Péter Szigetvári   *To branch or not to branch?*

There are more things in heaven and earth, Horatio,
Than are dreamt of in our philosophy.   (Hamlet 1,5,168f)

This squib aims to be a partial reply to Ploch (2003).[1] It is only partial because I do not feel it my duty to defend most of the theories attacked by Ploch.

The paper—Ploch's contribution to the Kaye Festschrift—discusses metatheoretical problems in phonology and claims to "show [...] that the most important hypotheses which have been supported by phonologists and/or, more generally, linguists over the last (three, four) decades, but not only those, are not scientific ones" (185f).[2] I do not wish to generally argue against this rather bold statement. Instead I will attempt to show why I think Ploch misunderstands the strict CV approach, and why I still maintain that it is *one* of the null hypotheses about prosodic structure.

Section **1** sketches the difference between two related theories of prosodic structure which Ploch compares. Section **2** contemplates the ontological status of empty nuclei, whether they are indeed as unscientific as they are claimed to be. Section **3** very briefly discusses the metatheoretical notion of simplicity. Section **4** shows that branching and licensing are not only conceptually different in the two theories compared, and if one is to get rid of one of them, it has to be branching. Finally, section **5** discusses the sense in which the strict CV approach to syllable structure is one of the two possible null hypotheses.

1   The theories compared

The two theories compared in the first part of Ploch's paper (150–165) are "standard" government phonology (as described by, e.g., Kaye et al. (1990) or Harris (1994), henceforward referred to as SGP),[3] and strict CV phonology (put forward by Lowenstamm (1996), henceforward referred to as CVP). The representation of the English word *brand* in the two theories is put side by side: in SGP it contains two representationally adjacent pairs of consonants, a branching onset (*br*) and a coda–onset cluster (*nd*), as well as a single empty nucleus at the end of the word,

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[1] The reader is advised to have a look at that paper first.

[2] Parenthesized three-digit numbers are all page numbers in Ploch 2003.

[3] It must be noted that "standard" government phonology is a cover term for a set of theories in which assumptions differ here and there. These differences, however, do not significantly affect either the point made by Ploch or my claims. I label it "standard" because I consider the other approach discussed here, CVP, as a subset of government phonology, in fact, its logical conclusion.

i.e., $[_O br][_R[_N a]n][_O d][_N \emptyset]$, as in (1a); in CVP the same string includes three empty nuclei, it is represented as *b∅ran∅d∅*, as in (1b).[4,5]

(1)   a.   R   b.
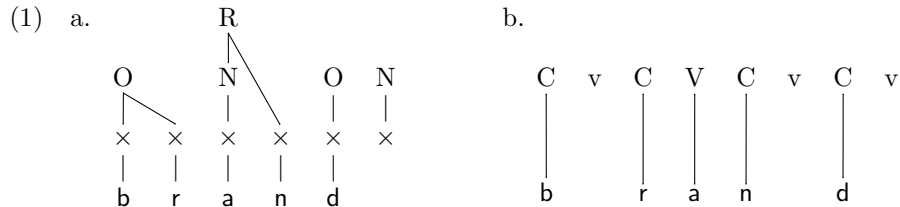
It is evident that the number of empty nuclei CVP will posit in the representation of any string is greater than or equal to what an SGP representation contains, since in the former framework superficially adjacent consonants are exceptionlessly separated by an unpronounced vocalic position and superficially adjacent vowels (i.e., long vowels, as well as diphthongs) by an unpronounced consonantal position. To balance this increase, CVP will not contain any branching structures. Ploch would not accept this loss as a compensation for two reasons: (i) he sees branching as something more testable (i.e., scientific) than empty categories and (ii) he claims that CVP also has "branching" structures. I will return to both suggestions below.

The representation in (1b) is simpler in another respect: the labels C and V and the skeletal slots have been merged. Contrary to Ploch's allegation (195, n. 3), this move is discussed in Szigetvári (1999 : 87ff).[6]

Of course, comparing two representations like in (1) is not trivial. In both SGP and CVP governing and/or licensing relationships are assumed between various pairs of skeletal positions. Significantly, however, it is not the case that CVP hypothesizes the existence of these relationships while SGP does not: basically every relationship CVP posits[7] is parallelled by one in SGP.

Dismissing the gain in dispensing with branching, Ploch concludes that SGP is more tenable a theory of prosodic structure, given that it contains less "mysticism" than CVP.

2   The ontological status of empty nuclei

Ploch's criticism of the strict CV approach is directed against the multiplication of empty nuclei, positing which, he claims, is an empirically unfalsifiable existential statement (152f). This is problematic, he goes on, since if something is unfalsifiable, then, according to his prime authority, Karl Popper, it is not scientific.

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[4] An alternative representation, *∅b∅ran∅d,* could also be imagined, but there is no need to take sides on this issue here.

[5] In the representation I follow the practice of labelling empty positions by a lowercase letter.

[6] Živanovič (2004 : 2), on the other hand, argues for reverting to a separated skeletal tier.

[7] CVP, like SGP, is not a uniform theory. Different flavours of it have different sets of relations, cf. e.g., Ségéral & Scheer (1999/2001), Dienes & Szigetvári (1999).

Claims about the presence of an empty nucleus, however, are not unfalsifiable. An empty nucleus does have its effects, for example, it acts as the target of the government of the following pronounced nucleus. This allows us to make several predictions, such as (i) the nucleus before the empty nucleus cannot be properly governed, hence it cannot remain unpronounced even if empty, (ii) the consonant after the governed empty nucleus is not expected to undergo lenition, etc. What the exact predictions are is, of course, theory specific, but, crucially, if we do have any expectations based on the alleged presence of an empty nucleus in a representation, then the frustration of these expectations is equivalent to a refutation of the theory.[8] What must be avoided, as Ploch rightly claims, is the introduction of ad-hoc machinery for cases where the non-pronunciation of a nucleus cannot be explained in a previously established way. Based on the observation that syncope regularly occurs across languages in the __CV environment, SGP devises a mechanism, labelled proper government and the Empty Category Principle, which make it calculable which empty nuclei can remain unpronounced. When the mechanism fails, the researcher either involves magic (cf., e.g., Kaye 1992/1996), or admits failure and either gives up the theory or, more commonly, puts the problem aside for future research.

The occurrence of empty nuclei is strictly limited in both SGP and CVP, they cannot occur just anywhere. In addition, despite what Ploch suggests (155f), it is not the case that in SGP empty nuclei would only be assumed in positions of vowel–zero alternation. Furthermore, the nonalternating empty nuclei are not only word final (198, n. 9). SGP classifies consonant clusters into three types: C_1C_2 where (i) C_1 governs C_2 (branching onset, e.g., the *br* of *brand*), (ii) C_1 is governed by C_2 (coda+onset, e.g., the *nd* of *brand*) and (iii) there is no governing relationship (bogus cluster). Some clusters classified as bogus exhibit vowel–zero alternation in the canonized dialect of English (e.g., famli/faməli *family,* vɪtlə/vɪtələ *victualer*), but others do not (e.g., *Hamlet, atlas*). That is, SGP assumes unpronounced empty nuclei not only to avoid resyllabification in strings exhibiting vowel–zero alternation, but also to satisfy theory-internal requirements, like that two consonants that cannot contract a governing relationship cannot be adjacent, or that a coda cannot exist without a supporting onset. CVP yields to a pressure of the same type, a theory-internal consideration: the impossibility of the adjacency of two consonants.

It is not clear why it is the assumption of empty nuclei that Ploch sees as unfalsifiable. The skeletal position and the nucleus node in the representation of a *pronounced* nucleus is not any more empirically real: have phonologists ever seen or heard the skeletal slot or the nucleus node? Not to speak of the association line, or, for that matter, the notion of branching? These are theoretical notions, parts of the vocabulary used to model the phenomena we experience in the realm of phonology. The fact that we can detect only the effects of an entity, be it an empty nucleus or a branching onset, does not make a theory involving that entity pseudoscientific. Aren't gravity or black holes, to name just two of a plethora of similar notions in natural science, entities of this kind? Hasn't physics made significant advances by hypothesizing entities that were only later—or still not—

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[8] In fact, the more empty nuclei we posit, the more vulnerable the theory becomes to refuters.

proven to exist? Empty nuclei are not claimed to exist, they are claimed to be part of a working model of phonological representation.

If we were to label Ploch's fallacy, *presentism* could be an appropriate term. Observability, which he finds lacking for many empty nuclei, cannot be restricted to whether a vowel associated with the given nuclear position is actually heard or not. The existence of rocks on the far side of the moon, for example, could not be observed until very recently, yet most philosophers found it futile to reject the assumption of their existence. This is because we observe that the two sides of those celestial bodies that show them to us are very similar, therefore we may assume that the moon is not any different.

When called to explain why syncope does not occur in the __CCV environment, SGP must stipulate that proper government cannot arch over a governing domain. This extra clause in the definition of proper government is observationally adequate: a CC cluster either involves a governing domain, as is the case with branching onsets and coda+onset clusters, or it does not, in bogus clusters, but then it will contain an empty nucleus that blocks proper government by absorbing it. In a theory where any two consonants are separated by an empty nucleus, the SGP stipulation becomes unnecessary: proper government cannot arch over a consonant cluster, since the enclosed empty nucleus is always there to stop it.

What follows is that the detection of empty nuclei is not dependent solely on whether a vowel *is* pronounced in the given place by another speaker or on other occasions by the same speaker. Ploch says: "there is no test for the very empty nuclei which are additionally [i.e., in addition to those predicted by GP] predicted by the strict CV approach: that there is an empty nucleus between /n/ and /d/ in *veranda* cannot be observed nor is it evident from any vowel epenthesis in some morphologically related form" (156), that is, positing such empty nuclei is empirically unfalsifiable, hence unscientific. The question is how far we extend our scope of the language, whether we wish to include cases of epenthesis like *petrol* pɛtərəl, *Dublin* dʊbəlɪn, *Kathleen* katəliːn, *film* fɪləm, *form* fɔrəm, *Drimnagh* drɪmənə, *tavern* tavərən (Wells 1982 : 435), or *silk* sɪlɪk, *belt* bɛlɛt (*op.cit.* : 641). It must be admitted the partial geminate of Ploch's example (nd) is less likely to allow epenthesis. The point I wish to make here is that epenthesizing a vowel within a consonant cluster is not categorial, as the SGP representation, which either has an empty nucleus between two consonantal positions or does not, suggests. Instead, practically any consonant cluster may be split up by epenthesis, but there is a scale of likelihood of epenthesis, on which consonant clusters are ordered according to their "easiness"/ "unmarkedness" (cf., e.g., Rebrus & Trón 2001). Unless a theory is ready to accept the possibility of resyllabification, it should have a vocalic position within consonant clusters. This is especially true for the fɪləm-type epenthesis: SGP has to represent word-final monomorphemic consonant clusters as coda+onset clusters, i.e., two skeletally adjacent consonants, therefore it wrongly predicts epenthesis in this environment never to occur.

If a theory establishes the properties of the entities it assumes, the presence of these entities becomes testable. Other theories, of course, may make similar predictions based on completely different entities and properties, but this in itself does not disqualify any theory.

3   A note on simplicity

Ploch claims that the simplicity criterion underlying the strict CV approach is fake because it "neglects to take into account that there also exists something that is simpler in Standard Government Phonology [...]: a structure with branching contains fewer empty nuclei than one without" (153).

As we have seen, while it is true that SGP representations are bound to contain fewer empty nuclei, CVP representations are simpler elsewhere, for example, (i) they do not contain syllabic constituents at all (not even branching, despite what Ploch claims, cf. §4), (ii) they offer a simpler account for the cross-linguistic absence of pre-cluster syncope, and (iii) unlike SGP, they can cope with vowel epenthesis in word-final clusters (cf. §2). This does not mean, of course, that CVP is generally simpler than any other theory, being simpler in some respect generally entails a complication elsewhere. It is quite unlikely that the issue of simplicity could be reasonably decided in a couple of sentences. Interestingly, in this case Ploch is doing exactly what he reproves others for.

4   Branching and licensing

It is not only that supporters of CVP posit unfalsifiable existential statements (empty nuclei), but they also mistakenly believe that their theory does not contain the notion of branching—claims Ploch (159f). What the critic has in mind here is the fact—already noted by Takahashi (1993)—that since syllabic constituents are defined by government—or licensing—, branching structures are simply a graphic representation of the relationships of segments and as such they are strictly speaking redundant. Hence, if someone assumes the existence of governing or licensing relationships between segments in CVP, he is applying a notational variant of branching structures and, by denying the possibility of branching, falls into the trap labelled *conceptualism.*

Making a complete inventory of what may branch in SGP and the relationships that have been posited in CVP, as well as in SGP, shows that the two notions, branching and licensing, are not simply two terms covering the same concept, cf. (2)—the arrows represent the relationship, whether it is government or licensing is irrelevant. SGP (e.g., Kaye et al. 1990) distinguishes two types of government, constituent government, (2a–c), and interconstituent government, (2d–g). It is constituent government that corresponds more or less to syllabic constituents—as the name suggests. The correspondence, however, is not perfect: there is no licensing relationship within branching rhymes, (2c). If there were such a relationship, SGP would not have to analyse word-final consonants as onsets (cf. Kaye 1990), they could be treated as codas, conforming to the mainstream practice. However, since a coda consonant must be supported by the license of a following onset, codas cannot exist at the end of a phonological domain (i.e., a word). Harris's (1997) Licensing Inheritance theory also works only if we do not allow a nucleus to license its coda (cf. Szigetvári 1999 : 45). Thus we have found a very spurious syllabic constituent, a branching structure which is not bound by government or licensing.

(2) a.   b.   c. R   d. R

O   N   N   ...   O

× × × ×   × × ×   × × ×

e. O   N   f. N   O   N   g. O   N   O

× × ×   × × × ×   × × × × × ×
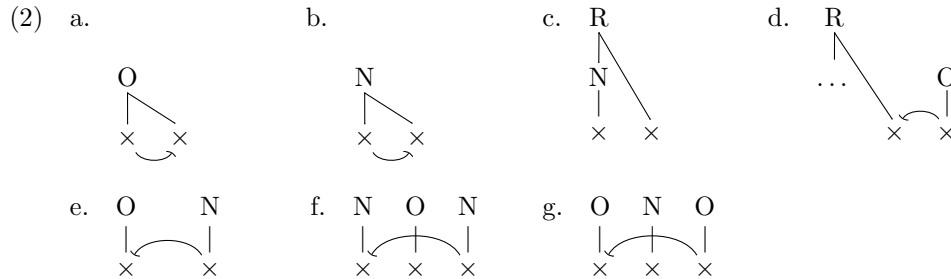
From the other aspect, interconsituent relationships are never accompanied by a branching structure. A coda+onset sequence is conceived of in SGP as the second, consonantal part of a branching rhyme followed and governed/licensed by an onset, (2d). The relationship is justified by the phonotactic constraints holding between two such consonants. Intriguingly, this is the only phonotactic constraint between skeletally adjacent sounds that is not sanctioned by being in the same syllabic constituent. There are a number of other governing/licensing relationships that are not mirrored by any branching structure in SGP, e.g., internuclear government, (2f), the licensing of an onset by the following nucleus, (2e), or, in some versions of the theory, interonset government, (2g).[9]

These facts can easily be turned into an argument against branching: if (i) governing/licensing relations are supposed anyway, (ii) they are not necessarily accompanied by branching structures, and (iii) branching structures do not always map a governing/licensing relationship, i.e., the branching of a constituent does not entail that there is any relationship between the two slots of the constituent, one begins to wonder what it is that branching constituents model. If the relationship between two skeletal positions does not presuppose that they belong to the same syllabic constituent, that they are linked to the lower end of a branching structure, syllabic constituents become haphazard pairs of segments in the representation. They seem to be a surviving fossil of the traditional syllable trees.

5 The null hypotheses

It is a fact well known that there is one type of syllable that all human languages have, CV. Some languages do not have anything more complicated (cf., e.g., Blevins 1995). It follows that we should presuppose that there exists at least one type of syllable, CV. Some languages are more liberal, allowing single Vs to occur as a syllable, i.e., words beginning with a vowel, or hiatus, or both. The analyst's reaction to this fact may follow one of two paths: (i) he may either include V in the inventory of possible syllables, expanding it to a two-member set {CV V}, or (ii) he may hypothesize that single-V syllables are a peculiar manifestation of the CV syllable, in which the consonantal part remains unpronounced, i.e., cV (cf.

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[9] Interonset government is also conceived of as being left-headed. That, however, defies the axiom that interconstituent government is uniformly right-headed. The issue need not be decided here.

n. 5). I do not see any a priori method to decide between these two paths, each has its advantages and disadvantages both empirically and theoretically. To give two pros, empirical and theoretical, for path (ii): hiatus filling, i.e., the insertion of a consonant between two vowels, is more plausible in an autosegmental model that already has a slot for the consonant to dock to, by assuming that superficial V is skeletal cV, we can keep the size of the syllabic inventory low. Many theories, SGP certainly being among them, opts for path (ii).

If we now proceed to analyse a language that allows CVC syllables as well, then if we followed path (i) before, the syllabic inventory has to be expanded once more to the set {CV, V, CVC}; if we followed path (ii)—as SGP does—, a superficial CVC string should be analysed as CV.Cv. Mixing the two methods of making the theory capable of analysing the new syllable type is a digression from the null hypothesis: the analyst has to explain why he uses path (i) now, path (ii) then.

It follows that either one adheres to what may be labelled the adjacency hypothesis, i.e., everything superficially adjacent is underlyingly/skeletally adjacent, or one adheres to the strict CV hypothesis, i.e., every new syllable type is reduced to different combinations of CV, cV and Cv. Any solution in between—including the SGP approach—must be proven to be unavoidable. In this sense CVP is *a* null hypothesis.

REFERENCES

Blevins, Juliette. 1995. The syllable in phonological theory. In: John A. Goldsmith (ed.). The Handbook of Phonological Theory. Cambridge, MA & Oxford: Blackwell. 245–306.

Dienes, Péter and Péter Szigetvári. 1999. Repartioning the skeleton: VC Phonology. Ms., Eötvös Loránd University (ELTE), Budapest.

Durand, Jacques and Bernard Laks (eds.) . 1996. Current Trends in Phonology. Models and Methods. Salford: European Studies Research Institute, University of Salford Publications.

Harris, John. 1994. English sound structure. Cambridge, MA & Oxford: Blackwell.

Harris, John. 1997. Licensing Inheritance: an integrated theory of neutralisation. Phonology 14 : 315–370.

Kardela, Henryk and Bogdan Szymanek (eds.) . 1996. A Festschrift for Edmund Gussmann from His Friends and Colleagues. Lublin: The University Press of the Catholic University of Lublin.

Kaye, Jonathan. 1990. 'Coda' Licensing. Phonology 7 : 301–330.

Kaye, Jonathan. 1992/1996. Do you believe in magic? The story of s+C sequences. SOAS Working Papers in Linguistics & Phonetics. Reprinted in Kardela and Szymanek 1996 : 155–176 2 : 293–313.

Kaye, Jonathan, Jean Lowenstamm and Jean-Roger Vergnaud. 1990. Constituent structure and government in phonology. Phonology 7 : 193–231.

Lowenstamm, Jean. 1996. CV as the only syllable type. Ms., Université Paris 7. Appeared in Durand & Laks (1996 : 419–442).

Ploch, Stefan. 2003. Metatheoretical problems in phonology with Occam's Razor and non-*ad-hoc*-ness. In: Stefan Ploch (ed.). Living on the Edge: 28 Papers in Honour of Jonathan Kaye (Studies in Generative Grammar 62). Berlin & New York: Mouton de Gruyter. 149–201.

Rebrus, Péter and Viktor Trón. 2001. Morphophonology and the hierarchical lexicon. Acta Linguistica Hungarica 48 : 101–136.

Szigetvári, Péter. 1999. VC Phonology: A theory of consonant lenition and phonotactics. Doctoral dissertation, Eötvös Loránd University/MTA, Budapest.

Ségéral, Philippe and Tobias Scheer. 1999/2001. The Coda mirror. Ms., Université de Paris 7 and Université de Nice. (French version: 2001. La Coda-Miroir. Bulletin de la Société de linguistique de Paris 96 : 107–152.).

Takahashi, Toyomi. 1993. A farewell to constituency. UCL Working Papers in Linguistics 5 : 375–410.

Wells, John Christopher. 1982. Accents of English 1–3. Cambridge: Cambridge University Press.

Živanovič, Saso. 2004. Manner as a skeletal relation? Ms. Universität Wien.