Two directions for lenition

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Abstract
This chapter argues that the lenition of consonants follows two independent paths. A consonant may lenite by becoming more sonorous, that is, by becoming more vowel like, or by losing its place of articulation and/or laryngeal properties. It is argued that the phonological skeleton is made up of strictly alternating vocalic and consonantal positions, that is, underlyingly vowels and consonants are never adjacent. Superficial adjacency is the result of a relationship between skeletal positions, called government, which acts against the inherent properties of its target. Since vowels are inherently loud (sonorous) segments, when governed they become mute. Consonants, on the other hand, are inherently mute segments, hence when governed they become more sonorous, they undergo lenition. The other direction of lenition, loss of place and/or laryngeal properties, is caused by the lack of licensing. Consonantal positions that are not licensed are not underparsed as a whole, rather some of the melodic primes attached to these positions fail to be interpreted. Accordingly, a consonant will not be likely to be subject to lenition if it occupies a licensed and ungoverned position. It is also argued that the phonological skeleton universally begins with a vocalic and ends in a consonantal position, containing VC units. The framework developed is a radically revised version of Ségéral and Scheer's Coda Mirror theory.

1. Introduction

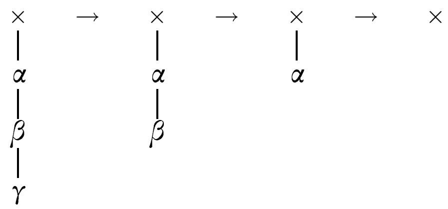
The lenition of consonants follows two clearly distinguishable trajectories: leniting consonants may (a) become more sonorous or they may (b) lose their (i) place of articulation or (ii) laryngeal properties. These changes are illustrated in (1).

(1) *Lenition trajectories*

- a. sonorization
  t > ɾ, b > β
- b. loss of
  - i. place of articulation
    t > ʔ, f > h
  - ii. laryngeal properties
    t^h > t, b > p

Implicit in this categorization are the claims that (i) the cases in (1b) involve the loss of phonological properties, that is, the loss of phonological primes, so this is decomplexification, and that (ii) sonorization is a type of lenition different from decomplexification. In order to claim that loss of place of articulation and laryngeal properties is "decomplexification," one has to have a theory of melodic representation in which a term like decomplexification can be meaningful. Such a theory will have privative phonological primes, so that oppositions are expressed by the presence vs. absence of a given prime, rather than its complementary values. (2) shows an ideal lenition path as represented by an ideal privative-feature framework. (The Greek letters are variables ranging over the set of melodic primes.)

(2) *Lenition represented by privative primes*



The second imminent question is why distinguish sonorization (potentially loss of stricture) and loss of place of articulation or laryngeal properties. In fact, there exist theories of lenition – like that of Harris, for example – that aim at treating any possible step in a lenition trajectory as decomplexification: "the more elements a consonant has the less sonorous it is" (1997 : 351). The advantage is clear, lenition types are unified, since all involve the loss, i.e., delinking, of melodic material. If, however, segmental complexity is also meant to encode some kind of markedness, then the unification leads to what Dienes and Szigetvári refer to as the stop paradox, viz., "that stops are the most complex and at the same time the most unmarked consonants" (1999 : 13).[1]

One goal of this chapter is to hint at a way of resolving this paradox by arguing that sonorization is not decomplexification, rather it is the effect of the prosodic factors characterizing the environment of such consonants. The theory to be introduced predicts both the environments in which lenition of consonants

1 It is an interesting point in the history of government phonology that the manuscript version of Kaye et al. (1990) contains an appendix on consonantal representations, according to which plain stops are *less* complex than fricatives (e.g., [p] is constricted+labial, [f] is constricted+labial+continuant). The published version of the paper lacks the appendix, in fact, the same volume of *Phonology* includes a paper by Harris (1990), which derives the sonority sequencing principle from complexity, claiming that the (first member of an) Onset must be the most complex (= least sonorous) segment in consonant clusters. For Harris, [p] is noncontinuant+labial+noisy, whereas [f] is labial+noisy.

is expected and the type of lenition expected in that environment. Predicting whether lenition actually happens in a given position is beyond the powers of the theory.

In what follows, I will first argue that the phonological skeleton is made up of strictly alternating consonantal and vocalic positions (§2). §3 suggests a phonetic interpretation of the two types of skeletal positions: consonantal positions are defined as mute, vocalic positions as loud. Two relationships – government and licensing – are claimed to hold between skeletal positions, in such a way that all possibilities allowed of by the constraints stipulated are attested (§4). A further constraint is introduced in §5, which accounts for the absence of both pretonic syncope and pretonic consonant lenition in some languages (like, for example, English). The next section (§6) collects arguments for the claim that the phonological skeleton is universally of the shape VCVC. . . VC. The predictions the theory makes are listed in §7, a comparison is made between the present theory and two others concerned with explaining consonant lenition patters in §8, and conclusions conclude the chapter.

2. The phonological skeleton

The phonological framework adopted in this chapter belongs to the family of theories usually labelled strict CV theories. This cluster of theories shares the assumption with Clements and Keyser's (1983) CV phonology that the phonological skeleton is made up of Cs and Vs. They are called "strict" to distinguish them both from this and from Hulst's (1994, 1995, 1999) radical CV phonology, a descendant of dependency phonology (Anderson and Jones 1974, Anderson and Ewen 1987), in which it is the set of melodic primes that is restricted to C and V. The closest ancestor of strict CV theories is government phonology: CV theories represent the logical conclusion of government phonology's idea that a consonant not followed by a vowel superficially is not necessarily a Coda, but may also be the Onset of a vowelless "syllable," that is, it may be followed by an unpronounced Nucleus.

The fundamental claim strict CV theories make is that it is not only some but in fact all – or, as we will shortly see, in some versions of the theory almost all – consonants that are followed by a vocalic position: the difference between so-called Onsets and Codas is in whether this vocalic position gets interpreted or not. A great advantage of positing vocalic positions that fail to be interpreted, that is, are not pronounced, is in the analysis of vowel–zero alternations, occurring in a wide range of languages (e.g., English *fam(i)ly*, French *sam(e)di* 'Saturday', Hungarian *baj(u)sza* 'his/her moustache', etc.).[2] Such alternations may be analysed either as the syncopation of the vowel, or as vowel epenthesis. If, however, the possibility of unpronounced vocalic positions is admitted, vowel–zero alternation can be interpreted without any representational/structural change: both the vowelful and the vowelless form will map onto the template CVCVCV, the difference between the two forms being confined to the phonetic interpretation of the underlined V position, or lack thereof. The two methods of representing *fam(i)ly* are shown in (3).

(3) *Syllable-based and strict CV representation of* family

a. [$_\sigma$fa][$_\sigma$mi][$_\sigma$ly] b. [$_\sigma$fam][$_\sigma$ly] c. [$_\sigma$fa][$_\sigma$m□][$_\sigma$ly]

The vowelful form of the word – (3a) – is represented identically in the two frameworks, but while theories rejecting empty vocalic positions are forced to resyllabify the onset *m* of the vowelful form to a Coda in the vowelless form[3] – (3b) –, theories accepting this possibility will not involve such a step – (3c). In such a theory, there is no structural difference between the vowelful and the vowelless form, it is only the pronunciation or nonpronunciation of the vocalic position between *m* and *l* that distinguishes the two forms.

Syllabification in fact is not an issue in strict CV theories, since the consonantal and vocalic positions of the skeleton are not associated to higher syllabic constituents (like Onset, Nucleus or Coda) and two superficially adjacent consonants necessarily belong to consonantal positions that are separated by an empty vocalic position. That is, there is a single skeletal configuration associated with any consonant cluster, the one represented as in (4). By convention, empty positions are represented by a lowercase letter, here v, in later displays also c.

(4) *The representation of a consonant cluster in strict CV theories*

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C  v  C
|     |
α     β
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2 In the examples given, the presence and absence of the vowel are in free variation. There also are cases where the vowel alternates within a given paradigm, e.g., Palestinian Arabic /ʔíbil/ ∼ /ʔíblit/ 'he∼she accepted' (Brame 1974). In such cases, the presence or absence of the alternating vowel is typically obligatory, e.g., Hungarian *majom* 'monkey' ∼ *majma* (**majoma*) 'his/her monkey', Polish *cukier* 'sugar' ∼ *cukru* (**cukieru*) 'sugar-gen.'.

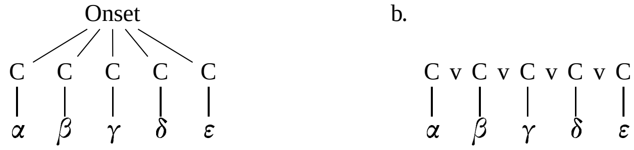
3 Actually, [$_\sigma$fa][$_\sigma$mli] is also a possibility for the syllable-based model. Although here the Onset does not turn into a Coda, two independent Onsets become one branching Onset, that is, syllable structure is again modified.

This, of course, is empirically inadequate: if consonant clusters did not exhibit divergent behaviour, theories of syllabification would be much less elaborate – if they existed at all. Therefore phonological theory cannot do without some means of formally distinguishing different types of consonant clusters. We will return to this issue in §4.

Another major source of aversion that proponents of strict CV theories have to face is the belief that allowing vocalic positions to remain unpronounced leads to unrestrictiveness. The weight of this claim is exactly the same as that of one accusing a theory *not* allowing vocalic positions to remain unpronounced of unrestrictiveness. Without further remark a hypothetical word beginning with, say, five consonants can be analysed in both frameworks, as shown in (5). (The option of stuffing some of the consonants into an appendix is ignored here, since in itself it does not modify the restrictiveness syllable-based theories.)

(5) *A #CCCCC word in syllable-based and strict CV theories*

a. b.



Since such clusters occur very marginally, phonological theory is well advised to ignore them and deem them impossible in a first approach. Syllable-based accounts achieve this by maximizing the size of the Onset, while strict CV accounts constrain the appearance of empty vocalic positions. There is no formal difference between limiting the size of Onsets and limiting the appearance of unpronounced vocalic positions. The claim that unpronounced vocalic positions are not verifiable (Ploch 2003a) is not a strong argument: they are just as verifiable as branching syllabic constituents, being theoretical constructs, both can be caught out only in their effects, neither can be observed directly.

Based on the observation that vowel–zero alternations typically occur in the __CV environment – that is, if the vocalic position exhibiting the alternation is followed by a vowel – government phonology contends that this vowel is the cause of the alternation: the noninterpretation of a vocalic position which lacks melodic content (partly) depends on whether the following vocalic position is pronounced or not. This relationship is formalized by an empty category principle (Kaye et al. 1990 : 217, 219): a vocalic position unassociated with melodic material (an empty Nucleus) remains phonetically uninterpreted if governed. The source of this government is the following vocalic position, hence the label V-to-V government. The situation is exemplified by the case of *family* in (6).

(6) *V-to-V government in* family

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a. C V C v C V          b. C V C v←C V
   | | |   | |             | | |   | |
   f a m   l i             f a m   l i
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The presence or absence of government – similarly to syllable structure – is lexically determined: it is part of the lexical representation of the word. If uninfluenced, the empty Nucleus is interpreted in (6a), this form is pronounced as [faməli]. When governed, however, the same empty Nucleus is uninterpreted, that is, silent in (6b), this form is pronounced as [famli].

Note then that an *empty* vocalic position is not equivalent to an *unpronounced* vocalic position. Ungoverned empty vocalic positions may, for example, be pronounced.[4] To make the distinction clear let us call a pronounced (active) vocalic position *live* and an unpronounced (inactive) one *dead*. It is live vocalic positions that are phonetically interpreted, i.e., pronounced, irrespective of whether they contain any melodic material or not.

Putting aside further details of the representation of noncanonical segment sequences – i.e., consonant and vowel clusters, the latter traditionally called long vowels, diphthongs and hiatus – let us conclude this section with taking into account the possible shapes of strict CV skeletons. As already stated, the common core of these frameworks is that on the skeleton any consonantal position is followed by a vocalic position. Consequently, no consonantal or, for that matter, vocalic positions are ever adjacent. Accordingly, there is room for individual flavouring only at the edges of the skeleton. The basic split is whether the position at the two edges of the phonological skeleton is constant or variable, that is, whether the skeleton always begins with the same type and ends in the same type of position (consonantal or vocalic), or it does not. The stricter hypothesis is that the skeleton has an invariable shape: irrespective of the superficial situation, all begin with the same type of skeletal position. Therefore, until forced to abandon it, we will follow this path. This leaves us with the four possibilities depicted in (7).

(7) *Possible shapes of invariable strict CV skeletons*

a. [C V . . . C V]
c. [C V . . . V C]
b. [V C . . . V C]
d. [V C . . . C V]

The configurations in (7c) and (7d) contain an odd number of skeletal positions. This is again a departure from the simplest case: if the skeleton ends in a different type of position than what it begins with, i.e., it is composed of an even

4 As we will see in §4.1, an ungoverned empty vocalic position is not necessarily pronounced.

number of skeletal positions, the generation of the skeleton involves the concatenation of a single type of building block, be it CV, as in (7a), or VC, as in (7b). In the more complex cases two types must be used, either one of the duads just mentioned and a singe C or V at the edge, or exclusively single Cs and Vs. In both cases, however, an extra algorithm must provide for the strict alternation, lest skeletal positions of the same type get adjacent to each other. It thus seems wise to start out by assuming that the phonological skeleton is either of the form $[CV]^+$ or $[VC]^+$.[5] In §6 I will argue for the latter, i.e., that the universal phonological skeleton begins with a vocalic and ends in a consonantal position, like in (7b), and, accordingly, it contains VC duads only.

3. The meaning of C and V

Hua is a language that superficially manifests the strictly alternating CVCV pattern of the universal phonological skeleton (Blevins 1995 : 217). In this language all syllables are of the form CV. The sonority sequencing principle is satisfied in such a language by a very crude sonority scale, the one shown in (8).

(8) *The crudest sonority scale*

index	sounds
1	vowels
0	consonants

Such a scale represents the two extremes: full sonority and lack thereof. Let us interpret this opposition as one of loudness vs. silence: vowels are loud, consonants are silent. Without any external influence, a vocalic position will be pronounced, a consonantal position will remain silent. The opposite situation, viz., a silent vocalic position and a pronounced consonantal position, is a departure form the unmarked situation, and is possible only if the given position is subject to some external influence. V-to-V government, for example, influences a vocalic position in such a way that it loses its inherent loudness and remains unpronounced. The association of melodic primes also influences a position: a consonantal position linked to a place-defining prime gets phonetically interpreted as an plosive, the inherent silence of the position is reduced. Still the defining feature of plosives, the prototypical consonants, is the brief cessation of speech signal, i.e., silence. In Hua-type languages, which do not allow empty Onsets, C positions cannot remain uninfluenced (that is, empty).

5 ‘$^+$’ means ‘one or more instances of the preceding pattern.’

With this definition of vocalicness and consonantalness in mind, the two directions of lenition presented in (1) can also be conveniently labelled. Sonorization, that is, movement towards the vocalic end of the sonority scale, will here be referred to as vocalic lenition. Loss of place of articulation and/or laryngeal properties, that is, movement towards complete silence, the consonantal end of the scale, will be called consonantic lenition.

4. Skeletal relations

If one is to represent the phonetic side of all human utterances by a skeleton that contains strictly alternating consonantal and vocalic positions, provisions must be made for allowing some skeletal positions to remain uninterpreted, since languages exhibiting strict alternation of consonants and vowels superficially are not the only type attested. In fact, in a large number of languages there do occur superficial consonant and vowel clusters. To model these divergences from the default configuration, two relationships are posited, government and licensing. Discussing the etymology of these denominations would go well beyond the limits of this chapter (some background is given in Szigetvári 1999 : 64ff), let us use them as mnemonics for "relation A" and "relation B." The framework of relationships presented here was prompted by the ideas put forward under the label Coda Mirror by Scheer and Ségéral (1999, this volume b).

Government and licensing are asymmetrical relations holding between skeletal positions. We have already seen that a vocalic position can govern another vocalic position. As we are going to see below, it can also govern a consonantal position. Thus the question arises whether government is constrained in any way. It is obvious that there must be constraints on the triggers and targets of this relationship, as well as the other relationship, licensing: it cannot be the case that any skeletal position is able to govern or license any other skeletal position. Following the government phonology tradition (cf. Kaye et al. 1990), Dienes and Szigetvári (1999) propose that there are two well-known constraints: directionality and locality, to which some more are added here. The constraints are given in (9).

Directionality, (8c), cuts down the number of possible governing relationships by half: a skeletal position can target only another skeletal position to its left, never to its right. Locality is even more effective a constraint. According to the definition in (8b), a skeletal position can only affect the closest V or C position, and since this position can only be to the left, the government coming from a given skeletal position can only target either the preceding position or the one before the preceding position. Since a skeletal duad (here VC) is one unit, it is stipulated in (8a) that there is no *skeletal* relationship among its two parts, and there are no self-relationships. The constraint on uniqueness, (8d), makes the target exclusive: it cannot occur that a given skeletal position is in a relationship with both of the possible targets. Furthermore, it is only a live – or active – skeletal position that can govern or licence, dead (inactive) positions cannot, as (8e) says – this is the equivalent of standard government phonology's clause that a proper governor may not itself be licensed (by government or by being domain final).

(9) *Constraints on skeletal relationships*

For a skeletal position p_1 located in a skeletal duad d_1 to influence a skeletal position p_2 of type *t* (V or C) located in a skeletal duad d_2 by a relationship *r*

a. p_1 must be distinct from p_2 and d_1 must be distinct from d_2 (*distinctness*)
b. d_1 must be adjacent to d_2 and p_2 must be the nearest position of type *t* to p_1 (*locality*)
c. d_1 must be to the right of d_2 (*directionality*)
d. p_1 can influence maximally one position by *r* (*uniqueness*)
e. p_1 must be a live (pronounced) position

We are going to see below that all of the possibilities allowed by the constraints in (9) can be given some reasonable interpretation in the set of typical consonant and vowel combinations.

4.1. Government

One type of government, V-to-V government, was already introduced above in (6). We have also seen that the effect of government is silencing the vocalic position targeted, that is, silencing a position which is inherently loud.

Scheer and Ségéral (1999; this volume b) propose that vocalic positions that do not govern the preceding vocalic position govern the preceding consonantal position instead. While a governed vocalic position loses its inherent loudness and becomes mute, a governed consonantal position, in turn, loses its inherent muteness and becomes louder, that is, more sonorous. Accordingly, government is defined as in (10).

(10) *The effect of government*

Government acts against the inherent properties of its target.

Thus, a postconsonantal and prevocalic consonant is ungoverned, since it is preceded by an empty vocalic position, which – in order to remain unpronounced – has to absorb the government of the following vowel (recall that the uniqueness constraint, (9d), prohibits that a vocalic position govern *both* the preceding consonantal and vocalic position). This is shown in (11a), with an example, *chapter,* in (11b).

(11) *A consonant in C__V*

By contrast, an intervocalic consonant is governed, since the preceding vocalic position is not governed: if it were, it would not be pronounced. This is shown in (12a), with an example, *chatter,* in (12b). (The oversimplified view presented here will be refined in §5.)

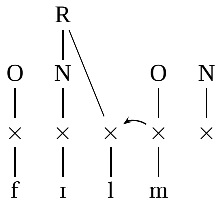
(12) *A consonant in V__V position*

At this point, the theory makes the wrong prediction that consonant clusters can only occur prevocalically, that is, if followed by a pronounced, i.e., live, vocalic position capable of governing the mute vocalic position between the consonants.

In its representation of consonant clusters, standard government phonology allows both clusters that are – just like here – separated by an empty Nucleus (like the [ml] of *family*) and others that are skeletally adjacent (for example, the [lm] of *film*), represented as in (13). Standard government phonology can thus account for the "muteness of the vocalic position" in a word-final cluster: there is no vocalic position there. However, in order to analyse the variant [fɪləm] for *film,* standard government phonology cannot but posit an alternative underlying representation, one which involves an empty vocalic position between the word-final consonants. Since there is no live vocalic position to govern it, it is pronounced – as [ə]. A strict CV model has only the latter analysis available, i.e., [fɪl□m]. The difficulty now is to analyse the variant [fɪlm]. If government were the only way to silence a vocalic position, the prediction would be that only the variant [fɪləm] exists.[6]

6 An alternative is to hypothesize that all words end in a vocalic position, a view taken by both standard government phonology and most versions of the strict CV theory. In this case, we also have to accept that word-final empty vocalic positions are not only special in that they can remain silent without being governed, but also that – although dead – they themselves can govern and thereby mute the vocalic position between the two word-final consonants.

(13) *Adjacent consonants in standard government phonology*



To solve the dilemma, Dienes and Szigetvári (1999) propose a further skeletal relationship: C-to-C government, a relationship very similar to that shown in (13).[7] The conditions for C-to-C government are melodic: it is not the case that any consonantal position could govern any other – just like it is not the case in standard government phonology.[8] This relationship creates a closed domain, labelled a burial domain. It is stipulated that the vocalic position "buried" within this domain is muted by the existence of the domain – similarly to Kaye's [ħɨll]. The possibility of C-to-C government is a language-specific option: languages with CC# and/or CCC clusters do make use of this mechanism, others without such complications in syllable structure may possibly be analysed without C-to-C government.The two variants [fɪləm] and [fɪlm] of *film* are shown in (14a) and (14b), respectively.

(14) *The representation of two variant pronunciations of* film

So far three types of government – V-to-V, V-to-C and C-to-C – have been enumerated. The nonexistence of the fourth logical possibility, a C-to-V relationship follows from the constraints on locality, (9b), and distinctness, (9a). Three of the four possibilities, (15a–c) conform to the locality and distinctness constraints, but a C-to-V relationship cannot be effected only in such a way that it conform to the definition of distinctness, (15d), or locality, (15e), but not both.

7 Kaye proposes a similar relationship to explain why in Moroccan Arabic the biliteral root |ħl| 'open' surfaces as [ħɨll] in the 3sg, masc. form, when triliteral forms have the vowel between the last two consonants, e.g., [ktɨb] 'he writes'. He claims that "any doubly-linked segment forms a governing domain" (1990 : 322).

8 Cf. Kaye et al. 1990 and Harris 1990 for details. For example, a consonantal position hosting an *l* cannot govern one hosting an *m* in any language, but the latter can govern the former. Hence *ml#* is ruled out word finally, but *lm#* may occur in some systems.

(15) *The targets and triggers of skeletal relationships*
a. [VC][VC] b. [VC][VC] c. [VC][VC] d.*[VC][VC] e.*[VC][VC]

The result of both V-to-V and C-to-C government is the silencing of a vocalic position. Government and burial are the two means of depriving a vocalic position of its inherent loudness. We now turn to the other skeletal relationship, licensing.

4.2. Licensing

The notion of licensing is widely accepted in theories of phonological representation. It may be split into two complementary concepts: prosodic and autosegmental licensing (e.g., Goldsmith 1990 : 123ff). The core idea is that elements of the representation need license to exist and/or to appear on the surface. Prosodic licensing percolates down the prosodic hierarchy, from the word level, through foot heads, syllable nodes, Onsets and Nuclei, to reach individual skeletal slots. If some position remains unlicensed, it either fails to be phonetically interpreted, or, in other frameworks, the representation is deemed ill-formed. Autosegmental licensing is responsible for the binding of melodic primes to skeletal slots. Harris (1997 : 335ff) argues that prosodic and autosegmental licensing are in fact two names for the same thing: prosodic licensing is converted to autosegmental licensing at the level of the skeleton.

The idea of prosodic licensing must be reconsidered in a theory that denies – or at least ignores – the existence of any hierarchical prosodic structure, like the version of CV phonology advocated here. In §6 I will argue that of the two default shapes of the phonological skeleton – [C V . . . C V] and [V C . . . V C], shown in (7a) and (7b), respectively – the latter suits the current framework better. If we assume that the phonological skeleton begins with a different type of skeletal position than the type it ends in, it follows that the skeleton can be exhaustively parsed into duads, of the shape VC in our case. As a consequence, it is not individual skeletal slots that have to be licenced but VC duads: the existence of one member of the duad infers the existence of the other. Since the C part of these units are inherently mute, it is only the inherently loud V part that may potentially have to be taken care of. As noted above, this is achived by government or burial.

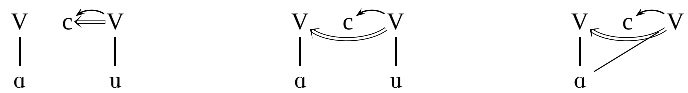
The basic licensing relationship is V-to-C licensing, referred to as onset licensing in standard government phonology (Harris 1997 : 337). This is shown in (16), where the relationship is indicated by a double arrow.

(16) *V-to-C licensing*
VC⇐VC⇐VC

The string above suggests that the function of licensing is stitching together the duads the skeleton consists of. Its effect is that usually subsumed under the notion of autosegmental licensing: licensed positions perform better in maintaining the melodic elements associated with them, consequently they have a larger capacity for contrast. That is, licensing here (and also in Ségéral and Scheer, this volume b) is only autosegmental, but not prosodic licensing: consonantal positions do not have to be licensed since they are attached to the preceding vocalic position, their existence depends on the existence of that position.

Besides the canonical V-to-C licensing relationship, the constraints in (9) allow of two further types of licensing: (i) V-to-V and (ii) C-to-C (recall, C-to-V relations are excluded by the locality, (9b), and distinctness, (9a), constraints, as shown in (15)). It has been claimed that consonant clusters are of two types, those created by V-to-V government, like [ml] in the syncopated variant of *family*, where the two consonants are not connected by any relationship, and those created by C-to-C government, like [lm] in *film*, where there exists a governing relationship between the two consonants. Superficially adjacent vowels exhibit a similar dichotomy: unrelated vowels are generally analysed as heterosyllabic – they are in hiatus –, vowel clusters that are interdependent are standardly referred to as diphthongs, or, in the special case of their identity, long vowels. The standard way of encoding this distinction is positing an empty Onset between the vowels in hiatus, but representing diphthongs and long vowels by skeletally adjacent slots. This solution is not available in a framework applying a strict CV skeleton, where two vocalic positions can never be adjacent. Dienes and Szigetvári (1999) suggest that another closed domain, this time created by V-to-V licensing, is responsible for the vowel clusters at hand. The representations of hiatus, a diphthong and a long vowel are shown in (17).

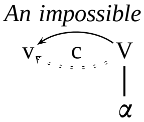
(17) *The representation of [ɑ.u], [ɑu̯] and [ɑː]*
a. heterosyllabic [ɑ.u] b. diphthongal [ɑu̯] c. long monophtongal [ɑː]



As above, the single arrow represents government, the double arrow licensing. The consonantal position enclosed within the V-to-V licensing domain – in (17b) and (17c) – is unlinked to any melodic material, this is a prerequisite for any closed domain. Being unlicensed, this consonantal position has diminished capacities for attracting melodic material anyway. Furthermore, its inherent consonantal property, muteness, is also spoiled by the fact that it is governed. These factors contribute to the total phonetic masking of any consonantalness in tautosyllabic vowel clusters.

Notice that neither government, nor the lack of licensing is enough in itself to create a tautosyllabic vowel cluster. The empty consonantal position is also governed in hiatus, shown in (17a), but, in addition, it is licensed too. This arrangement endorses hiatus filling, the attraction of melodic material to the lexically empty consonantal position. We are going to return to hiatus filling briefly in §5. Apparently, an empty consonantal position cannot be both unlicensed and ungoverned. For this to occur, the empty consonantal position would have to be preceded by an empty vocalic position – which would then be governed, instead of the consonantal position –, but that empty vocalic position could not then attract licensing as well. (18) illustrates this configuration, showing that V-to-V licensing is frustrated, since the target in this relation cannot be melodically empty.[9]

(18) *An impossible configuration*



Let it be pointed out explicitly that in the theory discussed here licensers and governors are not *heads* in the traditional sense of the word – like in dependency or government phonology[10] –, they are not licensers or governors *because* they are stronger or more prominent than their licensees or governees. In the case of C-to-C government, the impression that the governor is "stronger" is caused by the fact that the governee's consonantal properties are diminished by government, whereas the governor itself cannot be governed, since it is preceded by an empty vocalic position – the buried vowel –, which absorbs the government that a following live vowel might discharge. In the case of V-to-V licensing, it is the vocalic position traditionally analysed as nuclear complement, hence a dependent position, that licenses the preceding vocalic position, traditionally the

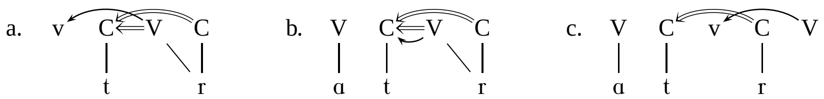
9 I do not exclude the possibility that revised versions of the present framework do attach an interpretation to the configuration in (18).

10 In fact, a governor is not necessarily the head of its governee even in government phonology. In the case of interconstituent government, the governor and the governee do not form a constituent. Although in a Coda+Onset governing domain the governee, the Coda, is a nonhead and the governor, the Onset, is a head in its own constituent, in the case of internuclear government, the governed Nucleus is a head in its own constituent.

nuclear head. It is by virtue of being licensed that the first position of a “branching Nucleus” is strong.

The status of C-to-C licensing is the least clear among the skeletal relationships posited. Szigetvári (1999 : 120ff) suggests that the members of branching Onsets (syllable-initial rising-sonority clusters, typically an obstruent followed by a sonorant) are joined by C-to-C licensing. It also seems that – at least in some cases – the second, sonorant, member of these clusters is linked not only to a consonantal position but also to the vocalic position enclosed within the cluster. Accordingly, the representation of this type of consonant cluster is among those in (19).

(19) *The representation of a branching Onset*



As the diagrams show, the peculiarity of branching Onsets is that their first member may be doubly licensed, (19a, b).[11] Since in the model introduced here lincensing is binary – a given position is either licensed or not – and not scalar like in, e.g., Harris’s (1997) licensing inheritance theory, being doubly licensed is equivalent to being licensed by a single licenser. If the branching Onset is preceded by a pronounced vowel its first member may or may not be subject to government,[12] depending on whether the enclosed vowel is seen as live (CVC), as shown in (19b) or dead (CvC), as in (19c). Since branching Onsets occur without a preceding vowel, as in (19a), the CVC structure seems necessary even in languages that otherwise opt for the CvC representation of (19c).

Rennison (1998) and Lowenstamm (2003) argue that what are traditionally referred to as branching Onsets are in fact single consonants with a complex internal structure. Such an analysis neatly solves some of the puzzles described above, but it also faces empirical problems – as Lowenstamm points out –, and to be somewhat parochial, it leaves us without an interpretation of C-to-C licensing, a relationship that was not excluded by theoretical considerations.

11 This does not violate the uniqueness constraint of (9d): the target of licensing is unique in (19). It is the trigger which is not.

12 The historical development of Romance languages provides examples for the first member of a branching Onset undergoing lenition: e.g., Latin *capra* > French *chèvre*, Vulgar Latin *patre* > Portuguese *padre.* English does not exhibit lenition in this position. Further research is obviously necessary here.

5. A refinement: the antipenetration constraint

Syncope is an effect of V-to-V government. In English, it is only vocalic positions devoid of melodic content (i.e., schwa) that may be lost. In English (and in many other languages), syncope only occurs if the target vowel is followed by maximally one consonant which is followed by a vowel. The vowel is necessary, because only a live vocalic position can act as the trigger of V-to-V government. Only one consonant may intervene the target and the trigger of government, because if there were a cluster between them, government could not reach the empty vocalic position, as shown in (20), where frustrated government is indicated by a dashed arrow.

(20) *No syncope before a consonant cluster*

v_1 C_1 v_2 C_2 V_3

The governing vowel (V_3) cannot reach the precluster vowel to be syncopated (v_1), because the empty vowel separating the consonant cluster (v_2) absorbs its government, and, recall, the target of relationships is unique. If one were to argue that C-to-C government linking the consonant cluster and muting the intervening vowel (v_2) allows V_3 to govern v_1, locality will ruin the argument: these two vowels are not in adjacent duads.

There are further constraints on syncope in English, some of them well understood, others more mysterious. The constraints on the melodic content of the consonants flanking the syncope site are somewhat cryptic. The one to the left must be less sonorous than the one to the right, which can only be a sonorant. If syncope is thought to be caused by V-to-V government exclusively, such constraints indicate that – at least in English – the cluster that standard government phonology calls bogus does not exist.[13]

There may be a consonant cluster before the syncope site, but this cluster must form a closed domain (i.e., it must be a result of C-to-C government). The data in (21) illustrate this.

(21) *Possible and impossible post-cluster syncope in English*

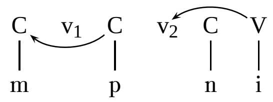
a. syncope is possible				b. syncope is impossible		
company	kʌmpəni	∼	-mpn-	ignorance	ɪgnərəns	*-gnr-
adultery	ədʌltəri	∼	-ltr-	cutlery	kʌtləri	*-tlr-
mystery	mɪstəri	∼	-str-	burglary	bɜːgləri	*-glr-

[13] This is discussed in more detail in Szigetvári 2007.

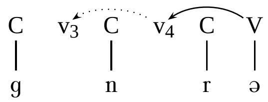
The explanation for this constraint on preceding clusters is clear: the syncopated vowel is unable to govern the silent vowel within the cluster, the only alternative force that can silence it is C-to-C government. The two possibilities are illustrated by the relevant portions of *company* and *ignorance* in (22).

(22) *Syncope after a consonant cluster*

a. after a closed domain



b. after any other cluster



The syncopated vowel (v_4) cannot govern the vocalic position enclosed in the cluster (v_3) in (22b). Such a position can remain mute, in other words, a cluster can exist here, only if it is silenced by burial, as v_1 is in (22a). Therefore syncope is only possible after a C-to-C burial domain.

It is much less clear why syncope in English should be possible only in a syllable followed by an unstressed vowel: cf. *memory* [mɛ́m(ə)ri] vs. *memorize* [mɛ́m*(ə)ràɪz]. Burzio claims that it is in order to avoid creating a monosyllabic foot ([mɛm]) that syncope is blocked pretonically (1994 : 61). The fact that syncope is also blocked in the underlined syllable in words matching the template *σ́σσ̲σ́-* (e.g., *mèthod<u>o</u>lógical, hùllab<u>a</u>lóo*) argues against Burzio's explanation: here the remaining foot would conform to the preferred bisyllabic template. It is difficult to understand why a stressed vowel should not be able to govern, while an unstressed, i.e., less prominent, one should have no difficulties in doing so.

Observing this peculiarity of syncope in English, the following nonuniversal constraint is proposed by Dienes and Szigetvári (1999).

(23) *The antipenetration constraint*

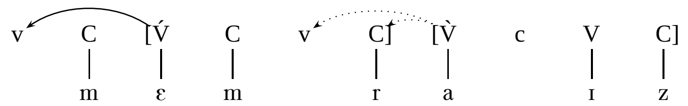
Government cannot penetrate a stress domain.

A stress domain begins with a live, i.e., pronounced, vowel, a stressed vowel if one is available, and stretches until the next stressed vowel.[14] (A stressed vowel is not available in word-initial degenerate feet. In this case the unstressed vowel constitutes the stress domain.) Accordingly, syncope is blocked not because a stressed vowel would be unable to govern, but because its government cannot

[14] In English at least, any degree of stress counts, as the case of *memorize* shows for syncope. Lavoie claims that the sensitivity of lenition is to primary vs. any other degree of stress (2001 : 12). Wells (1990) contradicts her: in the LPD lenition is shown as a possibility only before unstressed vowels, never before a full vowel: e.g., *vortex* *[vɔ́ːʔeks]/*[vɔ́˞ɾeks], but *vortices* [vɔ́ːʔəsiːz]/[vɔ́˞ɾəsiːz].

reach a vowel that is part of another stress domain. In fact, since the skeleton is made up of VC duads, it is not only a pretonic V position that escapes the government of the following stressed vowel, but also a pretonic C position, as (24) shows. (Stress domains are enclosed in brackets, only the relevant relationships are indicated.)

(24) *The absence of pretonic government*

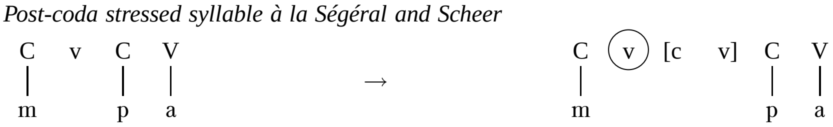


Although it is not in its stress domain, the stressed vowel of the first syllable can govern the initial empty vowel, since that is not part of any stress domain, hence the antipenetration constraint is not violated.

This constraint is language specific, while English is constrained by it, other languages are not: pretonic syncope is possible in, for example, French. Explaining the impossibility of both pretonic syncope and pretonic lenition by the same constraint makes the prediction that the two phenomena occur in tandem. Incidentally, (historic) intervocalic lenition is also insensitive to stress in French.

Scheer and Ségéral (this volume b) offer an alternative account for the absence of pretonic consonant lenition, which can similarly be used for explaining the absence of pretonic syncope. Actually, their solution of positing an empty cv duad before stressed syllables is similar to Lowenstamm's (1996) idea of representing the word boundary by phonological material: a word-initial empty cv duad. This solution fits in well with the goal of translating all prosodic structure (syllabic constituency, boundaries, and now stress) into phonological material, that is, vocalic and consonantal positions. The proposal, however, suffers from an empirical weakness: if the strength of a consonant is explained by an empty cv duad before it, the same duad must be inserted in words like *compáct* or *dictáte*, but this would create a sequence of two empty vocalic positions awaiting to be silenced. The inserted skeletal material representing stress is enclosed in brackets, the vocalic position thus becoming illicit is encircled in (25).

(25) *Post-coda stressed syllable à la Ségéral and Scheer*



The fact that stressed vowels may not be able to govern the preceding consonantal position has repercussions in the phenomenon of hiatus filling, too. The prediction made is that pretonic hiatus will be filled differently than its nonpretonic counterpart. As already shown in (17a), hiatus filling is here analysed as a result of the government that the intervocalic empty consonantal position is subject to. Government forces the empty vocalic position to be interpreted in a nonconsonantal way. Either some of the melodic content of surrounding vowels is interpreted in the hiatus position, this is usually referred to as the hiatus-filling glide; or simply the consonantalness of the position – the cessation of the speech signal – will be supressed: the two vowels will be superficially adjacent. If the given system has an active antipenetration constraint, then the prediction is that the empty consonant will not be governed, hence its true consonantalness will surface. The hiatus filler in this case is expected to be the "ideal" consonant, the glottal stop. German and eastern varieties of Dutch exemplify this pattern, for details see Ségéral and Scheer, this volume b.

6. The shape of the skeleton

This section summarizes the advantages of $[VC]^+$ skeletons over the more commonly accepted $[CV]^+$ skeletons, as well as admitting some disadvantages.

Word-final empty Nuclei were introduced in standard government phonology to supersede the notion of extraprosodicity. In many languages, the set of word-final consonants is larger than that of Codas. This fact is explained by this position being extrasyllabic, hence not subject to the constraints word-internal Codas are. It has also been observed that in some languages where closed syllables count as heavy, word-final syllables closed by one consonant behave as light – if their Nucleus is a short vowel, of course –, whereas those closed by two consonants behave as heavy, as expected. Closed syllable shortening also may fail to apply in word-final closed syllables. These patterns are compatible with the view that word-final consonants are extrametrical. If, as Kaye (1990) claims, word-final consonants are universally followed by an empty Nucleus, that is, they are all "Onsets", not Codas, then we get closer to understanding their peculiar behaviour, without recourse to a special device like extraprosodicity.[15] Strict CV theory, in which *every* consonantal position is followed by a vocalic position, loses the discriminatory power that word-final Onsets possess in standard government phonology: here it is not special for a consonant to be followed by an empty Nucleus. In fact, the definition of Coda in a strict CV theory is "a consonant followed by an empty Nucleus," or, in a less biassed wording: "a

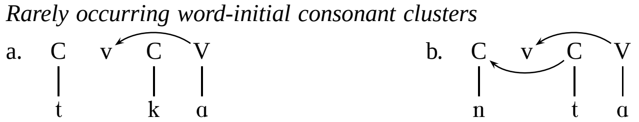
[15] True, empty Nuclei are special, too. They are, however, already introduced in the analysis of vowel–zero alternation, whereas the only role of appendices is to manage the offending consonants at word edges.

consonant not followed by a pronounced vowel.” As a conclusion, -VC# now counts as heavy, just like -VCC-, ruining one of standard government phonology’s prime motivations for hypothesizing word-final empty Nuclei in the first place (Kaye 1990).

Furthermore, word-final empty Nuclei are problematic for both standard government phonlogy and strict CV theory: most flavours of both of these frameworks assume the target of V-to-V government to be to the left of its trigger, hence – not being followed by a vowel – a word-final empty Nucleus cannot be governed.[16] Neither can it come to be in a closed domain, since there is no consonant following it. It has to be simply stipulated that in some languages word-final Nuclei are allowed to be empty, consequently words can end in a consonant. The VC skeleton surpasses this problem in a trivial way: word-final Nuclei do not have to be silenced because they do not exist. A consonant-final word ends in a consonant. It is the skeleton of vowel-final words that ends in a silent skeletal position, but that position is consonantal. Unless externally influenced an empty consonantal position is mute. Skeletal relations, government and licensing, cannot influence a final skeletal position, the only potential external influence is attaching melodic material to it. In lack of such an influence – i.e., if the final consonantal position is empty – it will not be phonetically interpreted.

Let us turn now to the other edge of the skeleton. A consonant-initial skeleton is problematic for at least two reasons. On the one hand, such a skeleton leaves unexplained why it is an uncommon situation that words begin with two randomly selected consonants. (26) illustrates the possibility. (The sounds linked to the skeletons are only illustrative.)

(26) *Rarely occurring word-initial consonant clusters*



Lowenstamm (1999) suggests that the configurations depicted in (26a) – V-to-V government silencing the first vocalic position of a skeleton – and (26b) – a closed domain doing the same – cannot arise because the beginning of words is marked by an empty CV duad. Since the vocalic part of this boundary marker needs to be silenced, the vowel following the first pronounced consonant of a

[16] A word-final empty Nucleus is either stipulated to be silent parametrically, and for non-phonological reasons – this is what most analysts working in the framework assume –, or governed by so-called trochaic government, which proceeds from left to right – as Rowicka (1998) proposes. If governors were to the left of their governees then syncope facts would remain unexplained.

consonant-initial word must be pronounced, because only the government coming from this vowel is able to silence it.

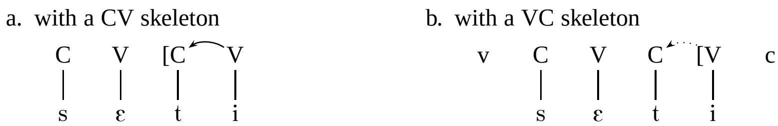
Scheer and Ségéral (1999) employ Lowenstamm's idea to account for the strength of word-initial consonants. In a skeleton without the initial empty duad such a consonant would end up governed by the following vowel – as (27a) shows. If an empty duad is added, it absorbs this government, this is depicted in (27b).

(27) *The status of word-initial consonants without and with an initial empty duad*

It is clear that both Lowenstamm and Scheer and Ségéral make good use of the vocalic part of the word-initial empty duad, but the consonantal part is unnecessary for the explanation of both possible word-initial consonant cluster types and the absence of lenition. The obvious conclusion is that consonant-initial words begin with an empty vowel, which fits in well with the theory that skeletons are made up of VC duads.

The antipenetration constraint discussed in section 5 explains the absence of pretonic syncope irrespective of whether the skeleton contains CV or VC duads. The absence of pretonic consonant lenition, however, only ensues in VC skeletons, since only in this case is the nonleniting consonantal position in a stress domain separate from that of the stressed vowel. Compare a CV and a VC representation of the word *settee* given in (28). (The length of the stressed vowel is ignored.)

(28) *Antipenetration in* settée



The antipenetration constraint inhibits the stressed vowel from governing the preceding vowel irrespective of the skeleton type, it is only with the VC skeleton of (28b) that the pretonic consonant also escapes government.

Some disadvantages are also to be admitted. A prediction of the claim that consonant-initial words universally begin with an empty vocalic position is that a word-initial consonant is ungoverned in any language. Scheer and Ségéral argue that this is not so (this volume a). If one posits an empty word-initial CV duad to explain the strength of word-initial consonants, then one also has the option of omitting this duad parametrically, accounting for the variation experienced. A similar case is encountered word-finally: some systems treat word-final closed syllables as light, others as heavy. In theories with appendices handling this variation is trivial: light word-final closed syllables have their final consonant in the appendix, heavy have it in coda position. If consonant-final words are supposed to end in an empty vocalic position, the parametrically definable properties of this position may be used to account for the variation: the final empty Nucleus may count or not for syllable weight. In both cases mentioned the VC model suffers the inconvenient consequences of a theory which is controlled by strict constraints.

7. Predictions

The theoretical framework sketched up above makes clear-cut predictions about the loci where lenition is expected to occur, as well as about the direction of lenition expected in the given environment.[17] There is, however, no perfect fit between these predictions and the data that have been gathered from lenition phenomena in natural languages. This is a problem that only airy theories are immune to. Lass and Anderson say that phonological changes fall into three categories: (i) natural (which occur with overwhelming frequency), (ii) unnatural (rare, but documented in at least some cases) and (iii) unattested (never observed) (1975 : 148f). They claim that it is not the distinction between (i) and (ii) vs. (iii) that is of linguistic interest, but that between (i) vs. (ii), while it is, of course, the failure of a theory if it easily allows phenomena that fall into category (iii). This means that the mere observation of phenomena that contradict a given theory does not immediately refute that theory. What the theory predicts is that such phenomena belong to category (ii), that is, are unnatural. Empirical evidence for whether a phenomenon is natural or unnatural requires the analysis of a large corpus of data. But empirical evidence for the nonexistence of a phenomenon requires the analysis of *all* the data there exists, therefore the theoretical possibility of producing the latter type of evidence approaches zero.

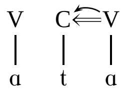
Let us then catalogue the predictions about the environments where the lenition of consonants is expected and unexpected to occur. Two forces will determine the "strength" of a given position: government and licensing. If a position is governed, it loses its inherent properties. If a position fails to be licensed, it will be prone to lose its melodic contents.

[17] The predictions about possible and impossible consonant clusters is not discussed in this chapter.

7.1. Governed positions

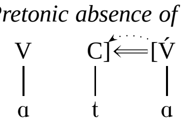
A governed consonantal position loses its inherent muteness, therefore it is expected to become louder, i.e., to undergo sonorization, named vocalic lenition in this chapter. A consonantal position is governed in three situations. One is shown in (29) – the phonetic symbols are merely illustrative.

(29) *Governed consonantal position 1*



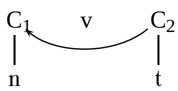
(29) represents intervocalic position. In this environment, the vowel following the consonant spends its government on the consonant, not on the vowel preceding it, which is pronounced. Being governed an intervocalic consonant is expected to undergo vocalic lenition, that is, it is expected to become more sonorous. On the other hand, the vocalic position governing an intervocalic consonant also licenses it. Accordingly, we do not expect loss of laryngeal properties or loss of place of articulation here. Systems that have an active antipenetration constraint will treat pretonic and other intervocalic consonants differently. The constraint will inhibit the governing power of the vowel from penetrating into the preceding stress domain, hence the consonant will escape government: it will not undergo vocalic lenition, while still enjoying the licensing of the following vowel. This is illustrated in (30).

(30) *Pretonic absence of government due to the antipenetration constraint*



The other position in which a consonant is governed is the first position in a C-to-C governing domain, shown in (31).

(31) *Governed consonantal position 2*



The first consonant in a consonant cluster forming a closed domain ([nt]) is governed by the second, hence vocalic lenition is also expected here. This time, however, the leniting consonant is also unlicensed, since the vowel enclosed in the domain is dead. As a result, such consonants should also suspend laryngeal and/or place of articulation contrasts, which in fact they typically do by giving up their place and laryngeal properties and assuming those of the governing consonant.

For the sake of completeness, a third situation must be mentioned here in which a consonantal position is governed. This is shown in (32).

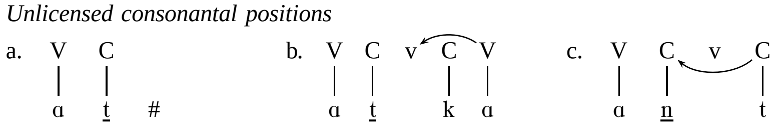
(32) *Governed consonantal position 3*

The consonantal position buried in a long vowel or diphthong is by definition empty. This position is governed and unlicensed, resulting in the most "vocalic" consonantal position imaginable.

7.2. Unlicensed positions

Since licensing supports the melodic content of the targeted position, unlicensed consonantal positions are expected to give up their laryngeal and/or place of articulation contrasts, i.e., to undergo consonantic lenition. Consonantal positions are primarily licensed by a following pronounced vocalic position. A consonantal position is unlicensed then if it is not followed by a live vocalic position. This situation arises word finally and preconsonantally. The relevant configurations are shown in (33), the consonants underlined are unlicensed.

(33) *Unlicensed consonantal positions*

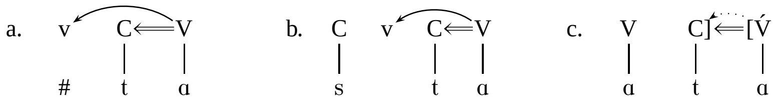


In fact, there is one case when a preconsonantal consonant is licensed: as shown in (19), although superficially followed by a consonant, the first member of so-called branching Onsets is licensed by C-to-C licensing. If one were to accept the monosegmental analysis of branching Onsets, the structure would cease to be a cluster, therefore its "first member" would be licensed by the vowel following the "cluster". As Scheer and Ségéral note, "obstruents engaged in *muta cum liquida* behave exactly as their simplex peers" (this volume a).

7.3. Strong positions

Having listed the environments where consonant lenition is expected, we could simply say that strong positions are in the complement set. The last environments to expect lenition in are those where a consonant is licensed but ungoverned. These are listed in (34).

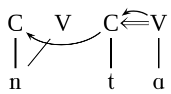
(34) *Positions inhibiting consonant lenition*



(34a) represents word-initial position, (34b) postconsonantal position – excluding branching Onsets, where it was left open whether the vocalic position enclosed is live, (19a, b), or dead, (19c), or perhaps the "cluster" is monosegmental –, while (34c) shows why a pretonic intervocalic consonant in a system where the antipenetration constraint is active escapes lenition.

A comment is due on (34b). The strength of postconsonantal consonants is not universal: some systems exhibit vocalic lenition after sonorants (e.g., English *party* [pɑ˞ɾi], *panty* [panɾi]/[pani]). Scheer and Szigetvári (2005) suggests that in such systems sonorants branch on the vocalic position enclosed within the cluster as shown in (35).

(35) *A sonorant–obstruent cluster*



Together with the observation that it is typically vowels, or vowels and sonorant consonants, but not obstruents that can function as syllable heads, i.e., can be associated with vocalic positions, the fact that either intervocalic, or postsonorant prevocalic consonants undergo vocalic lenition can be elegantly accounted for. Such an analysis (originally proposed by Pöchtrager 2001) parallels that of branching Onsets in (19a, b). The representation in (35), however, makes the unfortunate prediction that such clusters will be possible word initially: the now live vocalic position within the cluster is able to govern the initial empty vocalic position, which is supposed to filter out word-initial consonant clusters.

An alternative analysis of the English facts would be that [ɑ˞] and /an/ (=[ãː]) are in fact long vowels, accordingly, a prevocalic consonant following these sequences is in intervocalic position. Formally, this is exactly what is being claimed in (35). However, if these sequences are long vowels, that is, a coda nasal can be represented as doubly linked to a C and a following V, like in (35), then one is left wondering why clusters like [nt] do not occur more freely word initially. The answer may be sought in the direction of further necessary prerequisites for the configuration, perhaps the V-to-V licensing domain, defining long vowels and diphthongs, must hold in such cases. A more extensive analysis of possible systems is necessary to be able to make a firmer stance in this issue.

8. A brief comparison with competing theories

This section briefly compares some predictions of the model discussed above and two competing theories, those of Harris (1997) and Steriade (1999). It is impossible to do full justice to these alternative approaches, I will only try to highlight a few points where the three models converge and diverge.

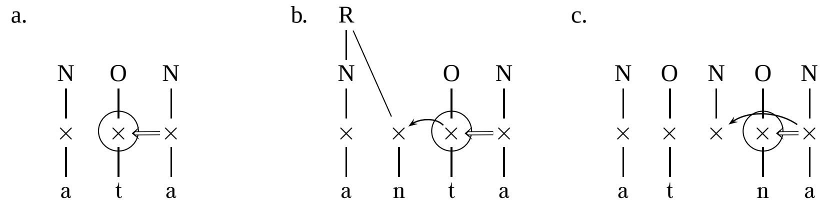
8.1. Licensing inheritance (Harris 1997)

In Harris's theory of licensing inheritance a network of licensing relations is posited within the relevant domains – practically, the foot. Skeletal positions are organized in a hierarchical structure, in which the chief licenser, the stressed Nucleus licenses the unstressed one(s), Nuclei license their Onsets and Onsets license the preceding Codas and their own complements in branching Onsets. Skeletal positions inherit their licensing capacity through this hierarchy, thus the autosegmental licensing power of a position is related directly to the distance it is from the main licenser of the given domain. A forte of this theory is that the lenition of vowels (i.e., vowel reduction) and consonants is accounted for in a uniform manner. Since stressed Nuclei are primary licensers, unstressed nulcei are at best secondary, the strength of pretonic consonants vis-à-vis others follows from this model without any stipulative constraint, like the antipenetration constraint – but then Harris has no explanation for the absence of pretonic syncope.

The theory also has difficulties coping with those systems, where intervocalic consonants do not exhibit differing lenition behaviour dependent on stress. In Spanish, for example, [ð], the weak version of [d] occurs before unstressed and stressed vowels alike, as in *dá*[ð]*o* 'dice' and *da*[ð]*ór* 'issuer'. It could be argued that Spanish has underlying [ð], and [d] is a result of strengthening word-initially and postconsonantally, but it would remain unexplained why this strengthening effect fails to apply in pretonic position.

Another point where Harris's theory and the present one differ in their predictions is in the case of postconsonantal consonants as compared to those in intervocalic position. Let us disregard the marked case of branching Onsets and concentrate only on other consonant clusters. Both standard government phonology and the VC model discussed here presume the two kinds of consonant cluster shown in (36b) and (36c), the position of an intervocalic consonant is shown in (36a).

(36) *The licensing of word-internal consonants*



Since each encircled consonant is licensed by the following Nucleus, their strength is expected to depend exclusively on the status (licensed or not) of that Nucleus. This means that all these consonants should exhibit the same resistance to lenition. We have seen, however, that this is not the case an intervocalic consonant lenites much more readily than one in postconsonantal position. To explain this state of affairs, Harris refers to the nonleniting consonant's "governing duties": since this Onset has to govern the preceding Coda, it cannot afford to simplify, it must remain more complex than the consonant it governs (1997 : 219ff, Harris and Kaye 1990). This solution is not convincing for two reasons: on the one hand, it is a consequence that the unlenited consonant remains a strong governor of the preceding consonant, not the reason why it does not lenite, and, on the other, the second consonant of a bogus cluster, like the one in (36c), is no less resistant to lenition, despite the fact that this consonant has no governing duties at all.

8.2. Licensing by cue (Steriade 1999)

Like the present theory, Steriade's account also denies the relevance of any hierarchical view of the syllable in the explanation of consonant lenition.[18] Like the licensing inheritance model, her theory also makes use of licensing only. Vowels are the best licensers, sonorant consonants follow them, while obstruents are the weakest in this respect (word edges are ignored here for the sake of simplicity). These environment types are organized in an implicational hierarchy: if

18 Strictly speaking Steriade discusses consonant phonotactics, but the argumentation can easily be translated into one about consonant lenition, the neutralization of consonantal contrasts.

some contrast is suspended in the environment of a certain type, it is expected to be suspended in all the types below it in the hierarchy: e.g., if a contrast is suspended in the vicinity of a sonorant, it will also be next to an obstruent. Steriade divides consonantal constrasts into two sets: some are cued from the right, i.e., for the phonetic contrast to be well perceived the identitity of the following segment is of relevance, others are cued from the left, i.e., the preceding segment is necessary for maintaining the contrast. Right-cued contrasts are first suspended if the right hand environment of the consonant is an obstruent and are best maintained if it is a vowel. The same holds of left-cued contrasts with respect to their left hand environment.[19] Vowels are universally better licensers than obstruents (or word edges), therefore it is difficult to conceive of an analysis couched in this framework that could account for the loss of a contrast in the V__V environment, if the same contrast is maintained in both the #__V and C__V environments. Flapping is a case of neutralization occurring exactly in the former, but not in the latter environment. Such a contrast is either exclusively right-cued, in which case the difference in the left hand environment should not matter, or it is left-, or both left- and right-cued, in which case the implicational hierarchy is subverted, since the contrast is suspended in the context of a vowel, but not after a consonant or word-initially.

The place of articulation assimilation of the coronal nasal in Hungarian is another case where a contrast is suspended in a postvocalic, but not in a postconsonantal environment, with the right-hand context remaining unchanged. The data in (37a) – all names – and (37c) show the typical working of the postlexical assimilation process: the coronal nasal assumes the place of articulation of the following plosive. If the coronal nasal is not preceded by a vowel, but by [r] (as in (37b)), by [l] (as in (37d)), or by [j] (as in (37e)), the contrast of the coronal and labial nasal is maintained, while in a postvocalic environment (as in (37c)) we observe the loss of the contrast.

(37) *Nasal place assimilation in Hungarian*

a. Kun Béla [-mb-]
Kun Gyula [-ɲɟ-]
Kun Gábor [-ŋg-]

b. Horn Béla [-rnb-], *[-mb-]
Horn Gyula [-rnɟ-], *[-ɲɟ-]
Horn Gábor [-rng-], *[-ŋg-]

c. Londonban [-mb-] ‘in L.’
Birminghamben [-mb-] ‘in B.’

d. Kölnben [-lnb-], *[-lmb-] ‘in C.’
Stockholmban [-lmb-] ‘in S.’

e. kombájnban [-jnb-], *[-jmb-] ‘in a combine harvester’
szejmben [-jmb-] ‘in the Sejm’

[19] The theory uses an optimality theoretic mechanism for computing the result, ranking the relevant faithfulness constraint among the environment types, the contrast will be maintained in the environments above the faithfullness constraint, while it will be suspended in the environments below.

Both flapping and the absence of assimilation in (37b, d) are highly problematic for Steriade's model: they show that a postvocalic consonant is in a weaker position – and consequently is more susceptible to either lenition or assimilation – than one in postconsonantal position. Thus the implicational hierarchy judging vowels to be better at cuing the contrast than consonants turns out to make bad predictions when the left-hand environment is examined.

We can conclude that the strength of postconsonantal consonants cannot be adequately explained by either licensing inheritance, or licensing by cue.

9. Conclusions

This chapter is advocating the view that the lenition of consonants can be traced back to two independent reasons: government and the lack of licensing. While government induces vocalic lenition, whereby the consonant concerned loses its inherent muteness and becomes more vowellike, the lack of licensing induces consonantic lenition, whereby the consonant concerned loses (part of) its melodic content and becomes more consonantlike, i.e., mute. Elsewhere in this volume, I define lenition as the delinking of privative features. Only consonantic, but not vocalic lenition fits this definition. Therefore, subsuming both consonantic and vocalic lenition under the label lenition is no more than a tribute to previous phonological taxonomies. Nevertheless, vocalic lenition is lenition in the sense of "movement up the sonority scale," towards the vocalic end, but this is not modelled as element loss, rather as the phonetic interpretation of government targeting a consonantal position.

The claim that a skeletal relation – government – pushes a consonant up the sonority scale, i.e., changes its manner of articulation, entails that a segmental property usually encoded by melodic elements (like the features [±sonorant], [±consonantal], or **?**, **h**) is now encoded by a relationship between skeletal positions. Similar reinterpretations are not unprecedented: length and stress are but two properties which used to be represented by features, but are now encoded elsewhere in the representation. A reinterpretation of laryngeal features is the aim of Carvalho (this volume). Manner features are seen as resulting from skeletal relations by, e.g., Jensen (1994), and similar proposals are made by Hulst (1995) as well. The consequences, some of which are discussed by Szigetvári (2002), go well beyond the scope of this chapter.

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