA #61]

Valdman, Albert (1978): Le créole: Structure, status et origine. Paris: Klincksieck.

Zoll, Cheryl (1998): Parsing below the segment in a constraint-based framework. Stanford: CSLI.

Department of Linguistics
The University of Manchester
Oxford Road
Manchester M13 9PL, England
thomas.klein@man.ac.uk
http://ling.man.ac.uk/Html/TK/