

# REPRESENTING SYNTHETIC VS. ANALYTIC SUFFIXATION IN STRICT CV IN ENGLISH. SOME PROBLEMATIC CASES

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**Abstract.** The aim of this paper is to present some additions and corrections to a model I proposed in an earlier article (Kristó 2006) concerning the formal distinction between analytic and non-analytic (synthetic) suffixation, couched in a Strict CV framework. I address a question which remained unanswered in the article mentioned above: I will show that Kaye's suggestion, i.e. that synthetic forms are phonologically indistinguishable from monomorphemic ones, is not tenable, and I also offer a working solution.

## 1. Introduction

The present paper can be regarded as an “addition” to my (2006) paper, itself a slightly modified version of Chapter 4 of my PhD dissertation (Kristó 2005). Due to lack of space, I cannot include the detailed presentation of the model described therein, and I will only repeat the essential claims here for convenience. Readers who are not familiar with the model are referred to these works, especially the 2006 version. Familiarity with the basic concepts of Government Phonology, and Strict CV Theory<sup>1</sup> in particular, is assumed as well – again, presenting the essentials of these theories would be beyond the scope of this paper. See, for example, Harris (1994) for “classical” Government Phonology (GP); the most detailed presentation of Strict CV (SCV) is found in Scheer (2004).

## 2. The chief claims of the model proposed in Kristó (2006)

According to Kaye (1995), morphological concatenations are of two types: analytic or non-analytic. The latter type, Kaye claims, is phonologically indistinguishable from monomorphemic forms. Though not used by Kaye himself, the term *synthetic* has since come to be used for a morphologically complex non-analytic form. In other words, a *non-analytic* form is (i) monomorphemic, or (ii) synthetic. Kaye formalizes the distinction by bracketing: a non-analytic form, whether monomorphemic or not, is enclosed between a pair of brackets which delimit phonological domains. Accordingly, we have the following possibilities:

- (1) (a) Non-analytic domain: (i) [A] Monomorphemic, e.g., *cat*, *table*, *travel*  
(ii)[AB] Synthetic suffixation, e.g., *kept*, *sanity*  
(b) Analytic domain: (i) [[A]B] Analytic suffixation, e.g., *peeped*, *travels*

As the reader can see, the Kayean synthetic/analytic distinction corresponds, by and large, to the lexical/postlexical division of Lexical Phonology, or the “+” vs. “#” distinction of classical Generative Phonology. I would like to emphasize, again, that there is an important difference: as opposed to classical Generative phonology as well as Lexical Phonology, Kaye explicitly claims that synthetic forms display the same phonological behaviour as monomorphemic ones. This stance is fully accepted in Kristó (2006), but I will argue against it in the present paper. At the same time, I argued in the same paper that the use of bracketing is inadequate for several reasons, and another alternative must be found. I proposed that the formal distinction (within an SCV framework) between synthetic and analytic forms be encoded in two ways.

<sup>1</sup> Also known as CVCV Theory.

Firstly, in an analytic form, both the stem and the suffix consist of strictly alternating CV units. In a synthetic form, which is assumed to be lexically given, rather than concatenated by the productive morphology, the stem ends in a C position while the suffix begins with a V position. In other words, neither the stem nor the suffix has a complete (CV)\* skeleton, but the full word form does. This is a departure from earlier versions of SCV, where the claim is that *morphemes* have a (CV)\* skeleton. My claim was that it is only *full lexical entries* which are subject to this requirement, and I formulated this in the following form:

- (2) The Lexical Entry Principle (LEP)  
*Lexical entries are organized along a (CV)\* skeleton.*

This formal distinction makes it possible to capture an important difference between analytic and synthetic suffixes: while the former always attach to free stems, the latter may also attach to bound ones. The boundness of a stem, therefore, is reflected in this model by the fact that it ends in a C position, hence it does not consist of a complete skeleton by itself. It must also be added that the initial V position of synthetic suffixes is not necessarily filled, i.e., it can be empty. At the same time, the initial C position of analytic suffixes can be empty, too.

Secondly, I proposed that the bracket marking the end of a domain be omitted. Note that a domain either ends in a surface vowel sound (= a filled V position) – e.g., in *happy* –, or a surface consonant sound (= an empty V position) – as in *cat*. Yet, in SCV (and GP in general) an empty V position needs to be properly governed: an ungoverned V position may not be empty. Proper Government, however, must originate from a following *filled V* position, and a domain-final empty V<sup>2</sup> is not followed by any further V. The proposal I adopted is that it is the *morphology* which licenses a domain-final empty V, termed Final Empty Nucleus (FEN)<sup>3</sup>. In other words, “the end of the domain” is either marked phonologically by a FEN, or it is simply not marked (= in the case of vowel-final words and free stems)<sup>4</sup>. In fact, the morphology of a given language may grant further potentials to FEN’s — potentials which properly governed empty V’s do not possess. The possibilities are summed up in (3); note that these statements are valid for *monomorphemic* forms:

- (3) *The potentials of FEN’s cross-linguistically*

(i) FEN’s are granted the potential of remaining silent, but no other potential. In such languages, words may end in a single surface consonant. Spanish, for example, is such a language; note that the phonetic properties of the consonant itself may count. In Spanish, for instance, only a limited number of consonants are allowed word-finally (notably, coronals excepting plosives).

(ii) FEN’s may be licensed to properly govern a preceding empty V. In such languages, words may end in a consonant cluster. English is a good example; note that (b) necessarily implies (a). Furthermore, the phonetic nature of the cluster may be relevant. In English, for instance, it is basically clusters exhibiting a falling or level sonority profile that can occur word-finally (such as *mp, ld, ŋk, kt, pt*, etc., cf. *camp, held, sink, fact, apt*), but ones with a rising sonority profile are illicit (e.g., *tr, kw, pl*, etc.), with the exception of the notorious *ps, ks, ts*

<sup>2</sup> From now on, I will simply use C and V for a *C position* and a *V position*, respectively; consonant and vowel sounds will be termed *consonant* and *vowel*, respectively.

<sup>3</sup> The term is used in GP, too.

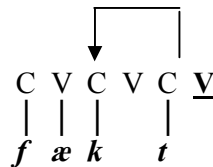
<sup>4</sup> Phonologically speaking, filled V’s, whether final or not, behave alike; for example, they have the same licensing and governing potential.

clusters (e.g., *lapse, fox, blitz*)<sup>5</sup>. In Polish or Czech, on the other hand, words may also end in certain clusters exhibiting a rising sonority profile, cf. Czech *bratr* ‘brother’<sup>6</sup>.

(ii) FEN’s may be licensed to license a preceding V. This situation arises when the FEN is preceded by a long vowel. In the model I adopt here, long vowels are lexically represented as a sequence  $V_1cV_2$  (where the lowercase  $c$  represents an empty C), but the phonetic content of the long vowel is lexically lodged in  $V_1$ , spreading into  $V_2$  if that position itself is licensed by a following full V or, in the case depicted here, a FEN. Note that *properly governed empty V’s may not license  $V_2$* . This means that in such languages, a long vowel is possible before a final consonant as well as before a consonant plus a vowel. English is a good example, cf. *Rita* <sup>1</sup>*ri:tə*, *meet* <sup>1</sup>*mi:t*.

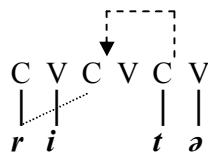
Let me now provide some diagrams to illustrate the above points. Note that a FEN will be shown as V in the diagrams; a continuous arrow indicates a governing relation, while a licensing relation is shown by a dashed arrow.

(4) *fact*



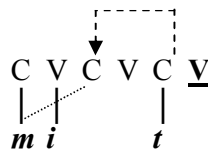
The FEN can properly govern the preceding empty V, in accordance with (3b).

(5) *Rita*



The long vowel *i* occupies two V positions, but its melodic content is lexically lodged in the first (shown by the vertical continuous line). It can spread into the second V (shown by the dotted association line), since the second V receives licensing from the following filled V, in accordance with (3c).

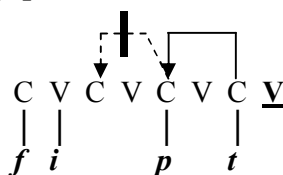
(6) *meet*



The same as in (5), but here, the second V receives licensing from the following FEN, in accordance with (3c).

<sup>5</sup> The clusters *ts* and *ps* are quite rare (or even marginal), but they do exist; *ks*, on the other hand, is frequent.

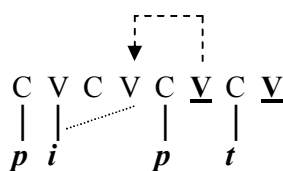
<sup>6</sup> Note that the final *r* in the Czech word is not syllabic.

(7) \**fɪ:pt*

The ungrammaticality of a form such as in (7) follows from the fact that the V between the *p* and the *t* requires proper government. As it is itself governed, it cannot license the preceding empty V to receive spreading melody, in accordance with (3c): properly governed empty V's are neither licensors nor governors. The impossibility of licensing is shown by the thick line crossing the dashed one. As a result, the second V cannot receive spreading melody from the first V. Please recall that we have been dealing with *monomorphemic* forms (whether well-formed or not) so far: the diagram in (7), therefore, shows that a long vowel is not possible before the cluster *pt* in English *inside a single morpheme*.

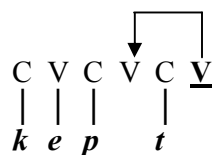
Let us now turn our attention to the difference between synthetic and analytic suffixation, more precisely, to how this difference is expressed formally. Compare the verbs *keep* and *peep*. Their preterite forms are *kept* and *peeped*, respectively; but while *kept* is synthetic (which is visible from the simple fact that the preterite suffix is added to a bound root form), *peeped* is analytic: the preterite suffix is added to a free root, and the long vowel is retained (compare the ungrammatical monomorphemic form in (7) above).

The preterite form *peeped* is unproblematic: the preterite suffix is added to the free root *peep*, which ends — structurally — in a FEN, and, of course, so does the complete preterite form:

(8) *peeped*

The root-final FEN, followed by the analytic suffix, behaves exactly like a FEN in word-final position (which is not surprising: *peep*, a free root, *is* a word on its own). It may, therefore, license the preceding V, which may thus receive spreading melody from the first V. Essentially, the situation is the same as in (6). But what can we say about *kept*?

According to Kristó (2006), which accepts Kaye's claim that synthetic forms are phonologically not different from monomorphemic ones, *kept* can be represented as follows:

(9) *kept*

According to the abovesaid, the skeletal structure of the root is CVC (= *kep*), while that of the suffix is VCV, where both V's are empty. They are empty, however, due to different reasons.

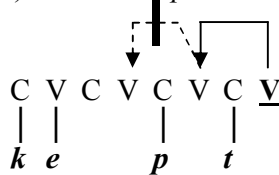
The last V is a FEN, which may remain empty in English, and may also properly govern a preceding empty V. This is why the second V may remain empty — it is properly governed. The situation, then, is the same as in the word *fact*, illustrated in (4). The identity of the two structures follows from Kaye’s claim that synthetic and monomorphemic forms exhibit the same kind of phonological behaviour. Note that the preterite suffix is *not* added to the free form *keep*, from which *kep-* is derived. Indeed, the latter could not possibly be derived phonologically from the former in SCV (or classical GP). The reason for this is the quality difference between the root vowels. Adherents of SCV (and GP) assume a basic restriction on what can be considered a phonological process, given in Kaye & al. (1990: 194) as follows:

- (10) There is a direct relation between a phonological process and the context in which it occurs.

This principle has been called the *Non-arbitrariness principle*. The above formulation is rather mysterious, though: what do we mean by “direct relation”? The actual practice of GP-ists, however, makes the issue quite clear: the way I can interpret this principle is that *phonological events must have relevant phonological causes*. While the difference in vowel length can be motivated on a phonological basis (= a long vowel is impossible before a *pt* cluster), the same is not true for the quality difference between *i:* and *e*. Notably, there is no relevant phonological (more precisely, melodic) trigger to account for the difference in height. Since the allomorphs *keep* and *kep-* are not relatable phonologically, the difference must be taken as lexically given. Therefore, the preterite suffix *-t* is added to the bound root allomorph *kep-*.

Indeed, Modern English vowel length alternations due to synthetic suffixation always involve differences in quality, often quite radical ones. The reason for this is familiar: it is known as the Great Vowel Shift, a historical process which raised or diphthongized long vowels at the beginning of the Early Modern English period, but which left short vowels intact. If we wish to examine vowel length alternations *not* accompanied by phonologically inexplicable quality differences, it seems reasonable to go back in time and analyze the Middle English (ME) situation. In late ME, the alternation is purely quantitative: *keep kept* vs. *kept kept*. In Kristó (2006), I proposed that the preterite suffix could be added to the long-vowelled root; as the suffix is synthetic, however, it is added to the root which itself lacks a FEN, so that the representation of the late ME preterite form *kept* can be given as follows:

- (11) Late ME *kept*



The FEN, of course, can properly govern the preceding empty V; this governed V, however, is unable to license the second V to receive spreading melody, hence the segment *e* remains attached to a single V position, thus it is interpreted as a short vowel. Note that the root still has two allomorphs *structurally speaking* – one which ends in a FEN, as in *keep*, and one ending in a C, appearing in the preterite form. Yet, the allomorphy is minimized: there is no other difference between the free and the bound allomorphs of the same root, because the length difference is derivable phonologically.

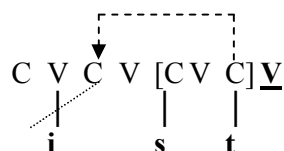
### 3. Problems and possible solutions

#### 3.1 Long vowels before final clusters in monomorphemic forms

Recall the claim made in the previous section, viz. that long vowels are not found in English before final consonant clusters, as shown in the representations in (7) as well as in (11). Note, however, that a long vowel *is* found in a number of English words before a final consonant cluster, witness words such as *east*, *field*, *boost*, *fast*, *fiend*, *false*, *wound<sub>N</sub>*, i.e., ***ist***, ***fild***, ***bust***, ***fast***, ***find***, ***fals***, ***wund***<sup>7</sup>. This fact must clearly be accounted for.

In classical GP, as well as in several versions of SCV, the solution is based on the observation that a long vowel is only found before consonant clusters of a certain type. In English, such clusters are typically<sup>8</sup> composed of a coronal sonorant or *s* (itself coronal) followed by a *homorganic* obstruent. The explanation offered in several versions of SCV (and, mutatis mutandis, in classical GP), is that there is some governing relation holding between the members of such clusters (see Rebrus 2000, Szigetvári 1999<sup>9</sup>). Crucially, this governing relation holds between segments rather than skeletal positions, which is why it is sensitive to the melodic makeup of the consonants involved. The fundamental claim of these versions of the theory is that the governing relation which holds between two consonants creates a single *governing domain*; the empty V between the two C's is, therefore, enclosed within a governing domain, and, as a result, it remains silent. In other words, its silence is not due to the fact that it is properly governed. In order to clarify the above point, let me give a formal representation of the word *east*. A governing domain defined by two consonants is shown by a pair of brackets; note, however, that this has nothing to do with the notion of *morphologically defined* domains used by Kaye.

(12) *east*



Note that the V position inside the governing domain does not need proper government – it remains silent *because it is enclosed within a governing domain*. In fact, it is not even “visible” at the skeletal level: a [CVC] domain is treated as a single C, as it were. The result is that licensing provided by the FEN may skip this V; the second V position, being licensed, may receive spreading melody from the first V, with which the segment *i* is lexically associated<sup>10</sup>. Such governing domains will prove to be useful later on, too (see section 3.3.).

<sup>7</sup> Plus a number of words with a diphthong, e.g., *post*, *kind*, *change*, etc. I will not be dealing with diphthongs here, for the simple reason that they are highly problematic in the theory I adopt in this paper. Indeed, I do not know of any satisfactory treatment of diphthongs in the SCV literature; the topic certainly needs further investigation.

<sup>8</sup> Typically, but not exclusively, cf. *Balkans* *'bɔɪlkənz*, where the *lk* cluster is not homorganic. I have no definite answer to such untypical cases, and I leave the question open.

<sup>9</sup> Szigetvári (1999) uses skeletons made up of strictly alternating VC, rather than CV, units, but this difference is irrelevant for the problem under discussion.

<sup>10</sup> The use of governing domains adopted in this paper is at variance with my earlier model, where, following Scheer (2004), I assumed a governing relation between members of a TR cluster, where T = obstruent and R = a (non-homorganic) approximant, e.g., *pl*, *sw*, *kr*, etc., as in English *play*, *swine*, *cry*. Such clusters have traditionally been analyzed as complex onsets. Scheer assumes no governing relation inside clusters of the type discussed above. There are problems with either assumption; in the present paper, I adopt the assumption

### 3.2 Synthetic vs. monomorphemic forms. Part 1: *width* and *Co*.

As noted above, Kaye claims that synthetic concatenations display the same phonological behaviour as monomorphemic ones. This stance was adopted in my earlier model, too. Nonetheless, there are synthetic forms which contradict this claim. Consider the following examples:

- (13) a. *width* **wɪdθ** (cf. *wide*)  
 b. *depth* **depθ** (cf. *deep*)

These forms display an ambivalent behaviour. On the one hand, they behave as synthetic ones, witness the shortness of the root vowel — much like in *kept*, for example. On the other hand, they appear to be analytic in terms of the final consonant clusters: no such final clusters (= **dθ**, **pθ**) are attested in monomorphemic forms. One possibility is to take the “easy way”, saying that such clusters *could* in principle occur monomorphemically, and it is but an accidental gap that they do not, so Kaye’s claim can, after all, be maintained. This, however, would only mean that we really avoid the problem.

The solution I propose here takes into consideration that the forms in (13) are suffixed ones, and I base my proposal on two facts. Firstly, the shortness of the vowel points to the synthetic nature of the concatenation. Secondly, we have assumed that *all synthetic suffixes are V-initial*, where the V can be empty. In my earlier model, I assumed that the emptiness of these V’s is explicable with reference to proper government (cf. (9) above). Note, however, that these suffix-initial empty V’s are adjacent to a *preceding* morphological boundary — just as FEN’s are adjacent to a *following* morphological boundary. FEN’s are given certain licenses by this very fact, as shown in (3). Based on these, I propose that the emptiness of V’s on the left edge of a synthetic suffix is not made possible by proper government. Instead, in a parallel fashion with FEN’s, they may be empty due to morphological action: it is the morphology which grants them the potential to be empty. Such empty V’s will be termed *Initial Empty Nuclei* (IEN’s) in accordance with (14) below:

(14) *Initial Empty Nuclei*

- (i) Synthetic suffixes begin with a V position, which may be full or empty.
- (ii) In the latter case, the initial V is licensed to be empty by the fact that it is adjacent to a morphological boundary to its left.
- (iii) Such empty V’s are termed *Initial Empty Nuclei* (IEN’s).
- (iv) IEN’s have no governing or licensing potential.

The essence of the abovesaid is that the morphology may allow IEN’s; note, though, that (14d) embodies a strong claim. Notably, as opposed to FEN’s, IEN’s have but one “privilege”: they may remain unfilled, while FEN’s may be granted other potentials, in accordance with (3). Why this should be so is a matter we take up shortly, but let us illustrate the point made in (14) with an example. Recall that the theory I use excludes the possibility of deriving the bound allomorph *kep-* from *keep* in Modern English, due to the quality

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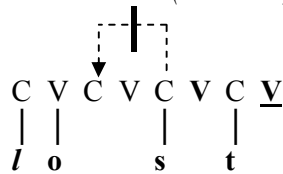
provided in the main text, because I am concerned with suffixation, which (quite logically) involves phenomena occurring at the right-hand edge of words (and stems). Since TR clusters are not found word-finally in English, it seems better to neglect such clusters and concentrate on possible final clusters, even at the expense of not being able to treat TR clusters in an adequate way. A unified treatment of both types of cluster is not available (at least nothing I know of).





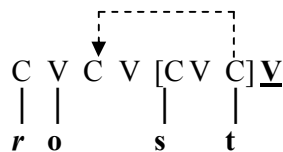


b. Late ME *lost* (= *lose+t*): surface (derived) representation



As the reader can verify, the two forms are only different in the voiced/voiceless nature of the root-final consonant. It may be useful to go back to (17), the representation of late ME *roost*. As I mentioned above, long vowels are, structurally,  $V_1cV_2$  (where the lowercase *c* stands for an empty C position) — but only on the surface: lexically, the vowel segment is attached to  $V_1$  only, and it can spread into  $V_2$  if and only if  $V_2$  is licensed to receive it. Therefore, (17) shows the surface (derived) representation of *roost*; its lexical representation is given in (21) below:

(21) Late ME *roost*: lexical representation



#### 4. Conclusion and further problems

To conclude, I claim that there *is* a difference between monomorphemic and synthetic forms. The difference can be derived from two claims. The first claim, made in this paper, is that there is an IEN at the beginning of a synthetic (and surface consonant-initial) suffix, which (i) blocks the establishment of C-to-C governing domains *lexically*, (ii) remains silent due to external (= non-phonological) action, hence it does not require proper government, (iii) has no governing or licensing potential. The second claim is a fundamental principle of all versions of GP and SCV: the Structure Preservation Principle.

It must be added, though, that several problems remain; let me point out but two important ones. Firstly, the present paper (just like my earlier ones) deals with suffixation; as a result, it remains to be seen how the framework offered here can treat prefixation (or if it can treat it at all). Secondly, even if only suffixation is concerned, the adequacy of this model must certainly be checked against further data, especially from languages other than English — many of which have a much more complex morphology. At this point, however, I am not in the position to assert anything on these matters, and I leave these problems for further research.

#### Acknowledgements

I would like to thank Péter Rebrus and Péter Siptár for their critical and extremely helpful comments on my earlier papers. Their remarks raised a number of questions which played a significant part in forming the views expressed in the present paper. It goes without saying that neither of them is responsible for any error.

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