# Repartitioning the skeleton: VC phonology*

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This work started as a theory of consonant lenition in a strict CV framework, which is capable of predicting not only plausible lenition sites but also likely lenition targets. The notion of government is redefined and the meaning of consonantalness and vocalicness is made explicit. A consequence of the theory thus emerging is that the phonological skeleton is made up not of CV but of VC sequences, that is, phonological domains universally begin with a vowel position and end with a consonantal position. Evidence also emerges for assuming VC units within words, that is, for the claim that the phonological skeleton is made up of inseparable VC pairs. Exploring the consequences of this hypothesis provides evidence that in many respects it is superior to a theory using a CVCV skeleton.

## 1 The scene

In order to explain consonantal lenition, it has been proposed that certain positions within a syllable are strong, while others are weak. The onset is

*We are grateful to all those who have been exposed to this idea and have reacted, most notably John Harris, Anna Kürti, Péter Siptár, Mariann Tóth and Miklós Törkenczy. This is version 1. Substantial differences from the first release, version 0 (12 May), are marked by ⌈ and ⌊ on the left hand margin. Comments are welcome to DIENES@NYTUD.HU and SZIGETVA@NYTUD.HU You can download this paper in postscript format from HTTP://BUDLING.NYTUD.HU/~SZIGETVA/PAPERS.HTML. In this work Szigetvári was supported by the Research Support Scheme, CEU, grant no. 1687/320/1998.

claimed to be a strong position, capable of maintaining a larger set of phonological contrasts, and the coda position to be weak, with a reduced range of possibilities. There are at least two problems with such a theory. One is that the fact that onsets are strong and codas are weak prosodic positions is a mere empirical fact, not something that explains why things should not be the other way around, onsets being weak and codas strong, for example. Thus the theory is not explanatorily adequate. The other objection that can be made is that it even falls short of descriptive adequacy: some onsets are prone to lenition just like codas. More specifically: foot-internal intervocalic consonants are in many languages lenited. One standard assumption to "explain" this state of affairs is that such consonants are codas, that is, post-tonic consonants are captured by (i.e., resyllabified into the coda of) the stressed syllable. This again is only an observation, we still have no explanation for why such a move enables lenition. Furthermore, it contains a dispreferred step: the result of core syllabification, which universally syllabifies intervocalic single consonants as the onset of the second syllable, is subverted, thus structure preservation is severely violated.

Harris (1997) presents a theory that offers an explanation for the weakness of lenition sites. Licensing inheritance unifies the environments traditionally labelled coda and foot-internal intervocalic positions. After showing that many positions traditionally believed to be codas (like word-final and some preconsonantal consonants) are in fact onset positions followed by an unpronounced nucleus, Harris proposes that it is the weakness of these nuclei that is to blame for the lenition of the consonants, since it is the following nucleus that licenses onset positions. To account for lenition in "genuine" coda positions, Harris proposes that the further down the licensing path a position is located, the weaker it is prosodically. Since both the licensors of codas (the following onset) and the licensors of pre-empty-nuclear onsets are indirectly licensed, it follows that lenition is expected in exactly these locations. This way he unifies the formulation of lenition sites: consonants lenite before weak, i.e., empty or unstressed, nuclei and in coda position. The forte of this account is that it relates stress and lenition: since unstressed nuclei are licensed by a stressed nucleus, we expect lenition before an unstressed and not before a stressed nucleus. On the other hand, there is no explanation for the absence of lenition in the onset of an unstressed word-initial syllable. In addition, in its present state Harris's theory has nothing to say about the direction of lenition. An oral stop may debuccalize ([t] > [ʔ]), but it may also sonorize ([t] > [ɾ]). The first process is typical of (but not unique to) word-final and certain preconsonantal positions, while the latter is usually encountered intervocalically. This is not predicted by licensing inheritance.

A recent line of research in phonology suggests a rather radical simplification of the prosodic structure. The uneasiness surrounding the coda position, which is manifest in the denial of the codahood of word-final and many preconsonantal consonants, reaches its logical conclusion in a theory that totally lacks this constituent.[1] Lowenstamm (1996), among others, introduces such a theory. He also claims that it is not only the rhyme that does not branch (no coda), but also the onset and the nucleus. As a result syllabic constituency is reduced to the minimum, the phonological skeleton comprises strings of strictly alternating consonantal and vocalic positions (CVCV). In such a framework any cluster—consonantal or vocalic—is virtual, any two superficially adjacent consonants are separated by a vocalic position and any two superficially adjacent vocalic positions (diphthongs or long vowels) are separated by a consonantal position. We are going to assume such a framework without arguing for it any further here.

In a conference paper and a subsequent manuscript Ségéral & Scheer (1998, 1999) offer a CVCV theory of consonantal lenition. They identify the disjunctive set postconsonantal or word-initial as the strong consonantal position, referred to as coda mirror. They claim that the two forces driving lenition, its absence and fortition are  and  The first is a destructive power reducing a position's ability to maintain melodic content, thereby reducing the range of segmental contrasts it can exhibit. Licensing on the other hand "backs up segmental expression": licensed positions are better at holding their melodic content. Ségéral & Scheer also say that a V position which is pronounced licenses the C position preceding it and governs either the preceding V position if it is melodically empty or the preceding C position if the V position before it is not empty. Unpronounced V positions are inert, i.e., they neither license nor govern. Furthermore, they assume that words begin with an empty CV pair as proposed by Lowenstamm (to appear).

Given this machinery, the following predictions are made about the strength of consonantal positions:

(i) strong positions are those followed by a full V and preceded by an empty V (the full V licenses the C, but does not govern it because it

[1] Note that if there are no codas then it does not make much sense to talk about onsets either, even if the only remaining consonantal constituent were potentially branching. These two categories are meaningful in contrast with each other.

governs the preceding empty V): C__V and #__V (recall that there is an empty V between any two superficially adjacent C positions and that the word-initial # is in fact an empty CV pair)

(ii) weak positions are of two types:

a. those preceded *and* followed by a full V, since the latter will not only license but also govern the intervening C: V__V

b. those followed by an empty V, since this does not govern, but neither does it license the C position: __C and __#

## 2 Flaws of the coda mirror

We see several problems with Ségéral & Scheer's theory, which we summarize below.

(i) Two types of weak position are distinguished formally, but the different outcomes of the two types of lenition are only observed, not explained.

(ii) The assumption of a word-initial empty CV pair is rather stipulative. Though Lowenstamm (1997) supports this hypothesis by analyses of the behaviour of Hebrew and French articles, there is no reason to assume such an empty pair in many other languages, while the strength of word-initial C position, explained by the preceding empty V, is a well-attested phenomenon.

(iii) There seems to be little reason to posit a word-final empty V position in consonant-final words. This position is phonologically inert in Ségéral & Scheer's theory, it neither licenses nor governs anything; there is no evidence for its existence. In fact, the only reason to have word-final empty V positions is to keep to the tacitly accepted pattern of the skeleton: if it begins with C, it must end with V. The original idea behind assuming word-final empty nuclei in Government Phonology is based on the following reasoning: word-final codas behave differently from word-internal codas. To avoid introducing a new category (like extraprosodicity), we could say what we have here is an onset. But then how could there exist an onset without a following nucleus? So we have to say word-final onsets are followed by an empty nucleus, which must be there for theory-internal reasons: it has to license the superficially word-final consonant. Now, if a theory does not distinguish the two types of codas on the skeleton and C positions do not necessarily have to be licensed, there is no reason to retain word-final empty nuclei apart from theoretical conservativism.

(iv) As they present it, Ségéral & Scheer's theory does not distinguish between the two types of consonant clusters traditionally termed coda-onset and bogus clusters. The two types nevertheless behave differently in many languages, including English and Hungarian, for example, while the former is possible word-finally (e.g., *hand, help*), the latter is not (*[hedn] *[hɪtk]), or long vowels may occur before one type (*favourite* [feɪvrɪt], Hung. *sínyli* [ʃiːɲli] 'suffer for'), but not before the other (**bōnda*, **pūlta*).

(v) Long vowels and diphthongs are not distinguished from hiatus. These two types of vowel clusters do appear to need different formalization, if not for else, for their possibly different phonetic realizations.

(vi) Ségéral & Scheer's theory predicts intervocalic lenition of consonants in V_V́ position, that is, before a stressed vowel, alternatively, foot-initially, since the governing and licensing potential of stressed and unstressed V positions is identical. This is not borne out by the facts.

In the following we are going to address these problems; our goal is to amend the theory in a way that it incorporates explanations at least to these issues. We will remain in trouble with branching onsets and the peculiar word-initial sC clusters.

# 3 Assumptions

## 3.1 The content of C and V

In a framework that has the simplest possible constituent structure on the skeleton—strictly alternating C and V positions—it is very important that we precisely define what these two elements of the representation stand for. C positions host segments with consonantal properties and V positions host segments with vocalic properties. In fact, in many theories the acoustic properties of segments are partially defined by the position the rest of the melody is linked to. It is, for example, a phonological commonplace that the melodic representation of [i] and [j] and of [u] and [w] is identical, the difference between these two pairs is encoded solely in whether they are attached to a consonantal (onset or coda) or vocalic position (nucleus). Rennison (1997) goes further along this line of thought by making use of the empty melodic element, claiming that if it is the head in a segment it transmits the inherent properties of the constituent the segment is hosted by. That is, an empty-headed segment in a consonantal position is interpreted as a prototypical consonant, a stop, while in a vocalic position it is a nonhigh vowel, more specifically, [a], unless the segment is modified by other melodic material.

We are also following this path by making the assumption that the host of a segment—a V or a C—partly determines its melodic interpretation. We interpret the well-known discrepancy between the two extreme phonetic features vocalicness and consonantalness as follows. Vocalicness is loud, that is, V slots in the phonological skeleton aim at being pronounced. As opposed to this, consonantalness is mute, if nothing intervenes a C position will stay silent. This means that—unless there is some external influence—a V position will be pronounced, while a C position will not be. It would be somewhat odd if consonants were normally left silent. This is not the case because the lexical association of melody with a C slot *is* external influence, which normally overrides the slot's inherent affinity to silence. In the meanwhile, let us point out that even if associated with melodic content, the prototypical C position retains something of its inherent muteness: stops are the sudden cessation of the speech signal.[2]

The prosodic excellence of vowel positions is also indicated by the fact that they are inherently endowed with the power to license and govern other positions in their neighbourhood. Consonants can govern (perhaps also license) too but under much more limited conditions (see below).

Before we proceed let us introduce the convention that we are often going to use for simplicity's sake: uppercase C and V denote a full skeletal position, i.e., one with melodic content associated, lowercase c and v[3] stand for empty skeletal positions. When it is important to stress the indifference to this criterion, calligraphic $\mathcal{C}$ and $\mathcal{V}$ are used, that is, $\mathcal{C}$ means any—empty or

[2] John Harris (p.c.) objects that stops are in fact very noisy because of the burst at their explosion. Such stops are typically prevocalic, and we will attribute their noise to the influence of the following vowel under the rubric of licensing (see below). Nonprevocalic stops very often lack this noise burst.

[3] The plural of this will be *vs*, not to be confused with the abbreviation for *versus*.

full—consonantal position, $\mathcal{V}$ any vocalic position, but normally we simply use the traditional C and V.

## 3.2 Government

Besides associated melodic material, the other kind of external influence that may dissuade a C position from remaining silent is government. We modify Scheer & Ségéral's formulation of this force: it is not something that inhibits segmental expression, instead its "wickedness" is manifest in attacking the nature of the object it exerts its power on. That is, government **spoils the inherent properties of its target.** Therefore, a governed C position loses its muteness and becomes louder, more vowellike, more sonorous. As expected, a governed V position loses its loudness to become consonantlike, i.e., silent. Unifying these two clauses gives the following formulation of the ECP:

> **The Empty Category Principle (preliminary version)**
>
> An empty position loses its inherent properties if governed, i.e.
>
> (i) An empty C position loses its muteness if governed.
>
> (ii) An empty V position loses its loudness, as well as its governing and licensing potential if governed.

## 3.3 Licensing

Licensing acts as a kind of glue that cements the units on the skeleton within domains. This is the primary function of licensing which is to be elaborated on in a later section.[4] Another effect of licensing is that it **supports the maintenance of melodic material in a position.** This is what many researchers who talk about phonological licensing assume under the heading autosegmental licensing (Goldsmith, 1990; Harris, 1994). The priority of V positions in phonological representations is manifest in the fact that they are inherently licensed. All V positions may license unless their inherent nature is destroyed by some external influence. Whether C positions are capable of

[4] To anticipate: this type of licensing is less strict than prosodic licensing that requires each and every bit of the representation to be licensed. Unlicensed portions often suffer some penalty, but this is not necessarily absolute, being unlicensed need not result in being doomed to remain unparsed.

licensing is as yet an unsettled issue, a case where such an option seems to be called for will be discussed below.

Let us point out here that in Ségéral & Scheer's theory government and licensing are two forces that counteract each other; one of them backs up segmental expression, the other inhibits segmental expression. The result of one of them can in theory be directly undone by the other; they operate in the same dimension. With our redefinition of government, the effects of the two forces are separated: we could in no way undo the effect of government by licensing. Our government and licensing are two "unary features," Ségéral & Scheer's are the two values of a single "binary feature," as it were.

## 3.4 Relations

In traditional Government Phonology the skeleton is defined by the relations between its positions, which themselves are neutral between consonantalness and vocalicness. Strict CV frameworks are rather different in this respect. Having rigidly alternating Vs and Cs on the skeleton makes the organizing function of relations like government and licensing void, since the V-ness and C-ness of skeletal positions can be directly read off the skeleton: all one has to know is whether the position in question is odd or even numbered.[5]

### 3.4.1 Vs license and govern

As already mentioned, V positions are by nature equipped with the power to license and govern, regardless of their melodic content. Empty V positions are as good licensors and governors as those with melodic content. If, however, a V position is targeted by government it loses its inherent properties, that is, it becomes mute losing its inherent loudness and it also loses its licensing and governing power. Governed V positions we will call  those that are not dead are . A live V position licenses the immediately preceding C position, or if that is empty, it may also license the preceding V position if that is nonempty. The latter option is not universal and its presence or absence

[5]As regards the skeleton CV frameworks seem to bear a close resemblance to Clements & Keyser (1983)'s CV phonology: an unfortunate return to a skeleton with nonuniform positions. If, however, the skeleton contains an even number of strictly alternating Cs and Vs and universally begin with one and end with the other, then the uniformity of the skeleton can be saved: the Cs and Vs together form units and it is these units that are in fact the components of the skeleton.

is lexically determined, that is, a V position may or may not license the preceding V position even if one of the conditions, an intervening empty C position, is available. There are also melodic conditions on V-to-V licensing, which are not discussed in this paper.[6]

A V position's governing potential may either be spent on the preceding C position, or the V position before it if that is empty, i.e., v. Thus the licensing and governing properties of V positions are similar to those proposed by Scheer & Ségéral, with the addition of V-to-V licensing. The direction of both government and licensing is universally fixed: they go from right to left.

### 3.4.2 Cs may govern

A C position is also capable of governing in a limited way: it may exert its governing power on a preceding C position if the intervening V position is melodically empty, i.e., v. Like V-to-V licensing, C-to-C government is also lexically determined, that is, a C position may or may not govern the preceding C position even if one of the conditions, an intervening empty V position, is available. Again similarly to V-to-V licensing, C-to-C government has melodic conditions.

### 3.4.3 Burial domains

V-to-V licensing and C-to-C government we dub  the position trapped within a V-to-V licensing or a C-to-C governing domain is buried.

Like governed positions, buried positions also lose their inherent properties: a buried V remains silent without being governed, it is never pronounced. Its presence can still be detected: the governing potential of the V following the C-to-C governing domain is absorbed by the buried vowel. This effect is also attested in standard Government Phonology: proper government cannot cross a governing domain. For C-to-C government to apply certain conditions on the melodic content of the two C positions must also be met. It is probably obvious by now that we are describing here the clusters labelled coda–onset clusters in traditional GP and it is well-known that not any two consonants may form a valid coda–onset cluster. We do not go into details here.

[6]For those burning with curiosity: V-to-V licensing domains define long vowels and diphthongs.

A buried C position is always governed: for a V-to-V licensing domain two nonempty Vs are needed, of which the second cannot govern the first (only v may be governed), therefore it will govern the intervening empty C position. It is nevertheless its being buried that accounts for the very smooth vocalic transition that characterizes V-to-V licensing domains, the representation of long vowels and (heavy) diphthongs. Burial distinguishes them from empty (or filled) hiatuses.

Burial is language specific. It expresses the same possibility as the branching rhyme and the branching nucleus parameter, that is, the languages that allow rhymes to branch are said to have V burial or, in other words, C-to-C government, the languages that also allow nuclei to branch are said to have C burial or V-to-V licensing in the present framework.

The fact that v positions are silenced by being buried as well as by being governed, and buried c positions assume the phonetic characteristics of a full-fledged vowel, makes the following reformulation of the ECP necessary:

**The Empty Category Principle (final version)**

An empty position loses its inherent properties iff governed or buried, i.e.

(i) An empty C position loses its muteness iff governed or buried.

(ii) An empty V position loses its loudness, as well as its governing and licensing potential iff governed or buried.

The careful reader will have noticed that what we call dead V positions are exactly those that remain silent in the interpretation. Nevertheless, note that we do not make reference to the phonetic interpretation of positions when defining their governing and licensing possibilities: the only reason that V positions lose their power to govern and license is their own being governed or buried. It is (not so) accidental that this state cooccurs with their being silent as well.

# 4 Lenition

Now we are instrumented with the definitions to give a theory of consonant lenition. Such a theory should

(i) account for the *sites* of lenition, i.e. which consonantal positions exhibit lenition

(ii) give the reason for having lenition in those positions and not in others;

(iii) differentiate between the two types of lenition (vocalic lenition, i.e. sonorization and consonantal lenition, i.e. debuccalization) and

(iv) explain adequately why consonants in certain positions undergo vocalic lenition whereas in other positions they undergo consonantal lenition.

Earlier works (Harris, 1997; Ségéral & Scheer, 1998, 1999) meet the requirements in (i–iii) but fail in the case of (iv). We claim, however, that our theory fares better in this respect: in this section, we shall see how it provides an explanation for lenition phenomena both at the descriptive and explanatory level.

Our theory recognizes two forces influencing consonants: government and licensing. The former destroys the inherent nature of a consonant, that is, it makes a consonant more sonorous, vocalic. Hence, it is reasonable to think that a **governed consonant** (typically) **undergoes vocalic lenition.** Licensing, on the other hand, supports the expression of the melodic content of a consonant; an unlicensed consonant can plausibly be claimed to lose some of its elements, i.e. to remain consonantal and be subject to debuccalization. Thus, an **unlicensed consonant** (typically) **undergoes consonantal lenition.** Let us see where consonant lenition can occur and whether our theory correctly predicts the types of lenition occurring in these positions.

The inspection of positional relations reveals that we distinguish four consonantal positions:

(i) licensed but not governed

(ii) licensed and governed

(iii) not licensed but governed

(iv) not licensed and not governed

consonants. All of these possibilities are attested as it can be seen in the subsequent paragraphs.

**Licensed but not governed C**

If a $\mathcal{C}$ is licensed then it must precede a live (i.e. not dead) vowel ($\mathcal{V}$). On the other hand, this vowel should not govern the consonant, hence it must govern the preceding empty v position:[7] this situation appears to be possible in bogus and coda clusters.[8] Thus, a licensed but not governed consonant can be the *second element of a bogus or a coda cluster.* Since this consonant is licensed but not governed, it typically does not exhibit any type of lenition. (The white (double) arrow indicates licensing pointing from the licensor to the licensee. The buffer-like arrow strikes the governee coming from the governor. The $\mathcal{C}$ position under discussion is encircled.)

```
V  C  v  C⇐V  c        V  C  v  C⇐V  c
|  |     |  |          |  |     |  |
a  t     k  a          a  n     t  a
```

**Licensed and governed C**

As we have just seen, this C must be followed by a live vowel. In this case, however, this vowel must govern the consonant, that is, it is unable to govern the preceding vowel position (recall: full vowels cannot be governed). This situation may arise if the preceding vowel is full, that is, in intervocalic position. In this case we predict vocalic lenition (since the C is governed but not unlicensed).

```
V  C⇐V  c
|  |  |
a  t  a
```

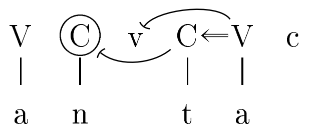
**Not licensed but governed C**

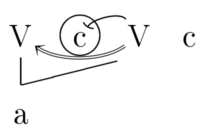
An unlicensed C must precede a dead (governed or buried) vowel or one that licenses something else (the preceding vowel). In the first case, the

[7]In a later section we are going to see that there is yet another possibility for a vowel not to exert its governing power on the preceding consonant.

[8]A brief note on the terminology: bogus cluster is what standard GP calls bogus cluster, two superficially adjacent consonants without any (or at least very little) interaction between them. These typically never turn up word finally. A coda cluster is what GP calls coda–onset cluster: typically a falling sonority cluster. An onset cluster is what is standardly referred to as a branching onset.

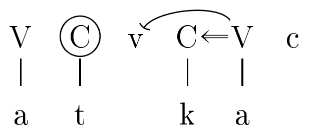
dead v is not only not a licensor but also not a governor of the C. This implies that this type of consonantal position cannot be governed by a vowel. So one option is that it is governed by another C, that is, it is the first element of a coda cluster. The theory predicts that this type of consonant lenites either vocalically or consonantally (or both). This, in fact, is attested in numerous languages. In the other case, when the governing V licenses a preceding V, not the c, that is, in a V-to-V licensing domain, the c is empty, therefore its not being licensed makes no difference, it is not manifest in lenition.




**Not licensed and not governed C**

We have already seen that an unlicensed consonant must be followed by a dead v. Since this consonant is not governed either, it cannot be the first member of a coda cluster. Hence, the realization of this situation is the first consonant of a bogus cluster. Because this type of C is neither governed nor licensed, we predict consonantal lenition in this position. This prediction is borne out by the data.




So, our theory can correctly account for the unmarked lenition phenomena observed in the world's languages at the level of both descriptive and explanatory adequacy, meeting all four requirements stated at the beginning of this section.

Furthermore, our analysis might cast some light on a possible resolution of the *stop paradox*. The stop paradox is the problematic claim of the standard theory of elements that stops are the most complex and at the same time the most unmarked consonants. This is a problem on the one hand because in Government Phonology complexity is measured in terms of the number of elements, and on the other hand because among vowels the less element a vowel contains the less complex and the less marked it is. The key to solve the problem in our framework might be as follows: a consonant might become more sonorous by virtue of either of two cases:

(i) it is governed

(ii) it contains some kind of resonance (vowel-like) elements.

Nevertheless, this idea is not fully developed yet, and it awaits future research.

In this section, we have seen how our theory accounts for the possible sites of lenition and how it explains the reason for and the type of lenition occurring at these sites. In the following section, we shall see some apparent problems which seem to challenge the theory. The solution of these problems will lead us to the repartitioning of the skeleton, i.e. to VC theory.

# 5 VC phonology

Our theory of lenition correctly accounts for the types and sites of lenition. It predicts, however, an unattested lenition site, namely, the beginning of the word:

$$\begin{array}{ccc} \mathrm{C} & \Leftarrow & \mathrm{V} \\ | & & | \\ \mathrm{t} & & \mathrm{a} \end{array}$$

The word-initial consonant is both licensed and governed, thus, it should behave as an intervocalic C, i.e. it should exhibit vocalic lenition. At the same time, the most stable consonantal position is reported to be the word-initial position: it can support the most diverse phonological variation in the word and no lenition is generally attested in this position. In fact, a word-initial consonant patterns with the second consonant in a bogus cluster: it seems to be licensed but not governed. This means that we would need an empty vowel preceding the word-initial consonantal position to absorb the government coming from the following vowel. This move is not a new one: Lowenstamm (to appear), Ségéral & Scheer (1998, 1999) claim this to be the case. However, in their framework, they must have an initial empty CV sequence, the empty C part of which is useless. In our theory, on the other hand, we claim that apparently consonant-initial words start with an empty vowel, which is governed by the following ungoverned vowel:

$$\begin{array}{ccc} \mathrm{v} & \mathrm{C} \Leftarrow & \mathrm{V} \\ & | & | \\ & \mathrm{t} & \mathrm{a} \end{array}$$

What can we say about vowel-initial words? Do they have an empty vowel before them? No, this is not necessary. In fact, it would raise serious problems if we posited an empty vc unit at the beginning of a vowel-initial word. Such a move would render empty vc sequences legitimate, which is counter-intuitive and, without further constraints, would lead to the potential proliferation of such empty units. Thus, we claim that **every word begins with a $\mathcal{V}$**: in vowel-initial words it surfaces; in consonant-initial words it remains silent because it is governed by the following vowel.

Now, let us turn to the end of the word. In our theory, domain final empty vowels are not licensed to be empty (or governed) by the domain boundary. Why, then, are they inaudible if the word ends in a consonant? The answer is straightforward: because they are not there! The original motivation for the existence of the domain final empty nucleus was the following (cf. for example, Kaye *et al.*, 1990; Kaye, 1990): it was needed because the final consonant of a word was viewed as an onset and not as a "coda" and the skeleton was made up of onset–rhyme pairs because every onset position had to be licensed by a following nuclear position. Our theory, however, recognizes unlicensed consonants as well. Furthermore, vowels are viewed as segments that want to surface unless something prevents them from doing so: the domain boundary does not seem to be a satisfactory explanation for the fact that they remain silent word-finally. In fact, domain-final empty nuclei have always constituted a problem for the theory, since their behaviour is frequently different from that of word-internal empty nuclei (Polgárdi, 1998b, p. 35ff). Therefore, a word ending in a consonant is best viewed as it is, namely a word ending in a consonant and not in an empty nucleus. This implies that the word-final consonant is neither licensed nor governed, thus it exhibits consonantal lenition—as is borne out by the facts. Also note that the empty vocalic position Ségéral & Scheer assume here does nothing: it neither licenses nor governs the preceding consonantal position.

The question might immediately arise: what can we say about vowel-final words? One possible answer to the question would be that these words are vowel-final at the skeletal level, i.e. they are not followed by anything but the boundary. Another possible claim—and this is what we entertain in this paper—is that these words in fact end in an empty consonant. At first sight, this theory does not differ substantially from the original one, which posits domain-final empty nuclei instead of our domain-final empty consonants. However, our theory gives a straightforward explanation (without any stipulation!) for the reason why the final consonant is inaudible: it is a consonant hence its inherent property is *muteness*.

The insights seen so far lend themselves to the generalization: **the phonological skeleton is made up of inseparable VC units**, that is, every word starts with a (possibly empty) V and ends in a (possibly empty) C, while Cs and Vs strictly alternate within the word. This framework fares far better than CV theory in light of the problems mentioned above: we do not need any stipulation either at the beginning of the word or at its end. The new partition of the skeleton will be shown to be superior to the old one—with CVs—within the word as well. In the following section we are going to see some impacts of the theory on phonotactic constraints.

Before we proceed, however, we should give an explanation for a challenging question. CV theory has the advantage of explaining why CVCV...CV is the most unmarked syllable type among languages. This is because empty material is dispreferred.[9] By requiring words to begin with an empty CV unit to explain the strength of the word-initial consonant position, the dispreference argument is lost. However, by doing so we probably also imply that the beginning of this type of phonological domain is marked. If domains need this type of marking then we could say that the beginning of a domain is marked by a vC unit in the default case. Languages that have the *#V constraint obligatorily mark domain beginnings this way.

Word-final consonants, on the other hand, do not exist in certain languages because unlicensed and ungoverned consonants retain their inherent property, namely their muteness. Again one may also argue that domain endings are marked in *C# languages, by the unit Vc.[10] Thus, we can say that

[9]Note that this constraint is in fact the conjunction of two constraints: *EmptyV and *EmptyC, since there are languages which allow word-final consonants and/or word-initial vowels.

[10]The question whether this means that ungoverned unlicensed consonants cannot host any melodic content or they do but the melodic content cannot surface is open for future research. This treatment implies the generalization that *C# languages will lack bogus

languages prefer to indicate the edges of the word structurally. Languages having word-initial vowels and/or word-final consonants lack this indicator, hence they are marked. If we add the condition that the optimal case for C positions is to be licensed we derive the default skeleton, vC[VC]$^+$Vc. Surface CVCV unmarkedness thus follows from universal interpretative conventions not from underlying CVCV skeletons. This conclusion is in line with one of the basic claims of Government Phonology: surface phenomena cannot be taken to be decisive arguments for the underlying state of affairs as regards syllable structure.

In this section, we have seen that our theory of lenition and structural relations (government and licensing) necessarily implies the repartitioning of the skeleton, namely a skeleton containing VC units. Though, at first sight, the theory seemed to incorrectly claim that the most unmarked syllable type is VC, this problem has turned out to be only an apparent one: in line with other authors we also predict that CV is the unmarked syllable type. In the following section the nature of licensing is discussed in light of the hypothesis that the skeleton contains not CV but VC units.

# 6 Licensing reconsidered

The notion of licensing is used in at least three senses in phonology: a position's license may mean that its existence in the representation is justified or that it is capable of licensing and/or governing other positions (these both go under the term ), or that it is capable of supporting a certain amount of melodic primes, and thereby it has a certain degree of contrasting capacity (). In the theory described here all V positions are endowed with governing and licensing power—this is an inherent property of V positions—, which they may only lose if they are unfavourably influenced externally (recall: by being governed or buried). C positions on the other hand are only licensed if a following V licenses them. In many current models all skeletal positions must be licensed (except perhaps for the head of a domain, which is typically licensed from outside the domain). This is justifiable in frameworks where skeletal positions belong to constituents of varying sizes, e.g., one or two adjacent positions may make up an onset or a nucleus, there may or may not be a coda, etc. If we see the skeleton as a string of rigidly alternating vocalic

clusters as well, since the first member of a bogus cluster is structurally the same as the word-final consonant. Whether this is true or not is also an open question.

and consonantal positions that exhaustively form pairs (i.e., if the string begins with one then it ends with the other), thus getting rid of any kind of constituency, then this function of licensing becomes void: a C position is "licensed" by being next to a V position and vice versa.

If we take licensing to be the glue that cements skeletal units then it follows that no licensing is necessary within such units. The units of the skeleton (VC in our case, CV for others) are inseparable, one does not exist without the other; they are precemented, as it were. It turns out then that a V licenses a preceding C position in order to create the cohesion between two adjacent VC units in a domain. There is no licensing (or government) within a unit—that is, Cs do not license or govern Vs—because there is no need for it. This interpretation is impossible with a CV skeleton.[11]

Obviously, this means that there will exist skeletal positions that are unlicensed. There are three such positions in our framework: word-final consonants, the first consonant in a bogus cluster and dead vowels. The first two are not followed by a V position that could license them, the last has lost its inherent license. Since licensing only supports the maintenance of melodic material in the licensed position and positions themselves do not need to be licensed, there is nothing to inhibit an unlicensed C position from surfacing, but it is prone to undergo consonantal lenition, i.e., debuccalization, devoicing, etc.

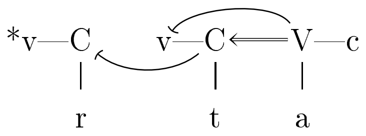
In the following section, we shall examine how government and licensing relations can account for some phonotactic restrictions and how the framework can differentiate between *coda clusters* (that is, coda–onset sequences) and *bogus clusters* (branching onsets will be treated in a later section).

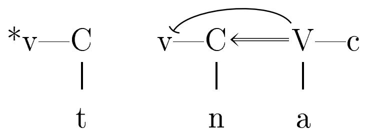
# 7 Coda clusters vs. bogus clusters

One of the problems with the analysis proposed in Ségéral & Scheer (1998, 1999) is that the authors cannot account for the different behaviour of coda clusters and bogus clusters. In this section, we shall see some implications of the VC theory on this question. Firstly, let us investigate where coda and bogus clusters can occur.

Neither of the clusters can occur at the beginning of the word:

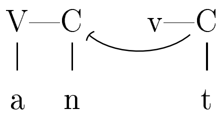
[11] Furthermore, it is a welcome return to the idea that the skeleton is made up of uniform bits: not a string of strictly alternating Cs and Vs, but one of VCs.

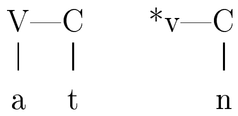




The problem with such hypothetical structures is that the word-initial empty vowel cannot remain silent, since it cannot be governed (it is followed by a dead vowel which cannot govern it). Thus, a word cannot start with a coda or a bogus cluster.

At the end of the word, however, coda clusters and bogus clusters show different behaviour: the former are attested in that position whereas the latter are not. How can we account for this situation? The following diagrams demonstrate the structural relations at the end of a word:





The coda cluster (on the left) is perfectly good: the empty vowel within is buried, hence it remains silent. On the other hand (and side), bogus clusters are not possible word-finally because the empty nucleus between the consonants cannot be governed, thus it should surface. So our theory correctly accounts for the distribution of such clusters at the edges of the word. Let us now proceed to another phenomenon where coda and bogus clusters behave differently.

## 7.1 Closed syllable shortening

The phenomenon of closed syllable shortening is easily explained by theories furnished with branching nuclei representing long vowels and branching rhymes for coda consonants. All one has to do is exclude the branching of both of these consituents within the same syllable, and find some feasible story for the constraint (cf., for example, Kaye *et al.*, 1990, p. 200). Denying the codahood of nonprevocalic consonants, which is the central tenet of strict CV frameworks including the present theory, destroys such an explanation by making closed and open syllables identical on the skeleton. It is the relationship of skeletal positions that can be called to account for the phenomenon in this case.

One attempt at doing so is presented by Lowenstamm (1996), who claims that the second position of a long vowel is empty and in order to be interpreted it has to be licensed by being properly governed. Now an empty vocalic position ($\mathrm{V}_{\pounds}$ on the left) obviously cannot govern. If pronounced (like on the right)—thus creating an open syllable—the second position of the long vowel ($\mathrm{V}_{\$}$) becomes interpretable.

| [katpi], *[kaːtpi] | | | | | | | | [kaːtupi] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | V | C | $\mathrm{V}_{\$}$ | C | $\mathrm{V}_{\pounds}$ | C | V | C | V | C | $\mathrm{V}_{\$}$ | C | $\mathrm{V}_{\pounds}$ | C | V |
| k | a | | | t | | p | i | k | a | | | t | u | p | i |

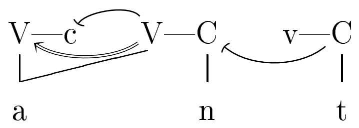
We see two problems with this account. One is theory internal: it is strange that in the normal case being properly governed prevents a vocalic position from being pronounced, while here we unexpectedly have the opposite effect—a properly governed vocalic position is interpreted phonetically. The absence of closed syllable shortening in word-final closed syllables is also unfelicitous for this account; it requires that word-final empty nuclei be able to properly govern as opposed to word-internal ones. In other cases, we see that this is not so: bogus clusters are not encountered at the end of a domain. More seriously, an account that treats any two superficially adjacent consonants alike with respect to closed syllable shortening is empirically wrong. While long vowels are not typically found before coda clusters, bogus clusters are quite insensitive to the length of the preceding vowel (at least in English and Hungarian): cf. *ēvening, līghtning, fāvourite,*[12] or *bóvli* 'shoddy', *sínyli* [ʃiːɲli] 'suffer for'.[13]

The theory presented in this paper has a neater and descriptively more adequate account for the phenomenon of closed syllable shortening. Recall that both coda clusters and long vowels were analysed as burial domains,

[12]In English trisyllabic shortening conspires against most potential examples. For syncope, the main source of bogus clusters in English, we typically need two weak nuclei of which the second properly governs the first, which accordingly syncopates. The long vowel before this configuration is unfortunately in the third syllable from the end, thus short in most cases.

[13]Polgárdi (1998a) claims that Hungarian lacks long vowel+bogus cluster sequences, but lists some exceptions. Since this theory can account for such sequences we do not take them to be exceptional, especially since pre-syncope long vowels may remain long: *sólyom* 'falcon' ∼ *sólymot* 'falcon+acc.'; *ólom* 'lead n.' ∼ *ólmoz* 'lead v.' It is intriguing, nevertheless, that the long vowel here is [oː] in most cases.

the former as a C-to-C governing domain, the latter as a V-to-V licensing domain, both enclosing an empty skeletal position. By setting up a fairly natural constraint, namely, that one skeletal unit, that is, one VC pair, cannot simultaneously belong to two domains, we render a long vowel followed by a coda cluster ungrammatical. The situation is depicted below, where the middle VC unit is both the second half of the V-to-V domain and the first half of the C-to-C domain.




The two types of domains can of course follow each other in the other order ([antaː] is well-formed), but crucially this is so only if the skeleton is made up of VC and not of CV units!

## 7.2 CCC clusters

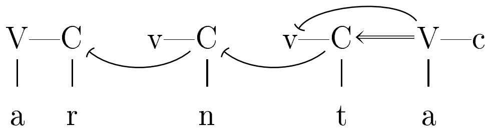
Another difference between coda and bogus clusters is within CCC consonant clusters—we are talking about languages where such clusters exist (e.g. English and Hungarian, among others).[14] In principle, we should find four different types of such clusters depending on what kind of relationship holds between the adjacent consonant pairs:[15]

| | **CC**C | C**CC** |
|---|---|---|
| – | coda cluster government | coda cluster government |
| ✓ | coda cluster government | bogus cluster – |
| – | bogus cluster – | coda cluster government |
| – | bogus cluster – | bogus cluster – |

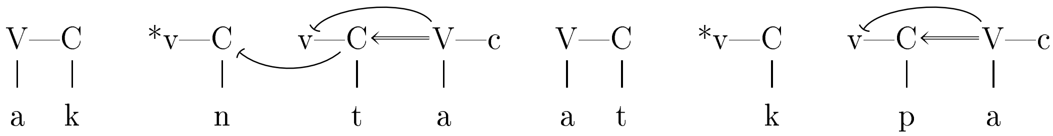
[14] Slavic languages cause a substantial problem for our theory as well as for other known proposals within a CV or VC framework (and for standard GP).

[15] We are disregarding onset clusters in this section too. Note, however, that their distribution with respect to coda clusters is the same as that of bogus clusters.

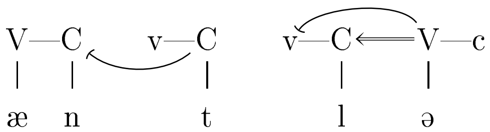
What is the reason for the lack of the unattested types of clusters? The first possibility (both CC pairs constitute a coda cluster) cannot occur for exactly the same reason as why closed syllables cannot contain a long vowel: the middle VC unit (with the [n]) would have to belong to two burial domains:



The third case, that is, when the first cluster is a bogus cluster while the second is a coda cluster, is impossible, since the empty vowel within the bogus cluster cannot be governed, hence it should surface. The same holds for the last case as well (on the right):



Finally, the following figure shows that the only attested type of CCC cluster defines possible structural relations in our framework:



Here, the second empty v (between *t* and *l*) is governed by the word-final vowel, while the first empty vowel remains silent by virtue of being buried.

As we have seen in this section, our framework differentiates between coda and bogus clusters and, in this respect, fares better than the theory proposed by Ségéral & Scheer. This way we can also predict that closed syllable shortening occurs only before coda clusters but not before bogus clusters. Furthermore, our predictions generally hold for languages we know of.[16] Next we discuss how another shortcoming of Ségéral & Scheer (1999)'s framework may be amended.

[16] We follow Harris (1994) in assuming that the nonprevocalic [r] of rhotic accents of English is vocalic, thus avoiding apparent counterexamples like *first, world.*

# 8 Lenition and feet

One point where Harris (1997)'s theory of consonant lenition is superior to Ségéral & Scheer (1999)'s is that it incorporates suprasegmental phenomena, more specifically stress, in the explanatory machinery. This way Harris can, but Scheer & Ségéral cannot explain the absence of lenition in intervocalic position before a stressed vowel.

The strength of a consonantal position in Scheer & Ségéral's and also our theory follows from its being licensed and ungoverned. Licensing is no problem before a stressed vowel, what leads to the wrong prediction is the fact that if a consonant finds itself between two vowels, then the governing power of the second is not absorbed by the first since that is a full vowel and thus hits the consonant, which is expected to become more sonorous. Recall that we encountered a similar problem with word-initial consonants—again a strong position. In that case the vowel vented its governing power on the domain-initial empty vocalic position, which was claimed to be present before any superficially word-initial consonant. This solution is not available in the present case unless we are to have empty V positions (and then also an empty C position) before all non-word-initial stressed syllables.

What we can do, however, is prevent a stressed vowel from governing in certain circumstances. We therefore claim that it is not possible to govern into complete feet. This constraint is analogous to the one not allowing government to penetrate a phonological domain (cf. *cycl#ing* [-kəl-] vs. *cycl+ist* [-kl-]) and may be attributed to the Strict Cyclicity Condition. This is not equivalent to saying that a stressed vowel cannot govern; if this were the case the initial empty V position of a stressed-syllable-initial word could not be governed and hence should surface. It is only complete feet that resist external government. If in addition the skeleton contains VC units, we explain why the consonant before the stressed vowel does not lenite: it belongs to the previous foot (recall: we have repartitioned the skeleton), which is immune to government coming from a following foot. Interestingly, it turns out that seen from this framework the absence of "foot-initial" consonant lenition is in fact the absence of foot-*final* lenition.

Incidentally, this constraint also explains the absence of syncope before stressed syllables as noted by Kürti (1999), among others. If we compare the adjective *separate* [sepərət] and the verb *separāte* [sepəreɪt], we find that the schwa of the middle syllable can be syncopated in the first, but not in the second word: [seprət] vs. *[sepreɪt]. This strange discrepancy is readily accounted for by preventing government from penetrating a complete foot. It also follows that stressed vowels should not appear after bogus clusters: the foot boundary blocks the government of the empty vocalic position within the cluster. A search in a sizable electronic dictionary of English has resulted in only a handful of counterexamples, like *athlétic, enigmátic, pragmátic* etc.[17]

Another prediction that can be made at this point is that an unfilled hiatus is more preferable between an unstressed and a stressed vowel (that is, at a foot boundary) than between a stressed and an unstressed vowel (that is, within a foot). In the first case, we claim that the empty C position is not governed, hence its muteness is not attacked, while foot-internal C positions are subject to vocalization, like being filled by a glide. This prediction still awaits empirical corroboration or refutation.

# 9 The minimal word

The formulation of what constitutes a minimal word appears to cause a problem for the VC framework. The standard observation that in many languages the minimal size of content words is limited to two moras is expressed in a CV framework as follows:

> Content words contains at least two CV pairs.

The difficulty for the VC theory is that a hypothetical word *ta,* which is subminimal, contains two VC units (vCVc), while *at,* which is well-formed as regards this constraint, is made up of a sole VC unit.

We have seen above that the unmarked option for phonological domains is to begin with a pronounced consonant, i.e., vC, and to end with a pronounced vowel, i.e., Vc. We claimed that the beginning of a domain is marked by the empty v position and its end by the empty c position. That is, vC and Vc are the default boundary markers for domain beginnings and domain ends, respectively. Therefore, we call domain-initial vC and domai-final Vc units peripheral. All other $\mathcal{VC}$ units are nonperipheral. So if a word begins with a vowel, with a VC or Vc unit, that is nonperipheral and by the same token consonant-final words are also marked in the sense that they do not end in a peripheral but in a nonperipheral unit. Word-medial units with an empty half on either side are also nonperipheral units.

[17] French obviously works differently, but then fixed-stress languages might as well lack feet altogether.

The minimal word constraint in the VC theory then runs as follows:

A content word must contain a nonperipheral unit.

It now turns out that the constraint as formulated by our theory is in fact simpler than in CV frameworks: "at least two" is not a theoretically plausible constraint; natural language cannot count, all it sees is whether something exists or not. We believe this to be the reason behind binarity effects: a constituent is either branching or not, a feature is either present or not, etc. In addition, if we accept the idea that lexical words begin with an empty CV pair, the minimal word constraint of CV theories is further jeopardized: "at least three CV pairs" is a highly improbable clause.

## 10 Constraining emptiness: *vc

Before putting forward constraints on empty skeletal positions, we must give a definition of what qualifies as an empty position. Many current theories implicitly or explicitly take positions not independently licensing any melodic material to be empty. As opposed to this, we suggest that **a skeletal position is empty if lexically it does not license any melody.** So a position that licenses all of its melody in tandem with another is not empty. That is, the first consonantal position of a geminate or the second vocalic position of a long vowel is not empty. This is required by both our definition of burial domains and the fact that long vowels typically pattern with diphthongs and geminate consonants with coda clusters, the recessive positions of which is typically nonempty. This also means that we do not view a long vowel or a geminate consonant to be the result of a phonological process, say, spreading.

We propose a restriction on the skeleton, the *vc constraint. That is a whole skeletal unit cannot be empty. In other words, every unit of the skeleton must hold some melodic material lexically. This is reminiscent of Gussmann & Kaye (1993)'s Reduction, the deletion of an empty nucleus–onset section from the skeleton. But while for them this is a stipulative operation, still worse, it violates the Projection Principle, here the representation is constrained and that in a rather plausible way.

If the skeleton contained CV units this constraint could be formulated rather arbitrarily: one would have to say that the two otherwise possible units, Cv and cV, cannot be adjacent in this specific order. (They could the other way around, as cVCv.) What such a framework could posit is a constraint banning empty cv units. In fact, we see no reason at present to assume such sequences either. Nothing specifically inhibits the occurrence of a Vc-vC cluster: the c is unlicensed and ungoverned, hence silent, the v is probably governed, hence silent again, but we wonder how the child acquiring the language could ever detect these two adjacent empty positions within a morpheme.

Thus the phonological skeleton is made up of three kinds of units: VC, vC and Vc, of which the latter two cannot follow each other in the Vc-vC order. The unmarked skeleton has the canonical shape vC[VC]$^+$Vc, that is word-initially vC, word-medially VC, word-finally Vc.

# 11 Onset clusters

We shall now outline some alternatives to analyse onset clusters (i.e., branching onsets) in the present framework. We remain indeterminate on this issue because all three options to be presented below have shortcomings that we are as yet unable to handle.

## 11.1 C-to-C licensing?

We have seen that there is no licensing between the V and the C position within a skeletal unit, a VC pair. In fact, both licensing and government appear to link only one of the two halves of a skeletal unit with that of another adjacent unit. Coupled with the axiom that governors and licensors are always to the right of their target, there are eight potential configurations for skeletal relationships as tabulated below:

| | | | | |
|---|---|---|---|---|
| 1 | $\mathcal{C}$ | V | licensing | any full CV sequence |
| 2 | $\mathcal{C}$ | V | government | some full CV sequences |
| 3 | V | V | licensing | long vowel/diphthong |
| 4 | v | V | government | word-initially, etc. |
| 5 | C | C | licensing | ??? |
| 6 | C | C | government | coda cluster |
| 7 | V | C | licensing | — |
| 8 | V | C | government | — |

Relationships 1, 2 and 3 are universal, all languages possess them. These are the skeletal relationships proposed by Ségéral & Scheer (1998, 1999). Relationships 7 and 8 are probably impossible. Since no relationships prevail within skeletal units, the only possibility for a C to govern or license a V is through an intervening empty c and v, i.e., in a Vc-vC skeletal portion; such clusters appear to be nonexistent. If this configuration is assumed, nevertheless, there are still two ways to explain the absence of C-to-V interaction: (i) Vs are in all likelihood the heads of VC units, it would be strange for a dependent to govern or license a head; (ii) the range of government and licensing could be limited: a position can govern and/or license the nearest other position of a certain type before it. This is to say that any position governs and/or licenses either the immediately preceding position or the one before it; if a C is to govern and/or license a vowel, that should be adjacent (but this option is out because that vowel would be within the same unit), if it is to govern and/or license another consonant, that should be the one two positions away. Relationships 3 and 6 are proposed in this paper for long vowels and coda clusters, respectively.

There remains a spurious gap: C-to-C licensing still lacks an interpretation. But it is not only this coincidence that suggests C-to-C licensing to be the representation of onset clusters. The first consonant in this cluster is licensed and ungoverned, hence strong. Like V-to-V government, C-to-C licensing does not create a burial domain. Therefore the enclosed v can govern and license. This would explain why onset clusters are possible word-initially—the v governs the word-initial empty v. The absence of a domain here also accounts for why long vowels are possible before onset clusters, why these consonant clusters do not close a syllable ([aːtr] is okay) and why the second part of a coda cluster can simultaneously be the first part of an onset cluster ([ntr] is okay).

The fundamental problem with this proposal is that we have absolutely no explanation for why the v enclosed within the C-to-C licensing relationship remains silent. If it were governed, it would have to lose its governing power and thus word-initial onset clusters should be impossible. There is also an empirical problem with this proposal, which must be faced by the following one as well, therefore we will introduce it there.

If we are to abandon the idea that onset clusters are the result of C-to-C licensing, we have to account for the absence of this type of relationship. To do so we could claim that C positions are not licensors: the primary function of licensing is to cement the skeleton, its VC vertebrae, as it were, and this task is fulfilled by V positions, which are, after all, prosodically the more prominent of the two.

## 11.2 Contour segments?

Another possibility for the representation of onset clusters is put forward by Rennison (1998), who claims that they are in fact contour segments just like affricates. Scheer (1998) is also making an implicit claim to a similar effect, although he apparently suggests that onset clusters occupy two C positions in a similar vein as in the previous section. However, the fact that so-called infrasegmental government creates a closed domain (corresponding to our burial domain) which proper government can cross means in our interpretation that a closed domain is in fact one segment. There is no reason to assume the presence of the intervening empty nucleus other than not wanting to have contour structures here.[18]

Equating affricates and onset clusters structurally is empirically inadequate. Affricates occur in positions where onset clusters do not in a given language, e.g., word-finally, as the first consonant of a bogus cluster[19] or even as the first consonant of an onset cluster (in German). Affricates are analysed by Jakobson *et al.* (1952) as strident stops, an approach implemented in a unary-feature framework by Szigetvári (1997). The claim is that affricates are distinguished from homorganic stops only by being headed by the noise element making them strident. Besides the representational difficulties with having contour segments at all, an affricate often do not behave like one: the stop and fricative phase looks temporally unordered in many phonological processes. If affricates are not represented as contour segments, then onset clusters may be.

In this case, however, we expect onset clusters to have a similar distribution as single consonants. Their absence in unlicensed positions (word-finally

[18]Perhaps a word is needed here on behalf of burial domains. Crucially, V-to-V—that is, proper—government cannot cross the domain we call burial. So the similarity between these and Scheer's closed domains stops at the claim that domain internal vs remain empty without being governed, the crucial difference remains: burial domains absorb government, closed domains let it through. As a result, the empty v within a C-to-C burial domain remains detectable, that within a domain closed by infrasegmental government is lost for once and all.

[19]There are languages that do allow both types of consonant in these environments, like Polish. The point here is that there are other languages, like English, that allow only affricates but not onset clusters here.

and preconsonantally) may be explained by their complexity: only licensed positions can sustain this much melodic material. The other difficulty with this approach is that onset clusters appear to allow a governed V position before them only word initially. Whether we believe them to be the manifestation of C-to-C licensing with an intervening v that can govern or a single C position the V after which can govern, this will only happen at the beginning of a word, not within it. In other words bogus clusters followed by an onset cluster are hard to come by. This is what we expect if the formulation of proper government in standard GP is correct: proper government cannot cross a governing domain, like, for example, a branching onset. But this makes both the present and the previous approach spurious.

## 11.3 A special type of bogus cluster?

The last option to be considered here for the representation of onset clusters is that they are but a special kind of bogus cluster. What leads us to make this proposal are the following two facts: (i) both bogus and onset clusters share the constraint that the two consonants cannot be homorganic. For bogus clusters it is weird to have any constraint at all, nevertheless, monomorphemic consonant clusters that are not coda clusters are never of the same place of articulation.[20] (ii) In CCC clusters onset clusters pattern exactly like bogus clusters. The English syncope facts discussed by Horváth (1999) and Hungarian bogus clusters (Péter Rebrus, p.c.) also make us feel that the "optimal" bogus clusters are rising-sonority clusters, an intriguing coincidence with what onset clusters look like. To compare our view with that of Ségéral & Scheer (1999): of the three types of consonant clusters—coda, bogus, onset—they see the basic dichotomy between the first two and the last, we would like to claim that it is between the first and the last two.

The speciality of onset clusters is that unlike common bogus clusters they may turn up word-initially (and in some languages word-finally and preconsonantally). At the same time the two halves of onset clusters are also more constrained as to their melodic content. At this point we are not able to say much more about this phenomenon.

[20] Coronals excepted, but then they are often seen as placeless anyway. This is in fact another argument supporting that stance.

## 12 Conclusion

In this paper, we have proposed a theory of government and licensing. We set out by filling the symbols C and V with phonologically motivated content:

(1) *a.* Vocalicness means loudness (the inherent nature of vowels is being *loud,* pronounced).

*b.* Consonantalness means muteness (the inherent nature of consonants is being *mute,* unpronounced).

Then, we gave an interpretation of government and licensing:

(2) *a.* Licensing supports the expression of the melodic content of the target.

*b.* Government destroys the inherent nature of the target (i.e. a governed C becomes louder, a governed v becomes mute).

The conditions under which these structural relations hold are as follows:

(3) Licensing

*a.* $\mathcal{V}$s are inherently licensed

*b.* a live (neither governed nor buried) $\mathcal{V}$ licenses the preceding $\mathcal{C}$ or V (through c; burial)

(4) Government

*a.* a live $\mathcal{V}$ has governing power

$\alpha$. it does not govern into a completed foot, else

$\beta$. it governs the preceding $\mathcal{V}$ if it is v, else

$\gamma$. it governs the preceding $\mathcal{C}$

*b.* a C can govern the preceding C (through v; burial) In this case, the buried empty v dies, i.e. it remains unpronounced.

As the next step, we formulated the reason for lenition phenomena:

(5) *a.* Governed consonants may undergo vocalic lenition.

*b.* Unlicensed consonants may undergo consonantal lenition.

The analysis of lenition phenomena lead us to restructuring the skeleton:

(6) The phonological skeleton is made up of inseparable $\mathcal{VC}$ units.

In subsequent sections, we showed that our theory differentiates between coda clusters and bogus clusters, correctly accounts for the different distribution of such clusters and explains closed syllable shortening. An attempt was made at explaining the absence of lenition foot initially, and we also argued that VC phonology provides a more plausible explanation for the minimal word phenomenon—simply requiring every word to contain a nonperipheral unit—than CV phonology. We constrained the occurrence of empty positions on the skeleton and finally were contemplating possible representations of branching onsets.

Being in its infancy, this theory is bound to contain inconsistencies we failed to notice. Any criticism and comment is very much needed and gratefully received. (Addresses on title page.)

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