Title: Polish trapped sonorants and Strict CV

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Polish Trapped Sonorants and Strict CV*

1. Theoretical model

In recent years a discussion concerning the syllable structure has led to the recognition of empty positions in the phonological theory. This fact has proved to be one of the most important achievements of modern phonology as it has contributed to the explanation of many traditional problems. It must be noted that the idea of empty positions was exploited in the literature before (Anderson 1982, Spencer 1986). However, it was only Government Phonology (henceforth GP) (Kaye et al. 1990, Charette 1991, Harris 1990, 1994, Gussmann 2001) that has consolidated the theoretical existence of empty nuclei. In GP they are supposed to hold true cross-linguistically and not just for the purpose of a particular language. Thus, the empty nucleus is a typical and genuine GP-concept. The main aim of the Government Phonology research-project was to construct the 'syntax of phonology'. This idea has led to the introduction of phonological versions of the Minimality Condition (Charette 1989, Kaye et al. 1990) and the Projection Principle. The latter device, which says that: 'governing relations are defined at the level of lexical representation and remain constant throughout a phonological derivation' (Kaye et al. 1990: 221), has probably the most far-reaching consequences. In other words, the Projection Principle excludes any changes in governing relations during the course of derivation. This means that resyllabification is prohibited: a melodic unit that is linked to a coda cannot surface in an onset. Another consequence of the Projection Principle is Structure Preservation (also known from syntax): 'licensing conditions holding of lexical representations also hold of derived representations' (Harris 1994:190), which simply means that syllabic constituents are never deleted, not even if the associated melody is phonetically absent. Thus, in a typical Polish alternation such as *bułek* vs. *bułka* 'roll, gen.pl. – nom.sg.' for example, [w] and [k] must belong to two independent onsets in both forms. If they did not,

* One should bear in mind the difference between the CV skeleton of the early 1980s (McCarthy 1981, Clements & Keyser 1983) and the strict CV skeleton as introduced by Lowenstamm (1996). The latter model is a recent development of the Government Phonology paradigm.

the onset [w] in the first form would have to be resyllabified into the coda of the preceding vowel in the second form and the governing relations[1] holding between both consonants would be changed in the course of derivation. Therefore, all alternations of a segment with zero concern exclusively the melodic part of the autosegmental representation while constituent structure remains untouched. These assumptions justified the existence of empty nuclei in the phonological representation. However, the question immediately arose how many empty nuclei a structure can support and what their phonological status is in case they lack any melodic content. In response a phonological Empty Category Principle (ECP) was proposed. In its early version it simply stated that an empty nucleus may remain phonetically unexpressed if it is properly governed (Kaye et al. 1990: 219). Only nuclei that possess a phonetic content are possible governors. Consequently, this restriction on the existence of empty nuclei has given rise to an asymmetric syntagmatic relation between two nuclei: one nucleus acts as the governor, the other is the governee. This specific dependency-relation has given its name to the theory: Government Phonology.

The recognition of empty nuclei was an important step towards a strict CV approach, the theory, which pushed the idea of empty positions to its logical conclusion. The CV model views syllabic structure as strict alternating sequences of non-branching onsets and non-branching nuclei, i.e. there are no branching constituents and no codas (Lowenstamm 1996, 1999; Scheer 1998a, 1998b, 1999, 2002a; Ségéral & Scheer 1999a; Szigetvári 1999, 2000; Rowicka 1999). The extreme segmentation of the syllabic constituents results in the necessity of exchanging previously bare slots, i.e. Xs, with C and V on the skeletal level, the gain of this move is the loss of any further hierarchy above it. In other words, this approach introduces a new type of phonological skeletal structure in which syllabic constituency and timing are merged into a tier composed of strictly alternating CV units, thus giving the name: strict CV. Another consequence of dismantling the syllable structure is the increase in the number of empty nuclei. Since it is commonly agreed that you cannot get an empty category for free, this model, apart from the aforementioned Proper Government, has to come up with the means to keep such nuclei quiet. However, the fact that in the CV model the number of empty positions is doubled is perceived as an advantage and not a drawback when compared with the previous approaches.

In this model there are two fundamental actors: Government and Licensing. Different behaviour of consonants depends on these two forces (see Ségéral & Scheer 1999a). When comparing the effects of Government and Licensing, they appear as two antagonistic factors: Government inhibits segmental expression of its target, while Licensing comforts segmental expression of its target. Thus, in principle, a governed segment should decompose or lenite, while licensing should restrain such a process or even strengthen the target (Ségéral & Scheer 1999a).

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[1] Government is one of the key mechanisms in GP. It is defined as a binary, asymmetrical relation holding between two skeletal positions. The theory recognises government at three levels: constituent government, inter-constituent government and government at the level of nuclear projection (for details see Kaye et al. 1990).

Since a detailed representation of both theories would lead us too far afield here, we will not review its basic tenets but rather concentrate on what is directly relevant to our discussion. The key mechanisms of both models will be introduced in the appropriate place in the discussion.

We start by a brief presentation of Polish initial sequences within the standard Government Phonology approach (Section 2.1) and point to some weaknesses this analysis inevitably encounters (Section 2.2). Section 3 will present an alternative analysis of the same Polish clusters in the CV model, we will point out some advantages of the latter model over the former one. The only problematic sequences for strict CV, i.e. the so-called trapped sonorants, will be dealt with in Section 4. First, we will introduce a possible solution available in the CV model, i.e. Polish trapped sonorants as syllabic consonants. This solution will then be confronted with Scheer's (in prep.) proposal of distinguishing trapped and syllabic consonants (Section 4.1). Finally, in Section 5 we will discuss the implications of both representations and summarize the findings of the paper.

2. Polish word-initial sequences in standard GP

In this section we briefly discuss the representation of Polish initial consonantal clusters in the standard Government Phonology framework. We begin by presenting the analysis and solutions available within this approach. Then we point to some consequences and problems one stumbles across within this theory. In the sections that follow we will prove that such problems can be immediately and neatly resolved when the CV syllable structure is adopted. However, due to the space limitation and the fact that GP is a well-established model by now, we do not go into details and review its basic tenets. The reader less acquainted with the GP theory is referred to many reader-friendly, comprehensible publications (see, for example, Harris 1994, Brockhaus 1995).

Since Polish tolerates complex consonantal combinations, especially in the word initial position, it has always been a good testing ground for different theoretical frameworks (Kuryłowicz 1952; Rubach & Booij 1990a, 1990b; Gussmann & Kaye 1993; Rowicka 1999; Gussmann & Cyran 1998; Cyran & Gussmann 1999). Complex initial sequences like [drgn-], [tkn-], [fstr-] of *drgnąć* 'shudder', *tknąć* 'touch' and *wstręt* 'repulsion' respectively, have been problematic for any theory. Such sequences either violate any version of the Sonority Sequencing Principle (SSP) or exceed the permissible limit on the number of consonants in the word-initial clusters. The GP invention of empty nuclei contributed to the understanding of the behaviour of such initial clusters and gave first attempts to explain their peculiarity (Gussmann & Kaye 1993, Gussmann & Cyran 1998, Cyran & Gussmann 1999). However, the GP analysis, coherent as it is, requires quite a few mechanisms to account for Polish initial sequences (Magic Licensing, Proper Government, Interonset Government, Government Licensing, among others, see Section 2.1 below). It must be noted here that the majority of the mechanisms are established quite independently and not just for the Polish situation. Additionally, in their paper Cyran & Gussmann (1999) claim that in order to account for the distribution of segments in Polish some extra devices are needed such as: the principle ranking and the restrictions on adjacent melodies (see Sections 2.1

and 2.2). Moreover, the distribution of consonants is determined by some prosodic effects connected with the notion of Licensing Inheritance (see Harris 1992, 1997).

The rest of this section is devoted to a very brief presentation of the mechanisms in action, for a more elaborate discussion the reader is referred to (Gussmann & Cyran 1998, Cyran & Gussmann 1999).

2.1 Standard GP analysis

GP claims that [s] in initial consonantal sequences cannot belong to an onset and proposes a structure where the consonant [s] appears as the rhymal complement. It must be added here that this is not a special case encountered only in Polish, but rather a cross linguistic observation. When the preceding nucleus happens to be empty, it can be licensed in spite of the fact that the licensing mechanism has not yet been fully understood. This is the main reason why the licensing of an empty nucleus including the rhymal [s] has been called Magic Licensing (Kaye 1992). Note that the same mechanism is responsible for clusters where the [s] is preceded by an additional consonant, e.g. *pstry* – 'gaudy'. Thus, the forms of *pstry* and *strona* 'page' have the following representation: *pøs.try* and *øs.tro.na* respectively, where 'ø' denotes an empty nucleus and '.' a syllable boundary. The [s] in consonant clusters is predominantly syllabified in the 'coda'[2] position, whose nucleus is licensed through Magic Licensing.

Probably the most exploited mechanism responsible for arising Polish initial consonantal sequences is Proper Government (henceforth PG). This mechanism, as the relation between a nucleus dominating a melody and a nucleus with no phonetic content, serves to explain a large number of initial consonantal combinations. Such combinations cannot be viewed as constituting branching onsets either because of the nature or the number of consonants making up the initial sequence. The nature of the consonants excludes governing relations typical of branching onsets (a governor followed by a governee, see footnote 3 below), which means that the two consonants must be assigned to two distinct onsets and the empty nucleus separating them is licensed through PG coming from the following nucleus containing a melody. Thus, for example, the initial clusters in [kt]o 'who', [pt]ak 'bird', [tk]ać 'weave' etc. consist of segments which are typical governors[3] and hence cannot form branching onsets. This means that they have to be separated by an empty nucleus, which is licensed by the following audible nucleus through PG. This mechanism is also responsible for the appearance of three-consonant clusters like [krt]ań 'larynx', [drg]ać 'vibrate', [brn]ąć 'wade' etc. where the first two consonants form a branching onset, which is separated from the third one by the properly governed empty nucleus (cf. the discussion in 4.1). The representation of [kt]o and [krt]ań would be *køto* and *krøtań* respectively, and the

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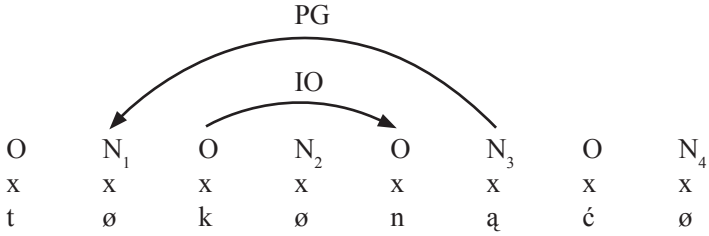
[2] Although coda as a constituent is absent from GP, it can be identified with the rhymal complement. Thus, when we use either of these terms the same thing is meant. It must be remembered, however, that here the coda should not be understood in the traditional sense.

[3] A typical governor is a segment, usually an obstruent, which is more complex in terms of internal elements than other segments, i.e. governees. For the elemental structure of segments in GP see Harris & Lindsey (1995), Cyran (2001).

empty nuclear position is licensed by the following audible one through PG, which forces it to stay mute.

Another mechanism frequently used in the GP analysis of Polish consonantal sequences is Interonset Government (hereafter IO). It is called upon when we come across three-consonant sequences where neither the first two nor the last two consonants can contract a governing relation that would place them within a branching onset. Thus, neither the [tk] nor the [kn] of *tknąć* 'touch' qualifies as a well-formed onset. Note that the cluster like [kl] in *tkliwy* 'affectionate' and *ckliwy* 'sentimental' is a potential branching onset. These segments, however, cannot belong to one constituent as we would have to place the empty nucleus between [t] and [kl]. In this situation Proper Government would not be able to apply as this mechanism is forbidden to hold across a governing domain such as, e.g. branching onset. A similar situation arises when a cluster, which looks like a branching onset is separated by a vowel in a related form, e.g. [mgw]a 'mist', [pxw]a 'flea', the final two consonants, although theoretically capable, cannot form a branching onset as both clusters are broken up by the vowel [ɛ] in the related forms: [mg'ɛw] gen.pl., [pxɛw] gen.pl., respectively. Thus, the recognition of two empty nuclei in sequences like those mentioned above seems to be the only reasonable solution. In Gussmann and Kaye (1993), Gussmann & Cyran (1998) and Cyran & Gussmann (1999) a proposal is put forward where the last two consonants contract an IO relation, which licenses the intervening nucleus. It must be emphasised here that Interonset Government is invoked in situations when a given sequence resembles a branching onset, i.e. the first segment is a typical governor and the second one a governee. Crucially, IO must be made possible by the following contentful vowel, which at the same time properly governs the empty nucleus preceding the consonants in the IO relation (see the representation in (1) below). This situation is said to predict other impossible clusters. If we, for example, change the order of the last two consonants in [tkn]ąć, i.e. *[tnk], we can see that now IO cannot be invoked as it would have to apply from right to left (recall that in Polish IO must apply from left to right similarly to branching onsets). One could still insist that it is the empty nucleus between [tn] that is licensed through IO and the one between [nk] through PG. Note, however, that one of the requirements imposed on IO is that this governing relation must be directly followed by a nucleus dominating a melody. The representation of *tknąć* is given below.

(1)



IO in Polish is left-headed and hence results in clusters similar to branching onsets where the head also precedes the complement. One of the consequences of the obser-

vation that IO applies in the context resembling branching onsets is the fact that the nuclei in (2) below must be licensed through IO and not through PG.

(2)

[kr]a – [k'ɛr]	'ice float, nom.sg. – gen.pl.'	[ɡn]ę – wy[ɡ'in]ać	'bend, 1p.sg – inf.'
[pr]ać – [p'ɛz̨]e	'wash, inf. – 3p.sg.'	[kw]a – [k'ɛw]	'tusk, gen.sg. nom.sg.'
[bz]u – [bɛs]	'lilac, gen.sg. – nom.sg.'		

If we wanted to maintain that such nuclei can be licensed through PG, we would not be able to explain why the mirror image clusters in most of the examples in (2) are not possible. On the other hand, if we invoke IO this fact becomes obvious as this mechanism is allowed to apply only from left to right, from the governor to the governee.

Since IO can be contracted only by consonants of a specific type (a potential governor and a potential governee), the correct prediction follows that sequences of three and four consonants of the same type (sonorants, obstruents) are not allowed in Polish. It is explained by the fact that such sequences require that the Interonset relation be contracted between onsets with identical governing properties, which is an unlikely situation.

Furthermore, Gussmann & Cyran (1999) propose a way to account for the melodic distribution of segments in initial clusters. They indicate that in sequences of the type /C_1øC_2øC_3…/, e.g. [tkn]ąć, [ckl]iwy, where each onset is separated by the empty position, the second and the third consonant in order to contract IO must be occupied by a governor and governee respectively. It follows that the initial consonant C_1 could be expected to enjoy a relative distributional freedom since it is apparently not involved in a governing relation with any other consonant. The only restriction imposed on the first two consonants C_1 and C_2 should be the homorganicity ban (see Cyran & Gussmann 1999), i.e. they should be heterogenic, which is the case when we consider such clusters. However, they indicate that the observation that the first position C_1 in such sequences can be occupied by any consonant is simply false. Note that the first onset is predominantly occupied by a coronal plosive or an affricate and the second by a velar obstruent. The reverse order of the two segments produces forms, which are unattested. The question arises why it is a coronal stop or an affricate and not a labial that tends to appear in C_1 position while the second onset C_2 is occupied by a velar obstruent. Why *[ktn],*[brg], *[ɡrb], *[krp], *[trp] are not admissible in the language, why other two-consonant clusters like *[bd], *[bg], *[pk] cannot appear in Polish. They conclude that there is some sort of restriction imposed on the distribution of segments in the word-initial position, which does not follow from the governing relations between consonants. They propose to resolve this problem by the notion of Licensing Inheritance[4], first introduced by Harris (1992), (1997), and the strength hierarchy for Polish plosives. According to Cyran & Gussmann (1999), the reason

[4] In general, the idea of Licensing Inheritance is that the amount of phonological material (the number of elements in a given segment) which a skeletal slot is able to license is determined by its location within the prosodic structure at various levels, i.e. in the syllable, the foot, and the phonological word. The weaker the prosodic position of a slot, the less segmental complexity it can support.

why labial plosives are not tolerated in the initial onset of two- and three-consonant clusters can be explained by the fact that [p,b] are the strongest segments among Polish plosives, therefore, forbidden in prosodically weak positions. A similar line of reasoning may be applied to the sequences of two plosives (see Gussmann & Cyran (1999) for a more detailed analysis). Furthermore, to account for two- and three-consonant clusters starting with a sonorant, e.g. [ml]eko 'milk', [mr]ówka 'ant', [mdw]y 'bland', [mkn]ąć 'to speed' etc., the authors once again refer to Licensing Inheritance. Note that such clusters invariably start with [m] or [l], no other sonorants ([w, r, n, j]) are admitted in this position. Moreover, when both of them appear in the same cluster, it is the nasal that is stronger as we can find [ml]eko but not *[lm]. Observing the distributional behaviour of these sonorants, the authors come to the conclusion that both segments pattern with obstruents and hence should be placed just below the obstruent pairs on the strength scale as represented in (3).

(3)

strong «««««««««««««««««««««««««««« weak
b/p g/k d/t
m l w r n j

They conclude that [l] and [m] behave like obstruents in that they appear in the context reserved for obstruents. In short, in clusters with other sonorants they appear in a rigid order, which simply means that the mirror image clusters are impossible. Consequently, Cyran & Gussmann (1999) assume that in such clusters a rightward Interonset relation is contracted. The absence of initial *[wm], *[rm], *[nm] and *[nl] can be explained by the same fact why *[jg], *[mk] or *[nt] are excluded, namely, the presence of a typical governor and governee invokes the Interonset relation, which is impossible here because the order of segments disallows a rightward relation.

Although at first sight the analysis presented in this section seems coherent and able to explain the complicated situation of Polish initial sequences some problems remain. Thus, the main task of the following subsection is to point out the most serious flaws of the standard GP analysis presented above.

2.2 Some problems

What makes the study of Polish initial consonantal sequences particularly challenging for any theory is the existence of all kinds of subregularities and exceptions to the patterns observed elsewhere. Cyran & Gussmann (1999) try to resolve them by invoking some additional devices like various melodic constraints, e.g. homorganicity ban, strength hierarchies, ranking constraints, which in turn are dependent on prosodic licensing (the former two have been touched upon in 2.1, while the latter two will follow shortly). These supplementary devices, although able to cover a large portion of the existing melodic constraints, cannot explain many non-existent combinations. Recall first the discussion concerning the distribution of sonorants. Cyran & Gussmann (1999) claim that both [m] and [l] behave like obstruents as only these two can occur in the first position of two sonorant clusters. Thus, they are allowed to contract the IO relation with the following sonorant just like a typical obstruent.

However, what is striking is the fact that in the case of *mleko* it is not clear which mechanism should license the empty nucleus between [m] and [l]. Both sonorants are said to behave like obstruents, which means that the empty nucleus must be licensed through PG. If this prediction is correct then the mirror image cluster should also be possible *[lm] which is, however, not true. Thus, although [l] in other contexts (before sonorants) behaves like an obstruent (a potential governor), it is again reduced to a sonorant after [m]. Furthermore, in the discussion concerning the possible combinations of two-plosive sequences the authors claim that the first position, as prosodically weak, is never occupied by a labial plosive, which is true. Note, however, that neither of the devices mentioned in the previous section cannot exclude two ungrammatical combinations, namely, *[tp] and *[dg]. Although not attested, they should be possible. Additionally, the same devices cannot explain the evident pattern of a labial plosive or a fricative before a 'magic' context.

However, the most problematic clusters for Cyran & Gussmann (1999) are those represented in (4) below.

(4)

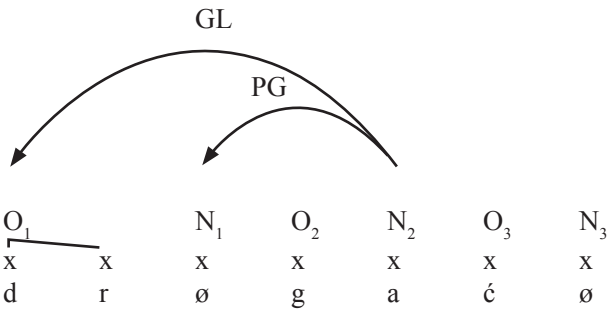
a.	[rd]est	'water-pepper'	b.	[wb]a	'head gen.sg.'
	[rt]ęć	'mercury'		[wk]ać	'weep'
	[rd͡ʒ]a	'rust'		[wg]ać	'lie'
	[rv]ać	'to tear'		[wz]a	'tear'
	[rv]etes	'commotion'			
	[rʑ]eć	'neigh'			
c.	[lg]nąć	'cling'	d.	[mʑ]yć	'to drizzle'
	[lʑ]yć	'to insult'		[mʂ]yca	'aphid'
	[lv]a	'lion, gen.sg.'		[mx]u	'moss gen.sg.'

Such clusters must be separated by the empty position, they can form neither branching onset nor the IO relation, note also that some of the sequences are broken up by a vowel in the related forms, e.g. [wb]a – [wɛp], [lv]a – [lɛf], [mx]u – [mɛx] or [rv]ać – u[riv]ać. Those consonants cannot contract IO as this mechanism applies in a situation where a governor is followed by a governee. In the examples above a governor is preceded by a governee, which means that IO would have to apply leftward. PG also seems to be an inappropriate licensing mechanism in this situation as it usually licenses the nucleus between two governors. In their paper Cyran & Gussmann (1999) try to account for the melodic distributional pattern in Polish, however, when faced with the clusters such as those in (4), they cannot explain why only a very limited number of sonorant plus obstruent combinations is possible.

Another problematic case is the application of PG across a governing domain (IO), recall the representation in (1) above. Note that PG which licenses N_1 in (1) has to apply across a governing domain (across the IO domain). This, as we have mentioned earlier, is regarded as inadmissible. It seems that only in such situations is PG not blocked, but anywhere else it is disallowed to hold across a governing domain.

What is more, this interpretation introduces the need to order the licensing principles. Note that PG could license the empty nucleus between [kn] in (1) above. In this situation, however, the nucleus between [tk] would stay unlicensed and hence would have to be pronounced. As a result we would arrive at the form **teknąć*, which is ill-formed. Therefore, in order to derive a correct form, IO has to take precedence over PG. According to Cyran & Gussmann (1999), the problem of ranking IO above PG can be solved by means of the principle called Government Licensing, first introduced in Charette (1990, 1992). The authors claim that the licensing, which is needed to sanction every governing relation (branching onsets and IO relations among others), comes directly from the head of the domain[5]. Thus, governing relations in Polish have to be licensed by a contentful nucleus (head of domains are invariably realised nuclei). This, in the case of *drgać* (5) 'vibrate', for example, means that the licensing comes from the head of the domain, which does not directly follow the governing relation.

(5)



The authors suggest that given a form which contains a potential relation between consonants (for instance a branching onset in (5) or IO relation in (1) above) and an empty nucleus to be properly governed, Government Licensing will be given preference. The licensing of relations prior to segments, they claim, is part of Universal Grammar and not a specific property of Polish. This fact provides us with a non-arbitrary explanation for the ranking of principles (IO over PG). Thus, in (5) N_2, which is the head of the domain, must first government license the head of the branching onset O_1, only then is it possible to properly govern the empty nucleus N_1. Similarly in (1) above the IO relation will be given precedence over PG. As this observation does not explain why Government Licensing should come from the head of the domain, it is a mere stipulation not confirmed by any additional data from other languages.

Apart from a large number of standard GP mechanisms needed to account for Polish initial sequences, Cyran & Gussmann (1999) introduce supplementary devices to explain the predominant consonantal patterns. Although these devices can cover most of the existing forms, they cannot ban many ungrammatical ones. Moreover,

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[5] This proposal differs from Charette's (1990, 1992) concept, where Government Licensing always comes from the nucleus, which directly follows a given governing domain. According to her, in Polish empty nuclei are government-licensers.

their proposal concerning Government Licensing is nothing else but a mere stipulation. In what follows we will discuss the same data in the strict CV model. It will be demonstrated that in comparison with the standard GP analysis the former approach not only covers the facts more economically, but also explains previously problematic cases.

3. Polish initial sequences and Strict CV

This section presents the analysis of Polish initial consonantal sequences in the strict CV model. First, we indicate how it differs from the standard GP approach and how it can cope with the problems that GP could not resolve. Then we discuss the only apparent weak point in the whole analysis, i.e. the so-called trapped sonorants.

A strict CV syllable structure (Lowenstamm 1996), as mentioned above, is a model in which there are no branching constituents and no codas. This approach together with only two mechanisms: Government and Licensing can cover Polish complex initial clusters. Since it is a much more constrained model than standard GP, it must be recognised as a more advantageous one. In this approach branching onsets are represented as two onsets separated by a nuclear position. Note that such nuclear positions rarely appear on the surface. Thus, to account for the empty nuclei which never surface, i.e. those which are not instantiation of PG, Scheer (1998b, 1999) proposes a theory of consonantal interaction[6]. It must be noted here that the melodic representation of segments in Scheer (ibid.) differs from that of standard GP. The discussion of what kind of evidence is used to derive the internal structure of consonants would lead us well beyond the scope of this paper (see Scheer 1999 for a more detailed discussion). According to Scheer (1999), a domain of Infrasegmenatal Government (henceforth IG) may hold between two consonants if and only if they satisfy certain conditions. Thus, both consonants must be of a certain identity and the head of the governing domain must be licensed. As to the former, IG may apply if a phonological element faces an empty position (□)[7] on a given phonological line[8], this is represented graphically in (6) below where '⇐' denotes IG.

(6)

	a.		b.		c.	
	p	r	s	r	t	p
I/U line	□ ⇐	I	I	I	□	□
A line	□ ⇐	A	A	A	□	□

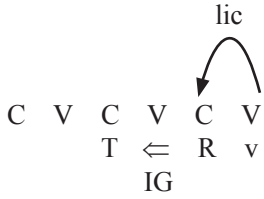
As can be seen a domain of IG may be established for [pr] and [kr] (6a) where at least one element faces an empty position on a given line. By contrast, IG may not hold within the clusters of (6b, c) because either all places are filled [sr] or no

[6] There is another proposal, one where branching onsets are considered to be contour segments (for details see Rennison 1998).
[7] For a thorough discussion concerning the internal structure of consonants see Scheer (1999).
[8] Phonological elements are supposed to reside on the autosegmental lines (see Kaye et al. 1985).

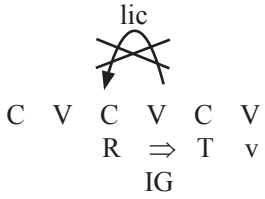
governor is available [tp]. Thus, in this model Infrasegmental Government is a function of the internal structure of consonants where sonorants are typical governors and obstruents governees (for the opposite view, see Harris 1990, 1994 and Harris & Lindsey 1995). As mentioned above, the second condition on IG concerns the licensing of its head. According to Charette (1990), a non-nuclear governor may govern only if it is licensed to do so by a following nucleus (see Section 2.2). Thus, Charette's (1990) observation makes the correct predictions when considering word-initial clusters in the CV framework. The 'branching onset' of increasing sonority (7a) represents a right-headed IG, while the one with the falling sonority (7b) an unattested word-initial cluster in Indo-European (IE) languages, i.e. a domain of consonantal interaction which is left-headed. In (7) the uppercase letters T and R stand for any obstruent and any sonorant respectively, the 'v' is an audible vowel and 'lic' is an abbreviation of 'licensing'.

(7)

a.



*b.



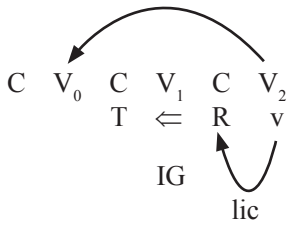
In both cases (7a) and (7b) the segmental requirements are met in order to contract a possible IG, but only the head R of the TR cluster is licensed. In (7b), on the other hand, the head R fails to be licensed because the nucleus on its right-hand side is empty. Scheer (1999) proposes that we extend the cases where nuclei may remain unexpressed to Infrasegmental Government: empty nuclei enclosed within a domain of IG are licensed. Initial #RT clusters are ill-formed because the embedded empty nucleus is unable to license R (7b). This kind of argument is not available under the standard GP approach. Note that in (7) both structures begin with an empty CV unit. This idea comes from Lowenstamm (1999) who proposes to attach an empty CV unit to the left edge of every word of a major category. In other words, he replaces the non-phonological SPE[9] object '#' with a CV unit. As now the boundary marker '#' is a phonological object, i.e. an empty V position preceded by an empty C position, it must be sanctioned as other empty nuclei. The introduction of this extra initial CV unit aims at an attempt to explain the dichotomy between two types of languages. Thus, there exist languages which exclusively tolerate initial clusters of rising sonority, e.g. English, German, French, etc., but there are also languages, in which clusters of rising sonority as well as their mirror images are possible, e.g. Biblical Hebrew, Berber, etc., in general Afro-Asiatic languages. According to Lowenstamm (1999), this dichotomy follows from the different licensing status of the initial CV: in IE

[9] The abbreviation stands for the title of the book by Chomsky & Halle (1968) 'The Sound Pattern of English' and refers to a theory developed in this work as well as to the later continuation of this model.

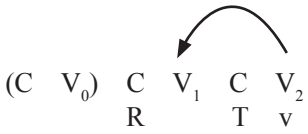
languages they are always licensed whereas in Afro-Asiatic not necessarily. The non-existence of a hypothetical class of languages exclusively tolerating initial clusters of decreasing sonority #RT is shown to follow from the proposal. The urge to license the empty vocalic position of this boundary marker is then the source of various phenomena, dynamic, e.g. alternations in cliticisation (Lowenstamm 1999), and the lack of lenition in certain phonological environments (Ségéral and Scheer 1999a, Szigetvári 2000) as well as the aforementioned phonotactic restrictions on the word-initial consonant clusters in different languages (Lowenstamm 1999, Szigetvári 2000). The representation of both types of languages #TR (8a) and #RT (8b), i.e. Indo-European and Afro-Asiatic respectively is given below in (8).

(8)

a.



b.



In (8a) the initial CV is active, i.e. it requires a licensor. V_2 does not have to license V_1 as the latter is licensed through IG, thus it is the former that can perform this action, i.e. properly govern V_0. Note that in a language in which the initial CV is active we cannot encounter #RT clusters as the empty nucleus V_1 separating both consonants would have to be properly governed by V_2, and hence V_0 would lack the licensor. In (8b), on the other hand, the initial CV unit is not active. V_2 is now released from the duty to properly govern the initial V_0, and hence can strike V_1. The consonants flanking a properly governed nucleus do not have to fulfil any melodic requirements, thus, it follows that both #TR and #RT clusters are possible in a language, in which initial CV is not active. Now we are armed in a device to resolve Polish initial sonorant-obstruent clusters in (4) above. Recall that such clusters proved to be problematic for Cyran & Gussmann (1999) analysis. We can explain such sequences simply by assuming that the initial CV is not active in Polish. This is precisely what Scheer (2002a) proposes, he actually claims that Polish lacks the initial CV. Accepting the idea that in Polish the initial CV is inert, the situation becomes obvious as the empty nucleus between R and T in a #RT cluster can now be licensed through Proper Government. As was mentioned above, PG does not exert any restrictions on flanking segments that is why both #TR and #RT clusters are possible in Polish.

Equipped with Infrasegmental Government and bearing in mind that Polish is an anything goes language (both #TR and #RT clusters are possible), we are in a position to present the analysis of Polish initial sequences available within the strict CV model. We start by presenting the trivial clusters, a discussion concerning more challenging ones follows shortly.

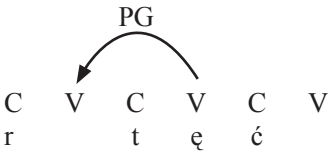
(9)

a. son+obst		b. obst+obst		c. son+son	
[rd]est	'water pepper'	[kt]o	'who'	[mn]ogi	'numerous'
[rt]ęć	'mercury'	[tk]ać	'weave'	[ml]eko	'milk'
[rv]etes	'commotion'	[kp]ić	'mock'	[mr]ówka	'ant'
[wk]ać	'weep'	[db]ać	'care'	[mw]ody	'young'
[wg]ać	'lie'	[pt]ak	'bird'	[mɲ]ie	'me'
etc.		[gb]ur	'boor'		
		etc.			

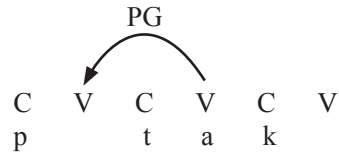
In (9) we have two consonant clusters, which are accounted for by the same mechanism, i.e. Proper Government. Note that the clusters in (9a) and (9b), the former have already been mentioned above, can be immediately resolved when assuming that in Polish the initial CV is inactive. This fact is responsible for arising consonant clusters of sonorant-obstruent, obstruent-obstruent type. The representation of [rt]ęć and [pt]ak is given below in (10), the initial CV as inactive is not represented.

(10)

a.



b.



The last column in (9), i.e. (9c), is occupied by sonorant-sonorant clusters. What is striking here is the fact that the first position of such clusters is invariably occupied by the bilabial nasal. In Section 2.1 it was mentioned that in Cyran & Gussmann (1999) a proposal is put forward where the nasal [m] (but also [l]) patterns with obstruents. Recall that it is placed just below obstruents on the strength scale. According to the authors, its peculiar behaviour can be observed in sequences containing two typical governees (see footnote 3 above) like those in (9c). The fact that two governees are not allowed to contract Interonset Government, and that such clusters appear in a rigid order forces them to accept the idea that [m] in sonorant clusters behaves like an obstruent. In consequence, they assume that such clusters contract a rightward Interonset governing relation. In the CV framework we could follow a similar path and try to explain [m] plus sonorant clusters as an instantiation of IG. Note that according to Scheer's (1999) proposal concerning the internal structure of consonants the nasal [m] lacks any element on U/I line so in principle the following [r], [l] or [w], which have this line occupied, could govern it. This situation is represented graphically in (11).

(11)

a.

mrówka 'ant'

	C	V	C	V .....
	|		|	|
	m		r	ó .....
I/U	□	⇐	I	
A	A		A	

b.

mleko 'milk'

	C	V	C	V .....
	|		|	|
	m		l	e .....
I/U	□	⇐	U	
A	A		A	

Note, however, that the internal structure of [n] is similar to that of [m] (Scheer 1999). So the question immediately arises why initially [m] is a good mate for other sonorants but not [n]? Simply put, if we want to explain the distributional pattern of sonorants in the initial position we are completely lost. To account for the same distributional pattern of initial sonorants Cyran & Gussmann (1999) claim that [m] along with [l][10] behave like obstruents in that they are sound governors, which can contract the IO relation with the following sonorant. Recall the discussion concerning such clusters and why this is not a plausible solution for them (see Section 2.2 above). Scheer (in prep.) argues that the efforts to characterise the occurring initial sequences and their complementary set in terms of a natural class are vain: the gaps, he claims, are not systematic or governed by any phonological regularity. Quite contrary, they are accidental and merely reflect the modern consequence of random lexical distribution of yers in common Slavic. Thus, from the discussion above it follows that the clusters in (9c) are resolved by means of Proper Government, and the fact that they start with the bilabial nasal is simply accidental.

Consider now the initial clusters, which are broken up by a vowel in related forms. Such alternating forms are given in (12) below.

(12)

[sɛn] – [sn]y ‘dream, nom.sg. – nom.pl.’	[bɛs] – [bz]u ‘lilac, nom.sg.-gen.sg.’
[lɛn] – [ln]u ‘flax, nom.sg. – gen.sg.’	[k’ɛw] – [kw]a ‘tusk, nom.sg.- gen.sg.’
[k’ɛr] – [kr]a ‘ice float, gen.pl. – nom.sg.’	[lɛf] – [lv]a ‘lion, nom.sg. – gen.sg.’
[sɛt]ny – [st]o ‘hundredth - hundred’	[wɛp] – [wb]a ‘head, nom.sg. –gen.sg.’
[p’ɛz$_{\downarrow}$]e – [pr]ać ‘wash, 3p.sg. – inf.’	[wɛs] – [wz]a ‘tear, gen.pl. – nom.sg.’
wy[ɡ’in]ać – [ɡn]ę ‘bend, inf. – 1p.sg.’	u[rɨv]ać – [rv]ać ‘tear off – tear’

In Cyran & Gussmann (1999) some of the clusters in (12) must be resolved by means of Proper Government, e.g. [bz]u and [wb]a, as they cannot contract Interonset Government (see Section 2.1 above). Some others, as capable of contracting it, represent the instantiation of this particular mechanism, i.e. IO, e.g. [kw]a and [kr]a. In strict CV all clusters in (12) arise due to the operation of Proper Government similarly to those in (9a-c) above. Although some of them could contract Infrasegmental Government, e.g. [kw]a or [pr]ać, they are not able to do that as both clusters are broken up by the alternating vowel [ɛ], i.e. [k’ɛw] and [p’ɛz$_{\downarrow}$]e respectively. Since the alternating vowels are always underlyingly present (they are simply not associated to the constituent (Scheer 2002a: 33)) their alternating behaviour is resolved by means of PG. The representation of [lɛn] – [ln]u is given in (13).

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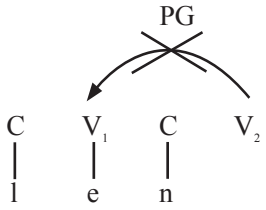
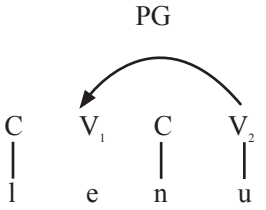
[10] In Cyran & Gussmann (1999) [l] is said to pattern with obstruents because of the forms [ln]u ‘flax, gen.sg.’ and [lɳ]iany ‘flax, adj’. Note that the former is broken up by the vowel in the alternating form [lɛn] ’flax, nom.sg.’ The alternating clusters will be discussed shortly.

(13)

a.



b.



In (13a) the final empty nucleus cannot properly govern V_1, hence the nucleus gets associated to its melody. In (13b), on the other hand, the final nucleus V_2 is not empty hence able to perform the action, V_1 is struck by PG and, in consequence, the association line is inhibited resulting in the muteness of the nucleus.

So far we have presented two-consonant clusters, which arise due to the operation of PG[11]. Now we can look closer at the initial three-consonant clusters. As before the presentation of the relevant data precedes the discussion. Consider the sequences in (14).

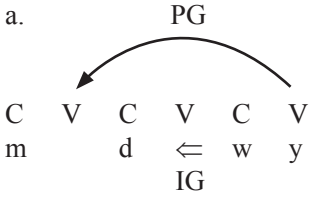
(14)

a. son+obstruent+son	b. obst+obst+son	c. (C)s+C(C)
[mdw]y ‘bland’	[tkn]ąć ‘touch’	[st]ado ‘herd’
[lgn]ąć ‘cling’	[t͡skɲ]ić ‘long’	[str]ona ‘page’
[mkn]ąć ‘speed’	[tkl’]iwy ‘affectionate’	[zbr]oja ‘arms’
[mgɲ]ienie ‘wink’	[t͡skl’]iwy ‘sentimental’	[fstr]ęt ‘repulsion’
[mdl’]ić ‘nauseate’	[vgl]ąd ‘inspection’	[pstr]y ‘gaudy’
[rz̨n]ąć ‘saw’	etc.	etc.

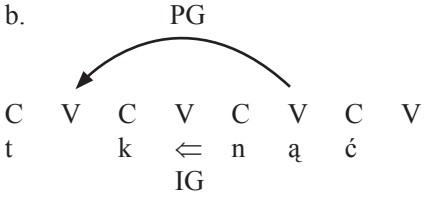
Given the fact that in Polish initial CV is inactive and that TR sequences can contract Infrasegmental Government, the clusters in (14a) can be represented as instantiation of IG and PG. The same mechanisms are responsible for clusters under (14b), the only difference is that in the latter the first position is occupied by an obstruent while in the former by a sonorant. The representation of [mdw]y and [tkn]ąć is given below.

(15)

a.



b.



In both (15a) and (15b) the last two consonants of the initial cluster are adequately equipped to contract IG, hence the empty nucleus separating them is licensed, while the first empty nucleus is properly governed by the first audible nucleus.

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[11] In this paper we do not discuss the ‘branching onset’ type clusters, i.e. #TR, as they are simply Infrasegmental Governing domains.

The last set of examples in (14) represents s+C(C) clusters. The peculiar character of such sequences has long been noticed in the literature. Note that there is nothing special in the behaviour of [s] alone, the problems start to arise when this segment is followed by a consonant. Since such clusters frequently appear in the word-initial position, [s] is often interpreted as an extrasyllabic element (Steriade 1982, Giegerich 1992, Ewen & Hulst 2001 among others). Such clusters are sometimes given the affricate status (Selkirk 1982, Carr 1993, Weijer 1994, Wiese 1996). They are also claimed to behave as two separate consonants like in Italian, for instance (see Kaye 1992). Thus, in standard GP the [s] is believed to sit in a separate constituent, i.e. 'coda' preceded by an empty nucleus, which is licensed through Magic Licensing (see Section 2.1). As was mentioned above, the operation of this mechanism has not been fully explained yet, hence its name: MAGIC Licensing. Strict CV dispenses with the Magic Licensing mechanism on the grounds that s+C clusters very often behave as if they were one consonant (see Scheer 2002a, in prep. for some evidence from Czech). According to Scheer (personal contact), the problematic s+C clusters could be resolved by assuming a special internal structure of [s], which lets it contract a (progressive) relation with the following consonant, hence representing s+C clusters as sitting in two separate onsets. Needless to say, this relation must be different from Infrasegmental Government. We will not pursue this problem any further here, suffice it to say that instead of three- or sometimes four-consonant clusters we are faced with two- and three-consonantal sequences respectively (at least as far as their behaviour is concerned). Thus, *strona* 'page' and *pstry* 'gaudy' have two and three consonants respectively. The former is resolved by means of IG while the latter by IG and PG similarly to the examples in (15) above.

In the discussion so far it has been demonstrated that the two mechanisms: Infrasegmental Government and Proper Government are able to explain most of the two- and three-consonant sequences. However, when faced with the examples like those given below, one might feel forced to abandon the so far neat CV analysis. Consider the last set of data in (16).

(16)

Lexically trapped sonorants

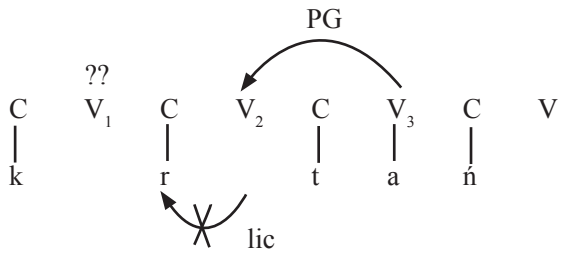
		a. obst+son+obst		b. obst+son+son	
[brd]a	'name of a river'	[plf]ać	'spit'	[brn]ąć	'plod'
[grd]yka	'Adam's apple'	[drʐ]eć	'tremble'	[krn]ą[brn]y	'unruly'
[krt]ań	'larynx'	[trf]onić	'waste'	[kln]ąć	'to swear'
[drv]al	'wood-cutter'	[drgn]ąć	'shudder, perf.'		
[drg]ać	'vibrate'				

Trapped sonorants – alternation sites

c.	d.
[krf']i – [krɛf] 'blood, gen.sg.–nom.sg.'	[mgw]a – [mg'ɛw] 'mist, nom.sg.–gen.pl.'
[brv']i – [brɛf] 'eyebrow, nom.pl.–nom.sg.'	[pxw]a – [pxɛw] 'flea, nom.sg.–gen.pl.'
[drva] – [drɛf] 'firewood, nom.pl.–gen.pl.'	[ʑd͡ʑbw]o – [ʑd͡ʑbɛw] 'blade, nom.sg.–gen.pl.'
[pwt͡ɕ]i – [pwɛt͡ɕ] 'sex, gen.sg.–nom.sg.'	

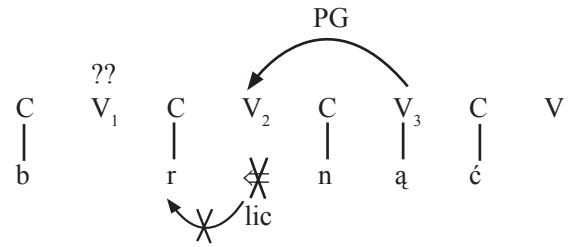
Under both (16a) and (16b) we find consonantal sequences with the so-called trapped sonorants. In (16a) the trapped sonorant appears between two obstruents, while in (16b) between an obstruent and another sonorant. Such clusters are problematic in that they cannot be resolved by means of any mechanism available in the CV model. Consider first the representation of the representative of the (16a) set in (17) below, the abbreviation 'lic' denotes licensing.

(17)



In (17) V_3 must properly govern V_2 ([rt] is not a possible IG domain), V_2 being empty cannot give licence to [r], hence the initial [kr] cannot contract IG either. Thus, in (17) the initial nuclear position V_1 remains unlicensed. A similar situation arises in (16b) where two sonorants are preceded by an obstruent (18).

(18)



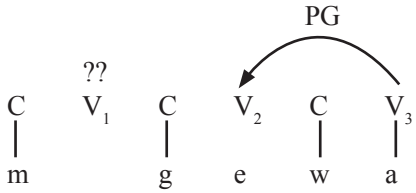
In (18) the two sonorants, as potential governors, are not possible to interact with each other in the IG domain. It means that the empty nucleus V_2 must be properly governed by the following filled V_3, again V_2 being properly governed cannot license [r] and again the first nucleus, i.e.V_1, remains unlicensed. The question immediately arises whether such clusters (those in (16a) and (16b)) can be explained using only the CV syllable structure and the two mechanisms: Government and Licensing. It should be noted here that such sequences, although long recognised as problematic, have not been resolved in a satisfactory way by any theory. Some attempts have been given, which treat trapped sonorants as extrasyllabic (Rubach & Booij 1990a, 1990b), in spite of the fact that extrasyllabicity, extrametricality etc. ought to occur only at word-edges (see Scheer in prep.). Such clusters have also proved problematic for Optimality Theory (Prince & Smolensky 1993). In consequence this has led Rubach (1997) to the postulation of a new theory, Derivational Optimality Theory. On the other hand, in standard GP the peculiarity of such clusters seems to be overlooked

and hence disregarded. The only thing a GP analyst has to assume to explain them is that empty nuclei are potential government licensors in Polish (Charette 1992) or that the licensing comes from a different source (Cyran & Gussmann 1999) (see the discussion in Section 2.2 above).

We could follow the same path of reasoning here and say that properly governed empty nuclei are able to give licence needed to establish IG domain (see again (17) and (18) above). At first sight this step seems quite reasonable as in Polish there are some 'branching onsets' word finally, e.g. musz[tr] 'drill, gen.pl.', siós[tr] 'sister, gen.pl.', spekta[kl] 'performance' etc., that are never broken up by an alternating vowel. In the CV they must enclose an empty nucleus. Such nucleus, however, must be taken care of in one way or another. This can be achieved by IG but only on condition that the final empty nucleus has the ability to give licence to such structures. If this is true we may use this idea to explain the initial sequences like [krt]ań or [brn]ąć, by saying that the properly governed and hence empty nucleus (the one between the last two consonants of the initial cluster in (17) and (18) above) is able to give licence to the preceding IG domain. This solution, however, must be abandoned as word-internal empty nuclei behave quite differently from those in the word-final position, the former are simply not able to govern or license (Scheer 2002a: 42).

Finally, since the alternating sites are always instantiation of Proper Government, the alternations in (16c) and (16d), like those in (12) discussed above, must be resolved by means of PG. As has already been mentioned, the alternating vowels are lexically present, thus, if they escape PG they get associated to the constituent but when they are properly governed they remain unassociated and hence mute. The representation of [mgw]a is given in (19) below.

(19)



In (19) we are confronted with the alternating site. The final filled nucleus V_3 can properly govern the preceding one V_2, that is why the latter remains unassociated to its melody and hence unpronounced. As inaudible it cannot serve as a proper governor and hence V_1 remains unlicensed. Furthermore, [mg] cannot act as the IG domain either. Note, on the other hand, that the related form [mg^{i}ɛw] can be represented as the operation of PG. In Polish alternating vowels are not able to govern nuclei that are lexically present (*piesek*, 'dog, diminutive' vs. *mgieł*, 'mist, gen.pl.'), but they are perfect governors of nuclei that are lexically empty (like the V_1 in (19)) (see Scheer 2002a, Rubach 1984, 1986, Gussmann 1980). It was proposed (Scheer 1998b) that the second and the third consonant, as appropriately equipped, could contract Infrasegmental Government. This solution, however, seems to be wrong as the lexically floating melody, i.e. /ɛ/ in (19), makes the flanking consonants impos-

sible to observe melodically each other and hence to set an IG domain. Moreover, the alternating sites are always dealt with by PG. Note that exactly the same objections could be raised against the previous analysis as the last two consonants appear in the Interonset governing domain (Gussmann & Kaye 1993, Cyran & Gussmann 1999)[12]. The last set of alternating forms in (16c), i.e. [brv'ʲ]i – [brɛf], resembles those in (16a, b) in that the variants without the vowel are another example of trapped sonorants. The only difference between the clusters in (16a, b) and (16c) is that the latter and not the former are broken up by the vowel [ɛ]. Thus, it follows that if we are able to explain the sequences in (16a, b), we will also have a ready answer for [brv'ʲ]i – [brɛf]. In the section that follows we shall attempt to resolve such problematic sequences.

The alternative analysis presented in this section demonstrates that the CV approach using only two mechanisms: Government and Licensing can neatly cover Polish facts. In this way it does better than any other previous theory. The remaining problematic clusters, those with trapped sonorants, will be dealt with in detail in the next section. In order to explain such problematic sequences we will hint at Szigetvári's (2000) idea of representing syllabic consonants.

4. Szigetvári's (2000) VC Phonology

This section is devoted to the problematic cases in the CV analysis. Thus, in what follows we will focus only on clusters with the trapped sonorants and try to resolve their peculiar character by ascribing them the structure of syllabic consonants.

Szigetvári (2000) (see also Dienes & Szigetvári 1999) works on a slightly modified skeleton, the one he calls a VC model. Both CV and VC frameworks propagate strict sequencing of consonants and vowels, but it is the latter that invariably starts with a V and ends with a C. This move, among other things, results in dispensing with the final empty nucleus whose existence has always been disputable (see Polgárdi 1999, Rowicka 1999, see also Scheer 2002b for some arguments against this move). Additionally, Szigetvári (2000) claims that words start not with the initial empty CV unit (recall CV = # in the strict CV model) but with the empty V alone. The initial empty C is very rarely used[13], he claims, hence its disappearance does not change much. Thus, the author opts for a skeleton, which universally starts with a V and ends in a C, hence the name VC Phonology. Moreover, Szigetvári (ibid.) claims that the idea of repartitioning the skeleton contributes to a better understanding of such problems as extrametricallity of word-final consonants, the minimal-word constraint or strict locality constraints. The representation of the relevant justification of the theoretical reasoning behind this model is not our main concern here. Thus, in what fol-

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[12] The problem could be solved by treating [mgw]a – [mg'ʲɛw] as two separate lexical entries. Such a solution could be then extended to the remaining forms in (16d). In the last case of (16d), i.e. [zd͡zbw]o – [zd͡zbɛw], we have an additional s+C cluster.

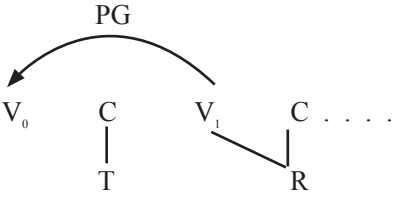
[13] There were some attempts to use this initial C position (Ségéral & Scheer 1999b), who argue that the [s] of initial s+C clusters occupies exactly this position.

lows we will only hint at the idea of representing the syllabic consonants. For a more elaborate presentation of the theory together with some similarities and differences between the CV and VC models see Szigetvári (2000).

4.1 Left- or right-branching structures?

Szigetvári (2000) criticizes Scheer's (1998b, 1999) idea of Infrasegmental Government (see Section 3) and proposes a view where the enclosed vocalic position in an initial 'branching onset' may neither be governed nor buried (the latter term is used to describe the situation when a nucleus is silenced because of the governing relation between two consonants). Thus, he points out that if we want to maintain the idea of word initial empty V position and that of strict locality requirement, we have to agree that such nucleus should be 'alive' and hence the source of government the word-initial empty V position is requiring. The representation of a 'branching onset' proposed by Szigetvári (2000: 117), with some minute modifications, is given in (20).

(20)



In (20) the V_1 position, intervening between two consonants, is not empty. Its governing power is exerted on the preceding V_0, allowing onset clusters to occur word-initially. It must be noted that Szigetvári (2000) equates the representation of 'branching onset' clusters with consonant followed by a syllabic consonant sequences. His analysis, however, deals only with English and, therefore, the intricate argumentation proposed by him will not be provided. In what follows we will focus only on the idea presented in (20) above.

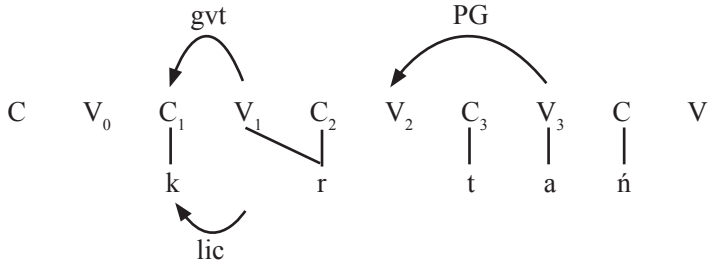
In Section 3 we have demonstrated that strict CV can cope with most of the phonotactic problems arising at the initial site in Polish. The only problematic clusters, the CV analysis stumbles across, are those represented in (16a–c) above[14], i.e. those containing a trapped sonorant. Polish differs radically from English in that in the former, but not in the latter, syllabic consonants do not appear. In Polish they occur only sporadically in the fast speech (see Rubach 1977). However, Polish is rare in that in this language we encounter many examples of the so-called trapped sonorants. Note that in closely related Czech we can find identical sequences and in such clusters the sonorants are predominantly syllabic (Scheer in prep.). Given these facts, we propose to represent Polish trapped sonorants as syllabic consonants similarly to that in (20)

[14] It will become clear that the truly problematic clusters are those in (16d). Recall that in footnote 12 we confined ourselves to the statement that such forms are different lexical entries, which is not a satisfactory solution.

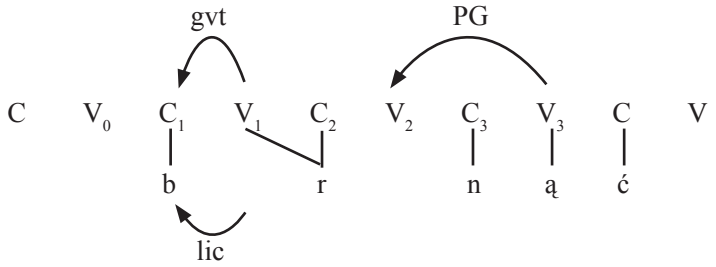
above, i.e. as the spreading of the consonantal material to the preceding empty nuclear position. Consider again the representation of [krt]ań and [brn]ąć in (21), where 'gvt', 'lic' stand for government and licensing respectively.

(21)

a.



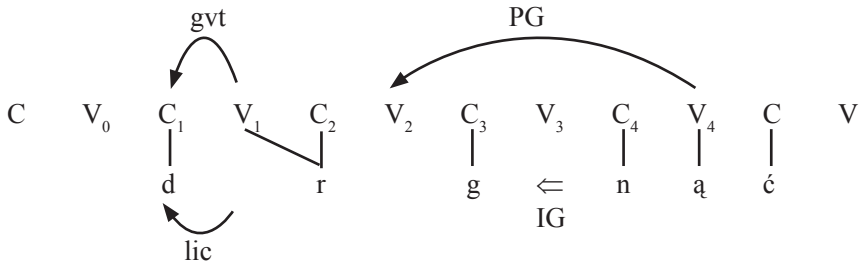
b.



In (21) the trapped sonorants are represented as left-branching structures. In both (21a) and (21b) V_2 is properly governed hence mute. However, the first nucleus V1, under this new representation, is not empty so it does not have to be governed to remain silent. Quite the contrary, being occupied by the following sonorant through spreading it is able to both govern and license. Since, however, in Polish the initial CV is not active and so does not need to be governed the government strikes the initial consonant as depicted in (21a, b). It becomes obvious that the alternating clusters of the [brv']i – [brɛf] and [krf']i – [krɛf] type can be represented in the same fashion, i.e. the first nucleus is occupied by the following sonorant and the alternating site is dealt with by Proper Government as elsewhere. The only example of the four-consonant cluster (without s+C or its cognates) in Polish, i.e. [drgn]ąć, can be resolved in the same way. This is represented below in (22).

(22)

a.



In (22) V_1 is not empty hence it does not require the governor, V_2 is properly governed by V_4 and the empty V_3 is licensed as it appears in the domain of Infrasegmental Government.

The most serious consequence of the solution proposed in both (21) and (22) is the fact that the first consonant of the cluster, i.e. C_1, is governed. Recall that it results from the observation that in Polish initial CV is not active (see Section 3 above). This seems to be the main drawback of the representation of trapped sonorants as left-branching structures. Note that government is claimed to be a destructive force which inhibits the association of the melody to the nucleus, and consequently, when government strikes the consonant it should undergo lenition (Ségéral & Scheer 1999a, Szigetvári 2000). Accordingly, the first consonantal position C_1 in such sequences, i.e. those in (21) and (22) above, should be recognised as a lenition site. This prediction, however, is hard to prove as Polish is a language in which the lenition/fortition processes are almost absent. Note, however, that the first consonantal position in such forms (21) and (22) is in fact both governed and licensed. Thus, the negative force, i.e. government, is balanced by the fact that C_1 is also licensed. Being not empty (it is invaded by the following sonorant through spreading) the nuclear position V_1 in (21) and (22) is a potential licensor. This context, i.e. a position which is both governed and licensed, is still recognised as a lenition site (see Ségéral & Scheer 1999a)[15]. The most serious problem, however, is the fact that in Polish only trapped sonorants seem to require such a left-branching representation and not for instance 'branching onset' type of clusters. Moreover, there are languages in which we encounter both trapped and syllabic consonants like Czech, for instance (Scheer in prep.)[16]. This is one of the reasons why Scheer (ibid.) opts for a different representation for trapped and syllabic sonorants[17]. He argues that there are two kinds of 'syllabic' sonorants, one truly syllabic, the other trapped. The latter are represented as right-branching structures while the former as left-branching ones. He proves his point by indicating that trapped and syllabic sonorants behave differently, the former pattern with consonants, while the latter act as vowels. He also justifies this distinction from the historical perspective using some evidence from Slavic (see Scheer in prep. for a more detailed discussion). The representation of trapped sonorants as right-branching structures is given in (24).

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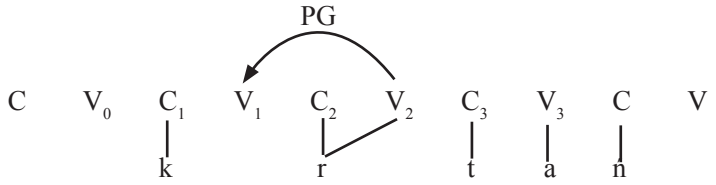
[15] The theory of lenition developed by both authors and called the Coda Mirror predicts two lenition sites: a position which is both governed and licensed and the one which is neither governed nor licensed. However, their cross-linguistic research proves that both contexts are phonologically different, i.e. the majority of lenition processes seem to be reserved for the latter context. Thus it seems that a segment appearing in an ungoverned and unlicensed position is more easily decomposed (see also Szigetvári 2000).

[16] Recently there have been many discussions concerning the appropriate representation of syllabic consonants both in standard GP and in strict CV (Harris 1994, Szigetvári 2000, Blaho, 2002, Scheer in prep.).

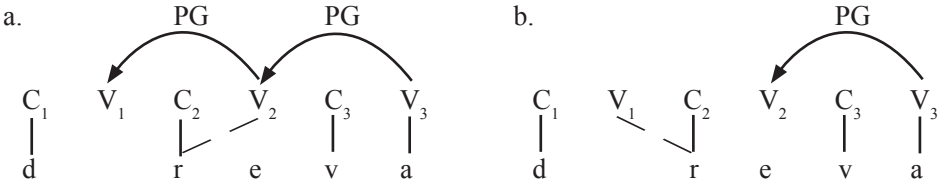
[17] Scheer (in prep.) indicates that Polish trapped sonorants behave like consonants, hence he uses the term 'trapped consonants'.

(24)



In (24) we can see that the trapped sonorant is spreading onto the following position V_2, V_2 being not empty can serve as a governor and properly govern the preceding nucleus V_1. The nuclear position V_1 as empty can neither license nor govern the preceding onset C_1, so under both representations C_1 appears in a similar situation, i.e. in a lenition site. In the former it is both licensed and governed, while in the latter neither licensed nor governed. The remaining instances of trapped sonorants along with the alternating forms of [brv']i – [brɛf] type can be explained in the same fashion. However, the latter examples, i.e. alternating forms in (16c), seem problematic under this second solution (right-branching structures), as here we are faced with some sort of principle ranking or rule ordering. Since GP in general and strict CV in particular are theories of representation (without a rule component), this is clearly an unwelcome result. Consider now the forms in (25), the initial empty CV unit is not represented. In (25a) we illustrate the solution advocated in Scheer (in prep.), i.e. trapped sonorants as right-branching structures. In (25b) we have the representation proposed in this study, a left-branching structure.

(25)



In (25a) V_2 must be properly governed as vowel-zero alternations are handled by PG. V_1 is empty and as such seeks a potential source of government. This action can be performed by the following nuclear position V_2, as by that time the nucleus has been invaded by the trapped sonorant. Note, however, that from the representation in (25a) it follows that first V_2 is properly governed, and only then does the trapped sonorant have a chance to spread to V_2 and consequently govern V_1. In other words, PG takes precedence over the sonorant spreading[18]. This problem is immediately dismissed, if we represent trapped sonorants as left-branching structures, as in (25b).

Both competing solutions presented in this section resolve the problem of trapped sonorants in Polish initial consonantal sequences. The problematic clusters have been represented as left-branching structures. This solution allows us to cover Polish facts

[18] It must be mentioned here that Scheer (in prep.) explains this situation by demonstrating that sonorants in a weak position (lenition sites) spread spontaneously.

without introducing additional machinery or the principle ranking. However, it seems that a more thorough analysis is needed to find out further consequences of representing trapped sonorants as syllabic consonants. The solution given in Scheer (in prep.), on the other hand, seems to be equally promising as confirmed by the cross-linguistic research and some historical evidence.

5. Conclusion

The discussion presented in this paper has pointed to some advantages of the strict CV approach over the standard GP analysis. We have demonstrated that Polish complex initial clusters can be explained in an elegant, and more importantly, in a very economical way in the CV framework. In order to account for such sequences previous analyses have to refer to heavy machinery such as resyllabification, word-medial extrametricality etc. Standard GP analysis, although able to cover the facts, compares unfavourably with the CV model as it requires more mechanisms. Strict CV can account for the same facts using only two: Government and Licensing. It has been proved that the last problematic area, i.e. trapped sonorants, can also be explained using these two universal mechanisms. We have presented two ways of dealing with such clusters. First, they have been represented as left-branching structures, similarly to syllabic consonants. Then, we have demonstrated another option, the one advocated in Scheer (in prep.). Both solutions are able to explain the peculiar character of such sequences. Needless to say, accepting one view over another must have some theoretical consequences and this is indeed so. Thus, although in both options the initial consonant of such clusters appears in a similar context (lenition site), the representation advocated in this analysis does not suffer from any sort of principle ranking. On the other hand, Scheer's (in prep.) version differentiates between syllabic and trapped sonorants, which seems vital especially in languages which possess both structures.

Summary

The aim of this paper is to compare two analyses of Polish initial consonantal sequences. The starting point for the discussion is a brief presentation of the solutions available within the standard Government Phonology approach (henceforth GP). The findings are then confronted with the alternative analysis – a strict CV version of the standard GP. As the research unfolds, it becomes clear that a strict CV model is not only more elegant and more economical, but it also explains the facts better. The only problematic cases for this alternative approach, i.e. the so-called trapped sonorants (consonantal sonorants that appear in an onset between two consonants of lower sonority, as in e.g. [krt]*ań* 'larynx'), are dealt with in the second half of this paper. The author attempts at resolving the problematic character of trapped sonorants by representing them as left-branching structures, i.e. as spreading of the sonorant onto a preceding empty nuclear position, similarly to syllabic consonants. This solution seems promising as it explains such sequences without introducing additional machinery.

The proposal gains an extra relevance, especially as standard GP seems to overlook the puzzle of trapped sonorants altogether. However, when it comes to the analysis proper, a competing solution becomes available. Although both of them can solve the problem, the acceptance of one over another has some further consequences.

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