Abstract: The paper examines syllable restructuring in the Santiago variety of Cape Verdean Creole. It is shown that currently attested forms reflect to some extent the syllable structure in earlier stages of the language. Several strategies for syllable restructuring are identified and illustrated. These repair strategies are shown to operate in Mandinka and Wolof, the two main substrate languages of Cape Verdean Creole, as well as in Guinea-Bissau Creole, a closely related Portuguese-lexified creole. A tentative relative chronology of the stages conducive to the present syllable structure of Cape Verdean Creole is outlined. Also discussed are some of the theoretical implications of the findings.

Keywords: Cape Verdean Creole, syllable structure, syllable restructuring, aphesis, epenthesis, deletion

1. Introduction
This paper looks into syllable restructuring in the history of Cape Verdean Creole, a Portuguese-lexified creole.

The Cape Verdean Creole data examined are taken from Anon. (2007a), Anon. (2007b), Pereira et al. (2006), and Quint (1998 and 2003). All examples are rendered in the system of transcription used in the sources mentioned.

The paper is organized as follows. Section 2 presents the syllable structure of the modern variety of Cape Verdean Creole. In 3 I adduce evidence of syllable restructuring having occurred in earlier stages of the language. The influence of Mandinka and Wolof, the two main substrate languages of Cape Verdean Creole, is discussed in 4. Section 5 focusses on the reflexes of Portuguese /esC-/. In 6 I outline a relative chronology of the different stages of syllable restructuring in Cape Verdean Creole. The findings and their implications are summarized in section 7.

2. The syllable structure of modern Cape Verdean Creole
Modern Cape Verdean Creole has the following types of syllable (Pereira et al. 2006):

(1) a. V: o ‘or’
   b. VC: ar ‘air’
   c. CV: ku ‘with’
   d. CVC: dór ‘pain’
   e. CCV: fla ‘to speak’
   f. CCVC: krus ‘cross’
   g. CCCV: skre.bi ‘to write’

In terms of the inventory of syllables, modern Cape Verdean Creole exhibits six of the nine syllable types identified by Klein (2004) in his typology of syllables in creole languages. Three of the syllable types attested in the creoles surveyed by Klein (2004) do not occur in Cape Verdean Creole: CVCC, VCC and CCVCC. On the other hand, Klein (2004) does not include CCCV among the syllable types occurring in the creole languages examined by him. Modern Cape Verdean Creole would thus qualify as a creole with a syllable structure which
Klein (2004) calls of “medium complexity”. Moreover, it is more complex than its lexifier language, Portuguese, which does not allow three-consonant onsets.

3. Syllable restructuring in earlier stages of Cape Verdean Creole

There is evidence, however, that the syllable structure of modern Cape Verdean Creole is the result of late developments. As shown below, current forms provide some insight into what must have been the situation in earlier stages of the language, on the one hand, and into the strategies for syllable restructuring formerly used, on the other hand.

Consider first the treatment of Portuguese onset clusters. In the case of obstruent + liquid clusters, one strategy consists in the deletion of the liquid:

(2)  a. prestar > pista ‘to lend’
     b. quatro > kuditu ‘four’

Another strategy is copy-vowel epenthesis:

(3)  a. blusa > buluza ‘blouse’
     b. crioulo > kiriolu ‘Creole’
     c. frieza > firiésa ‘cold’

Occasionally, the epenthetic vowel is the result of labial attraction. In such cases, a labial obstruent triggers the occurrence of epenthetic [u]:

(4)  problema > prabulema ‘problem’

Finally, consider also the treatment of the onset cluster /pn-/:

(5)  pneu > pineu ‘tire’

This cluster is broken up by means of epenthetic [i], which cannot be accounted for in terms of vowel copying or labial attraction. Therefore, this suggests that [i] is the default epenthetic vowel of Cape Verdean Creole.

Current forms also provide some insight into the repair strategies formerly used by early Cape Verdean Creole for the adjustment of codas. Two basic strategies are still reflected in such forms, depending on the position of the original coda consonant. For instance, word-internal codas are avoided by means of vowel epenthesis. In most cases, the epenthetic vowel is [i], thus confirming the claim that it is the default epenthetic vowel in Cape Verdean Creole:

(6)  a. advogado > adivogadu ‘lawyer’
     b. urjente > urijenti ‘urgent’

The epenthetic vowel is occasionally [u], due to labial attraction:

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1 See also Viaro (2005: 92).
2 An identical form [pista] is attested in Guinea-Bissau Creole. Viaro (2005: 92) derives it from empresta. This would have yielded mpresta, with a phonetically pre-nasalized stop [m]. Consequently, I derive etymologically the Cape Verdean Creole word from prestar.
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(7) *abcesso > abusesu* ‘abscess’

Word-final consonants of unstressed syllables are sometimes deleted:

(8) a. *fácil > fáxi* ‘easy’  
b. *óculos > oklu* ‘spectacles’

Word-final */-t/ in the infinitive of Portuguese, from which most Cape Verdean Creole verbs are derived, is also deleted.

Vowels also undergo changes conducive to syllable restructuring. Thus, aphasis is widely attested:

(9) a. *alugar > luga* ‘to rent’  
b. *igreja > grexa* ‘church’

The aphasis of the Portuguese nasal vowels leads to the occurrence of phonetically pre-nasalized consonants:

(10) a. *embarcar > mbarka* ‘to embark; to emigrate’  
b. *impedir > mpidi* ‘to hinder’

The phonological interpretation of pre-nasalized consonants is a matter of some debate. What is at issue is their mono-phonemic vs. bi-phonemic analysis (at the level of underlying representations). Thus, Quint (2006: 81-82) and Lang (2007) argue in favour of the former whereas do Couto and Souza (2006) are proponents of the latter. Whatever their phonological status, the fact remains that most of the words with phonetically pre-nasalized consonants are the outcome of syllable restructuring.

Unstressed vowels frequently undergo syncope:

(11) *direito > dretu* ‘correct’

Note also that a vowel in the Portuguese etymon is frequently replaced by a copy of a vowel to the right:

(12) *redondo > rodondo* ‘round’

Finally, a large number of forms exhibit the effects of labial attraction. The labial consonants */p, b, f, v, m/* trigger the replacement of the original vowel with [u]:

(13) a. *vergonha > burgonha* ‘shame’  
b. *separar > supara* ‘to divide’

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3 Cf. also Lipski (2002: 174).
5 Where <x> represents [ʃ].
6 A number of lexical items of Mandinka or Wolof origin display the original pre-nasalized consonant, as in *ngori* ‘wasp species’ < Wolof *nguri* ‘wasp’ (Quint 2006: 81).
7 Cf. also Parkvall (2000: 41).
c. enfermeira > nfurmera ‘nurse’
d. verdade > vurdádi ‘truth’
e. semana > sumána ‘week’

4. The influence of the substrate languages

In this section I address the issue of the putative influence of Mandinka and Wolof, the main substrate languages of Cape Verdean Creole, on the syllable restructuring shown to have occurred in the latter.

Consider first syllable restructuring in Mandinka, in light of the adjustment of Arabic (A), English (E) and French (F) loanwords⁸. Obstruent + liquid onset clusters are occasionally resolved through deletion of the liquid:

(14) E February > Februwaari(-karoo) ‘February’

The onset clusters at issue are frequently broken up by the epenthesis of a copy of the vowel following the original cluster:

(15) a. F plat > palaatoo ‘plate’
    b. F clef > kelee ‘spanner’
    c. F apprenti > aparantee ‘apprentice’
    d. F brosse > borooso ‘brush’
    e. E train / F train > tereño ‘train’
    f. F drap > daraboo ‘bed sheet’
    g. E fridge > firijoo ‘refrigerator’

Occasionally, labial attraction triggers the occurrence of the epenthetic vowel [u]:

(16) a. E block / F bloc > bulookoo ‘block’
    b. A ‘ibrāhīm > Iburaahiima ‘Ibrahim’

Another available option is to resort to the default epenthetic vowel [i]:

(17) a. E brake > bireeko ‘brake’
    b. E contract > kontiraakoo ‘contract’

The same strategy accounts for the resolution of other illicit onset clusters:

(18) E spoke > isipookoo ‘spoke’

Loanwords containing word-internal and/or word-final codas, simple or complex, are also adapted by the epenthesis of [i] or of a vowel copy:

(19) a. E doctor > dokitaro ‘doctor’
    b. F marc÷e > marisee ‘market’
    c. E belt > beletoo ‘belt’

Vowels are occasionally subject to adjustment, such as vowel copying:

(20)  
   a. E kerosene > karasiino ‘kerosene’  
   b. F politique > polotikoo ‘politics’

Labial attraction is also attested. Labial consonants may trigger the replacement of a vowel in the etymon with [u]:

(21)  
   F envelope / E envelope > embulookoo ‘envelope’

   The adaptation of English and French loanwords in Wolof\(^9\) mainly affects the original complex onsets, since the language allows a number of coda consonants, both word-internally and word-finally. The strategy typically used for breaking up onset clusters is copy-vowel epenthesis:

(22)  
   a. F place > palaas ‘place’  
   b. F client > kiliyaan ‘client’  
   c. F trop > torop ‘very’  
   d. E driver > daraayba ‘driver’  
   e. F grève > gerew ‘strike’

Onset clusters may also be broken up by means of epenthetic [u], due to labial attraction:

(23)  
   F bleu > bulóo ‘blue’

   Finally, a vowel in the etymon is sometimes replaced with a vowel copy:

(24)  
   F atelier > ataliye ‘workshop’

   The data from Mandinka and Wolof strongly suggest that syllable restructuring in Cape Verdean Creole mainly occurs in accordance with the phonotactic constraints of its two main substrate languages. Several further facts can be adduced in support of this claim. Thus, both Mandinka and Wolof exerted an influence on the emergence of Cape Verdean Creole, as shown by Holm (1989), Lang (2006) and Rougé (2006).

   Further, Guinea-Bissau Creole, a closely related variety, sharing much the same substratal input\(^10\), exhibits similar outcomes of syllable restructuring\(^11\). Thus, illicit obstruent + liquid onset clusters are most frequently resolved via copy-vowel epenthesis:

(25)  
   a. brincar > birinka ‘to play’  
   b. cru > kuru ‘raw’  
   c. grande > garandi ‘big’  
   d. frio > firiu ‘cold’

Epenthesis also serves for the avoidance of word-internal codas:

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\(^9\) Examples from Diem (1995b).
\(^11\) Examples from Chataigner (1963) and from do Couto (1992 and 1994).
(26) *talvez > talabes* ‘maybe, perhaps’

Word-final /-t/ in the infinitive of Portuguese, the origin of most Guinea-Bissau Creole verbs, is deleted. Aphesis is attested in a large number of forms:

(27) a. *agora > gor* ‘now’
    b. *elefante > lifanti* ‘elephant’

The widespread occurrence of phonetically pre-nasalized consonants in Cape Verdean Creole can be traced back to Mandinka and Wolof\(^{12}\). Thus, Quint (2006: 81) writes that pre-nasalized consonants “are found particularly in Mandinka […] and in Wolof”. Moreover, as shown by do Couto and Souza (2006: 135), “there is an abundance of pre-nasalized consonants in the African languages […] in the region of Guinea, where a large part of the first inhabitants of Cape Verde originates”. Not surprisingly, Guinea-Bissau Creole also has a large number of forms with pre-nasalized consonants\(^{13}\) very frequently as a consequence of the aphesis of the Portuguese nasal vowels:

(28) a. *embarcar > mbarka* ‘to embark’
    b. *mpidi* ‘to hinder’

Finally, labial attraction accounts for the replacement of an original vowel with [u]:

(29) *semana > sumana* ‘week’

On the other hand, there is evidence pointing to the fact that syllable restructuring in Cape Verdean Creole owes more to Mandinka influence. Both aphesis and epenthesis appear to reflect a tendency to favour a CVCV syllable structure. According to Quint (2001: 274, and 2006: 81), this is the “canon syllabique” of the Mande languages. The use of the default epenthetic vowel [i] is attested in Mandinka, but not in Wolof. Moreover, there is also some circumstantial evidence in support of the claim that Mandinka influence played a more important part. According to Quint (2006: 77), most of the African lexical items in Cape Verdean Creole are of Mandinka origin. On his analysis\(^{14}\), some 55% of African words are from Mandinka, compared to only 24% from Wolof. Quint (2006: 77) also quotes two other authors according to whom the percentages are 60% for Mandinka vs. 25% for Wolof, and respectively 65% for Mandinka vs. 28% for Wolof. In light of these facts, syllable restructuring in the Cape Verdean Creole may also be assumed to reflect a stronger Mandinka influence.

5. The reflexes of Portuguese /esC-/  

A special problem worth looking into is that of the reflexes of Portuguese word-initial /esC/ in Cape Verdean Creole. Quint (2001: 80) mentions “the clear tendency to suppress the consonant clusters /isC/” either by “the epenthesis of a vowel between /s/ and /C/” or by “the aphaeresis of the group /is/”. Smith (1999: 287-288), compares the situation in Saramaccan,


\(^{13}\) For their phonological interpretation see do Couto (1994: 69-71).

\(^{14}\) Cf. also Quint (1998), where the lexical items etymologically derived from Mandinka (and other Mande languages) outnumber by far those originating in Wolof.
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an English-based creole with a substantial Portuguese lexicon, and four Portuguese-based creoles, Papiamentu, São Tomé Creole Portuguese, Príncipe Creole Portuguese and Angolar. Smith (1999: 287) concludes that in Saramaccan, Príncipe Creole Portuguese and Angolar “when the /s/ is separated from the primary accent by one or more syllables, it is deleted in the majority of cases; if it immediately precedes the stressed syllable, then it is usually preserved”15. Unfortunately, the Cape Verlean Creole material available to me does not provide a sufficient number of relevant examples, as it only consists of seven forms. Of these, five display the two types of treatment of Portuguese /esC/ identified by Smith (1999: 287). Consider the following examples (in which the stressed syllable in the etymon is also indicated):

(30) /s/ separated from the stressed syllable by one or more syllables:
   a. espan'tar > pánta ‘to chase away (flies)’
   b. espe'rar > pera16 ‘to wait’

(31) /s/ immediately preceding the stressed syllable:
   a. es'ta) > sata ‘progressive aspect marker’
   b. es'curo > sukuru ‘dark’
   c. es'mola > sumola ‘alms’

In the two remaining forms, listed below, /s/ is preserved although it is separated from the stressed syllable by one syllable:

(32) a. escon'der > sukundi17 ‘to hide’
   b. escu'tar > sukuta18 to listen’

To sum up, on currently available evidence Cape Verlean Creole displays a rather irregular behaviour with respect to the treatment of Portuguese /esC/, together with Papiamentu and, to a lesser extent, São Tomé Creole Portuguese. Also, note again the nature of the epenthetic vowel, an issue which is not discussed by either Smith (1999) or Quint (2001). In four of the relevant forms, sata, sukundi, sukuru and sukuta this is copy of the following vowel. Finally, in sumola, the epenthesis of [u] is triggered by the labial consonant /m/, yet another example of labial attraction.

6. The relative chronology of syllable restructuring in Cape Verlean Creole

According to a number of authors (do Couto 1992, Quint 2001 and Lipski 2002), several stages can be identified in the process of syllable restructuring in the Atlantic Portuguese-based creoles. For instance, Lipski (2002: 182-183) writes that there is “wholesale loss of coda and even onset consonants” in the first stage, “with Africans […] truncating consonants massively to quickly arrive at a CV-CV pattern”. It is only in the second stage that “epenthetic vowels were used most frequently” (Lipski 2002: 183). On this view, the Cape Verlean

15 This is one of the common features of the Atlantic Portuguese-based Creoles which Smith (1999) traces back to a putative West African Portuguese Pidgin. Cf. also what Quint (2001: 278) calls “le protocréole de l’Afrique de l’Ouest”.
16 A presumably earlier variant of spera.
17 Cf. Principe kondé and Angolar konde (Smith 1999: 288), with deletion of /s/.
Creole forms (or variants) displaying consonant deletion would represent, to use Lipski’s (2002: 183) words, “a partial preservation of the very earliest stages of Afro-Lusitan language contact”, whereas those with epenthetic vowels are illustrative of the second stage. Lipski’s position would accord with that of Singh and Muysken (1995), for whom deletion is a universally unmarked strategy both in synchronic processes and in diachronic developments.

Several arguments can be adduced against these claims. First, as observed by Plag and Uffmann (2000: 326), deletion appears to be restricted to complex onsets and complex codas, but tends not to affect simple codas. This view would account for the prevalence of vowel epenthesis and for the limited occurrence of consonant deletion, including of simple codas, in Cape Verdean Creole. Second, according to Plag and Uffmann (2000: 326), a markedness reversal occurs in language contact: while “in regular language development epenthesis is marked and deletion is unmarked, in language contact epenthesis is unmarked and deletion is marked”. Finally, the earliest stage of pidginization is characterized by considerable inter- and intra-speaker variation.

On this analysis, forms illustrating consonant deletion and those with epenthetic vowels may go back *ceteris paribus* to the same earlier stage of Cape Verdean Creole. Moreover, such a view is consistent with the differential treatment of Portuguese /esC/, discussed above, either through deletion of /s/ or via vowel epenthesis.

In spite of these controversies, a relative chronology of the different stages of syllable restructuring in Cape Verdean Creole can be outlined. Thus, forms in which an original obstruent + liquid onset cluster is resolved via liquid deletion or through vowel epenthesis can safely be traced back to an earlier stage. The reflexes of /esC/ with /s/ deletion or with an epenthetic vowel also date from this period. In addition, in this stage, the frequently occurring apheision eliminates word-initial unstressed vowels. All these strategies thus yield simple onsets. Word-final consonants are sometimes deleted. Thus, a preference for the CV syllable type characterizes the earliest stage of Cape Verdean Creole.

The occurrence of syncope appears to be representative of a later stage, in which the CVC syllable type is more readily allowed. In a large number of forms, syncope eliminates the unstressed vowel following the original obstruent + liquid onset cluster:

\[
\text{(33)} \quad \text{preguiça} > \text{*pirigisa} > \text{pirgisa} \quad \text{‘laziness’}
\]

Complex onsets emerge in a still later stage, due to apheision, which continues to operate, and to the relaxation of the phonotactic constraints against complex onsets. The inventory of possible syllables is thus enriched with CCV and CCVC. Syncope further yields complex onsets. It must have “restored” more Portuguese-like forms by deleting an epenthetic vowel formerly breaking up an onset cluster. Occasionally, it creates complex onsets not attested in the Portuguese etymon:

\[
\text{(34)} \quad \text{falar} > \text{fla} \quad \text{‘to speak’}
\]

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19 For a discussion of markedness in syllable restructuring in creoles see also Avram (2005: 205-207).
20 See, for instance, Avram (2005).
21 This is particularly frequent in the reflexes of Portuguese /pr-/.
22 Do Couto (1992) also posits epenthetic vowels in early Guinea Bissau Creole, subsequently undergoing syncope.
Finally, combined with the outcome of aphesis, syncope may even yield complex onsets of the CCCV type which are disallowed in Portuguese:

(35)  *escribir > *sikiribi > *sikribi > skrebi ‘to write’

The evolution of the syllable structure of Cape Verdean Creole is schematically represented in the table below. For each stage I illustrate the typical strategies for syllable restructuring as well as their outcome.

(36)

<table>
<thead>
<tr>
<th>Stage I</th>
<th>Stage II</th>
<th>Stage III</th>
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<tbody>
<tr>
<td><strong>Repair strategies:</strong></td>
<td><strong>Repair strategies:</strong></td>
<td><strong>Repair strategies:</strong></td>
</tr>
<tr>
<td>Deletion of L in OL onset clusters: <em>outro</em> &gt; <em>otu</em> ‘other’</td>
<td>Syncope: <em>provar</em> &gt; <em>puruba</em> &gt; <em>purba</em> ‘to try’</td>
<td>Syncope: <em>falar</em> &gt; <em>fla</em> ‘to speak’</td>
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<tr>
<td>Epenthesis in OL onset clusters: <em>criar</em> &gt; <em>kiria</em> ‘to breed’</td>
<td></td>
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</tr>
<tr>
<td>Deletion of <em>/s/</em> in reflexes of <em>/esC/-</em>: <em>esperar</em> &gt; <em>pera</em> ‘to wait’</td>
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<tr>
<td>Epenthesis in reflexes of <em>/esC/-</em>: <em>escuro</em> &gt; <em>sukuru</em> ‘dark’</td>
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<tr>
<td>Aphesis: <em>agudo</em> &gt; <em>gudu</em> ‘sharp’</td>
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<td>Deletion of consonants in coda: <em>fásil</em> &gt; <em>faxi</em> ‘easy’</td>
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<tr>
<td><strong>Outcome:</strong></td>
<td><strong>Outcome:</strong></td>
<td><strong>Outcome:</strong></td>
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<tr>
<td>Mostly CV and V syllable types</td>
<td>Increase in number of CVC and VC syllable types</td>
<td>Emergence of CCV, CCVC and CCCV syllable types</td>
</tr>
</tbody>
</table>

7. Conclusions

Syllable restructuring in Cape Verdean Creole accounts, to a large extent, for the two main characteristics of its syllable structure. Thus, according to Pereira et al. (2006), “the most frequent syllabic structure is of the CV type” while “syllables which do not begin with a consonant [are] rare”. Rather unfortunately, some typological analyses of the syllables attested in creole languages ignore this frequency factor. Klein (2004), for instance, claims that “it is tangential to the present concerns if CV syllables are the most frequently occurring type in Creole languages”.

Early Cape Verdean Creole appears to have had an even stronger preference for CV syllables. This is not surprising since “for some Atlantic Creoles […] it has been suggested or demonstrated that older varieties were closer to the ideal CV structure than their 20th-century descendants” (Parkvall 2000: 52).

With respect to Cape Verdean Creole, Parkvall (2000: 53) writes that “while its modern-day varieties abound with consonant clusters, I cannot help suspecting that most of these represent later developments”. Strictly synchronic approaches to creole syllable structure, e.g. Klein (2004), obscure precisely these later developments. In the case of Cape Verdean Creole, they include later language-internal developments as well as what Quint (2001: 273) calls the “continuous pressure of the lexifier”, i.e. of Portuguese.

The repair strategies for syllable restructuring used by Cape Verdean Creole and Guinea-Bissau Creole have been shown to be essentially the same. However, the modern varieties of the two creoles differ in the proportion of the various syllable types. This is probably due to the difference in the extent of the Portuguese influence, given that “knowledge of Portuguese
is much less widespread in Guinea Bissau than in Cape Verde” (Holm 1989: 276). The evidence adduced in this paper thus appears to confirm that “original Cape Verdean would have been rather more similar to Guinea-Bissau PC [= Portuguese-lexifier Creole]” (Parkvall 2000: 53).

Finally, it is hoped that the present paper has contributed to the study of the evolution of syllable structure in the Portuguese-lexified creoles.

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References
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