

**“Ambisyllabicity” across word boundaries:  
a strict CV phonology approach\***

Katalin Balogné Bérces  
bbkati@yahoo.com

**0. Abstract**

Ambisyllabicity is a term from traditional syllabic theory denoting a situation when a segment simultaneously belongs to two syllables, namely, when a consonant acts both as a coda and an onset. Several arguments have been put forward for ambisyllabic consonants in English, since certain segmental alternations (e.g.  $\text{t}$ -aspiration/onset vs. coda vs. ambisyllabic consonant (see e.g. Kahn 1976, Rubach 1996, and the discussion below). The question that this paper is considering is how Strict CV Phonology, a syllabic theory stripped of branching constituents and the separation of timing and constituency (and also, by the way, of the syllable as such), is able to account for the behaviour of consonants traditionally labelled ‘ambisyllabic’.

**1. Introduction and background**

One well-known phonological process in e.g. Standard American English (General American, henceforth GA) is  $\text{t}$ -flapping (or tapping), whereby a /t/ (or a /d/) turns into the voiced alveolar tap/flap [ɾ] in foot-internal intervocalic position. Thus, the  $\text{t}$  is flapped in *átom* but not in *atómic*. Crucially, in the latter example the  $\text{t}$  appears in foot-initial position and gets aspirated rather than flapped.  $\text{T}$ 's occurring in what is traditionally analysed as syllable-final position, i.e. in the “notorious”  $\_ \{C, \#\}$  environment, show up in the form of a third allophone, glottalised [ $\text{t}^h$ ]. In connected speech word-final  $\text{t}$ 's seem to “resyllabify” into the following vowel-initial word since in a sequence such as *wait a minute* the underlined  $\text{t}$  undergoes flapping instead of glottalisation. A surprising fact is that flapping loses its sensitivity to stress beyond the word level, thus word-final  $\text{t}$ 's flap across-the-board within the phonological utterance while all word-initial  $\text{t}$ 's remain aspirated: cf. *a* [ $\text{t}^h$ ] *issue* but *a* [ɾ] *issue*.

Among previous analyses are Kiparsky's (1979) and Nespó & Vogel's (1986). Kiparsky claims that resyllabification applies across words in English. In the course of derivation, all foot-internal  $\text{t}$ 's following a [-cons] segment are ‘laxed’ first, then cyclic resyllabification takes place, and a post-cyclic rule voices all ‘lax’ prevocalic  $\text{t}$ 's. Contrary to this, Nespó & Vogel observe that word-final consonants do not appear to be resyllabified across words in English. According to their analysis, the flapping rule of American English is a *U* domain rule, i.e. its domain of application is the phonological utterance; the aspiration rule is a ‘tensing’ rule, which ‘tenses’ all foot-initial  $\text{t}$ 's and precedes the flapping rule. Thus, by the time the rule of flapping becomes available, i.e. before [-tense] plosives are tapped intervocalically,

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foot-initial *t*'s have already undergone aspiration thereby escaped flapping. Although the two analyses were written within two completely different frameworks, and they do not even agree as far as the existence of resyllabification is concerned, what they have in common is that both let aspiration apply first, thus exempting foot-initial *t*'s from lenition, and then make the rest flapped. Notice that these analyses crucially depend upon the notion of *rule ordering*.

The basic question which I will address is whether a non-derivational theory is just as able to tackle the problem, revealing what the status of *t* in *a tissue* and *at issue* differs in as well as what the *t*'s in *atom* and *at issue* share. The starting point that I will take draws on Rubach (1996), who observes that several connected speech phenomena can be accounted for more insightfully with reference to ambisyllabicity rather than resyllabification. In Section 2 I present his examples from RP, and show how GA *t*-tapping fits into the picture. Then I go on to introduce the theoretical devices I will make use of, viz. Strict CV Phonology equipped with Lowenstamm's (to appear) boundary marker as well as certain aspects of Szigetvári's (1999) Coda Mirror Plus (Section 3). I will base my analysis of connected speech phenomena on government and licensing as defined in Dienes & Szigetvári (1999) and Szigetvári (1999) with a few modifications (Section 4). I will suggest that licensing and government should be restricted to the CV-tier and the segmental level/nuclear projection, respectively, and that the stressedness or stresslessness of vowels is not reflected in their ability to govern but the order of preference whereby they choose the way in which they affect adjacent segments. I will also assume a complementary relationship between government and licensing.

## 2 Ambisyllabicity rules in English

Rubach (1996) refers to Kahn's (1976) study of GA, claiming that flapping affects ambisyllabic *t*'s, and adds further data from RP (*ibid.*: 220), which also support that ambisyllabicity rather than resyllabification applies across word boundaries in English (see (1)<sup>1</sup>).

### (1) RP *t*-tapping

- [*r*]: *courage, very, sorry, baron, laurel*
- [*r*]: *courageous, reduce, red, bright, Henry, walrus*
- [*r*]: *for example, for instance, the other end*

Notice that if word-final *t*'s are resyllabified into the following vowel-initial word, then they get into onset position and are expected to exhibit the approximant allophone, as in (1b), and definitely not the tap. However, what we observe is the opposite (cf. (1c)), which leads us to suppose that the *t*'s appear in the same environment in (1a) and (c). Note also that while in (1a-b) the place of stress does make a difference (compare *courage* and *courageous*), in (1c) we get the same allophone irrespective of whether the capturing vowel is stressed (as in *for instance*) or not (*for example*). All these observations must evoke a feeling of *déjà vu* because of the discussion of flapping above, exemplified in (2) below.

<sup>1</sup> The same data are described in Jones (1960), and Wells (1992: 282) as "a useful diagnostic" of U(pper-crust) RP as opposed to mainstream RP.

### (2) English (Kahn 1976 and Kaisse 1985)<sup>2</sup>

- á[*r*]om a[*t*]ómic
- hi[*r*] Ánn hi[*r*] Aníta hi[*t*] me
- grow [t'*r*]ómátoes
- wai[*r*] a mínut
- a [t'*r*]íssue a[*r*] íssue

In (3) an additional set of data is found concerning another phenomenon in RP, *l*-darkening (also described in e.g. Rubach 1996).

### (3) RP *l*-darkening

- alveolar ("clear") *l*: *leap, ballad, delicious, killer; kill Ann, kill a rat*
- velar ("dark") *l*: *fall, fault, marble, Marble Arch, kill, kill Joe*

Again, *l*'s appear dark in exclusive rhyme (including nuclear and coda<sup>3</sup>) position, (3b), and clear both when exclusively in the onset and when ambisyllabic, (3a). Since *l* does not have separate allophones for pretonic and non-pretonic environments, its variation cannot serve as an argument for (or against) ambisyllabicity (as opposed to resyllabification). For the sake of symmetry, however, we will suppose that the *l*'s in *kill Ann* or *kill a rat* are not resyllabified but ambisyllabic, thus falling under the same rubric as flapped *t*'s and tapped *t*'s. Thus, we can conclude that word-final consonants seem to be ambisyllabic due to the effect of a following vowel-initial word, and although ambisyllabification may only take place within words if the vowel after the target consonant is unstressed, there is no such constraint on the stressedness of surrounding vowels at word boundaries (cf. Kahn 1976).

## 3. Theoretical framework

The framework that I choose for my analysis is Strict CV Phonology, a radical syllabic theory that sprung out of Government Phonology at the inspiration of Lowenstamm (1996). Not only does it deny the constituent status of the syllable and the coda but rejects all branching structures, and operates with regularly alternating C's (standing for 'non-branching onset'/'consonantalness'/'non-syllabicity') and V's ('non-branching nucleus'/'vocalicness'/'syllabicity'), yielding strictly alternating CV skeletal units. Members of apparently branching constituents as well as adjacent segments of identical syllabicity sandwich empty positions, which are silenced by forces such as Proper Government. Following Dienes & Szigetvári (1999) and Szigetvári (1999) (who named their theory Coda Mirror Plus and drew heavily on Ségéral & Scheer (1999) and Lowenstamm (to appear), the latter suggesting an empty CV unit as a boundary marker identical to traditional #, beginning every word of a major category<sup>4</sup>) I will assume the following:

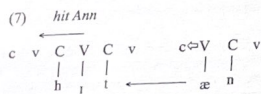
<sup>2</sup> As pointed out by the anonymous reviewer, GA *t*-flapping has a few additional conditions so that it is possible in certain consonant clusters (e.g. in *party, shanty*) but not in others (*\*actor, \*mister, \*(?)Bolton, \*mattress*). Since the present discussion concentrates on flapping in intervocalic position, these data will be ignored.

<sup>3</sup> Syllabic *l*'s are supposed to reside in nuclear position. They have been included for the sake of completeness although their treatment is beyond the scope of the present paper.

<sup>4</sup> For the arguments see Lowenstamm (to appear), Larsen (1997) and Ségéral & Scheer (1999).

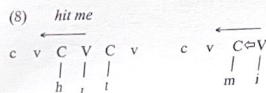


emanating from the word-initial vowel that can reach the consonant is government. In addition, I suggest that the government whereby a vowel affects a preceding consonant operates on the melodic level<sup>10</sup> – another effort made to retain strict locality: notice that a word-final consonant is adjacent to the vowel starting the next word on the segmental level. Cf. (7).



In (7), it is of no crucial importance whether vowel initial words are endowed with a single *c* or the 'canonical' *cv* boundary marker; the vowel's licensing cannot reach the position of */t/* in either case, the relevant melodies, however, will be adjacent independently of the CV tier.

In (8) a situation involving a consonant-initial word is illustrated: the empty *v* in the boundary marker must be silenced by proper government, so the word-initial consonant will be licensed only – therefore be in a phonologically strong position. (So far the present analysis agrees with those of Coda Mirror or Coda Mirror Plus, so the aspiration of *t*'s in this context is predicted in the same way.)



Note that proper government and the government affecting consonants are just two forms of the same relationship, as in previous analyses, which means the same vowel cannot exhibit both at the same time. What follows from this is that although */m/* and */i/* are adjacent in (8) at the melodic level too, */m/* will not be governed since the vowel's proper governing obligations are superior to the one hitting consonants. Since the beginning of the word is a strong position for consonants irrespective of whether the following vowel is stressed or not, (8) is claimed to be the appropriate representation for both cases. As you will see below, I reject the inability of stressed vowels to govern, expressed in any tricky form, hence in the present analysis there is no difference between why stressed and unstressed vowels are capable of silencing the boundary marker.<sup>11</sup>

On the basis of what we have seen we can conclude the following: consonants appear strong when licensed only (cf. */m/* in (8) as well as the discussion above); lenite 'vocally' (e.g. *t*'s and *t*'s tap) when "ambisyllabic" in traditional terms, i.e. governed only (*/t/* in (7)); and lenite 'consonantly' (e.g. *t*'s are glottalised) when

<sup>10</sup> Proper Government, another form of government, silences vocalic positions and is traditionally assumed to operate on the level of nuclear projection. We have no reasons not to accept that assumption.

<sup>11</sup> In VC Phonology, unstressed vowels govern unconditionally; stressed vowels are able to silence the boundary marker because it does not reside in a separate stress domain so the Antipenetration Constraint is irrelevant.

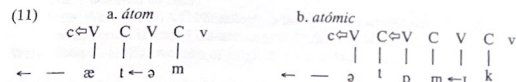
neither licensed nor governed (*/t/* in (8)). This is more or less in accordance with Coda Mirror Plus, although there are two essential differences: (i) government is enough for vocalic lenition; (ii) there are apparently no cases when a consonant is both governed and licensed (the situation for vocalic lenition in Coda Mirror Plus). I will hypothesise that this is not a mere accident (and consequently, that the model does not overgenerate) but there is a complementary relationship between government and licensing: they mutually exclude each other, and we find no cases for both government and licensing because this is banned by a principle of the grammar (see (10) below).

To account for the absence of lenition before stressed vowels as well as for attested vocalic lenition (i.e. lenition by government) before unstressed vowels word-medially, we need to clarify the influence stressedness has on the potentials of vowels on the one hand, and to elaborate on the complementary distribution of government and licensing on the other. I will insist on letting stressed vowels govern freely just as unstressed vowels do, and the difference will not be of a categorical type but rather considered as a matter of preference, as given in (9).

(9) Stressed vowels seem to have a tendency to support the segmental makeup of preceding consonants and prefer licensing to government (i.e. if the conditions of both are met they choose to license) whereas unstressed vowels are more prone to damage their consonants within their CV units and so prefer to govern.

This distinction, accompanied by the principle claiming a complementary relationship between government and licensing, mentioned above and spelt out in (10) below, will naturally result in the state of affairs as they are represented in (11).

(10) A consonant (including both the melodic and the skeletal tier) cannot be simultaneously governed and licensed by the same vowel.



In (11a), the word-initial vowel (*/æ/*) is stressed so will first license the preceding empty *c* position, but since it is empty, the vowel has the potential ability to govern some other consonantal material at the melodic level (indicated by the broken single arrow), which would result in "ambisyllabicity" across word boundaries. The second vowel (*/ə/*), however, being unstressed, will first govern the preceding consonant but doing so it loses the opportunity to do anything else: it cannot also license the consonant once it governs it because of (10), and there are no other possible targets. Hence, the */t/* in *atom* will be tapped and so will the underlined */t/* in e.g. *hit atoms*. In (11b) the same word-initial vowel is not stressed, thus tries to govern first, which will not materialise until the word is put into such a context where it is preceded by a consonant-final word, e.g. *hit atomic elements*. In that case government reaches the underlined */t/* surfacing as a tap. At the same time, the initial empty *c* position gets licensing since this will not violate (10). The stressed vowel in (11b), on the other

hand, will license the /t/ making it aspirated, but cannot simultaneously govern it (in accordance with (10)), consequently its governing power will remain unexploited.

### 5. Conclusion and further issues

This paper presented an alternative analysis of consonant lenition phenomena in GA and RP, in which government by a following vowel is enough for the consonant to lenite vocally, thus connected speech processes taking place across word boundaries are accounted for. Another claim the analysis makes is that government (either between melodies or at the level of nuclear projection) and licensing (at the skeletal tier), the two forces driving both phonotactics and lenition, are in complementary distribution. Since the representation of the different types of consonant clusters is beyond the scope of the present discussion, whether this relationship between the two processes is tenable calls for further research.

Although throughout the paper I tried to ignore deciding on the exact nature of the skeleton, viz. whether it contains CV or VC units, towards the end of the analysis I implicitly voted for CV. In fact, as the theory outlined above stands, it works in a CV model only; all other things being the same, a VC skeleton would make different predictions for the two situations in (5), i.e. *hit Antia* vs *hit Ann*: an unstressed vowel would govern first yielding a tap, a stressed vowel on the other hand would license first and thus ensure aspiration.

Besides the representation of consonant clusters, several other issues remain unaddressed, e.g. additional differences in behaviour between stressed and stressless vowels predicted by Coda Mirror Plus (and apparently supported by linguistic data). These include the fact that syncope is unattested in English before stressed vowels (i.e. proper government appears to be unable to hit pretonic schwas) – a configuration (i.e. proper government appears to be unfortunately not ruled out by (10). This violating the Antipenetration Constraint but unfortunately not ruled out by (10). This and a few other problems (including the representation of melody, especially that of the schwa<sup>12</sup>) are to be treated in a separate paper.

<sup>12</sup> Strict CV (or VC) Phonology, following the tenets of 'standard' Government Phonology, claims that an unlicensed (=unsilenced) empty vocalic position is interpreted as the default vowel, which is the schwa in English. If schwas are melodically empty, then it is mysterious how they could govern on the melodic tier, as in (11b), for example.

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