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Author: Artur Kijak

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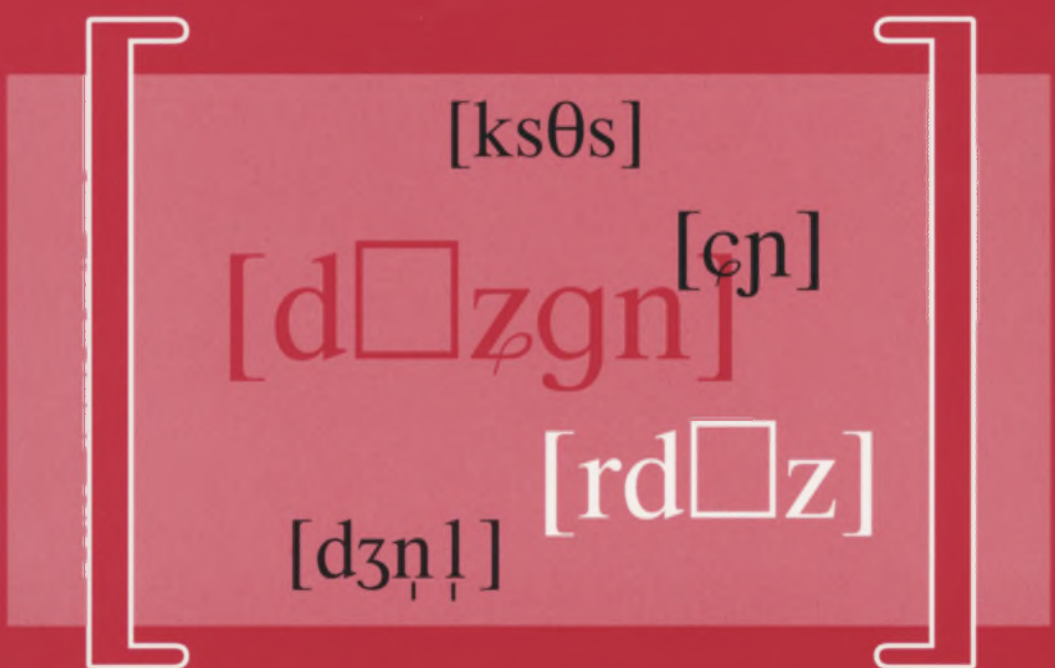
A Contrastive Analysis within the Strict CV Framework



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Preface

The phonotactic peculiarities of word-edges have always baffled researchers working in various theoretical models. In consequence, the irregularities have contributed to a great number of analyses and the development of many new theoretical concepts. However, despite the evident discrepancies between word-margins and the word-internal position, the previous studies persistently relied on the view that it is possible to work out phonotactic generalisations on the basis of consonant sequences occurring at word-edges. The most commonly practised solution aiming at getting rid of the peculiarities at word-edges is the appendix. It is allowed to contain a consonant, or a series of consonants, which are not normally permitted medially and which violate some phonotactic constraints. But it was soon realised that even the appendix solution, problematic as it was, did not manage to annihilate all the discrepancies between both contexts, that is, word-margins and the word-internal position. A trail towards the explanation of the facts has been blazed by Government Phonology, which provides the tools needed for a successful solution, i.e. empty nuclear positions (Kaye, Lowenstamm and Vergnaud 1985, 1990, Kaye 1990, 1992, Harris 1990, 1994, Charette 1991, Harris and Gussmann 1998, 2002). However, it will become evident that Government Phonology offers only a partial solution. It is partial because it concentrates on the right-margin of the word and because it explains only one of the two characteristic patterns. It is shown that a complete understanding of the peculiarities at word-margins is possible only in the model in which the previously arboreal syllable structure is replaced with a totally flat one, that is, in the Strict CV model (Lowenstamm 1996, 1999, Rowicka 1999a, Szigetvári 1999, Cyran 2003, Scheer 2004). Since it is possible to transfer, after slight modifications, the Government Phonology solution to the right-margin

peculiarities onto the Strict CV ground, in this work we focus our attention on the left-margin of the word.

It is generally accepted that the principal goal of science in general is to study various, often seemingly unrelated, phenomena and facts in order to uncover the 'truth' of the surrounding world. This goal can be achieved only by raising meaningful questions. The basic question at the beginning of any theoretical research is 'why things are the way they are'. This question was one of the two major triggers for writing this book. The second one was a dissatisfaction which has grown out of the fact that some of the most fundamental and crucial questions have been disregarded or passed over in silence. Thus, the major aim behind this study is an attempt to offer a satisfactory answer to at least two basic questions. The first question concerns the reason why languages fall into two general groups, that is, those which allow for both rising- and falling-sonority clusters word-initially, e.g. Polish, and those where only the former can be found, e.g. English. The second question underlies the difference between languages that allow for extremely complex word-initial consonant clusters and those in which the clusters are relatively simple.

Generally speaking, this work has been intended as an attempt to legitimise Lowenstamm's (1999) proposal to replace the traditional word-initial boundary marker '#' with a fully phonological object and study some of its consequences. In order to achieve this goal, we discuss various phenomena, mostly distributional (static) patterns but also dynamic ones concerning phonological processing. The data for the analysis come from languages which are representatives of the two aforementioned groups, that is, Polish and English. Additionally, we refer to some other languages whenever it is crucial for the discussion. It is usually the case that the introduction of a new theoretical concept has more far-reaching implications that it may seem at first sight. This simply means that although the postulation of the initial empty CV unit is able to explain the previous problems, it may itself cause some troublesome pitfalls. Our aim, therefore, is not only to provide the explanation for the questions mentioned above but also try to deal with the potential problems this new concept faces. It must be clarified here that in order to fully comprehend the analysis in this book, the reader is required to be familiarized with the basic theoretical notions of Government Phonology and the model of segmental structure known as the Element Theory. For the latter model the reader is referred to rich sources, for instance, Kaye (1989), Rennison (1987, 1990), Harris (1994), Harris and Lindsey (1993, 1995), Cobb (1993, 1997), Scheer (1996, 1999a), Charette and Göksel (1996), Cyran (1996, 1997, 2003), Nasukawa (1998,

2000), Ploch (1999), van der Torre (2003), and Botma (2004), among others.

The work is organised in the following way. Chapter One serves as a theoretical background introducing the basics of the model adopted for the analysis proper. Moreover, in order to prepare the ground for the analysis in Chapter Two and Three, we discuss briefly the evolution of the word-boundary marker '#' in phonological theory concentrating on the traditional problem of disjunctivity. In the second part of Chapter One we point to major drawbacks of theories relying on the Sonority Sequencing Principle with the conclusion that the sonority-based theories must be abandoned. Additionally, it is shown here that languages fall into two general groups and the division is based on the word-initial consonant clusters. In order to understand this divergent behaviour of languages, we look more deeply at the traditional branching onsets in Polish and Czech. Finally, it is demonstrated that branching onsets are in fact two onsets separated by the empty nucleus. The consonants associated with such onsets are able to contract a governing relation which is head final. The representation of branching onsets together with the idea of the active/inactive character of the initial empty CV unit explains why languages allow for different word-initial consonant sequences. Chapter Two provides some evidence for the inactive character of the initial empty CV unit in Polish. It is pointed out that the (in)active character of the initial site plays a pivotal role both in syllabification and phonological processing. We provide a detailed analysis of Polish trapped consonants and compare them with their close cognates, that is, syllabic consonants in other Slavic languages. Finally, we offer a solution to the development of soft labials in one of the north-eastern dialects of Polish, that is, the Kurp dialect. The findings are additionally confirmed by a similar process in the history of French. All the evidence collected in this chapter points to a single conclusion, that is, that the empty CV unit is not active in Polish. Chapter Three deals with three apparently unrelated phenomena, namely, syllabic consonants, bogus clusters and vowel syncope in English. Since the former two structures also appear in closely related German, they are discussed in relation to both languages. It is demonstrated that all three phenomena have the same origin and stem from the expansionist behaviour of sonorants as a reaction to the positional weakness. Finally, the absence of bogus clusters and vowel syncope from the left margin of the word is explained by the presence of the initial empty CV unit. This observation further confirms the original assumption of the active character of the initial site in English and German.

The present study is a revised version of my doctoral dissertation. I would like to take the opportunity to thank the people who have had

a profound influence on its final shape. First of all, I would like to express my deep personal debt to my advisor Dr hab. Rafał Molencki for his patience, direct and indirect help, comments and constant encouragement. I am also very grateful to the referees of my dissertation and the present book, Professor Kazimierz Polański, Dr hab. Eugeniusz Cyran and Professor Piotr Ruszkiewicz for their valuable comments and suggestions. Additionally, I wish to express my gratitude to Professor Edmund Gussmann whose inspiring lectures introduced me to the world of linguistics and to whom I owe my adventure with phonology. Over the years I have met many friendly people whom I would like to thank for their encouragement, great help, and valuable comments on my work. Special thanks are due to the following: Bożena Cetnarowska, Nancy Kula, David Schauffler and Tobias Scheer. Finally, I would like to thank the Nuffic Foundation for awarding me a Huygens grant for a ten-month research in the Netherlands in 2004. I would like to express my gratitude to all the members of the Leiden University Centre for Linguistics department. In particular, I would like to thank Jeroen van de Weijer and Grażyna Rowicka for their invaluable help and hospitality. Last but not least, I would like to thank my wife Katarzyna and my baby daughter Martyna for their patience

List of abbreviations

BrO — branching onset
DI — Derived Imperfective
dim. — diminutive
FOD — Final Obstruent Devoicing
gen. — genitive
GL — Government Licensing
GP — Government Phonology
Gvt. — Government
id. — identical
IG — Infrasegmental Government
inf. — infinitive
instr. — instrumental
IO — Interonset
ipf. — imperfective
Lic. — Licensing
MHG — Middle High German
nom. — nominative
NSG — Northern Standard German
OHG — Old High German
OT — Optimality Theory
p. — person
pf. — perfective
PG — Proper Government
pl. — plural
PW — Phonological Word
RIO — Rightward Interonset relation
sg. — singular
SPE — the Sound Pattern of English
SSP — Sonority Sequencing Principle

I. The framework

1. Introduction

The main goal of the present chapter is to illustrate and discuss the major theoretical assumptions underlying the phonological framework employed in this study. Despite the fact that the Strict CV model is assumed to be a logical continuation of the research programme set by Government Phonology, with which it shares the foundations and major tenets, we have not decided to introduce the basics of the latter model. The reason behind this choice is twofold. Firstly, the introduction and comparison of both models would require another work of comparable size, and besides, such comparisons have already been made and are readily available. Secondly and more importantly, Government Phonology (GP) already has an established position as a theoretical framework and has been described, often in a reader-friendly way, by many researchers. Here we simply presuppose the reader's basic knowledge of the Government Phonology framework.

The chapter is organised in the following way. Section 2 is devoted to the presentation of the Strict CV model. The discussion is focused on some of the most significant differences between GP and its Strict CV version. Next, section 3 explores the evolution of the word-boundary marker '#' in phonological theory. Starting from *The Sound Pattern of English* (Chomsky and Halle 1968), we provide a brief survey of the previous solutions to the problem of the word boundary and disjunctivity, that is, {_C and _#}. The conclusion that we reach is that neither the previous theories nor GP are able to provide a satisfactory explanation of this problem. A successful solution becomes available in a theory

employing the simplest syllable structure, that is, the Strict CV model. Additionally, in order to explain the peculiarity of word-final empty nuclei advocated by both GP and the Strict CV model, we hint at Lowenstamm's (1999) idea of replacing the initial word boundary with a phonological object. In the next section (section 4) we demonstrate the major drawbacks of theories relying on the Sonority Sequencing Principle. Additionally, it is pointed out that both in Polish and English phonotactics there are still some gaps which have not been covered. This is clearly observable in the case of the consonant clusters occurring at word edges. Finally, section 5 introduces and briefly discusses the main mechanisms of the Strict CV framework, that is, Government and Licensing. We briefly outline the consonantal interaction between two onsets, that is, Infrasegmental Government, and explain why it must be head-final. Additionally, we discuss the idea put forward in Lowenstamm (1999) which aims to replace the initial word boundary marker with the empty CV unit. The latter idea is a starting point for the analysis in Chapter Two and Three.

2. Strict CV

The present section is devoted to the presentation of the Strict CV framework, a theory, which we shall adopt for the analysis of Polish and English facts in the remainder of this book. There are three reasons why the discussion in this section is rather brief and why we focus our attention on the theory's most important aspects only. Firstly, rather than present a collection of dry facts, we shall introduce the model gradually as the discussion unfolds. Secondly, even if it may seem reasonable to present here the basics of the Strict CV framework's immediate predecessor, that is, Government Phonology, as both theories share the majority of theoretical foundations, we have intentionally abandoned this idea. The reason behind this step is rather prosaic. As has already been mentioned, the present work is addressed to those researchers who are already acquainted with GP theory. Moreover, a detailed comparison of both theories, i.e. GP and the Strict CV model, would lead us too far afield here. Therefore, rather than review all the crucial foundations of the theory, we shall concentrate on what is directly relevant to our discussion. Thirdly, a meticulous discussion and presentation of the CV model, along with the comparison with other theories (including GP) is already

available; see, for example, Szigetvári (1999), Rowicka (1999a), Cyran (2003), and Scheer (2004).

Strict CV, also known as the CVCV model, originates in Lowenstamm's (1996) idea that all languages have underlying CV structure. This view implies that the phonological representation of the syllable structure boils down to the skeletal tier on which every consonant is followed by a nuclear position, either lexically contentful or empty. To put it differently, the Strict CV model does not grant a theoretical existence to branching constituents, hence syllabic constituents can be reduced to strictly alternating sequences of non-branching onsets and non-branching nuclei. The minimal syllabic unit that may be manipulated is the onset followed by the nucleus, i.e. the existence of the former implies the latter and vice-versa. Moreover, the extreme segmentation of the syllabic constituents results in the possibility of exchanging previously bare slots, that is, Xs, with C and V on the skeletal tier and 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 to the Strict CV model.

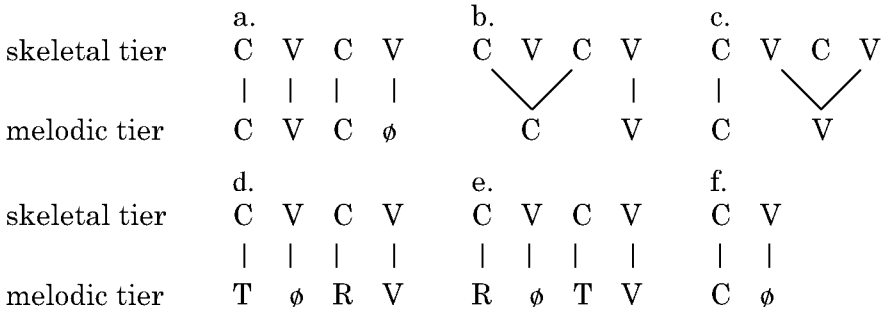
As has already been mentioned, the Strict CV model has evolved from GP and, as a result, both models share theoretical foundations. The significant difference, however, lies in the fact that in the Strict CV model the assumption that the structure and causality should be lateralised has reached its logical conclusion. Consequently, the arboreal syllable structure has been replaced with an entirely flat one. Moreover, as the central tool of the Strict CV model, lateral relations not only define the syllable structure but also cause phonological processes. The model recognises two major lateral relations, namely, Government and Licensing. When one compares 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 decomposes or weakens, while Licensing restrains such a process or even strengthens the target (see section 4.3 in Chapter Two). Furthermore, different vocalic segments are ascribed different governing/licensing abilities. Generally speaking, full vowels can both govern and license, while empty nuclei are not allowed to do this. Note that in certain languages final empty nuclei are ascribed the ability to govern and/or license[1] (see the discus-

[1] For the cross-linguistic research of the licensing abilities of different vocalic segments see Cyran (2003).

sion in section 3 below concerning the special status of the word-final empty nuclei).

To sum up the discussion so far, we have seen that the Strict CV model views syllable structure as strictly alternating sequences of non-branching onsets and non-branching nuclei, hence, there are no branching constituents, no rhymes and no codas. In order to clarify the points raised above, let us focus on a handful of examples. In (1) we give the Strict CV representation of some traditional structures, namely, closed syllables (1a), geminates (1b), long vowels (1c), branching onsets (1d), coda-onset contacts (1e) and word-final consonants (1f). The 'C' and 'V' on the melodic tier stand for any consonant and any vowel respectively, the 'TR' represents a typical branching onset, that is, an obstruent followed by a sonorant.

(1)



The representations in (1) demonstrate that the traditional branching onsets are reanalysed as two onsets separated by an empty nucleus (1d). Similarly, coda-onset clusters are represented as two onsets with an empty nucleus in between them (1e).[2] Geminates are interpreted as consisting of two consonantal positions with an intervening empty nucleus (1b). It must be emphasised here that despite the extreme segmentation of the syllable structure, the structural information of the traditional approaches is preserved in the Strict CV model. For instance, as will be mentioned in section 3 below, certain phenomena like, for example, devoicing or lenition, occur word-finally and before consonants and hence fall under the uniform description 'coda'. In the Strict CV approach, these phenomena are referred to as occurring before a governed empty nucleus. The superiority of the latter statement over the former one lies in the

[2] It is crucial for any theory of syllable structure to recognise the difference between branching onsets and coda-onset contacts. In the Strict CV approach the difference lies in the fact that the former, to the exclusion of the latter, constitutes a domain for the Infrasegmental Government relation, see section 5.1 below.

casual relation between the relevant environment and the observed phenomena. To put it differently, in the previous approaches the fact that consonants decomplexify in the coda must be regarded as a pure coincidence. On the other hand, in the Strict CV model the explanation of such phenomena falls out naturally from the syllable structure. Note that, since the traditional coda is replaced here by a position before a governed empty nucleus, the weakness of the former follows from the emptiness of the latter. This implication seems quite natural as it is generally accepted by almost all GP researchers that empty nuclei are devoid of licensing power or, at least, that it is smaller than that of a filled one. Another consequence of dismantling the syllable structure which deserves comment 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 has to come up with means to keep such nuclei quiet. Interestingly enough, the doubled number of empty positions does not call for extra devices or heavy machinery. On the contrary, the facts can be neatly covered by means of the two aforementioned relations, that is, Government and Licensing.

Finally, it must be clarified here that the theoretical model adopted in this book is the one developed by Scheer (1998a, 1999a, 2004). It does not mean, however, that this is the only option to choose from. On the contrary, there are quite a few versions of the Strict CV model which sometimes differ quite radically from the one advocated here. Thus, the idea that the syllable structure boils down to a strict alternation of non-branching nuclei and onsets has been pursued by many phonologists, for example, Polgárdi (1998, 1999, 2002, 2003), Rennison (1999a), Rowicka (1999a, 2001), Szigetvári (1999, 2001), Dienes and Szigetvári (1999), and Cyran (2001, 2003).

In the remainder of this work we shall look more deeply at certain phenomena in Polish and English phonotactics. It will become clear that in situations where certain facts have already received a GP explanation, e.g. Polish word-initial consonant sequences (Gussmann and Cyran 1998, Cyran and Gussmann 1999), the Strict CV alternative proposal is not just a theoretical exercise boiling down to mere repartitioning of the branching constituents into non-branching ones. On the contrary, there are some reasons why we believe this step is necessary. Firstly, the model adopted here is not only able to capture the same facts as GP, but it does it better from the explanatory and simplicity point of view. After all, the GP analysis of Polish word-initial clusters resembles the Strict CV account in that the vast majority of complex initial sequences must be represented as a strict alternation of non-branching onsets and non-branching nuclei. Secondly and more importantly, the Strict CV

model is able to handle the problems previous theories could not resolve (see also the following section). Additionally, it addresses questions which have rarely been raised in the past and provides satisfactory answers. Thus, for example, the fact that English, unlike Polish, does not tolerate empty nuclei at the left edge of the word and lacks clusters with the falling-sonority slope in this position receives a coherent explanation. Finally, some problems which have been left unsolved or simply overlooked by previous theories acquire a new theoretical status, e.g. trapped and syllabic consonants, bogus clusters and vowel syncope. Before we focus our attention on the analysis of Polish and English data, let us briefly discuss the evolution of the boundary markers in phonological theory. The discussion in the following section will point to the superiority of the Strict CV model over GP. Additionally, and more importantly, it will introduce a problem which is one of the chief issues of this study, namely, the legitimisation and some consequences of Lowenstamm's (1999) idea of replacing initial boundary marker '#' with a fully phonological object, that is, the initial empty CV unit.

3. Boundary markers in phonological theory

3.1. Introduction

The theory of domains in phonology dates back to the publication of the by now classic work by Chomsky and Halle (1968) *The Sound Pattern of English* (SPE). Since morphology as a separate component did not exist in the early model of Generative Grammar, phonological rules in SPE operate on syntactic rather than on morphological structures. The syntax-phonology mapping is accomplished by means of three different devices, namely, labelled bracketing, morphological boundaries and readjustment rules. For our purposes we shall focus our attention only on the morphological boundaries, or to be more precise, on the internal word boundary '#'.[3] For an overview and the critical discussion of the phonology-morphology interaction in early generative theories see Anderson (1985), Szpyra (1989). Apart from the aforementioned in-

[3] Since in this book we make reference only to the internal word boundary #, we use a shorter name, that is, word boundary.

ternal word boundary, expressed by '#', SPE employs several other types: the full word boundary '# #', the formative boundary '+' and the prefix boundary '='. The word boundary is inserted at the beginning and end of every string dominated by a major lexical category such as noun, verb or adjective (Chomsky and Halle 1968:366). This boundary marker plays a crucial role in the operation of phonological rules in that it either inhibits or conditions phonological processes. In spite of immediate and strong criticism of the SPE morphological boundaries (Hooper 1976, Kenstowicz and Kisseberth 1977, Aronoff 1980), the boundary marker # survived and was inherited in its original or modified versions by the theories evolving from the SPE tradition.[4] However, since the rise of Autosegmental Phonology (Goldsmith 1976, 1979), the previously wide operational range of the word boundary has been gradually curtailed.

3.2. Disjunctive context and the rise of coda

Autosegmental Phonology constituted the basis for a new research programme generally referred to as prosodic phonology which contributed to the observation that apart from morphological units it is necessary to recognise a suprasegmental structure in phonology, e.g. the syllable, the foot, the phonological word, among others. Kahn (1976) was one of the first researchers who demonstrated that a great number of morpheme-dependent generalisations are in fact syllable based. In other words, Kahn (1976) points to the fact that the processes which appear before the word boundary # also take place in a different context, namely, before the following consonant. Since then, phonologists have observed that a huge number of cross-linguistic phenomena are triggered by the disjunctive context, that is, before the word boundary # and a consonant 'C'. See Kaye (1989), Goldsmith (1990), Carr (1993), Roca (1994), Blevins (1995), and Ewen and Hulst (2001). However, it must be noted here that although the role and nature of boundaries came under constant scrutiny by early generative researchers, there were hardly any attempts to establish their phonological identity that would be different from a diacritic (Kenstowicz and Kisseberth 1977, Stanley 1973, Kiparsky 1982, Rubach and Booij 1984, Mo-

[4] See, for instance, Siegel's (1979) *Level Ordering Hypothesis* and the Lexical Phonology tradition.

h a n a n 1986). Thus, the most common response to the problem of disjunctivity in both pre- and post-Kahnian phonology was the postulation of curly brackets. In other words, the curly brackets made it possible to collapse the two contexts into one, which was represented schematically as A→ B / {_C and _#}. This solution, however, was one of the basic flaws which contributed to the strong criticism and consequently to the revision of the linear model. It was pointed out that there was no principled reason why members of the set {C #} formed a natural context for phonological processes and that in principle any set of matrices could be placed in the curly brackets. In other words, the disjunction involving {_C and _#} was perceived as unnatural since both objects provoking identical effects did not share any formal property. Furthermore, since the word boundary # did not have any phonological characteristics and was not composed of any phonological features, its function boiled down to a mere marker recalling that before word boundaries certain processes took place just like before consonants. The repeatedly posed question of what a word boundary and a consonant have in common resulted in the reintroduction of the coda and hence syllable structure into linear theory (K a h n 1976). In this way the problem of disjunctivity was resolved and the processes occurring in the context {_C and _#} obtained a uniform account; they all appear in the syllable coda, e.g. final devoicing in German (R u b a c h 1990, H a l l 1992). In short, a non-phonological object, i.e. the word boundary # was replaced by a fully phonological one, the coda. What is crucial, however, is the fact that the idea to get rid of the unnatural disjunctive context by reintroduction of the syllable structure does not answer one important question, namely, why consonants in the codas face the same fate, that is, lenition. In other words, what is special in the syllable coda that segments appearing in this position undergo weakening? A giant step forward towards the solution of this problem was offered by Government Phonology, which introduced empty positions into the phonological theory. Thus, in the following section we shall look more deeply at the GP stance on the phonology-morphology interface and the postulation of final empty nuclei.

3.3. Phonological domains

According to K a y e (1995), morphological structure can have 'little' or 'no' influence on phonology. To put it differently, morphological information is respectively either visible or invisible to phonology. Thus, analytic

morphology is visible or parsable in that it defines the domains of phonological processing (Kaye 1995:305). In order to decide whether the morphological complexity is analytic or not, one has to look at the phonological characteristics of the string, e.g. phonotactic constraints, stress assignment, etc. The former may be illustrated by the English example *sixths*. The final cluster, that is [ksθs], could never be found within a single underived form in the language. The fact that this form is grammatical informs us that it must be analytic. In short, the presence of such clusters provides us with a parsing clue, i.e. that there is more that one domain involved, viz. [[[siks]θ]s]. It follows that phonotactic regularities observed by non-derived forms can be violated by analytically complex forms. As for the stress assignment, the penultimate pattern observed in *parent* ['peərənt] is switched into antepenultimate when the suffix *-hood* is added, which means that the suffix is separated by the morphological boundary which is phonologically relevant, that is, [['peərənt]hud]. This type of morphological complexity is represented schematically as [[A]B], [A[B]][5] and [[A][B]], which stand for analytic suffixation, prefixation, and compounding respectively.

As mentioned above, morphological complexity can also happen to be invisible to phonology in which case it is called *synthetic* or *non-analytic*. The boundary separating the synthetic suffixes from the stem, in contrast to the analytic ones, does not block phonological processes from applying. It simply means that synthetically derived forms are not phonologically parsable, and hence form one phonological domain, which can be represented schematically as [AB]. Thus, when the suffix *-al* is added to our initial example, that is, *parent*, the stress pattern is not affected in that it remains penultimate. In other words, the stress pattern of the derived form points to the fact that the boundary between the root and the suffix is not visible, which yields the domain structure [pə'rentəl].[6] To conclude, synthetically derived forms become indistinguishable from non-derived forms in that both groups are subject to the same phonological constraints and properties.

A word of clarification concerning synthetically derived forms is in order here. As indicated by Kaye (1995), synthetically derived forms

[5] Kaye (1995) argues that analytic prefixation should have the same domain structure as compounds, that is, [[A][B]]. There are two reasons behind this claim, one general, the other theory-internal. The former concerns the asymmetry between the behaviour of prefixes and suffixes, while the latter the licensing of domain-final empty nuclei (cf. Gussmann and Kaye 1993, Polgárdi 1998, Rowicka 1999c).

[6] Note that the influence suffixes have on the stress pattern brings to mind the traditional classification of English affixes into two classes, see, for example, Siegel (1979), Selkirk (1982), Szpyra (1989), among others.

are not derived at all, but are listed as separate lexical items in the lexicon. This means that phonological regularities occurring among such forms were once phonologically active processes, e.g. Velar Softening or Trisyllabic Laxing. Synchronically, however, they are no more than historical relics. In other words, 'morphologically related forms which resemble each other phonologically are not necessarily derived from a common source' (Kaye 1995:313). It follows that the apparent regularities of the synthetically derived forms are at best represented as a case of allomorphy.

To sum up, the only morphological information available in phonology is the analytic domain boundaries. Morphologically complex forms with the synthetic domain structure are equated with the morphologically single underived forms. Finally, note that the distinction between the synthetic and analytic domains brings to mind the distinction introduced in SPE, that is, morphological boundaries '+' and word boundaries '#', where the former were assumed to be invisible to phonological processing. However, what distinguishes the Government Phonology account from the previous ones is the postulation of domain final empty nuclei. Thus, in what follows we shall address the question concerning the presence of domain final empty nuclei and why they are special.

3.3.1. Domain final empty nuclei

The significant contribution of GP to phonological theory is the observation that a word-final consonant does not function as a coda but rather patterns with internal onsets. Very briefly, it was pointed out that word-final consonants behave differently from word-internal codas in several respects, e.g., they do not trigger Closed Syllable Shortening, they are usually extrametrical with respect to stress assignment, etc. Moreover, from the distributional point of view, word-final consonants pattern together with word-internal onsets (Kaye 1990, Harris and Gussmann 1998, 2002). In order to account for this fact, Kaye (1990) proposes the principle of Coda Licensing which narrows down the occurrence of the coda to a very specific context, that is, it can appear only if it is licensed by the immediately following onset. This was one of the reasons why the coda was excluded from the GP constituent inventory.[7] Furthermore, since in principle onsets must be licensed by the following

[7] Note that 'coda' is shorthand for post-nuclear rhymal complement in GP.

nucleus, it follows that consonant final words in fact end in an onset followed by the empty nucleus. In consequence, GP predicts word-final empty nuclei. Note, however, that since the very beginning this move has been problematic simply because final empty nuclei lack the licensor.[8] In GP empty nuclei do not appear at random but rather their distribution is principle-governed. Thus, in order to remain silent, an empty nucleus must be licensed by the following audible vowel through Proper Government[9] or appear in the domain of Interonset Government.[10] Since, however, final empty nuclei are not followed by any licensor or do not appear in any governing domain it means that the only way to make sure they remain silent is to postulate a parametric licensing (2).

(2) Final empty nuclear position is licensed:
ON/OFF

In other words, it has been assumed that whether a language allows for such final empty nuclei is not related to internuclear configurations, but is controlled by a parameter. If the parametric licensing of the final empty nuclei is set to ON in a language, the language will have words with final consonants on the surface, e.g. English, Polish. If the parameter is set to OFF, inaudible final nuclei are disallowed and every word must end in a vowel, e.g. Italian. Later, the scope of final empty nuclei was extended to capture the occurrence of domain final empty nuclei in morphologically complex words with the analytic domain structure. It follows that if parametric licensing has scope over domain-final rather than word-final empty nuclei, the only difference between, for example, *sixths* [[[sɪksø]θø]sø] and *ten* [tenø] is the number of empty nuclei, three in the former case and one in the latter. As has already been mentioned, this solution is problematic as such nuclei lack the licensor. However, there is another case which emphasises the peculiar status of final empty nuclei in GP, that is, their ability to government-license consonantal relations (Charette 1990, 1991). For example, English allows for word-final consonant clusters, e.g. *land*, *cult*, *lamp*, *milk*, etc., which means that in such cases the final obstruent in order to govern the preceding sonorant must receive the licence from the following (in this case empty) nucleus.

[8] This is also true for empty nuclei preceding the /sC/ clusters, the so-called 'Magic Licensing context', see Kaye 1992.

[9] Proper Government is a relation between a nucleus dominating a melody and a nucleus with no phonetic content.

[10] Basically, Interonset Government is a relation between two onsets separated by an empty nuclear position.

What is interesting, however, is the fact that internal empty nuclei never act as government-licensors in English. In consequence, GP is obliged to recognise two different kinds of empty nuclei, i.e. word-internal and final. This move was considered as a serious drawback and hence faced strong criticism (see Rowicka 1999a, b, Polgárdi 1998, 1999, 2002, Dienes and Szigetvári 1999, Szigetvári 1999, 2001). Interestingly enough, the weakest point of the solution offered by GP is the claim that word-final consonants never act as codas but are onsets instead. Note that although there are a number of phenomena in different languages which irrefutably show that internal codas do not pattern with word-final consonants (Harris and Gussmann 1998, 2002), the claim that word-final consonants are always onsets is too strong. The post-Kahnian period has gathered satisfactory evidence, both static distributional and concerning various processes, which point to the fact that word-internal codas and word-final consonants behave alike (see Scheer 2004). To sum up, GP seems to be unable to refer to the traditional context {_C and _#} in a non-disjunctive fashion.[11] What is needed, therefore, is a theory which is 'able to do both: capture the coda context as a non-disjunctive object and make a difference between word-final and pre-consonantal consonants' (Scheer 2004:606). The immediate conclusion drawn from the discussion above is that GP has managed to achieve the second part only, that is, by postulating word-final onsets it has captured the observation that word-final consonants do not behave like internal codas. A way out of the impasse becomes available in the model which does not recognise arboreal syllable structure, that is, the Strict CV approach. The latter model breaks the vicious circle by getting rid of syllabic constituents and shifting the load onto lateral relations, which can be parameterised. Very briefly, the reason why both internal codas and word-final consonants behave alike falls out naturally from the fact that both objects appear before an empty nucleus. The fact that in certain cases both objects do not pattern is captured by the parameterisation of the lateral potential of final empty nuclei. In other words, the difference between internal and final empty nuclei boils down to the fact that the former can neither license nor govern, while the lateral

[11] As was pointed out to me by Eugeniusz Cyran, it is not true that GP cannot refer to this context in a non-disjunctive fashion because according to Harris' (1997) *Licensing Inheritance Theory* both contexts are weak. It seems that what is problematic here is the terminology mismatch. Note that domain-internal codas are called post-nuclear rhymal complements while domain-final consonants are onsets. It follows that there are two classes of onsets, those which are prosodically weak (domain-final) and those which are strong (domain-internal).

ability of the latter is parameterised, i.e. in some systems they can license and/or govern.

The fundamental question, however, is why in both GP and the Strict CV model it is the final empty nucleus rather than the internal one that behaves peculiarly. Recall that in the former model final nuclei lack the licensor and can dispense Government-Licensing, while in the latter one the lateral potential of the final nuclei is usually greater than that of the internal ones. This observation brings us back to the traditional question, namely, why the right-margin of the word is special. In short, although both GP and the Strict CV model are able to explain various phenomena taking place at the right edge of the word by postulating a final empty nucleus, they do not address the question why it is the final empty nucleus rather than the internal one that fails to meet the general requirements imposed on empty nuclei. The solution could be sought in Lowenstamm's (1999) proposal to replace the initial word-boundary marker with a fully phonological object, that is, # = CV unit. As will be demonstrated in the chapters that follow, the status of the initial empty CV unit is responsible for various dynamic and distributional phenomena in Polish and English. If we can prove that this replacement is legitimate, which is one of the major aims of this book, this solution could be extended to the right margin of the word. In short, both initial and final boundary markers can be replaced by phonological units, i.e. empty CV and V respectively, which take an active part in phonological processes. This move would contribute to a uniform solution to the phonological peculiarities arising at word-edges cross-linguistically.

To conclude, this section has briefly demonstrated the distance boundary markers have covered in phonological theory. The reason why the discussion has been limited to the word boundary '#' is twofold. Firstly, this problem has attracted much attention in the past and hence it is well-documented. Secondly and more importantly, it is directly relevant to our analysis in the following chapters. Thus, we have traced the word boundary back to the origin in SPE and demonstrated the evolution it has undergone since then. We have focused our attention on the problem of disjunctivity which inevitably involves the word boundary. The fact that this context, i.e. {_C and _#}, produces divergent effects proved one of the serious problems for previous theories. Thus, the solution proposed in the mid-seventies, that is, the reintroduction of the coda and hence the syllable structure, fails as in certain cases both codas, i.e., word-final and pre-consonantal, behave in different ways. On the other hand, SPE-related models cannot refer to both codas in a uniform fashion. It is pointed out that the impasse can be resolved by a theory in which arboreal syllable structure is replaced by the parameterised

lateral relations, that is, in the Strict CV model. Finally, it has been suggested that the postulation of final empty nuclei could be perceived as a general consequence of replacing the boundary markers, both initial and final, with fully phonological objects. Before we provide some evidence demonstrating the legitimacy of this move in the word-initial position in Polish (Chapter Two) and English (Chapter Three), let us briefly note some unanswered questions concerning the word-initial consonant clusters.

4. Shortcomings of the Sonority Sequencing Principle

4.1. Introduction

The observation that languages differ according to the consonant sequences they allow for is trivial and hence may be considered as unattractive. Moreover, the bookshelves full of literature devoted to the phonotactics of individual languages may discourage the prospective researcher from exploring the problem. The general conclusion emerging from the previous studies is that the vast majority of languages observe the Sonority Sequencing Principle (SSP) (3), with some minor, language specific adjustments like, for example, minimal sonority distance, appendices or extrasyllabicity.

(3) Sonority Sequencing Principle (Blevins 1995:210)
Between any member of a syllable and the syllable peak, a sonority rise or plateau must occur.

Although generally accepted, the SSP as postulated by, for example, Blevins (1995), Selkirk (1982, 1984), and Clements (1990) may be criticised for being merely an observational fact which does not reflect any internal character of phonological segments.[12] In other words, the sonority profile is just an arbitrarily postulated scale which does not play any active role in phonological processing. In addition, SSP has been

[12] Cyran (2003) rightly points out that the strength-based models (Vennemann 1972, 1988, Foley 1977, Murray 1988) suffer from the same weakness.

accused of circularity (Scheer 1999b). Very briefly, it is generally accepted that whatever appears before the first vowel in a word must be an onset, hence the beginning of the word is tantamount to the beginning of the syllable, that is, both start with the onset. Furthermore, in languages like English and German word-initial clusters are invariably of the rising-sonority type.[13] These two observational facts have led to argumentation which is circular in nature. Thus, word-initial consonant clusters must have a rising-sonority profile because they are in onsets. How do we know that they are in onsets? Because the sonority rises. Although found word-initially in certain languages, falling-sonority clusters can never be recognised as onsets in theories relying on SSP. They violate the sonority principle and hence cannot constitute a potential onset.

Summing up, the Sonority Sequencing Principle, which says that sonority must rise word-initially, has been based on the traditional phonotactic studies of the typical western Indo-European languages, which happen to possess only rising-sonority clusters word-initially. The answer to the question why the clusters with decreasing-sonority profile are not possible at the left edge of the word falls out naturally in sonority-based theories, i.e., they would simply violate SSP.

The two major flaws mentioned above are sufficient to disqualify the sonority-based theories from the game. Consequently, what is needed is a theory which could answer the question why in the vast majority of Indo-European languages word-initial clusters are of the rising-sonority type. It should also explain the fact that there exist languages which allow for clusters with both increasing- and decreasing-sonority profiles word-initially. Moreover, we would like to know the reason why certain languages possess complex consonant sequences, while the rest are happy with simple ones. Ideally, such a theory should replace the notion of sonority by deriving phonotactic restrictions from the internal structure of segments. The internal composition of segments should be independently motivated by playing a direct role in phonological processing. It must be noted here that the last two problems have been overcome by Government Phonology, in particular by Harris' (1990) complexity condition. In short, Harris (1990) derives phonotactic restrictions from the complexity of segments, where complexity is calculated on the number of elements a segment enjoys. This step makes the sonority principle redundant.

[13] The only exception to this observation is exemplified by clusters starting with /s/. Note, however, that /sC/ clusters behave peculiarly not only in English but also in most Indo-European languages.

In general, we can divide languages into two basic groups. The division is based on the co-occurrence restrictions imposed on the word-initial consonant clusters. The first group is represented by languages which tolerate rising-sonority consonant clusters only (#TR, where 'T' and 'R' stand for a typical obstruent and a sonorant respectively). Here belong languages like, for example, English, German, French, etc. The second group includes languages which are more permissive, i.e. they allow for both rising- and falling-sonority clusters (#TR and #RT). In this group we find languages from the Slavic family, e.g. Polish, Czech, Slovak, etc.[14]

In this work we shall focus on the phonotactic restrictions and syllabification in languages which are the representatives of both groups, i.e. English and Polish. Where appropriate or required some additional data from other languages will be provided. Let us start the discussion with some basic facts from English and Polish phonotactics.

4.2. Some unanswered questions in English and Polish phonotactics

English is probably one of the most thoroughly analysed languages. A mass of detailed descriptions and analyses of the language has accumulated with each passing decade. All major theories have been tested on English and in consequence many interesting observations have been made, which in turn have given rise to new theoretical concepts. One such observation, which has contributed to the postulation of a cross-linguistic principle, that is, SSP, concerns the co-occurrence restrictions on word-initial consonant clusters. In this section, we shall look at the major constraints holding in the word-initial position in English. The discussion is rather brief as even a cursory look at the English data suffices to establish a general phonotactic pattern (4).[15] However, it will be pointed out that the constraints built on the SSP are not explanatory enough. The chart has been adopted from Harris (1994:57).[16]

[14] Such clusters are also characteristic of languages which lie outside the Indo-European family, e.g. some Afro-Asiatic languages.

[15] A more detailed analysis of certain English consonant clusters will appear in Chapter Three.

[16] Some co-occurrence possibilities considered as marginal are omitted, e.g. [vr-] *vroom*, [sf-] *sphere*, [ʃr-] *shrink*.

(4)		C_2	l	r	w	p	t	k	m	n
	C_1									
a.	p		+	+	–	–	–	–	–	–
	t		–	+	+	–	–	–	–	–
	k		+	+	+	–	–	–	–	–
	b		+	+	–	–	–	–	–	–
	d		–	+	+	–	–	–	–	–
	g		+	+	+	–	–	–	–	–
	f		+	+	–	–	–	–	–	–
	θ		–	+	+	–	–	–	–	–
b.	s		+	–	+	+	+	+	+	+

In the previous section we placed English in the group of languages which allow only rising-sonority clusters word-initially (#TR). The data in (4a) confirm this preliminary classification. Thus, a typical word-initial cluster in English is comprised of an obstruent followed by a sonorant. In other words, the first position is occupied by a plosive or a fricative, while the second one by a sonorant. Note that a cluster with the opposite order of consonants can never begin a word in English; *[rt-], *[lg-] or *[wd-] are totally ruled out from the language. Furthermore, it must be noted that some of the potential combinations of a plosive and a sonorant are banned. Firstly, the sonorant is never nasal. There are no sequences of the *[tm-], *[pn-], *[gŋ-] type attested in the language. Secondly, while the velar plosives can precede almost any of the available sonorants, i.e. [l r w], the remaining classes of plosives are much more constrained. Thus, after the coronals [t d] the liquid [l] is impossible, similarly after the labials [p b], the labio-velar semivowel [w] is not admitted.[17] It must be clarified that the liquid which is disallowed after coronals is itself coronal, while after the labial plosive it is the labial semivowel that is not possible. The most problematic sequences, however, are those represented in (4b). They violate the constraint on the increasing-sonority profile in initial clusters. In addition, they are peculiar in that they are the only examples of three-consonant sequences.[18] Putting aside the problem of /sC/ sequences, a general constraint on the word-initial consonant clusters in English can be formulated — they consist of

[17] As was pointed out to me by Piotr Ruszkiewicz, word-initial [gl] and [kl] clusters are sometimes replaced by homorganic [dl] and [tl] ones in contemporary English. Moreover, there is a number of borrowings from Welsh which contain a homorganic [θl-] cluster, alternating with [hl-], e.g. *Lleyn* [θliːn] ~ [hliːn]. In the present study, such forms are regarded as marginal.

[18] The peculiar behaviour of /s/ in consonant clusters was discussed in a cross-linguistic analysis by Kaye (1992).

obstruents followed by non-homorganic, non-nasal sonorants. Note, however, that such a constraint does not try to explain why things are the way they are, in other words, why in English only #TR clusters are allowed initially, while #RT clusters are banned, or why [tl] cannot start a word but is perfectly possible in the word-medial position.

What is crucial for our discussion, however, is the fact that English without exception lacks word-initial #RT clusters. Surprisingly enough, the lack of such clusters hardly ever bothered anyone. Quite conversely, their lack positively confirmed the legitimacy of the Sonority Sequencing Principle. This is not to say that the problematic initial consonant clusters, i.e. #RT, which violate SSP were not recognised and discussed in the literature. There are plenty of studies concerned with such problematic clusters, for example, in Polish or Czech, not to mention in languages outside the Indo-European family. However, the existence of such clusters in certain languages has always been treated as some sort of misbehaviour as far as SSP is concerned. Phonologists have tried to 'cure' #RT sequences in various ways; sonorants in such clusters were proposed to belong to appendices or to be extrasyllabic; they were conjoined to some higher prosodic units like Foot or Phonological Word. What is interesting, however, is that it has always been the #RT clusters which have had to be accounted for somehow. This situation may be explained easily if we realise that it was SSP which played the major role in the syllabification and phonotactic studies.

One of the languages in question here is Polish, which violates any version of SSP. It has long been noted that this language abounds with heavy clusters of various sonority profiles. Moreover, the examples are so frequent that they cannot be swept away as exceptions. In order to explain Polish consonantal sequences, various stipulations have been introduced and heavy machinery has been applied. Quite often such solutions are language-specific, i.e., they are needed only for the Polish situation, e.g. the bi-partite structure of Polish onsets (Kuryłowicz 1952) or word-internal extrasyllabicity (Rubach and Booij 1990a, Rubach 1996, 1997a, b). Complex initial sequences like [drgn-], [tkn-], [fstr-] of *drgnąć* 'shudder', *tknąć* 'touch' and *wstręt* 'repulsion' respectively, have always been a good testing ground for different theoretical frameworks (Kuryłowicz 1952, Rubach and Booij 1990a, 1990b, Gussmann 1991, Bethin 1992, Gussmann 1997, Gussmann and Kaye 1993, Gussmann and Cyran 1998, Rowicka 1999a, Cyran and Gussmann 1999, Cyran 2003, Scheer 2004). However, such clusters have proved problematic for most of the analyses.

Any scientific theory which wants to be regarded as serious should ask meaningful questions. Two such questions are why in most of the

Indo-European languages sonority must increase in complex onsets and why there are languages, like Polish and Czech, which violate this constraint so frequently. In this work we shall address these questions and try to find solutions to the problems outlined in section 4 of this chapter. However, before we look in greater detail at the word-initial consonant clusters in Polish (Chapter Two) and certain sequences of consonants in English (Chapter Three), we shall attempt to explain the reason why languages fall into two general groups, i.e. only #TR clusters or both #RT and #TR. It will become evident that only when we accept the strict CV skeleton and the idea of the initial empty CV unit can we propose a reasonable solution to the phonotactic dilemma.

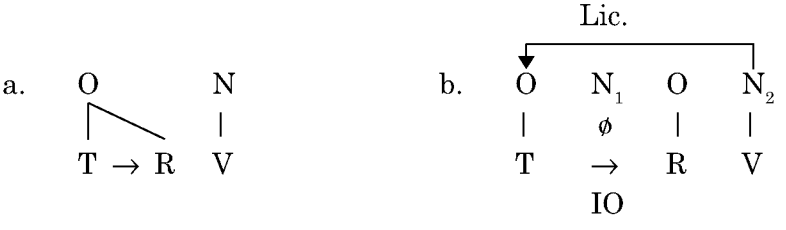
5. Consonantal interaction

The solutions available within the Government Phonology framework concerning the syllabification of consonant clusters in Polish can be found in numerous studies, e.g. Gussmann and Kaye (1993), Gussmann and Cyran (1998), Cyran and Gussmann (1999). These analyses are based on one of the main GP principles which says that syllabic constituents are at most binary branching (Kaye et al. 1990). Cyran (2003) in his analysis of Polish complex consonant sequences goes one step further. He demonstrates that the radical hypothesis of the syllable structure, i.e. the strict alternation of consonant and vocalic positions, is fully justified (see also Rowicka 1999a, Scheer 2004). He points to the fact that the Interonset relation (IO)[19] not only can account for the same effects as the branching onset, but it is actually required to simplify the theory he develops. In order to prove his point, Cyran (2003) presents five GP theory-internal tests. Thus, he looks at the application of Proper Government across both structures, i.e. branching onset (BrO) and Interonset relation, the effects connected with the principle of Government Licensing, prefixation, distribution of the word-final TR# clusters, and finally the melodic constraints on branching onsets and Interonset relations. The conclusions that follow from his analysis are that every branching onset can be exchanged by a sequence of two onsets separated by an empty nuclear position.

[19] Interonset relation, we recall, is a relation between two onsets separated by an empty nuclear position. Cyran (2003) indicates that all traditional branching onsets could be represented in this way, hence, he advocates the Strict CV model.

Let us look more deeply at the last point on Cyran's (2003) list, that is, melodic constraints. It is true that in GP branching onsets and Interonset relations are similar as far as the melodic make-up of segments contracting them is concerned. Very briefly, both structures consist of two segments in which the first one (leftmost) is more complex than the following one.[20] Given this similarity (among others), Cyran (2003) proposes replacing all branching onsets with a rightward IO relation sponsored by the licensing from the following nucleus (5).[21]

(5)



In (5a) we have a typical branching onset, in which an obstruent 'T', which is more complex as far as the elemental make-up is concerned, is followed by a less complex sonorant 'R'. Hence, it is the former which can act as the head and govern the latter (Harris 1997). In (5b) we are faced with a similar situation with the difference that what looks like a branching onset is separated by an empty nuclear position N_1. Note that in order to contract the IO relation an obstruent must be followed by a sonorant, pretty much the same as in the branching onset case. N_1 appears in the domain of the governing relation, hence, to use Cyran's (2003) term, it is 'locked' or phonologically inert.[22] One could ask why we should get rid of branching onsets, or in what way one representation is better than the other. In other words, what is the difference between (5a) and (5b)? It is unquestionable that the IO relation is independently motivated and needed in the phonotactic description of Polish (see, for example, Cyran and Gussmann 1999). Thus, instead of burdening the theory with two structures, it is perfectly possible to describe complex consonant clusters using just one. Needless to say, there is more to it as we will see shortly.

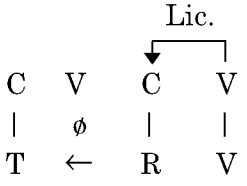
[20] In GP complexity is gauged directly from the number of elements a segment includes.

[21] Needless to say, the rightward direction of the IO relation follows from the complexity, hence the situation where the consonants contract a leftward relation is also predicted, see Cyran (2003) and Kula (2004).

[22] This means that it cannot be a potential licensor and it is invisible to the *ø-ø constraint. The latter notion is explained in Chapter Two, section 2 and 3.3.

In the following sub-section we provide some evidence indicating that branching onsets should indeed be represented as a sequence of two onsets separated by the empty nuclear position. However, contrary to Cyran (2003), it will be demonstrated that such structures are leftward rather than rightward relations (6).

(6)



This is a rather daring proposal, as here it is a sonorant and not an obstruent that is the governor, which may imply that sonorants are more complex than obstruents.

The remaining points on Cyran's (2003) list will be dealt with immediately after the discussion concerning the directionality of the IO relations. Thus, the application of Proper Government and Government Licensing will be discussed in sections 5.1 and 5.2. After that in Chapter Two (section 2.1) we shall look closer at TR clusters and the prefixation.

5.1. Infrasegmental Government

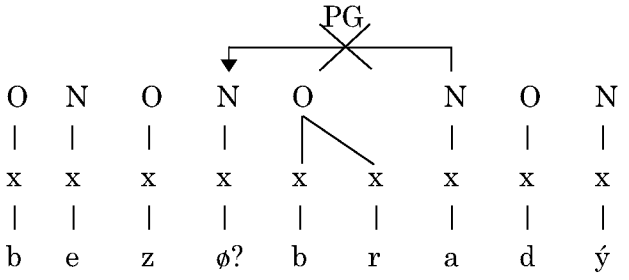
This section presents the major arguments in favour of the leftward relation between two onsets. The discussion is based on Scheer's (1999a, 2004) analysis concerning the prefixation in Czech.

The peculiarity of the Czech data lies in the fact that in the vast majority of cases the prefix-final vowel is not vocalised before a consonant cluster, that is, before a traditional branching onset, e.g. *bezø-bradý* 'beardless', *rozø-drobit* 'crumble', *rozø-prahat* 'stretch'.[23] Given the fact that consonant clusters in GP block the application of PG,[24] the existence of such forms is rather surprising as it is the context where the prefix vowel is predicted to be vocalised (7).

[23] The examples are taken from Scheer (1999a, 2004).

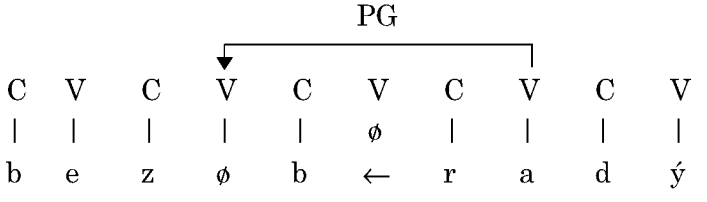
[24] See Kaye (1990), Kaye at al. (1990) and Charette (1990, 1991).

(7)



In (7) the root vowel, that is [a], is not allowed to properly govern the final vowel of the prefix as it would have to apply across a branching onset. Consequently, the prefix vowel remains ungoverned and should be phonetically realised. When faced with this problem, Scheer (1999a) proposes to discard the idea of branching onsets and represent them as two onsets separated by the empty nuclear position. The segments belonging to such separate onsets are claimed to contract a relation which the author calls Infrasegmental Government (henceforth IG). Similarly to rightward Interonset relations of GP and Cyran's (2003) analysis, the nucleus enclosed between the two consonants is inert or locked, and as such does not require to be governed. The vowel following such consonantal relations can now govern the prefix vowel (8).

(8)



Furthermore, note that the root clusters which cause the vocalisation of the prefix vowel also must be represented as two separate onsets. This is because some of them are broken up by the alternating vowel in related forms, e.g. *ode-børat — odø-bírat* 'take away, pf./ipf.', *roze-dørat — rozø-deru* 'tear up, inf./1p.sg.', while some others are simply not possible branching onsets, e.g. *ode-røvat* 'tear off'. In the latter case we could argue that the cluster is able to contract the IG relation as we have the sonorant which could govern the obstruent just like in (8). The only difference is that in *ode-røvat* the order of the consonants is reversed. We will come back to such examples shortly. Getting rid of branching onsets enables Scheer (1999a) to simplify the theory, i.e. instead of two structures, that is, BrO and two onsets separated by the empty nucleus (ONO), *bezbradý* and *odebrat*, respectively, we are left with only one ONO. How-

ever, Scheer (1999a, 2004), in opposition to Cyran (2003), argues for the leftward relation as depicted in (8) above. This simply means that it is a sonorant that is a governor of the preceding obstruent (cf. Kaye et al. 1990, Harris 1994, Harris and Lindsey 1995). The arguments put forward by Scheer (1999a, 2004) in order to change the direction of the interconsonantal relation are threefold. Firstly, he points out that in GP all interconstituent relations are regressive or leftward (see Kaye at al. 1990, Harris 1994). Since in the Strict CV approach there are no constituent relations, as there are no branching constituents at all, it means that what was a progressive relation within a constituent in GP must now be represented as a regressive relation between two constituents. Secondly and more importantly, Scheer (1999a) indicates that sonorants are actually more complex than what they might appear to be in the previous proposals (see also van der Torre 2003). He proves his point by looking at the results of phonological operations (element spreading and segmental decomposition) involving sonorants. The general picture emerging from his analysis is that sonorants are richer in place-defining elements than obstruents, e.g. [r] (A, I); [l] (?, A, I) or [n] (?, N, A, I). Moreover, the cross-linguistic survey leads him to the conclusion that velarity and roundness are two distinct phonological elements. Very briefly, Scheer (1996, 1999a) claims that the prime defining velarity (U) is present in all velar articulations (rounded and unrounded). On the other hand, the prime that carries information concerning labiality/roundness, that is (B), is present in all round and bilabial articulations. This fact may explain why in certain systems [w] interacts with both labials and velars. This is so because [w] is claimed to include two elements, that is, (U, B). The final argument put forward by Scheer (2004) in favour of the leftward consonantal relations concerns the headedness in vocalic expressions. To simplify, he indicates that in the previous theories only one of the place definers can be the head of the vocalic expressions. Note that neither the nasal element (N) nor the low or high tone elements (L), (H) can acquire the role of a head in vowels. According to Scheer (1999a) the same should hold true in the representation of consonants. What is more, the laryngeal elements, i.e. (L) and (H), are present only in obstruents but never appear in the representation of sonorants,[25] which simply means that sonorants are doomed to play the role of governees because the complexity will always be greater in obstruents when compared with sonorants. Scheer (2004) concludes that place is the only feature that is shared

[25] Sonorants are claimed to be spontaneously voiced or voiced by default, and hence, this characteristic is never represented in the elemental make-up of sonorants.

by all sounds. Thus, since the primes representing place are present in vowels, sonorants, and obstruents, it is proposed that complexity should count only place elements (cf. Cyran 2003). As has already been mentioned, the discussion concerning the representation of segments is in a constant state of flux and no final version has yet been agreed on. Moreover, as mentioned by Cyran (2003:54), the actual representation of segments in a given system must follow an in-depth analysis and should not be assumed *a priori*. However, a detailed analysis of segmental structure would require another work of comparable size. Therefore, in what follows we simply adopt the idea that sonorants play the role of heads in the consonantal relations.

From the discussion above it transpires that Infrasegmental Government resembles constituent and interconstituent government of GP in that the role a segment plays, i.e. either a head or a complement, is decided on complexity alone. However, complexity is calculated according to different principles. Thus, in order to find out which segment acts as the head within a domain of consonantal interaction, only the elements at the place level are scanned. A similar solution is put forward in van der Torre (2003), where place of articulation specifications plays a crucial role in Dutch phonotactics. Given the fact that sonorants are more complex at the place level than obstruents, it follows that the former are typical governors, while the latter are governees, and hence TR clusters form head-final domains. To sum up, Scheer's (1999a) version of the Element Theory recognises four place elements both in consonants and in vowels: (I) palatal; (U) velar; (A) low, ATR; (B) labial, rounded.[26] One of the consequences of this proposal is that (I) and (U) always share an autosegmental line, even in the vocalic systems possessing front rounded vowels. A word of clarification concerning autosegmental lines is in order here. In the Element Theory elements are assumed to reside on autosegmental lines. Depending on the system, elements may occupy separate lines or a single one. The latter is true in the three-vowel systems where elements do not combine to form more complex segments, while the former can be observed in richer systems including front rounded vowels which are the result of the combination of two elements, that is, (I) and (U). However, if roundness and velarity are separate elements, it means that front rounded vowels are represented as a combination of (I) and (B) rather than (I) and (U). Generally speaking, the elements (I) and (U) never combine to form complex segments, hence they are as-

[26] As noted by Scheer (1999a), the element (B) must be assigned a special status since it defines place in consonants (labial) but contributes only manner to vowels (rounded).

sumed to reside on the same autosegmental line (S c h e e r 1999a). Coming back to the consonantal interaction, it is assumed that the IG relation '←' is contracted whenever an element on a given autosegmental line faces an empty position '□' (at least on one line). When both lines in both segments are occupied or empty, the consonantal relation cannot be contracted. The representation in (9) is taken from S c h e e r (1999a:226) and slightly modified, heads of the expressions are underlined.[27]

(9)

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

As illustrated above, a domain of IG may be established for [pr] and [kr] (9a) where at least one element faces an empty position on a given line. By contrast, IG may not hold within the clusters of (9b, c) because either all places are filled [sr] or no governor is available [tp].

Once we have arrived at the correct representation of the consonantal interaction within the Strict CV model, we are ready to address the questions raised at the end of section 4. Thus, in what follows we shall try to explain why there are languages which are more permissive than others in that they allow for both #TR and #RT clusters initially and tolerate complex consonant sequences. In order to be able to answer this question, however, we have to discuss another mechanism, that is, Government Licensing.

5.2. Initial empty CV unit

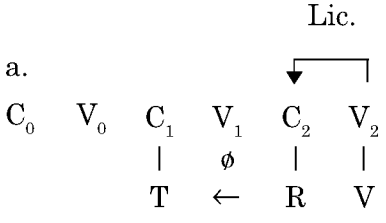
Since in the GP model of phonology constituents are maximally binary branching, this theory is considered to be rather constrained. Recall that in GP a typical branching onset is composed of the onset head (an obstruent) which governs the following complement (a sonorant). An even more constrained framework, the extreme point GP could reach, is the Strict CV approach. In the latter model branching constituents do not

[27] Note that the labial element (B) can not reside on a separate line (it is not represented under (9)). Were this possible, we would arrive at the situation where the labial /p/ could contract the IG relation with the preceding /t/ or even /r/ as the latter, unlike the former, lack the labial element.

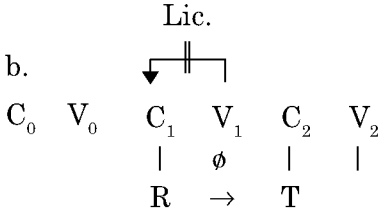
exist. What is a BrO in GP is represented in the Strict CV framework as a sequence of two onsets separated by an empty nucleus, that is, ONO. Such onsets, if adequately equipped, can contract a consonantal relation. Moreover, we have seen that in Scheer's (1999a, 2004) version of the Element Theory, contrary to earlier proposals, it is the sonorant which acts as the head and can govern the preceding obstruent. The relation between both consonants is called Infrasegmental Government (10).

(10)

a.



b.



It is generally accepted that an empty nucleus separating consonants which contract a relation can remain empty. In other words, it is licensed to stay unexpressed simply by appearing in the domain of the consonantal interaction. The pressing question is why the structure in (10b) is not found in English or German. Why are initial #RT clusters not attested in those languages? A partial solution to the problem lies in Charette's (1990, 1992) proposal of the mechanism she calls Government Licensing. Charette (1990) claims that any consonantal relation must be licensed by the following audible vowel. To be more precise, the head of the relation must be licensed in order to govern the complement. Scheer (1999a) makes use of Government Licensing (GL) to explain the absence of structures like those in (10b) from languages like English. However, he adds that the head of the domain, i.e. the sonorant, must be licensed by an immediately following nucleus. Now, the reason why the structure in (10b) is impossible in English falls out naturally. Note that in (10b) the sonorant is followed by an empty nucleus which is unable to give it the licence required to contract the IG relation. However, the attentive reader would raise two immediate questions. First, how come there exist languages like Polish and Czech which do allow such sequences initially. Second, given the fact concerning the application of Proper Government, one more option becomes available, namely, the consonants are separated by an empty nucleus which is properly governed by the following audible one. What is crucial here, however, is the fact that both representations in (10) start with the initial empty CV unit. In order to clarify this point, let us now discuss briefly Lowenstamm's (1999) proposal. In his article Lowenstamm (1999) puts forward the idea that words of every major category are preceded by an empty CV unit.

Furthermore, he indicates that this move can replace the traditional boundary marker '#', which since the beginning has merely been a notational diacritic of a morphological nature, with a fully phonological object, that is, the initial empty CV unit (see section 3 above). The introduction of this initial site allows Lowenstamm (1999) to explain, among other things, the alternations in the definite article cliticisation in French and Biblical Hebrew. Very briefly, Lowenstamm (1999) points out that the initial CV site is always licensed in French, hence the definite article approaching from the left is docked onto this site (11). The CV unit originally linked to the definite article, once deserted, waits for another clitic if there are any (11b).

(11) *la* + *tasse*, 'the cup'

a.

```
C V + C V C V C V
| |     | | | |
l a     t a s ø
```

b.

```
C V + C V C V C V
      | | | | | |
      l a t a s ø
```

On the other hand, the initial CV site in Biblical Hebrew is not always licensed, as the initial consonant clusters are of two types: #TR and #RT. In order to account for the cliticisation in the language Lowestamm (1999:164) proposes the Uniformity Convention which says that 'if the initial CV is not licensed in all cases, then the site must remain unlicensed throughout the language.' If it is not licensed, the initial CV appearing between the definite article and the root must undergo vocalisation, and in Biblical Hebrew this is manifested in two different shapes. The more frequent one is gemination of the root initial consonant (12a). However, when the initial segment belongs to the group of consonants resisting gemination, we witness a different solution, i.e. compensatory lengthening (12b).

(12) a. *ha* + *klaβim*, 'the dogs'

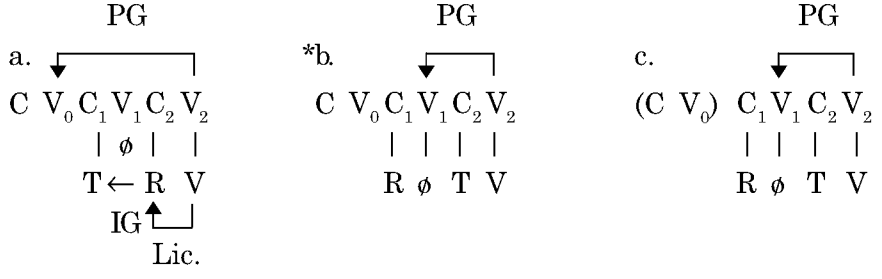
```
C V + C V C V C V C V C V → C V + C V C V C V C V C V
| |     |   | | | | | |     | |   \ | | | | | | |
h a     k ø l a b i m ø     h a     k ə l a b i m ø
```

b. *ha* + *rqaħim*, 'the spices'

```
C V + C V C V C V C V C V → C V + C V C V C V C V C V
| |     |   | | | | | |     |  \    | | | | | | |
h a     r ø q a h i m ø     h a     r ə q a h i m ø
```

Lowenstamm's (1999) idea has been taken up and developed by Scheer (2004) who proposes to explain the phonotactic patterns in Slavic by means of the initial CV unit. As has already been mentioned, the initial CV is a fully phonological object and must be sanctioned like any other phonological unit. Since the initial CV includes an empty position, the latter should be governed to stay unexpressed just like any other empty nucleus. This requirement imposed on the initial empty nucleus contributes to the existence of two general groups of languages.

(13)



The representation of a consonant cluster which is typical of the group of languages tolerating only rising-sonority sequences at the left margin is given in (13a). We can see that V_2 being a full vowel is able to license the IG structure (the head C_2 is directly adjacent to the licensor V_2). Consequently, V_1 can remain unvocalised as it appears in the IG domain. Note that V_0 as an empty nucleus requires a governor and this action can be performed by V_2. From the representation in (13a) it transpires that a full vowel can simultaneously license and govern. The reason why the form in (13b) is not found in languages like English, German and French follows from the simple fact that the consonants in this particular order cannot contract IG (the sonorant is followed by an empty nucleus). One could still argue that clusters of this type, i.e. (13b), should be possible given the availability of Proper Government. Note, however, that if the nuclear position V_1 were properly governed, the initial V_0 would remain ungoverned and hence would have to be phonetically realised. Now the reason why in most of the Indo-European languages the initial clusters are of the #TR type only lies in the fact that in those languages the initial CV unit is active and hence must be governed to remain silent. Furthermore, if the suggestion that in certain languages this initial site can be inactive is correct, we have a ready solution for the Polish (Slavic in general) situation. As inactive, the initial nuclear position V_0 in (13c) does not require a governor.[28] In consequence,

[28] It must be clarified here that 'inactive' does not imply that this initial unit is 'absent'. It is always present with the condition that in Polish and some other languages it does not require a governor.

V_1 can be properly governed by V_2. In this situation the order of consonants is free, i.e. there are no restrictions on the consonants flanking a properly governed nucleus, which means that both #TR and #RT clusters are possible in a language in which the initial CV unit is not active. It should be noted here that empty properly governed nuclei or nuclei closed in the domain of IG are not able to govern and license.[29] Therefore, the nuclear position V_1 in (13b), being properly governed, cannot perform this action itself and govern the preceding V_0. The idea of the initial empty CV unit is even more attractive as it can contribute to the solution of the everlasting problem of the ban on the governed empty nuclei before the first realised vowel in English. Such nuclei are perfectly possible in Polish, as we will see shortly. Additionally, the inactive character of the initial CV site in Polish can explain the existence of complex initial consonant sequences in the language.

If it is true that the reason why languages allow for different initial clusters depends on the active or inactive role played by the initial CV unit, we should search for further, independent confirmation of this suggestion. If we do not take this step, the hypothesis can be easily refuted because of an apparent circularity. The argumentation could proceed along the following line: in Polish initial CV is not active, hence the language abounds in the initial #RT clusters; or the other way round: since there are quite a few initial #RT clusters in Polish, it means that the initial CV site must be inert. Before we present more evidence on the inactive character of the initial CV unit in Polish, we should first sweep the floor a little bit by demonstrating the initial consonant sequences which can be analysed at this stage of the discussion. This analysis is presented in the following chapter.

6. Conclusions

This chapter has been devoted to the presentation of the basic tenets of Government Phonology's latest development, that is, the Strict CV model. We have focused attention on the main differences underlying both models and discussed syllable structure and some syllable-related processes. Then, in section 3, the evolution of the word-boundary marker # in the phonological theory was traced back to the publication of C h o m -

[29] Recall the discussion in section 3 above concerning the licensing and/or governing abilities of word-final empty nuclei.

sky and Halle's (1968) *The Sound Pattern of English*. We focused our discussion on the long-recognised problem of disjunctivity, that is, {_C and _#}. It has been indicated that neither the traditional theories nor GP have been able to successfully capture all the relevant facts related to the disjunctive context. In conclusion we pointed out that the Strict CV model could offer a satisfactory solution to the problem of disjunctivity. Next, we pointed to the main drawbacks of the Sonority Sequencing Principle and concluded that sonority-based theories were doomed to be abandoned. Moreover, some syllabification problems encountered in English and Polish along with the proposed solutions offered by previous theories were briefly discussed. It has been shown that languages fall into two general groups, where the division is based on word-initial consonant clusters. In order to understand the divergent behaviour of languages, we looked more deeply at the traditional branching onsets in Polish and Czech. It was demonstrated that branching onsets are in fact two onsets separated by an empty nucleus. The consonants associated with such onsets are able to contract a governing relation which is head final. The representation of branching onsets together with the idea of the active/inactive character of the initial empty CV unit explains why languages allow for different word-initial consonant sequences. Moreover, it has been mentioned that the peculiarities of the left margin can be given a uniform account if we accept Lowenstamm's (1999) proposal to replace the initial word boundary with an empty CV unit. The implementation and consequences of the latter move will be examined and tested against phonotactics and phonological processes in Polish (Chapter Two) and English (Chapter Three).

II. The phonological nature of the beginning of the word

1. Introduction

The aim of this chapter is to demonstrate some consequences of the proposal which allows us to replace the boundary marker '#' with a fully phonological object, i.e. the empty CV unit (Lowenstamm 1999). In particular, we shall provide some evidence for the inactive character of the initial CV unit in Polish. The 'static' proof concerns co-occurrence restrictions holding at the left edge of the word in Polish. The 'dynamic' one deals with a fortition process found in the Kurp dialect of Polish. It will become evident that the initial CV unit plays a pivotal role in various phonological phenomena and contributes to the explanation of certain facts. Although the discussion in this chapter concerns the syllable structure and syllabification mainly in Polish, some reference to other languages can also be found here.

There are some questions concerning Polish complex consonant clusters which we have not mentioned yet. They arise due to the replacement of the word boundary marker with the empty CV unit. This is especially true in the case of the consonant sequences occurring at the word left margin. Therefore, in this chapter we shall not only propose a solution to traditional problems, but also tackle newly formulated questions. It will be shown that Polish facts concerning the syllabification of consonant clusters at the beginning of the word can be given a uniform account. Additionally, the solutions applied in this chapter will help us understand problems which have rarely been addressed in the past, like the implicational relationship between cluster complexities and consonant sequences in languages. To achieve this goal, the syllable structure

advocated in Government Phonology has to be simplified to a bare minimum, i.e. to a sequence of simplex onsets and nuclei. As was mentioned in the previous chapter, the approach supporting this view on the syllable structure is known as the Strict CV model (Lowenstamm 1996, 1999, Scheer 1999a, 2004). The main mechanisms of the latter framework, boiling down to Government and Licensing, were explained and briefly discussed in the previous chapter. However, in order to capture Polish facts, it seems necessary to introduce a few theoretical modifications of the model.

Descriptively, this chapter deals with the phenomena which allow us to understand the syllabification at the left margin of the word in Polish. We shall look at the distribution of clusters, vowel-zero alternations, prefixation, trapped and syllabic consonants, the development of soft labials, and some other phenomena in various languages, e.g. Polish, Czech and French. Moreover, it will be shown that the Strict CV model is not only able to capture the great majority of phenomena connected with syllabification, but also enables us to explain dialectal variation and historical developments. We begin the discussion by demonstrating the combinatorial possibilities of the two-consonant clusters at the left margin in Polish.

2. Left margin in Polish

From the previous chapter it transpires that the recognition of the initial CV unit in phonological theory is necessary to provide the answer to the cross-linguistic phonotactic peculiarities found at the left margin. In this chapter we focus our discussion on the analysis of the word-initial consonant clusters in Polish. Bearing in mind that Polish is a language in which both #TR and #RT clusters are possible due to the inert character of the initial CV site, we are in a position to present the first set of data in (1).

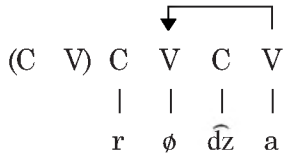
(1)

a.	sonorant + obstruent		b.	obstruent + obstruent	
	[rd]est	'knotgrass'		[kt]o	'who'
	[rt]ęć	'mercury'		[tk]ać	'weave'
	[rd͡z]a	'rust'		[kp]ić	'mock'

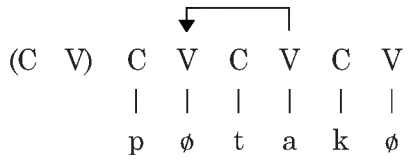
[wk]ać	'weep'	[db]ać	'care'
[wg]ać	'lie'	[pt]ak	'bird'
[rv]etes	'commotion'	[gb]ur	'boor'

The forms in (1) above illustrate some possibilities of two consonant clusters at the left edge of the word. The set in (1a) represents #RT sequences which have proved problematic for most of the previous accounts including the GP analysis (see Cyran and Gussmann 1999). In (1b) we can see two-obstruent sequences. The clusters in both sets arise due to the application of the same mechanism, that is, Proper Government. However, such combinations are possible only on condition that the initial CV unit is inactive. The representation of [rd͡z]*a* and [pt]*ak* is given in (2).

(2) a.



b.



Neither the cluster in (2a) nor the one in (2b) is able to contract IG. They are separated by the empty nucleus which must be governed to stay mute and this is done by the following full vowel through PG. Furthermore, given the fact that there are no formal requirements on the melodic make-up of consonants separated by the governed empty nucleus, clusters with the reverse order of consonants should also be possible. This, however, is not always the case. While all of the possibilities in (1a) have their mirror-images, e.g. [rd]*est* — [dr]*oga*, 'knotgrass'/'road', [rt]*ęć* — [tr]*aktat*, 'mercury'/'treaty', only a few examples in (1b) can do the same, e.g. [kt]*o* — [tk]*ać*, 'who'/'weave' but [pt]*ak* — *[tp-], 'bird'/- . As for the forms in (1a) the reverse order of segments does not necessarily mean that both consonants must contract the IG relation. In other words, the right order of consonants does not automatically guarantee that they can constitute a consonantal relation. Thus, #TR clusters behave inconsistently in that they sometimes contract the relation and sometimes do not. In the latter scenario the consonants are separated by the empty nucleus which is properly governed. The lesson to be learned from this observation is that the status of the consonant clusters cannot be taken for granted or predicted well in advance. In order to decide whether a #TR cluster is an instantiation of PG or IG we should check the influence such clusters exert on neighbouring vowels, i.e. vowel-zero alternations and the voca-

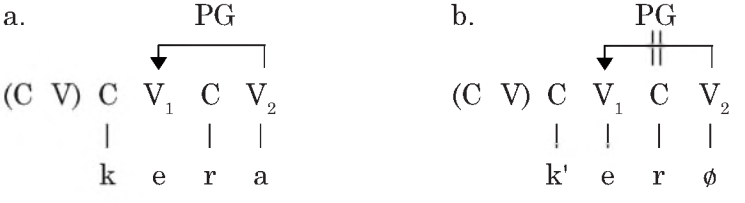
lisation of the prefix vowel. In what follows we look more deeply at the former test, that is, vowel-zero alternation, while prefixation is dealt with in the following section.

Polish abounds in consonant clusters which resemble branching onsets in that the obstruent is followed by a sonorant but which are broken up by an alternating vowel in related forms, e.g. [pr]*ać* — [p'eʒ]*e*, 'wash, inf.'/'wash, 3p.sg.' Such clusters, similarly to those in (1) arise due to the operation of PG.

(3)	[kw]a — [k'ew]	'tusk, gen.sg. — nom.sg.'
	[kr]a — [k'er]	'ice floe, nom.sg. — gen.pl.'
	[pr]ać — [p'eʒ]e	'wash, inf. — 3p.sg.'
	[sn]y — [sen]	'dream, nom.pl. — nom.sg.'
	[gn]ę — wy[g'in]ać	'bend, 1p.sg. — inf.'
	[st]o — [set]ny	'hundred — hundredth'

Although most of the examples in (3) could contract IG, e.g. [kw]*a* or [pr]*ać*, they are not able to do so as both consonants are broken up by the alternating vowel [e], i.e. [k'ew] and [p'eʒe] respectively. Since the alternating vowels are claimed to be lexically present (S c h e e r forth.), it is not possible for the flanking consonants to contract the consonantal relation. Consequently, all vowel-zero alternations, along with the forms in (1), are accounted for by the application of PG. This is illustrated on the example of [kr]*a* — [k'er] given in (4).

(4)



In (4b) the final empty nucleus V_2 cannot properly govern V_1, as the former is empty. Consequently, the nuclear position V_1 gets associated to its melody. In (4a), on the other hand, the final nucleus V_2 is not empty and so it is able to perform the action, V_1 is struck by PG and, in consequence, the association line is severed, leaving the vowel disconnected and hence phonetically inaudible.[1]

[1] C y r a n (2003) arrives at similar results without resorting to Proper Government. In his model PG is dispensed with completely. Instead the author proposes to introduce a constraint *ø-ø which says that two consecutive empty nuclei are not allowed. Since both mechanisms produce the same effects, at least in the forms discussed so far, we are not going to pursue this idea any further.

Thus, it appears that in Polish #TR clusters are not automatically recognised as the Infrasegmental relations. Clusters of this type happen to be separated by the alternating vowel [e]. Since alternating vowels are lexically present, the relation between both consonants cannot be contracted, and instead Proper Government applies, making both consonants appear together phonetically. Additionally, we have seen that the traditionally problematic sequences, i.e. #RT, and the two-obstruent clusters are given identical explanation, that is, they are separated by the properly governed nucleus. Polish combinatorial possibilities discussed in this section are possible due to the inactive character of the initial CV unit. The reason why such clusters are absent from Germanic languages, for example, is the fact that in those languages the initial CV site is active, making it impossible to have the governed empty nucleus between the first two consonants of the word. We will now look at the two consonant clusters in the context of prefixation in Polish. It will be demonstrated that prefixation can tell us a lot about the character of consonant clusters.

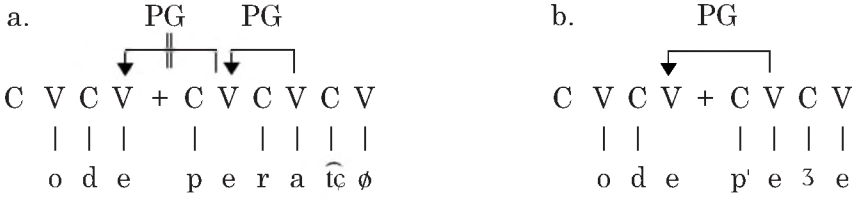
2.1. Prefixation and the consonant clusters

In this section we focus our discussion on the consonant clusters in the context of prefixation. The results we arrive at further confirm the choice of the phonological model applied in this book. Moreover, referring to the discussion in the previous section we will demonstrate another context in which what seems to be the IG domain is in fact a sequence of two onsets separated by the governed empty nucleus, i.e. a #TR sequence without the communication between the consonants. The results will then be confirmed by similar examples from closely-related Czech. In the previous section we only briefly mentioned the #RT clusters at the left edge in Polish. Section 2.3 provides a more thorough and in-depth analysis of such combinations in Polish.

There is a considerable amount of literature devoted to the vowel — zero alternation in Polish (Gussmann 1980a, Rubach 1984, 1986, Spencer 1986, Szpyra 1992a, Piotrowski 1992a, 1992b, Piotrowski, Roca and Spencer 1992, Rowicka 1999a, among others). The phenomenon is so common in Polish (and Slavic languages in general) due to the historical process known as the weakening of the short vowels u/i, the so-called jers (Lehr-Spławiński 1957, Stieber 1973, 1979). Eventually they disappeared completely in certain posi-

tions. The remnant of this process in modern Slavic languages is the vowel-zero alternation occurring at the sites of the historic jers.[2] It has long been noticed that verbal stems containing a jer make the prefixal jer vocalise. This is especially visible in the morphological class of Derived Imperfectives (DI). In other words, verbs starting with consonant clusters which may be broken up by a vowel in Derived Imperfective force the prefixal vowel to appear phonetically, predominantly as [e]. Recall the example from the previous section, i.e. [pr]*ać*, 'wash'. Adding the prefix *od-* 'from' to the verb stem brings about the vocalisation of the prefix final vowel, that is, [ode+pr]*ać*. This confirms the representation from the previous section where the initial cluster in [pr]*ać* is separated by an alternating vowel, i.e. [pʲeʒ]*e*. To summarise briefly, from the behaviour of the prefix-final vowel we can deduce whether the stem initial consonant cluster is separated by a properly governed nucleus or not. Usually we have an additional confirmation in the form of the vowel-zero alternation in the stem itself, just like in the [pr]*ać* case. Thus, the verb should be represented as /pøratɕ/.[3] When the prefix *od-* /odø-/ 'from' is attached to this stem a sequence of two jers arises /odøpøratɕ/ which means that the second jer, being itself properly governed, cannot perform the same action and govern the prefix final jer, and this produces the phonetic form [odepratɕ].

(5)[4]



What is interesting, however, is the existence of clusters which are not broken up by a vowel in DI and which do not force the prefix vowel to vocalise. The data in (6) is taken from Cyran (2003: 169) with some minor modifications.

[2] Synchronically the term is used to refer to such alternating vowels.

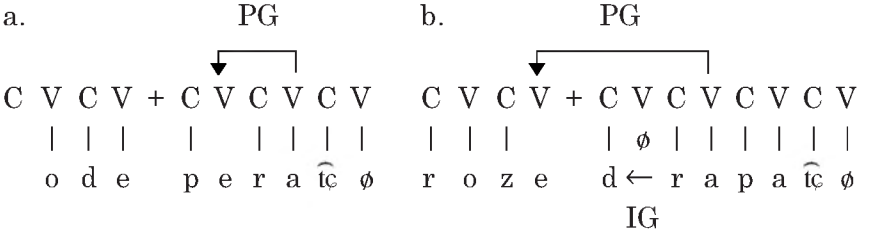
[3] Recall from the previous section that alternating vowels are lexically present. This means that the stem /pøratɕ/ should be actually represented as /peratɕ/. The initial vowel is realised phonetically if it escapes Proper Government. In this work we will use the symbol 'ø' to indicate both empty positions and lexically present alternating vowels. The difference will be stressed only when it is crucial to the discussion.

[4] The initial empty CV site before the stem in (5) is not represented as it is not germane to the discussion.

(6)		Infinitive		Prefixed verb	Prefixed Derived Imperfective (DI)
	a.	brać	'take'	zE+brać	z+bierać
		drzeć	'tear'	rozE+drzeć	roz+dzierać
		prać	'wash'	odE+prać	od+pierze
	b.	bryzgać	'splash'	z+bryzgać	z+bryzgiwać
		drapać	'scratch'	roz+drapać	roz+drapywać
		pracować	'work'	od+pracować	od+pracowywać

The conclusion that can be drawn from the data in (6) is that it seems necessary to postulate two separate representations due to two distinct results of prefixation. In (6a) the presence of the jer in the stem enforces the phonetic realisation of the jer in the prefix; the former jer is properly governed itself and cannot serve as a potential governor to the latter. The examples in (6b) illustrate prefixed forms in which neither the prefix nuclear position nor the stem one is phonetically realised. Additionally, as has been mentioned earlier, the initial clusters in (6b) are never separated by an alternating vowel in DI. Note that in this group the DI forms are produced by affixation *-i/ywać*. The first idea which springs to mind, i.e. to represent the clusters in (6b) as branching onsets, must be rejected as in the Strict CV model there are no branching constituents. Another possibility is to represent the clusters as IG relations. Note that the conditions for such relations to hold are fulfilled. This solution is plausible as the nuclear position separating such clusters is lexically empty, i.e. it is not an alternating jer. Moreover, we can now explain the absence of the prefixal vowel. The nuclear position occurring in the domain of IG is governed by the fact that it is locked between two consonants holding a governing relation, which enables the first audible stem vowel to properly govern the prefixal one. To sum up the discussion so far, we have seen that the clusters which are never broken up by the alternating vowel (6b) are represented as the IG relations (7b). On the other hand, the forms in (6a) are resolved by means of Proper Government (7a). The existence of both mechanisms in the language is responsible for the inconsistent behaviour of prefixes in the class of DI.

(7)



In (7b) the consonant cluster, i.e. [dr], fulfils the conditions required to hold IG and so the relation is contracted. This means that the nucleus occurring in the domain of IG is locked, i.e., it does not require an external governor. The first vowel of the stem, that is, [a], can now properly govern the prefix final vowel, and the latter remains disassociated and hence phonetically inaudible. At first sight, the situation may appear problematic as we need to postulate two different representations which describe phonetically the same cluster. Note, however, that in (7a) the cluster is separated by a lexically present vowel which prohibits the consonants from interacting in the IG relation. In (7b), on the other hand, the nucleus is lexically empty and so the relation can be contracted. Later in the chapter it will be demonstrated that this is not always the case, and that what is a locked nucleus in one form can be unlocked in a related one.

How does the solution discussed above compare with the previous accounts? In the past it has been claimed that the difference between the forms in (6a, b) arises due to a different bracketing of prefixed verbs (Rubach 1984, Szpyra 1989, Rowicka 1999c). Thus, forms like those in (6a) are said to form one phonological word, i.e. the prefix is attached synthetically, e.g. [odepra͡tɕ]. On the other hand, the examples in (6b) represent analytic prefixation, that is, they form two separate domains, e.g. [roz][drapa͡tɕ]. In the Strict CV model it is possible to analyse the same cases without resorting to analytic bracketing. All that has to be said is that #TR clusters must contract the IG relation unless there is an intervening lexically present vowel. In the former case, that is, when the #TR cluster contracts the IG relation, the prefixal vowel is suppressed (7b). In the situation when the #TR cluster is separated with the lexically present vowel which is properly governed (7a), the prefix vowel is vocalised.

Finally, let us discuss similar cases in a closely related language, Czech. It will be demonstrated that in Czech, just like in Polish, two separate structures must be assigned to phonetically the same cluster, which schematically may be represented as TR.

Scheer (1996, 1997, 1999a) in discussing Czech data points out that consonant final prefixes such as *pod∅-* 'under' and *od∅-* 'away' are sometimes realised with the prefix-final vocalised nucleus. The vowel appears only if the following root begins with at least two consonants, e.g. *ode-brat* 'take away pf.' vs. *od-birat* 'id. ipf.'. Moreover, similarly to what we have witnessed in Polish, phonetically the same clusters bring about contrasting results. Compare the Czech forms *odebrat* 'take away' and *bezbrady* 'beardless' with the Polish forms *zebrać* 'take, pf.' and *zbryzgać*

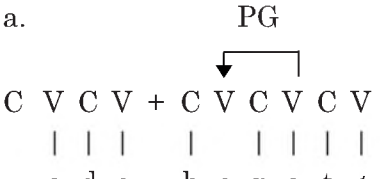
'splash, pf.'. The data in (8), which have been adapted from Scheer (2004:15), illustrate some more examples of such inconsistent forms. Since the same clusters can either vocalise the prefix vowel or not, e.g. *odebrat* 'take away', *bezbrady* 'beardless', respectively, the theory is required to explain this situation. The solution may be sought in the postulation of two separate representations for phonetically the same cluster.

(8)	a. *prefix vocalised*	b. *prefix unvocalised*	
	ode-brat	bezø-brady	'take away/beardless'
	roze-drat	rozø-drobit	'tear up/crumble'
	vze-šly	rozø-šlapat	'open/crush'
	roze-dmout	rozø-dmychat	'blow up/poke (fire)'
	roze-přit	rozø-přahat	'straddle/stretch'

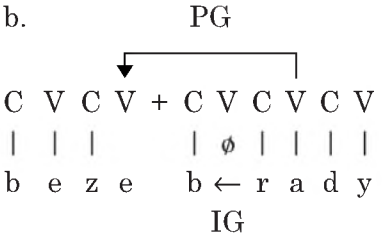
Luckily enough, the Czech situation seems to be more regular than the Polish, as in this language the clusters that provoke vocalisation of prefix-final nuclei are always alternation sites, that is, they are separated by a vowel in related forms. Thus, the root initial clusters in the forms represented in (8a) are broken up by a vowel in other grammatical forms. For example, the initial cluster in *brat* 'take' appears without the alternating vowel in the infinitive but is separated by a vowel in the inflected forms, e.g. *beru* 'I take', and in the imperatives *pod-birat* 'seize from below ipf.' On the other hand, the forms in (8b) never vocalise the prefix vowel. What is more, the initial clusters in the forms under (8b) are never broken up by an alternating vowel. To sum up the discussion so far, in Czech only the root clusters hosting vowel-zero alternation vocalise the prefix vowel. On the other hand, clusters which are never separated by a vowel do not provoke the vocalisation of the prefix-final vowel. From the above it follows that what we are dealing with here is an exact copy of the Polish situation. An alternating vowel is lexically present, hence the consonants flanking it cannot contract IG. As has been mentioned in the course of our earlier discussion, alternating vowels are target for PG. Consequently, the initial clusters in (8a) are separated by the empty properly governed nucleus which is responsible for the vocalisation of the prefix vowel (9a). Czech regular cases of prefixation are represented in (8b).[5] It follows that in both Polish and Czech a default case is the Infrasegmental Government relation contracted by TR clusters which is responsible for the suppression of the prefix vowel (9b).

[5] Scheer (1996) analyses the total number of 957 items where 762 occur without the prefixal vowel and only 195 possess prefix-final vocalised vowels.

(9) a.



b.



Furthermore, note that in Czech the forms which provoke the vocalisation of prefix vowels are of two kinds, i.e. #TR as in *pode-brat* 'seize from below' and #RT as in, for example, *ode-rvat* 'tear off'. This is an additional proof for the existence of the empty governed nucleus separating such clusters. Moreover, the 762 items that entail unvocalised prefixes never begin with a #RT cluster. This observation points to at least two conclusions, namely, #RT sequences are not able to contract IG and they must be separated by the properly governed empty nucleus. Recall that in Polish we encounter a similar situation; clusters hosting vowel-zero alternations and #RT clusters are always separated by the properly governed empty nucleus.

In this section we have tried to demonstrate that what is a cluster phonetically may have two different phonological representations.[6] While in the previous section we discussed #TR clusters and vowel-zero alternations, the present section was devoted to #TR clusters and prefixation. The discussion in both sections points to the same conclusion, namely, that #TR clusters are obliged to contract the IG relation unless there is a jer, in which case PG applies. Moreover, we managed to resolve the problem of vowel vocalisation in prefixes in the class of Derived Imperfective without alluding to domain structure. The findings are confirmed by the behaviour of prefixal vowels in closely-related Czech. In both languages the unmarked structure is the Infrasegmental Government relation. The section below will discuss word-initial two-sonorant clusters. It will be demonstrated that the bilabial nasal /m/ plays a special role in the Polish phonological system in that it behaves like a typical obstruent.

[6] Scheer (2004:73) discussing Metropolitan French reaches the same conclusion.

2.2. /m/ as a potential governee

Bearing in mind that the same sequence of consonants can have two different phonological representations, we shall now make an attempt to explain the peculiarity of two sonorant sequences occurring at the left margin in Polish. Consider the data in (10) below.

(10)	[mn]ożyć	'multiply'	[ml]eko	'milk'
	[mɲ]ie	'me'	[ml]askać	'smack one's lips'
	[mr]ugać	'wink'	[mw]ody	'young'
	[mr]ozić	'freeze'	[mw]ócić	'thresh'

At first sight it may seem reasonable to represent such clusters as two onsets separated by the properly governed empty nucleus in spite of the fact that the nucleus never shows up phonetically. On the other hand, there is good reason to believe that such clusters in fact contract the IG relation (cf. Scheer 2004, Cyran 2003). Firstly, if we assumed that two sonorants could not contract a governing relation, then we would automatically predict that the order of the sonorants in (10) could be switched around as we witnessed in some forms in (1a, b) above. This is because PG does not exert any influence on the elemental make-up of consonants flanking the empty nucleus, and hence predicts any sequence of consonants in a cluster. This is not the case in (10) as words starting with *[nm], *[lm], *[rm] or *[wm] are simply not attested in Polish.[7] Secondly, if these sequences do not involve governing relations and hence the nucleus separating them is properly governed, the prefix-final vowel should appear on the surface. Recall that stems beginning with a consonant cluster separated by the properly governed nucleus trigger vocalisation of the prefixal vowel in Polish. Finally and most importantly, the internal structure of sonorants advocated in this book predicts communication between both sonorants (11).[8]

[7] Admittedly, the theory still predicts such sequences to be possible in Polish due to the existence of PG and the inactive character of the initial CV unit. Thus, their lack in the language must be explained as a pure accident.

[8] A similar line of reasoning was put forward in Cyran and Gussmann (1999) where the bilabial nasal /m/ is placed on the strength hierarchy together with obstruents and is claimed to be able to contract a rightward Interonset relation with the following sonorant.

(11)

	m		n	r	l	w
I/U line	□	←	I	I	I	U
A line	A		A	A	A	A

If we accept Scheer's (1999a) proposal to represent velarity as (U) and labiality as (B), we are able to explain the predominant pattern in two sonorant clusters occurring at the left edge in Polish. The sonorants [n r l w] can contract the IG relation with the preceding [m] simply because the latter lacks any element on the I/U line. Note that just like in the case of #TR clusters discussed in the previous section, here we also need two different representations of the same sequence, that is, #RR. This is clearly observable in some sonorant sequences which behave as if they contained an unlocked empty nucleus and hence trigger vowel vocalisation in the prefix, e.g. *ze* + *mleć* 'grind'. The behaviour of the prefix, i.e. vowel vocalisation, betrays the status of the [ml] cluster. Additionally, the cluster exhibits the vowel-zero alternation in the related forms, e.g. *mielić*, *z* + *mielić* 'grind ipf./pf.' Crucially, the vast majority of m + sonorant clusters behave regularly in that they suppress the final vowel of the prefix (12).

(12) a.

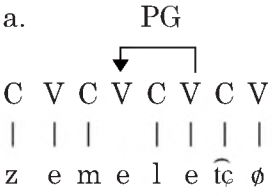
mnie — ode mnie	'me/from me'
mleć — mielić — ze+mleć — z+mielić	'grind/pf.'

b.

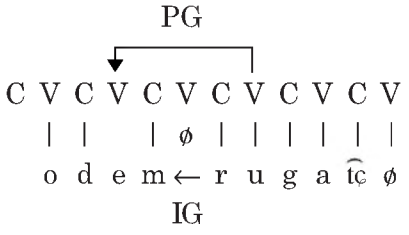
mnożyć — roz+mnożyć	'multiply/pf.'
mrugać — od+mrugać	'wink/wink back'
mrozić — od+mrozić	'freeze/defrost'
mlaskać — od+mlaskać	'smack one's lips/smack back'
młody — od+młodzić	'young/rejuvenate'
młócić — z+młócić	'thresh/pf.'

It can be seen that although they are rare, some m + sonorant clusters must be resolved by means of PG (12a) either because of vowel vocalisation in the prefix (preposition) or vowel-zero alternation in the stem. On the other hand, the forms in (12b) behave regularly, i.e. similarly to those in (6b) above, in that they contract the IG relation and hence suppress the prefixal vowel. Below in (13) we provide the representational difference between *zemleć* and *odmrugać*.

(13) a.



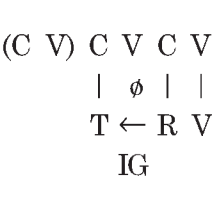
b.



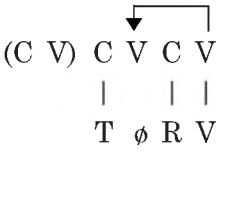
In (13a) the [ml] cluster, although theoretically capable, cannot contract the IG relation due to the fact that the consonants are separated by the jer, which is properly governed by the following vowel. Consequently, the prefixal vowel is realised phonetically. On the other hand, the stem initial cluster in (13b) is never broken up by an alternating vowel, which means that the IG relation may hold in this case. Furthermore, the prefix final vowel remains inaudible as it is properly governed by the first audible vowel of the stem.

Let us stop for a moment to take stock of the findings so far. Polish two-consonant clusters arise due to the application of PG and IG. The former mechanism is allowed to apply word-initially as the initial empty CV unit is not active in Polish. This fact contributes to the existence of some word-initial combinations which are not found in most of the IE languages, e.g. [pt] or [rt]. What is interesting, however, is the fact that the inert character of the initial CV unit in Polish creates a situation where both #TR and #m + R sequences could be resolved by two competing mechanisms, PG or IG. Recall that the initial CV unit, when inactive, does not need to be governed, which means that #TR and #m + R sequences can be resolved by either of the two mechanisms, that is, IG (14a) or PG (14b).

(14) a.



b.



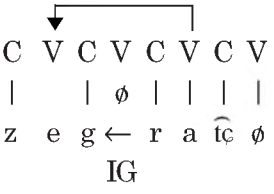
In (14a) both consonants, as adequately equipped, contract a governing relation, i.e. Infrasegmental Government. However, the same cluster can be separated by a properly governed nucleus (14b). The latter option is possible in Polish as the initial CV unit does not play an active role in the language. In order to resolve this conflict we have looked in some detail at the behaviour of such clusters when preceded by a prefix, to be more

exact at the vocalisation of the prefix vowel. The discussion in most cases was restricted to verbal stems in the class of Derived Imperfective. The conclusion which we have arrived at, however, is less than satisfactory, since #TR and #m + R sequences behave inconsistently in this respect. To sum up, what seems to be phonetically identical clusters, e.g. [tr], [mn], may have two different representations. The situation in (14a) is responsible for the suppression of the prefix vowel, while the one in (14b) produces vocalisation of the same nuclear position. Therefore, what calls for explanation is the justification of two distinct representations of the phonetically identical cluster in the grammar. Our immediate response would be that the regular case is the IG relation (14a). In other words, we claim that IG must be contracted whenever the required conditions are met. Furthermore, it is claimed that the consonantal relation cannot hold in a situation when the consonants are separated by an alternating vowel. Since alternating vowels are lexically present (Scheer 2004), the consonants flanking such a vowel are not able to communicate. In the latter situation the alternating vowel is properly governed and in consequence the prefix vowel vocalises. The situation, however, is more complex than it might seem at first sight. Note that there are a few cases where the cluster is not allowed to contract IG despite the fact that it is not separated by an alternating vowel, e.g. *ode mnie* 'from me'. Building on Cyran's (2003) proposal[9], we claim that such forms must be morphologically marked, that is, they are marked as not being able to contract the IG relation and hence must be separated by a properly governed nucleus (14b). Needless to say, initial clusters which are not allowed to contract the IG relation because of the theory-internal reasons do not need to be marked, e.g. #TT or #RT sequences. The empty nucleus between such clusters is motivated phonologically. To further complicate matters, it must be noted that there exist forms which indicate a regular vowel-zero alternation, e.g. *gra — gier* 'play, nom.sg./gen.pl.', but nevertheless behave inconsistently in that they can either suppress the prefixal vowel or vocalise it, e.g. *zgrać* 'synchronise', *rozegrać* 'play out' respectively. From the above discussion it follows that the latter form is the regular case. The initial cluster [gr] in *gra* is broken up by the alternating vowel in the related form, i.e. [g'er], which means that when preceded by a prefix the vowel in this prefix will vocalise, which is borne out by the form *rozegrać* (15b). If it is true that al-

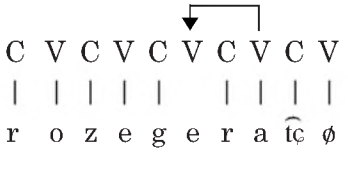
[9] In Cyran's (2003) account the regular cases are the stems which cause the suppression of the prefixal vowel. The remaining ones, i.e. those holding vowel-zero alternations and those which are never broken up by an alternating vowel, must be morphologically marked.

ternating vowels, as lexically present, prohibit the contraction of the consonantal relation, then the form *zgrać* must be recognised as an exception to this observation.

(15) a. PG



b. PG



It could be claimed that *zgrać* and *rozegrać* are two separate forms, and the former being morphologised does not indicate vowel-zero alternation but holds the IG relation like other regular #TR clusters. Another possibility to overcome this problem would be to resort to phonological domains (see section 3.3 in Chapter One). This seems justified especially because at this stage our theory cannot get rid of brackets altogether. They are still required to account for denominal and deadjectival verbs or adjectives, e.g. *odwszyć* 'delouse', *roztkliwić* 'get sentimental', etc., which seem to be prefixed analytically (see Szpyra 1989). Thus, the form in (15a) could be represented schematically as [zø][gøra͡ɕ], where the alternating vowel in the stem is properly governed by the following vowel, while the prefixal vowel is suppressed because it occurs domain-finally. To conclude, from the above discussion it follows that it is possible to get rid of bracketing at least in the class of Derived Imperfectives. However, at this stage the claim that bracketing can be dispensed with altogether seems premature. As bracketing is not our main concern in this work, we will not pursue this topic but leave it for future research.

In the discussion so far we have analysed #TT, #TR, #RR and some of the #RT clusters (for the latter see section 2 in this chapter). We have seen that #TT and #RT clusters are always resolved by means of PG and they arise due to the inert character of the initial empty CV unit. On the other hand, #TR and #RR clusters can have the representation of either (14a) or (14b). The latter applies to forms which indicate vowel-zero alternations but also to forms which are morphologically marked. Additionally, it has been pointed out that #m + R clusters are able to hold the IG relation. This follows naturally from the fact that labiality is represented by the element (B) rather than (U), the latter one stands only for velarity.

In order to conclude our discussion of the word-initial two consonant clusters, we will look more deeply at the #RT sequences in Polish. It will be demonstrated that true #RT clusters are rather rare.

2.3. #RT sequences revisited

The previous sections have demonstrated that the Strict CV approach can successfully cover most of the Polish phonotactic facts. Additionally, the fact that this is one of the most constrained theories ever developed makes it even more appealing. As has already been mentioned in section 2, Polish co-occurrence restrictions on the word-initial consonant sequences are relatively free. This state of affairs follows from a single fact, namely that the initial empty CV unit is inactive in the language. One of the consequences of this observation is that Polish abounds in clusters which challenge the traditional syllabification procedures. Undoubtedly #RT clusters, which we have briefly touched upon in section 2 above, belong to this group. In what follows we shall take a closer look at such sequences. Consider the combinatorial possibilities of the word-initial two-consonant sequences with the falling sonority profile in (16).

(16)

a.		b.	
[rt]ęć	'mercury'	[lv]a	'lion gen.sg.'
[rd]est	'knotgrass'	[ln]u	'flax gen.sg.'
[rd͡z]a / [rd͡z]eń	'rust'/'core'	[lʒ]yć / [lʒ]ej	'insult'/'easier'
[rv]ać / [rv]etes	'tear'/'commotion'		
[rʒ]eć	'neigh'		

c.		d.	
[wb]a	'head, gen.sg.'	[mx]u	'moss, gen.sg.'
[wk]ać	'sob'		
[wg]ać	'lie'		
[wʒ]e	'he lies'		
[wz]a	'tear'		

Recall that some of the sequences in (16a) have already been discussed in section 2. It has been pointed out that the #RT sequences must be separated by the governed empty nucleus. This explanation seems reasonable as in some cases we observe vowel-zero alternations (17a), while in others we face the vocalisation of the prefix vowel (17b). Recall from the previous sections that both phenomena arise due to the application of PG. The examples in (17) are taken from Cyran (2003: 298—299).

(17) a.

[lv]a – [lef]	'lion, gen.sg./nom.'
[ln]u — [len]	'flax, gen.sg./nom.'
[wb]a — [wep]	'head, gen.sg./nom.'
[wz]a — [wes]	'tear, nom.sg./gen.pl.'
[mx]u — [mex]	'moss, gen.sg./nom.'
[rv]ać — wy[rɨv]ać	'tear/pull out DI'

b.

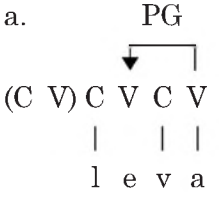
[rʒ]eć – ode+[rʒ]eć	'neigh/neigh back'
[rv]ać — roze[rv]ać	'tear/tear apart'
[lʒ]yć — ze+[lʒ]yć	'insult'
[lʒ]ej — ze+[lʒ]eć	'easier/abate'
[wk]ać — roze+[wk]ać (się)	'sob/start sobbing'
[wg]ać — ze+[wg]ać	'lie'
[wʒ]e — ze+[wʒ]e	'he lies/he will lie'

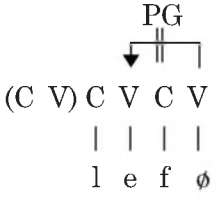
c.

[rt]ęć	'mercury'
[rd]est	'knotgrass'
[rd͡z]a / [rd͡z]eń	'rust'/'core'
[rv]etes	'commotion'

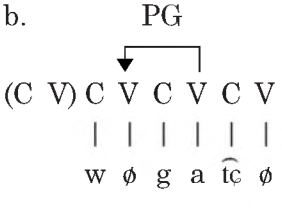
It appears that the forms in (17a, b) confirm the theoretical prediction which separates such consonants with the empty nuclear position. The representation of [lv]a — [lef] and [wg]ać — ze+[wg]ać is given in (18a) and (18b) respectively.

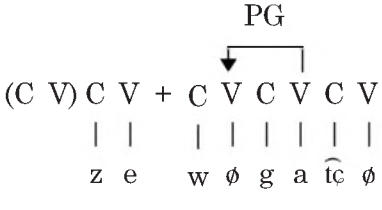
(18) a.





b.





What we are left with is the list of nouns in (17c). Note that despite the fact that the clusters are never broken up by the alternating vowel the

consonants must be separated by the governed empty nucleus.[10] In the Strict CV theory advocated in this book, this fact falls out naturally as such sequences can never hold a consonant relation (recall the discussion in Chapter One, section 5).

It must be noted here that Cyran (2003), developing a slightly different version of the Strict CV model, arrives at similar conclusions. In his analysis the forms in (17c) are assigned the status of true #RT clusters and are claimed to hold a leftward Interonset relation.[11] Furthermore, the author points out in a footnote (Cyran 2003:301) that when preceded by the prefix *pod-* 'under', the forms in (17c) do not cause the vocalisation of the prefix-final nucleus, e.g. *podrtęciowy, podrdzewiały, podrdestowy*. In spite of the fact, as Cyran (2003) further admits, that the examples in (17c) are all nouns and denominal prefixation differs quite radically from the verbal kind, such forms provide proof for the leftward Interonset government in #RT clusters. As mentioned above, in our analysis #RT sequences are not allowed to hold a consonantal relation. Consequently, the consonants are separated by a properly governed nucleus (see again the representation in (2a) above). This situation may seem problematic for our analysis since the prefixal vowel in this context is predicted to surface phonetically, which is, however, not the case in the forms given above. We shall return to this problem in section 3.6, which is devoted to trapped consonants.

Finally, it is worth mentioning that the postulation of the empty nuclear position separating the #RT sequences can be additionally confirmed by the diachronic development of the language. Cyran (2003:302) points to the fact that historically all the initial clusters of the #RT type contained a jer separating the consonants, e.g. *rъzati — rżeć* 'neigh', *lъgati — łgać* 'lie', *rъtonti — rtęć* 'mercury', etc. In Modern Polish all such sequences are resolved by means of PG, the only difference being that some of the forms still indicate the vowel-zero alternation (17a), while some others are not alternating (17b, c).

In this section we have presented and analysed Polish two-consonant clusters (excluding /sC/ sequences) occurring at the left edge of the

[10] Eugeniusz Cyran has pointed out to me that what calls for explanation here is the homorganic nature and the rigid order of consonants in such sequences. I agree with the statement that since [rt] sequences are separated by the governed empty nucleus, we should not observe any constraints of this sort. To my knowledge, however, none of the previous analyses has managed to explain this pattern. I leave this question open for further studies.

[11] In Cyran's (2003) model, contrary to Scheer's (1999a) proposal advocated in this work, obstruents are assigned the role of governors, while sonorants are typical governees. This is the reason why Cyran (2003) represents #RT clusters as an instantiation of leftward Interonset government.

word. It has been demonstrated that the Strict CV model using only the two mechanisms PG and IG can cover the Polish facts. Crucially, the analysis is made possible by the introduction of the initial empty CV unit, which replaces the traditional boundary marker #. On the basis of prefixation both in Polish and Czech we have seen that the postulation of two representations for phonetically the same cluster is fully justified. The existence of both representations in the grammar is responsible for, among other things, the inconsistent behaviour of the prefix vowels. Furthermore, we have made an attempt to explain the peculiar character of the bilabial nasal /m/ occurring in clusters with other sonorants. It has been demonstrated that /m/ plays a special role in the Polish phonological system in that it behaves like a regular obstruent because it is a governee in the IG relations. In the following section we shall look in greater detail at the three-consonant clusters in Polish at the left edge of the word. We shall also discuss the problem of the so-called trapped sonorants in the language.

3. Three-consonant sequences

3.1. Introduction

The present section deals with three-consonant clusters occurring at the left margin in Polish. The analysis is restricted to Polish, although some reference to other Slavic languages is also provided (section 3.4). The section aims at demonstrating that the mechanisms needed to account for various word-initial two-consonant clusters, i.e. Proper Government and Infrasegmental Government, are sufficient to describe the remaining, more complex sequences. It will become obvious that Polish allows for complex word-initial consonant clusters not because it is 'special' or 'privileged', but because the initial empty CV unit in this language is inactive. In consequence both mechanisms, that is, PG and IG, have a chance to occur, giving rise to 'exotic' consonant sequences. Additionally, in the following sub-sections (section 3.3) we shall present an in-depth analysis of the so-called trapped sonorants which are claimed to be a typical Polish case.

3.2. #RTR and #TTR sequences

Polish has been recognised as one of the most permissive languages not only due to the large number of #RT clusters, but also because it abounds with three-consonant sequences at the left margin. Such sequences can be divided into three major groups. The first two groups can be represented schematically as #RTR and #TTR as in [lgn]*ąć* 'cling' and [tkn]*ąć* 'touch', respectively. The third possibility includes clusters in which a sonorant is trapped between two obstruents #TRT or between an obstruent and another sonorant #TRR, e.g. [krt]*ań* 'larynx', [brn]*ąć* 'wade' respectively. Let us start by discussing the former two groups.

If we adopt the assumptions made in previous sections, that is, that the Polish initial empty CV unit is inactive and that TR sequences are required to contract the IG relation, the analysis of the #RTR and #TTR clusters is straightforward. Consider first some examples of the word-initial three-consonant clusters in (19).

(19) a. #RTR

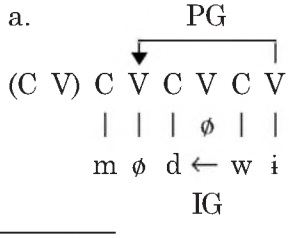
[mdw]y	'bland'	[mgɲ]ienie	'wink'
[mdl']ić	'nauseate'	[rɜn]ąć	'saw'
[mkn]ąć	'speed'	[lgn]ąć	'cling'

b. #TTR

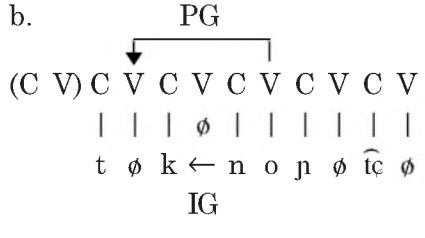
[tkn]ąć	'touch'	[txn]ąć	'breathe'
[tkl']iwy	'affectionate'	[d͡zgn]ąć	'stub'
[t͡skɲ]ić	'long'	[pxn]ąć	'push, pf.'
[t͡skl']iwy	'sentimental'	[tkf]ić[12]	'stick'

The main difference between (19a) and (19b) is that in the latter group the initial position is occupied by an obstruent, while in the former by a sonorant. The representation of [mdw]*y* and [tkn]*ąć* is given below in (20).

(20) a.



b.



[12] Surface [v] and most occurrences of [f] are phonologically the glide /w/ (see Kuryłowicz 1952 and Gussmann 1981).

Both in (20a) and (20b) the last two consonants of the initial cluster fulfil the requirements to contract the IG relation, hence, the empty nucleus separating them is licensed. On the other hand, the initial empty nucleus is properly governed by the first available nucleus. This analysis seems quite correct as it is further confirmed by prefixed forms. In section 2.1 we arrived at the conclusion that consonant clusters separated by the properly governed empty nucleus vocalise the prefix vowel. In some cases the existence of properly governed nuclei is confirmed by the vowel-zero alternation in related forms. Given these facts we are in a position to test in the same way the forms under (19a, b). The forms in (19b) where the first four examples are closely related, i.e. [tkn]*ąć* — [tkl']*iwy*, [t͡skɲ]*ić* — [t͡skl']*iwy*, give the results represented under (21).[13]

(21)

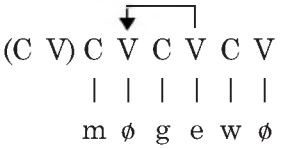
		prefixed ipf.	*prefixed pf.*
tknąć	'touch'	od+tykać	ze+tknąć
tchnąć	'breathe'	od+dychać	ode+tchnąć
pchnąć	'push'	od+pychać	ode+pchnąć

The first column illustrates clusters which are separated by a properly governed empty nucleus. This is confirmed by forms under the second column where the same clusters appear with the phonetically realised vowel. Finally, the examples in the third column further confirm this analysis. The fact that the prefix vowel is realised phonetically betrays the presence of the properly governed empty nucleus between the first two consonants of the initial sequence. The same holds true for some of the forms in (19a) above, that is, they also exhibit the realisation of the prefix vowel, e.g. *mdlić — zemdlić* 'nauseate/pf.', *mdleć — zemdleć* 'faint/pf.', etc. In short, the realisation of the prefix vowel presupposes the presence of the properly governed empty nucleus in the vicinity. A word of comment is needed concerning forms like *pchła — pcheł* 'flea/gen.pl.' and *mgła — mgieł* 'fog/gen.pl.' These forms host vowel-zero alternations, hence, the vowel is predicted to be present lexically. When appearing in zero grade, the vowel must be properly governed (recall the discussion in section 2). Note, however, that the alternating vowel is the one between the last two consonants of the cluster. Thus, in the genitive plural the final consonants are separated by [e], e.g. *pcheł, mgieł*, which means that in the nominative such vowels must be properly governed. As a matter of fact, the vowel alternating with zero is neither lexically present nor properly governed. Were it lexically there, the initial nucleus in *mgła*, i.e.

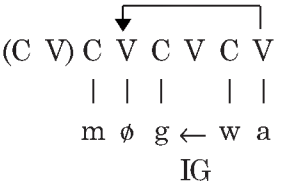
[13] It should be mentioned here that '*-liwy*' is the adjectival suffix observed in forms like, for example, *wadliwy — wada* 'defective/defect'.

the one between the first two consonants, would have to be vocalised. This is not the case as the first nucleus remains phonetically silent, which may suggest that both forms have two different structures (22).

(22) a.



b.



Furthermore, note that in (22a) the vowel alternating with zero is allowed to properly govern a preceding nuclear position. This situation may seem problematic at first sight as Polish alternating vowels are not 'sound' governors (S c h e e r 2004). This is clearly observable in the case of *pies* 'dog' and the two diminutive forms *piesek, pieseczek* 'dog dim./double dim.' If alternating vowels were allowed to properly govern, we would arrive at **psek*, **piesczek*, which are ungrammatical.[14] Note, however, that both forms, i.e. *pcheł* and *mgieł* would pose a problem if the first vowel were an alternating one itself. Since the initial nucleus is lexically empty, it can be governed by an alternating vowel (see 29a below). In short, Polish alternating vowels cannot govern other alternating vowels but are able to govern lexically empty nuclear positions.[15] To make matters worse, we have assumed that alternating vowels as lexically present can be silenced only by Proper Government (see section 2). If this assumption is correct, the representation in (22b) is ill-formed. In other words, the forms in (22) behave oddly because what is the IG domain in one case (22b) is broken up by an alternating vowel in another one (22a). Recall that we have already encountered a similar problem while discussing the case of *gra — gier* 'play, nom./gen.pl.' (see section 2.2). Moreover, both *mgła* and *pchła* are peculiar in another respect, namely, when prefixed the former one behaves regularly and vocalises the prefix vowel, e.g. *odemglić* 'defog', while the latter one does not, e.g. *odpchlić* 'deflea', instead of the predicted form **odepchlić*.[16]

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[14] This constraint is in the spirit of the earlier accounts known as Lower (G u s s m a n n 1980a, R u b a c h 1984, S p e n c e r 1986, P i o t r o w s k i, R o c a and S p e n c e r 1992, S z p y r a 1992a, among others), which states that jer surfacing is normally conditioned by the presence of another jer in the immediately following syllable.

[15] Note that this constraint does not hold in the aforementioned Derived Imperfective forms, where the stem vowel must properly govern the one in the prefix, e.g. *zbierać* vs. *zebrać* 'collect, ipf./pf.'

[16] In order to arrive at the correct form we are again forced to resort to bracketing and domain structure [odø[pxlit͡ɕ]] (recall the discussion in section 2.2).

To summarise briefly, in this section we have analysed Polish three-consonant clusters at the left-edge of the word. The general conclusion we arrive at here is that the vast majority of such sequences can be analysed without burdening the grammar with additional mechanisms. Quite the contrary, three-consonant clusters can be accounted for by means of independently motivated mechanisms, i.e. Proper Government and Infrasegmental Government, which are exploited in the analysis of various two-consonant clusters. However, there are also some problematic forms, e.g. *mgła — mgieł,* which cannot be described by regular phonology, at least not in the Strict CV model. Such forms force us to postulate two independent representations.

Three-consonant clusters are possible in Polish due to the fact that in this language the initial CV unit is inactive, hence it does not need to be governed. In this situation both PG and IG have a chance to occur giving rise to such complex consonant sequences. By contrast, in English, or more generally in most of the Indo-European languages, the initial CV unit is active and requires a governor. In this situation only one mechanism is available, i.e. IG, which is responsible for #TR clusters only.

In the section that follows we shall focus our discussion on the last group of three-consonant sequences, known in the literature as trapped sonorants.

3.3. Trapped consonants and transparency to voice assimilation

This section examines the problem of three-consonant clusters where a sonorant is flanked by two consonants, the so-called trapped sonorants.[17] The analysis starts with a brief presentation of the complexity of the problem and a short discussion of some earlier accounts. Then a comparison of syllabic consonants in other Slavic languages, like Czech, Slovak and Serbo-Croatian, with their trapped cognates in Polish is drawn. In Chapter Three we shall return to the problem of syllabic consonants, this time in English and German.

Although discussion concerning the status of syllabic consonants has never been absent from the Government Phonology model (H a r r i s 1994,

[17] In the following discussion I also analyse cases of post-obstruent word-final sonorants, e.g. *wia*[tr] 'wind', which I call word-final trapped sonorants.

Szigetvári 1999, Rowicka 1999a,), the study of such segments has recently attracted greater interest (Afuta 2002, Blaho 2001, 2002, Rowicka 2003, Toft forth.). However, to my knowledge it was Scheer (2004) who first proposed a thorough and in-depth analysis of the syllabic cognates, that is, trapped consonants. Needless to say, the problem of a sonorant sandwiched between two obstruents has long been noticed; however, such clusters have never been analysed in a separate study.

The main problem with trapped consonants lies in the fact that a segment which should be ascribed a syllabic status, as it is trapped between two consonants of lower sonority, is stubbornly consistent in refusing such an identity. Moreover, what is a trapped consonant in Polish enjoys a syllabic status in neighbouring languages, often in the same words. In short, syllabic consonants behave as if they were vowels, while trapped consonants indicate regular consonantal behaviour. It is worth mentioning here that Polish is the only language on record in which trapped consonants occur on such a scale. First consider the data in (23) where two patterns of trapped consonants are depicted, i.e. consonants which are lexically trapped (23a, b) and consonants which are trapped as the result of the vowel-zero alternation (23c)

(23)

a.		b.	
[brd]a	(name of a river)	[brn]ąć	'plod'
[grd]yka	'Adam's apple'	[krnombrni]	'unruly'
[krt]ań	'larynx'	[kln]ąć	'swear'
[drʒ]eć	'tremble'	[tʃmˈ]iel	'bumble-bee'
[drg]ać	'vibrate'	[plf]ać	'spit'
[gʒbˈ]iet	'back'	[trf]onić	'waste'
[drgn]ąć	'shudder, pf.'	[drv]al	'wood-cutter'

c.

[krfˈ]i — [kref]	'blood, gen.sg./nom.sg.'
[brvˈ]i — [bref]	'eyebrow, nom.pl./nom.sg.'
[drva] — [dref]	'firewood, nom.pl./gen.pl.'
[pwt͡ɕ]i — [pwet͡ɕ]	'sex, gen.sg./nom.sg.'
[xʃt]u — [xʃest]	'baptism, gen.sg./nom.sg.'

A word of explanation is in order here. The forms in (23) illustrate trapped sonorants only at the left edge of the word. Note, however, that this does not mean that such clusters are not present word-internally or finally. Secondly, a sonorant may be trapped between two obstruents (23a) or between an obstruent and another sonorant (23b). It must also be

emphasised here that consonants flanking a trapped sonorant always agree in voicing, e.g. [drv]*al* 'wood-cutter', [krt]*ań* 'larynx', etc. The latter observation was one of the main reasons why Polish trapped sonorants caught the attention of phonologists in the past. Many analyses have been offered for the behaviour of trapped sonorants with respect to voicing (Bethin 1984, Rubach and Booij 1987, 1990a, b, Rubach 1996, 1997a, b, Gussmann 1992). Very briefly, trapped sonorants were claimed to be transparent to voice assimilation or voice neutralisation. In the latter situation a voiced obstruent which occurs before a word-final trapped sonorant undergoes word-final devoicing, although it is not final at all (24).

(24) a.

bó[pr] — bo[br]a	'beaver, nom.sg./gen.sg.'
żu[pr] — żu[br]a	'bison, nom.sg./gen.sg.'
ka[tr] — ka[dr]u	'frame, nom.sg./gen.sg.'

b.

mieli[sn] — mieli[zn]a	'shallows, gen.pl./nom.sg.'
boja[cɲ] — boja[ʒɲ]i	'fear, nom.sg./gen.sg.'
mechani[sm] — mechani[zm]y	'mechanism, sg./pl.'

It was observed that although an obstruent preceding a trapped consonant is underlyingly voiced, it undergoes neutralisation when the case marker is zero. Moreover, despite the fact that in Polish the rule of voice neutralisation applies to obstruents only, trapped sonorants were observed to undergo devoicing too, and the familiar example *bóbr* should actually be transcribed [bupr̥], with the whole final cluster devoiced. Unsurprisingly, the same 'transparency' was observed in the word-internal/initial position. The general conclusion was that obstruents flanking a sonorant always agree in voicing. In Polish, unlike in Czech, for instance, TrD clusters (where 'D' is a voiced obstruent) are not possible. However, the reason why Polish was such an eagerly studied language was that in this language voice assimilation across the sonorant can be both regressive and progressive, e.g. [kref] — [kr̥fi] — [krevni] 'blood, nom.sg./gen.sg./relative', [bref] — [brvi] 'eyebrow, nom.sg./nom.pl.', [jentr̥ka] — [jendrek] (a name, gen.sg./nom.sg.). In the case of [kref] the final fricative must be voiced phonologically, vis. /v/, because of the form [krevni]. Since /v/ in /krev/ is reduced to [f] due to the general rule of word-final neutralisation, the one in [kr̥fi] must arise due to a progressive assimilation. In other words, the devoicing of /v/ must be ascribed to the presence of the initial [k] that precedes the trapped [r]. On the other

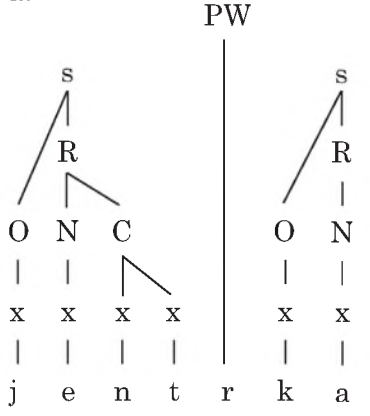
hand, the form [jentr̥ka] demonstrates regressive assimilation, thus, in [jendrek] both the dental plosive [d] and [r] are voiced. However, the cluster [dr] undergoes devoicing when it occurs in a direct contact with the following voiceless [k]. The voice value of [k] imposes its voiceless characteristic on the entire cluster. It must be clarified here that the identical voicing specification of obstruents separated by the trapped [r] does not constitute any problem for models like GP or the Strict CV framework, where the sonorants lack the laryngeal element. Moreover, in [bupr̥] the bilabial plosive /b/ is devoiced due to the following empty nucleus, which cannot license the laryngeal node in Polish. Finally, the explanation of the devoiced character of /r/ both in the former and the latter context, rather than being a pure phonological phenomenon, falls under the scope of phonetics.[18]

Additionally, it should be noted here that the forms [jentr̥ka] – [jendrek] are peculiar in another respect. Specifically, in the previous analyses trapped sonorants were claimed to be extrasyllabic (Rubach and Booij 1990a, Rubach 1996, 1997a, b). However, as pointed out by Scheer (2004), in all studied cases extrasyllabicity and extrametricality occur only at word-edges. This observation follows from the fact that word-margins behave in a peculiar, often unpredictable way. If trapped sonorants are extrasyllabic, Polish is the only language which allows for word-internal extrasyllabicity, e.g. *Jędrka* [jentr̥ka] (a name), *piosnka* [pjosn̥ka] 'song', *czosnku* [t͡ʃosn̥ku] 'garlic, gen.sg.' It follows that previous accounts relying on the syllabification algorithm left word-medial trapped sonorants such as [n] in *czosnku* unsyllabified. Note that [n] can neither form a branching onset with the following [k], nor qualify as a second member of a branching coda [sn]. Both options violate the Sonority Sequencing Principle. Needless to say, the same argumentation applies to word-final TR clusters such as [pr̥] in *bóbr*. The latter cluster cannot be interpreted as a branching onset as such constituents do not occur word-finally. The problem was solved by assigning the [b] to the coda, which left the final [r] unsyllabified. This analysis was then extended to cover word-initial trapped sonorants. The representation of [jentr̥ka] and [bupr̥] is given below in (25).

In (25a) the extrasyllabic character assigned to the word-internal [r] is the reason why the flanking obstruents agree in voicing. Generally speaking, extrasyllabicity explains the transparent character of the word-internal trapped sonorants. Both obstruents, i.e. /d/ and /k/, are adjacent at the early stage of syllabification, hence voice assimilation occurs. Then the unsyllabified segment is linked to the higher prosodic constituent,

[18] I owe this note to Eugeniusz Cyran

(25) a.



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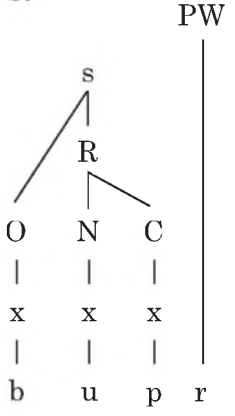


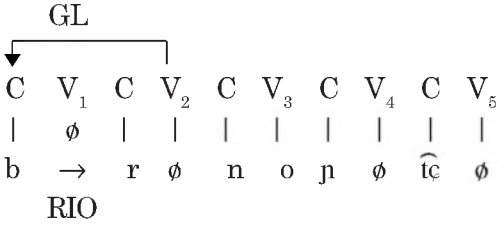
for example, phonological word (PW). The same analysis was exploited to explain voice neutralisation in (25b). In the latter example only the bilabial plosive /b/ belongs to a word-final coda (/br/ is banned from the coda position due to the rising-sonority profile). This analysis was possible only on condition that the final [r] was assigned an extrasyllabic status. Extrasyllabicity of [r] explained two seemingly unrelated facts. Firstly, word-final devoicing of non-final /b/ and secondly the occurrence of TR clusters word-finally. Similarly to (25a) the later rules integrate extrasyllabic consonants into the prosodic hierarchy. This solution has been criticised for lack of restrictiveness (see Rowicka 1999a). It must be noted here that trapped sonorants have also proved problematic for a more recent phonological model, i.e. Optimality Theory (OT). The analysis of such clusters has in consequence led Rubach (1996, 1997a) to postulate at least two derivational levels within an originally non-derivational framework. It is the transparent character of trapped sonorants which is a central argument for a modified OT, i.e. Derivational Optimality Theory.

As was pointed out to me by Eugeniusz Cyran, such clusters do not constitute a problem for Government Phonology; just the opposite, they bring joy to phonologists as they exemplify the extreme point the theory can reach. Very briefly, in GP trapped sonorants are interpreted as regular second members of branching onsets. This is the result of Charrette's (1991, 1992) parametric variation concerning the ability of nuclei to government license. The peculiarity and exceptionality of the Polish situation lies in the fact that in this language the parameter which allows empty nuclei to government license is set to ON. Consequently, words like *brnąć* 'wade', for example, are interpreted as the regular branching onset followed by an empty nuclear position and another non-branching

onset, viz, /brøn/ąć. This means that the initial branching onset /brø/ is government-licensed by the following empty nucleus. In most languages, according to Charette (1992), only full vowels are qualified to government license, while in others final empty nuclei may also perform this action, e.g. French and Icelandic. Polish is an extreme case as it allows its word-internal governed empty nuclei to act as government licensors. A similar solution is put forward in Cyran and Gussmann (1999); the only difference is that the government licensing comes from a different source, i.e. from the head of the domain, and not as in Charette's (1992) account from the nucleus directly following a given governing domain.

Charette's (1991, 1992) proposal of parameterised licensing abilities of various vocalic objects, has been taken up and developed by Cyran (2003). Although in his work the traditional branching onsets are represented as two onsets separated by an empty nucleus, as he works in the Strict CV approach, they are said to contract a rightward Interonset (RIO) relation which may be sponsored by an empty nucleus in Polish. This is illustrated graphically in (26) on the already familiar example *brnąć*.

(26)



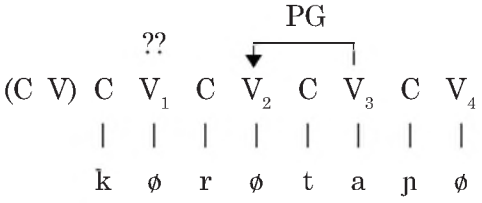
Note that in (26) the V_2 is not properly governed as Cyran (2003) does not grant Proper Government a theoretical status. The ungrammaticality of two empty nuclei in a row is resolved, according to Cyran (2003), by the constraint *ø-ø (see also Rowicka 1999a for a similar solution). Crucially, this constraint applies only to unlocked nuclei.[19] In (26) the nuclear position V_1 is locked as it appears in the governing relation, that is, /bør/, hence the *ø-ø constraint is not violated. Summing up, Polish is exceptional in the sense that it allows word-internal empty nuclei to license governing domains.

Trying to find a logical explanation for the issue depicted above, we should, first of all, emphasise the fact that trapped consonants seem problematic for the model developed in this book. The mechanisms which

[19] Unlocked nuclei are those which do not appear in the domain of the consonantal interaction like rightward or leftward Interonset relations.

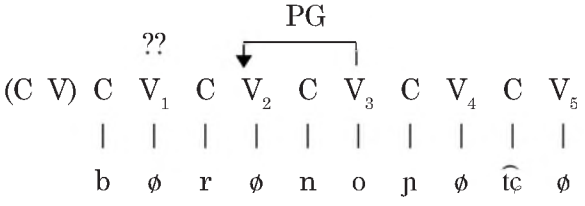
have been presented so far, i.e. Proper Government and Infrasegmental Government, are insufficient to account for the consonant sequences of this type. Consider the representation of *krtań* 'larynx' in (27).

(27)



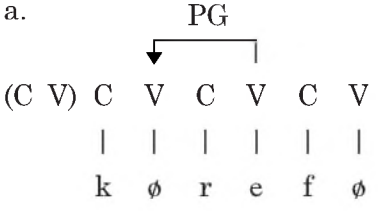
In (27) V_3 is obliged to properly govern the preceding V_2 ([rt] is not a possible IG domain). The nuclear position V_2 being empty and governed cannot give licence to the preceding [r], hence the initial [kr] cannot contract the IG relation either. In consequence, the forms represented under (23a) above lack the governor for the nuclear position between the first two consonants. A similar situation arises in (28) below where two sonorants are preceded by an obstruent.

(28)

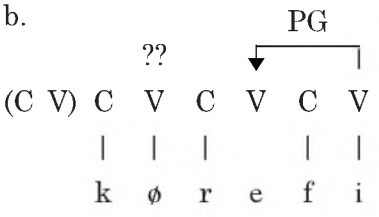


In (28) the two sonorants /-røn-/, as potential governors, are not able to interact with each other in the IG domain. It means that the empty nucleus V_2 must be properly governed by the following filled V_3. Similarly to the example in (27), V_2 being properly governed cannot license /r/ and again the first nucleus, i.e. V_1, remains ungoverned. The same situation occurs within the group of forms hosting vowel-zero alternations (23c). Although the forms with the realised vowel are unproblematic as they are simply instantiation of PG (29a), the ones with two empty nuclei in a row remain unexplained (29b).

(29) a.



b.



When confronted with data like those above the following question may occur to the reader, namely, is it possible to represent such clusters in the Strict CV framework and preserve their distinctive Polish character? This question should receive extra attention as the same clusters appear in other, though related, languages, e.g. Czech, Slovak, and Serbo-Croatian (see Rowicka 1999a, 2003, Blaho 2001, 2002, Cyran 2003, Scheer 2004). Before we address this question and try to give a satisfactory answer, let us compare the behaviour of such clusters in various Slavic languages. It will become obvious that two separate representations are required to capture the difference between the syllabic and trapped consonants.

3.4. Syllabic vs. trapped consonants

In this section we shall provide some evidence demonstrating that syllabic and trapped consonants, although related, call for two separate representations. The discussion in this section draws heavily on Scheer's (2004) analysis as this is the most thorough analysis of the problem we are aware of.

It is commonly pointed out in the literature that Polish, with the exception of fast, casual speech, lacks syllabic consonants (Biedrzycki 1971, 1978, Rubach 1974). Consequently, in this language only vocalic nuclei count for metrical structure and can bear primary or secondary stress, unlike in some other Slavic languages, e.g. Czech, Slovak and Serbo-Croatian. Since from the phonotactic point of view Polish trapped consonants resemble the clusters in the languages where the sonorant is syllabic, the difference between both structures must be established on different grounds, i.e. phonological processing.

As has been mentioned above, sonorants, being spontaneously voiced, do not basically undergo final devoicing in Polish, unless they are trapped. It follows that sonorants are voiced word-finally, in word-final RR clusters and pre-vocalically, e.g. *da*[r] 'gift', *da*[l] 'distance', *poka*[rm] 'food', *da*[rw] 'tore, 3p.sg.', [r]*ama* 'frame', *ka*[r]*a* 'punishment', etc. Moreover, they are voiced before an obstruent, e.g. *wi*[lk] 'wolf', no matter whether the obstruent is phonologically voiceless as in the latter example or undergoes word-final devoicing as in *wi*[lk] — *wi*[lg]*a* 'oriole, gen.pl./nom.sg.' The only position where sonorants undergo devoicing is a 'trapped' context (internal or final), e.g. [krf]*i* 'blood, gen.sg.', *wia*[tr̥] 'wind' respectively. Since in Polish only obstruents are granted the right to de-

voice and given the fact that [r] patterns with obstruents rather than with sonorants as far as the result of palatalisation is concerned,[20] it was suggested by Scheer (2004) that trapped sonorants are, to use his term, 'demoted' to regular obstruents (see also Rubach and Booij 1990a, b). One of the consequences of this observation is that trapped consonants are not transparent to voice assimilation but are regular obstruents and form an obstruent cluster with the neighbouring consonants. In the case of *bó*[pr̥], for example, the final cluster behaves like an obstruent cluster in that both consonants undergo devoicing. The same holds true for word-internal trapped sonorants: CRCs form one single obstruent cluster, hence, its members must share the same voice specification, which is a general rule of Polish. A clear piece of evidence supporting the claim that syllabic and trapped consonants must be assigned two different representations comes from Czech. On the one hand, both Polish and Czech exhibit obstruent word-final devoicing e.g. Polish *chle*[p] — *chle*[b]*a* 'bread', Czech *holu*[p] — *holu*[b]*a* 'pigeon'. On the other hand, in Czech the TR clusters in the word-final position are not devoiced as they are in Polish, compare Polish *bó*[pr̥] vs. Czech *bo*[br̥]. Furthermore, word-internally Czech syllabic consonants are not transparent to voice assimilation, e.g. Czech [tr̥vat], [kr̥vɛ] vs. Polish [tr̥fa͡ɕ], [kr̥fi]. Thus, the conclusion that can be drawn from the above data is that the transparency of Polish trapped sonorants is not a consequence of the context alone as their Czech syllabic cognates occur in exactly the same environment without showing this behaviour. The explanation may be sought in the fact that in Polish certain sonorants behave like obstruents, while in Czech they behave as vowels. This fact is further confirmed by the syllabic status of such segments. The conclusion at which we arrive, therefore, is that two separate representations are needed to distinguish syllabic from trapped sonorants. Let us now turn to another, no less relevant, piece of evidence, namely stress placement. It is a generally accepted fact that syllabic consonants can be stressed. In Slovak,[21] for instance, stress always falls on the first syllable. If a word starts with a consonant cluster containing a syllabic segment that consonant is stressed, e.g. [kr̥mit] 'feed' but if the sonorant is not syllabic, stress is placed on the following vowel as in [krava] 'cow'. Similarly to Slovak, /r/ in Serbo-Croatian can also bear primary stress. In the latter language stress falls on the only vowel in monosyllabic words. Note, however, that [tr̥ga] 'square, gen.sg.' has

[20] It must be noted here that [r] and its palatalized versions [ʒ] and [ʃ] are the most common segments occurring in the trapped context.

[21] The Slovak data have been collected from Blaho (2001), see also Rubach (1993).

penultimate stress but in [prav] 'straight, direct' stress falls on the vowel. It follows that the former word consists of two syllables where the sonorant /r/ plays the role of the nucleus. Despite the fact that both [trga] and [prav] are similarly structured, the stress is placed in different positions. We encounter a similar situation in Czech. In this language there are examples of words without any audible vowel, e.g. *krk* 'neck', *vlk* 'wolf', etc., which point to the fact that stress must fall on the liquid. The latter observation is also characteristic of the languages mentioned earlier, namely, Slovak, e.g. *krv* 'blood', *trh* 'market', *vlk* 'wolf', *krk* 'neck', and Serbo-Croatian, e.g. *krv* 'blood', *rt* 'cape'. Another piece of evidence confirming the fact that Czech syllabic consonants play a vocalic role comes from a bimoraic constraint operating in the group of infinitives. According to this constraint a well-formed infinitive must contain either a long vowel, two short vowels or one short vowel and one syllabic consonant. To conclude, in Czech, just like in Slovak and Serbo-Croatian, syllabic consonants count as vocalic nuclei.

The situation in Polish is radically different, as trapped consonants never count for metrical structure nor do they bear stress. The latter fact provides unambiguous evidence as stress invariably falls on the penultimate syllable in Polish (compare *dzi**e**wczyn* vs. *dziewczyn**a*** vs. *dziewczyn**a**mi* 'girl, gen.pl./nom.sg./instr.pl.'). However, in the word *krtań*, 'larynx' stress falls on the only audible vowel, that is [a], and not on the trapped [r]. Similarly, in *brew* 'eyebrow' the vowel [e] is stressed but in the genitive *brwi* stress falls on the word-final [i] and not the [r]. To summarise briefly, in Polish consonants trapped between voiceless obstruents undergo devoicing; they never count for metrical structure or bear primary or secondary stress. In other Slavic languages, however, syllabic cognates of Polish trapped consonants are not devoiced, but count in metrical structure and can bear primary stress. In the former situation, i.e., Polish, the sonorant behaves as a typical consonant, while in the latter case, e.g. Czech, the sonorant acts as a vowel.

In this section we have demonstrated the major arguments from some Slavic languages pointing to the general negative conclusion that trapped and syllabic consonants have radically opposite characteristics and in consequence cannot be represented in the same fashion by any theory. In order to be able to maintain the difference between trapped and syllabic consonants two separate representations are needed. Before we discuss the possible representations for both structures, we shall look more deeply at another piece of evidence which confirms the findings of this section — prefixation.

3.5. Trapped consonants and prefixation

This section deals with the behaviour of prefix vowels which appear before roots starting with a consonant cluster containing a trapped consonant. The conclusions from the previous section along with the findings accumulated in this section will contribute to the postulation of the correct representation of trapped consonants.

Trying to find due explanation for the problem of trapped consonants, we should look at the behaviour of prefixes in Polish when added to roots starting with consonant clusters containing trapped consonants. Let us start, however, with prefixation and the syllabic consonants in Czech. In Chapter One (section 5.1) and in section 2.1 above it was demonstrated that in the latter language a prefix vowel is vocalised whenever it is added to a root starting with the initial two-consonant cluster holding a vowel-zero alternation, e.g. *ode brat – od birat* 'take away, pf./ipf.'. Moreover, forms which never alternate with zero always suppress the prefix vowel due to the IG relation holding between the consonants of the initial cluster, e.g. *bez brady* 'beardless'. Bearing in mind the behaviour of Czech prefixes, we are in a position to test the influence of syllabic consonants on prefixes in the language. Since, as was claimed in the previous section, syllabic consonants behave as vowels, they should also be able to govern. This prediction is borne out by the Czech data. Consider the examples in (30), which are quoted after Scheer (2004).

(30)

roz-drtit	'crush'	od-krvit	'cause hypoxemia'
roz-drbat	'scratch to pieces'	od-frknout	'snort'
roz-mrhat	'waste'	pod-hrnout	'gather up'
roz-trhat	'tear up'	pod-vrh	'forgery'

The forms in (30) show without exception that syllabic consonants in Czech behave like regular vowels. In other words, prefix vowels are never vocalised when the following root contains a syllabic consonant. In Scheer (2004) the same test, i.e. vocalisation of the prefix vowel, is applied to Polish data. If, as we have seen above, syllabic and trapped consonants behave differently, the situation in prefixation should reflect it and reveal divergent results. Consider the forms in (31) which are again quoted after Scheer (2004).

(31) a.

roze+[drg]ać	'become vibrating'
roze+[brn]ąć ??	'flounder'
ode+[bʒm']ieć	'sound back'
ode+[gʒm']ieć	'rumble back'

b.

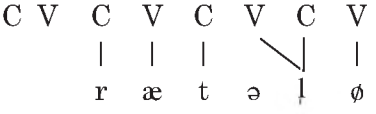
roz+[trf]onić	'squander'
z+[trf]ożyć	'become fearful'
roz+[bʒm']ieć	'sound'
od+[kʃt]usić	'cough up'
roz+[krf]awić	'cause to bleed'

Some prefix vowels before a consonant cluster containing a trapped consonant are vocalised (31a), while others are not (31b). This state of affairs, we recall, is related to the fact that in Polish the regular vowel-zero alternation in prefixes is found only in a class of verbs called Derived Imperfective (DI) (see the discussion in section 2.1 above). Outside of this specific morphological category the vocalisation of Polish prefixes is often unpredictable and permeated by morphological restrictions (see Laskowski 1975, Gussmann 1980a, b, Rubach 1984, Szpyra 1992b, Pawelec 1989, Rowicka 1999a, c). Given this fact, Scheer (2004) automatically disqualifies the forms in (31b) pointing out that such prefixes do not reveal any property of the root since their final nucleus is not governed by the vowel or trapped consonant but by the fact that it is domain final. Hence, he claims the phonological behaviour of trapped consonants cannot be judged on the grounds of the unvocalised examples in (31b). Furthermore, he claims that the words in (31a) must constitute a single domain as otherwise the prefix vowel would be inaudible. He concludes that Polish represents the reverse pattern when compared to Czech, the same prefixes in both languages behaving differently before the same roots CrC; that is, in Czech they are always mute while in Polish they surface. Before we shall attempt to formulate a solution to the forms under (31), a word concerning the representation of syllabic consonants is in order here.

In Government Phonology syllabic consonants are claimed to be simultaneously linked to two constituents. For example, Harris (1994:224) proposes to represent syllabic consonants as a single melodic unit associated with a consonantal slot but which at the same time spreads to the nuclear empty position. There are two theory-internal reasons why syllabic consonants cannot be linked to a single constituent only. Firstly, in the Element Theory the segments [i] and [j] are repre-

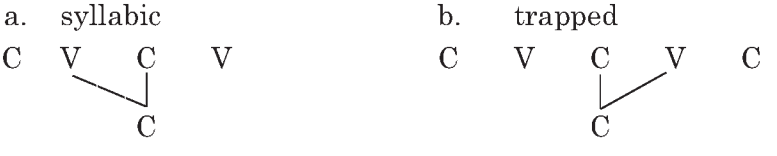
sented by means of the same single element, that is, (I). The phonetic realisation of the element (I) either as the front vowel [i] or the glide [j] depends on the constituent membership. Thus, the former realisation appears when (I) is attached to the nucleus, while the latter one surfaces when linked to the onset. It follows that a syllabic consonant cannot be attached only to the nucleus as this would produce an audible change in the realisation of the sonorant. However, the sonorants [l r n m] are pronounced identically whether attached to the onset or the nucleus. Secondly, syllabic consonants cannot belong to nuclei only as this would predict constant resyllabification, as in the English pair *rattle* [rætl̩] vs. *rattling* [rætl̩ɪŋ] — a process which is banned from Government Phonology. In short, a syllabic consonant is attached to the consonantal slot and at the same time it is spreading to a neighbouring nucleus. The representation of a syllabic consonant is illustrated in (32).

(32)



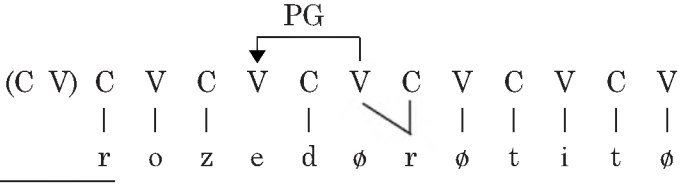
After this short introduction to the representation of syllabic consonants in GP, we are ready to return to the discussion of trapped consonants in Polish. On the basis of the arguments discussed both in the previous and the present sections, Scheer (2004) opts for the left-branching structures to represent syllabic consonants (33a).[22]

(33)



Recall that syllabic consonants in Czech behave like regular vowels in that they are able to govern as represented in (34).

(34)

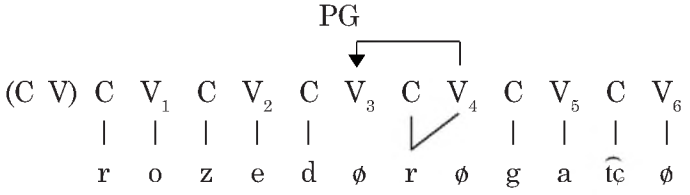


[22] For the opposite view see Rennison (1999b), Rowicka (2003), Blaho (2001) and Afuta (2002), who argue for the right-branching structures both for syllabic consonants and Polish trapped sonorants. Consequently, Polish trapped consonants are treated on a par with real syllabic consonants in other Slavic languages, e.g. Czech, Slovak and Serbo-Croatian.

In (34) the syllabic consonant [r] spreads onto the preceding nuclear position. This nucleus is not empty any more and so can serve as a proper governor to the prefix vowel. In consequence, the prefix final vocalic position remains unvocalised.

As already mentioned, Polish trapped consonants differ from syllabic cognates as far as stress and metrical structure is concerned. Additionally, as pointed out by Scheer (2004), trapped consonants provoke vocalisation of the prefix vowel (see again the forms under (31a) above). The latter observation allows Scheer (2004) to suggest a right-branching representation for trapped consonants (33b).[23]

(35)



Note that in (35) [r] spreads to the following empty nuclear position V_4. Since it is not empty anymore, it can govern the preceding empty nucleus V_3, as properly governed V_3 is not able to govern, and hence the vowel in the prefix surfaces.

On the basis of disparate behaviour in metrical structure and stress placement (previous section) and prefixation (this section) syllabic and trapped consonants have been assigned two separate representations.[24] Syllabic consonants are left-branching structures, while their cognates, i.e. trapped consonants, spread to the right. However, it has become obvious that the influence trapped consonants exert on the prefix vowel is quite inconsistent. Some prefix vowels are vocalised, while some others are not. Therefore, in what follows we should attempt to provide a uniform explanation for both vocalised and unvocalised prefixes occurring before trapped consonants.

[23] It is commonly agreed that segments linked to two temporal slots are longer than those linked to only one. Consequently, as pointed out to me by Piotr Ruszkiewicz, the representation of trapped sonorants is not quite correct. Trapped sonorants, in opposition to syllabic consonants, are short. I realise and agree that in this aspect the representation of trapped sonorants is problematic.

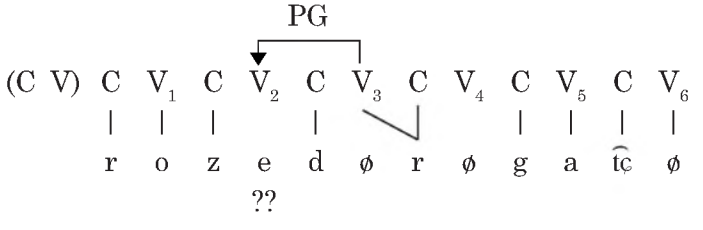
[24] For some diachronic evidence supporting the directionality of syllabic and trapped consonants, see Scheer (2004).

3.6. Towards a solution

In the present section it will be demonstrated that Scheer's (2004) proposal to represent trapped consonants as right-branching structures can be modified in such a way as to cover the forms with unvocalised prefix vowels.

Kijak (2003b), building on Szigetvári's (1999) idea of how to represent branching onsets, proposes to depict trapped consonants in Polish as left-branching structures.[25] Note that this move automatically equates syllabic consonants with trapped ones. This equation also resembles Rowicka's (1999a, 2003) proposal to represent trapped consonants and their syllabic peers in other Slavic languages as right-branching structures. In other words, it has been suggested that even though Polish does not possess syllabic consonants it uses their structure to represent trapped consonants. However, in the face of all the facts presented in the previous two sections, Kijak's (2003b) proposal must be abandoned. Syllabic and trapped consonants are two different entities with disparate characteristics which call for two different representations. Moreover, the prefixation in Polish indicates that trapped consonants cannot be left-branching as in that case they would invariably govern the preceding prefix vowel (36), just as in the Czech case.

(36)*



In (36) the [r] which is trapped spreads to the preceding nucleus V_3, and because it is not empty V_3 can dispense government which strikes the nucleus to the left — the prefix vowel V_2, hence the latter remains unvocalised and we arrive at the ungrammatical form *[rozdrgat͡ɕ].

As has already been mentioned in the course of our previous discussion, syllabic and trapped consonants are two different structures responsible for opposite results in phonological processing. Thus, bearing

[25] Recently, Szigetvári's (1999) proposal to represent English branching onsets in the same manner as syllabic consonants has been criticised by Blaho (2001, 2002).

in mind that the optimal way to describe the behaviour of syllabic consonants in Slavic languages (as well as in Germanic, as we will see in Chapter Three) is to represent them as left-branching structures (33a), we would like to slightly modify Scheer's (2004) right-branching solution to trapped consonants. Consider again the forms under (31) repeated in (37) for convenience.

(37) a.

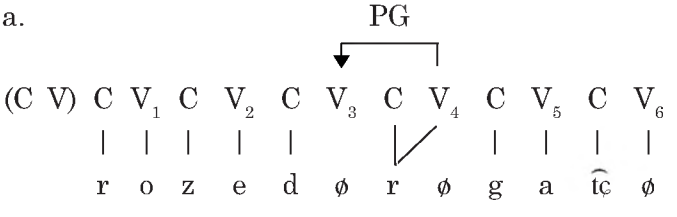
roze+[drg]ać	'become vibrating'
roze+[brn]ąć ??	'flounder'
ode+[bʒm']ieć	'sound back'
ode+[gʒm']ieć	'rumble back'

b.

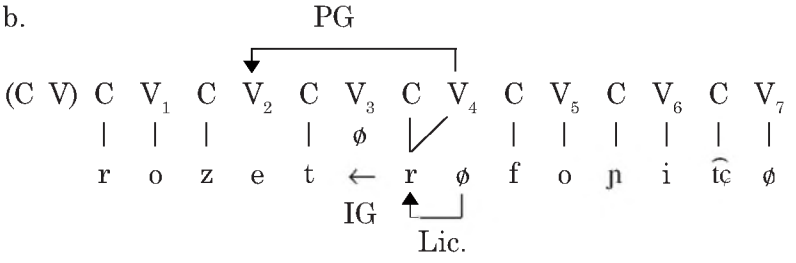
roz+[trf]onić	'squander'
z+[trf]ożyć	'become fearful'
roz+[bʒm']ieć	'sound'
od+[kʃt]usić	'cough up'
roz+[krf]awić	'cause to bleed'

The forms in (37a) confirm the right-branching character of trapped consonants which spread to the following nucleus and in this way properly govern the first nuclear position. In consequence, the prefix vowel is vocalised (38a). On the other hand, in order to explain the behaviour of the prefix vowel in the forms under (37b), one has to resort to domain structure. However, there is another possibility, namely, if a nuclear position invaded by a trapped consonant is allowed to dispense Proper Government, it should in principle also sponsor Infrasegmental Government (38b).[26]

(38) a.



[26] The representation in (38b) is actually mentioned in Scheer (2004). The author, however, abandons it indicating that in Czech not only TR clusters start such roots (and hence contract IG) but also /mr/ clusters, e.g. *od mrštit* 'reject'. Recall the discussion from section 2.2 which predicts the IG relations for sequences of this type.



In (38b) the trapped consonant which docks on the following nucleus is able to both govern a preceding alternating vowel and license the consonantal relation. Later on in this chapter, while discussing the lenition theory called The Coda Mirror (Ségéral and Scheer 1999), we shall see that audible nuclei are guaranteed the right to both govern and license. The representation in (38b) is exploited to cover the forms under (37b). At first sight, it may seem problematic to postulate two representations for a single structure. Recall, however, that the same move was required during the discussion concerning initial #TR clusters.[27] It was demonstrated (see section 2.2) that although the form *gra* 'play, nom.sg.' possesses an alternating vowel which surfaces in the related form, i.e. *gier* 'play, gen.pl.', the alternation is not handled by PG alone, but actually by two different mechanisms. The (un)vocalised character of the prefix betrays the status of the root-initial consonant cluster. Thus, the [gr] cluster in *zgrać* 'synchronise' contracts the IG relation, while in *rozegrać* 'play out' the same cluster is separated by the properly governed empty nucleus. A similar situation is encountered in roots possessing trapped consonants (37a, b) above. Trapped consonants can dispense government, but also can serve as the licensor of consonantal relations giving the forms in (37b).

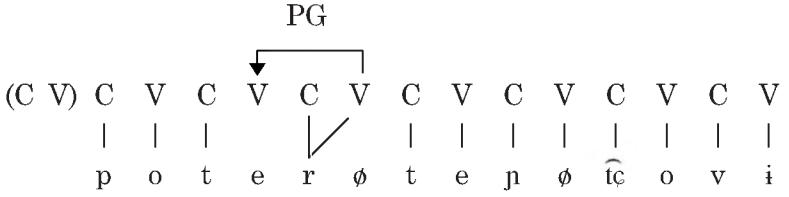
While discussing Polish word-initial RT clusters (section 2.3), we have seen that most such sequences are spurious. This means that some of the #RT clusters are broken up by an alternating vowel, while some others betray the presence of the properly governed nucleus as they vocalise the prefix vowel. At the end of section 2.3 we have been left with a small group of #RT clusters, which are repeated under (39) for convenience.

[27] The more serious problem, however, is the lack of the prediction concerning the ability of trapped consonants to license the IG domains. In other words, why is it not possible for the [dr] cluster in (38a) to contract the IG relation? It seems that here we are not dealing with 'pure' phonology. We leave the question open for further study.

(39) [rt]ęć ‘mercury’
[rd]est ‘knotgrass’
[r͡dz]a / [r͡dz]eń ‘rust’/ ‘core’
[rv]etes ‘commotion’

Although not indicating any sign of the properly governed nucleus, the representation of the clusters in (39) has been equated with the one exploited by the #RT clusters mentioned earlier. In short, it has been suggested that the clusters in (39) are resolved by means of PG, even though such forms are never broken up by any alternating vowel. However, it has also been mentioned that the experimental prefixation conducted by C y r a n (2003:301) puts our proposal in jeopardy. Note that if the word-initial consonants in *rtęć* or *rdest* are separated by the properly governed nucleus, the vocalisation of the prefix is predicted. What we actually find is the reverse situation, i.e. the prefix vowel is suppressed, e.g. *podørtęciowy*, *podørdzewiały*, *podørdestowy*. Note, however, that when prefixed, such forms resemble regular cases of trapped consonants, i.e. the sonorant is sandwiched between two obstruents. Since the sonorants are trapped, they should be given the appropriate representation, that is, the right-branching structure (40).

(40)



The reason why the prefix remains unvocalised is the trapped character of the sonorant which spreads to the following nucleus. The nucleus then serves as the proper governor to the prefix vowel. Furthermore, note that the final consonant of the prefix in (40) is devoiced. Recall that this is a normal situation since obstruents separated by a trapped sonorant must observe the same voice specification, e.g. Ję[drek] – Ję[tr̥k]a (a name). Finally, similarly to the trapped sonorants discussed in sections 3.3-3.5, the [r] in *podrtęciowy* [potr̥teɲt͡ɕovi] is devoiced itself as it occurs between two voiceless obstruents, one in the prefix and the other in the root.

Let us summarise the findings in section 3. The subject of our investigation in this section was the group of three-consonant clusters occurring at the left edge of the word in Polish. It was demonstrated that three-consonant clusters along with two-consonant sequences (section 2) can be accounted for using only two forces, i.e. Government and Licen-

sing. It was pointed out that consonant combinations of various types are able to appear in Polish due to a single fact – the inactive character of the initial empty CV unit. This fact enables both mechanisms to occur, i.e. Proper Government and Infrasegmental Government, which in consequence explains the permissive character of Polish phonotactics. Additionally, we looked more deeply at the problem of trapped consonants. Phonotactically speaking, syllabic consonants are similar to trapped ones. However, this is the only feature shared by both structures. In any other respect they behave differently and hence must be assigned different representations.

In Chapter Three we shall look more deeply at the syllabic consonants in English and German. It will be demonstrated that the left-branching representation of syllabic consonants in Slavic languages is further confirmed by similar cases in English and German. Additionally, we shall address the question why syllabic and trapped consonants arise in the first place. Before we discuss syllabic consonants in West-Germanic languages, however, let us present the final proof of the inactive character of the initial empty CV unit in Polish. The independent evidence comes from the Kurp dialect and the development of soft labials.

4. On the development of soft labials in northern Poland

4.1. Introduction

Chapter Two aims at providing evidence which would allow us to reach the conclusion that the beginning of the word is a fully phonological object which plays a crucial role in various phenomena. Thus, building on Lowenstamm's (1999) proposal to replace the traditional boundary marker '#' with the empty CV unit, and pursuing the idea first put forward in Scheer (2004) that in Polish and Czech, unlike in English and German, the initial empty CV unit is inactive, we have looked more deeply at the left edge of the word in Polish. In the discussion so far we have focused on the phonotactic restrictions of two types of languages, i.e. those with only #TR clusters (English), and those with both #TR and #RT clusters (Polish). The general conclusion emerging from the analysis is that Polish abounds in complex consonant clusters at the left mar-

gin due to the inactive role played by the empty CV unit in this language. This feature allows both mechanisms to occur, i.e. Proper Government and Infrasegmental Government, producing 'wild' word-initial clusters. On the other hand, English word-initial clusters are much more constrained, which is explained by the active role played by the initial CV unit. Generally speaking, the responsibility for the existence of two general groups of languages falls on the initial empty CV unit. Since it concerns co-occurrence restrictions, we shall call this type of evidence a 'static proof'.

The proposal that the initial empty CV unit requires a governor may be exploited to explain yet another difference between Polish and English, namely the vowel-zero alternation in the leftmost vowel position, e.g. *len — lnu* 'flax'. Such vowel-zero alternations are not attested in English simply because in this language the initial CV unit is active, and hence calls for the governor. Since only phonetically audible nuclei can dispense government, it follows that languages in which the initial CV unit is active do not allow the leftmost vowel to alternate with zero.

However, it seems fair enough to demand an additional and independent proof for the inactive character of the Polish initial CV unit. If we are not able to provide such a proof, at this stage of development the proposal could be refuted as being circular. Thus, it could be claimed that in Polish the empty CV unit is inactive which results in the occurrence of complex word-initial clusters, or the other way round, since Polish tolerates complex clusters it means that the initial CV unit must be inactive. Therefore, in what follows we shall attempt to provide an independent proof for the inactive character of the initial empty CV unit. The proof offered in this section can be classified as 'dynamic' because it concerns a fortition phenomenon. The discussion is based on the development of soft labials in the Mazovian and in particular the Kurp dialect of Polish.

Accepting the idea that in Polish the word-initial empty CV unit is inert, the theory of consonantal lenition, i.e. the Coda Mirror (S é g é r a l and S c h e e r 1999), which is discussed in section 4.3 below, makes two strong predictions. Firstly, a word-initial consonant is predicted to behave like the intervocalic one as it will be both licensed and governed. Secondly, the only strong position in Polish is the post-coda position, since only here will consonants be licensed but ungoverned. These predictions, however, are hard to prove, as Slavic in general and Polish in particular do not seem to be languages that abound in lenition/fortition processes. Luckily enough, a piece of evidence, in the form of fortition, comes from some dialects of Polish in the Northern Mazovia region. In this area the so-called soft labials [pʲj bʲj fj vʲj mʲj], which most of the phonologists be-

lieve to be just one segment /pʲ bʲ fʲ vʲ mʲ/, appear in the guise of a consonant cluster, i.e. C+[χʲ ɣʲ] or C+[ɕ ʑ], and the bilabial nasal is followed by [ɲ]. In other words, the 'palatal appendix' [j] is strengthened in these dialects either to prepalatal fricatives [ɕ/ʑ] or palatal fricatives [χʲ/ɣʲ], and it can also evolve into the prepalatal nasal [ɲ]. It will be demonstrated that this phenomenon can be explained easily if the initial empty CV unit is ascribed an inert character. The findings of this section will then be compared with the evolution of /Cj/ clusters in Gallo-Romance (Scheer and Ségéral 2001). The evolution of such clusters as the result of the consonantification of Latin short i/e in hiatus, confirms the assumption that languages belong to two groups, i.e. those with an active and those with an inactive initial empty CV unit. Let us begin by presenting some basic facts concerning the so-called soft labials and the Mazovian data.

4.2. Soft labials

4.2.1. Phonological status of soft labials

This section includes a brief survey of the possible realisations of the soft labials /pʲ bʲ f vʲ mʲ/ both in Standard Polish and in the Mazovian dialects. We shall also present some arguments for and against the one-/two-segment analysis. The discussion in this section draws on some earlier research and findings (Friedrich 1955, Furdal 1955, Zduńska 1965, Dejna 1973, Czaplicki 1998).

According to the authors mentioned above, soft labials can be realised in four or even five different ways: as the palatalised labial segment [pʲ bʲ fʲ vʲ mʲ], palatalised labial segment plus the appendix front glide [j], or as the hard labial plus the glide. The remaining two realisations are characteristic of the Mazovian dialects. To anticipate the discussion concerning the development of soft labials in those dialects in the immediately following section, we can briefly note that in Mazovian dialects the appendix glide can be realised as [ɕ/ʑ] or [χʲ/ɣʲ] and [ɲ].

Klemensiewicz et al. (1964) classifies the realisations of soft labials into two general groups: synchronic [pʲ bʲ f vʲ mʲ] and asynchronic [pʲj bʲj fj vʲj mʲj]. While the synchronic variant was a standard pronuncia-

tion a few decades ago, currently the asynchronic one is the most widespread realisation. Dejna (1973:119) defines the asynchronic realisation as the delay in the raising of the main body of the tongue to the hard palate after the lips have already formed closure or aperture. After the release of a labial consonant, the tongue is still raised to the soft palate, which causes the production of a separate soft segment. Examples of asynchronic realisation are represented in (41) below.

(41) Standard Polish

[pʲj]asek	'sand'	[fʲj]esta	'fiesta'	[mʲj]asto	'city'
[pʲj]osenka	'song'	[fʲj]olet	'purple'	[mʲj]ednica	'basin'
[pʲj]ana	'foam'	[fj]ołek	'violet'	[mʲj]otła	'broom'
[bʲj]ały	'white'	[vʲj]adro	'bucket'	[mʲj]ód	'honey'
[bʲj]eda	'poverty'	[vʲj]oska	'village'	[mʲj]ara	'measure'
[bʲj]uro	'office'	[vʲj]ęcej	'more'	[mʲj]esiąc	'month'

The phonetic explanation of the realisation of the asynchronic variant can be found in Friedrich (1955), Furdal (1955), Wierzchowska (1967), or Rocławski (1986). Admittedly, the dispute over the palatalisation of labials, i.e. whether it is possible or not to produce a fully synchronic palatalised labial, has not been resolved yet. For example, while Rocławski (1986) claims that the fully synchronic realisation is impossible and the softness of a labial plosive should be realised as a separate segment /j/, Wierzchowska (1967) indicates that synchronic palatalisation of labials is a possible and attested variant. At the same time the phonological status of soft labials has been brought up for discussion. Two competing solutions have been proposed, i.e. /pj/[28] and /pʲ/. Although we do not intend to contribute to the discussion of the phonological status of soft labials, it seems justified to pause for a moment and take a closer look at the arguments put forward by both sides. The two-segment analysis is supported by, for example, Rocławski (1984), and more recently Sawicka (1995), Wiśniewski (2000), Ostaszewska and Tambor (2000). In the segmentation experiment conducted by Rocławski (1984) the task of the subjects (children at the age of 6-7) was to divide a list of words into segments. Despite a certain degree of variation, the results point to the fact that most speakers segment the word *piasek* 'sand' as [p-j-a-s-e-k]. The results allowed the author of the experiment to claim that /j/ is the underlying segment in the forms represented under (41). However, as reported by Rocławski

[28] Note that in this solution the labial does not have to be represented with the palatalisation as it is always palatalised before the front vowels and the glide.

(1984), when faced with words like those in (41), the subjects usually showed slight hesitation. Moreover, the experiment disclosed a certain degree of inconsistency among the speakers. Thus, some cases were reported where the subject segmented one form with the separate glide while another with the palatalised labial, e.g. [p-j-a-s-e-k] and [bʲi-a-w-i] respectively. The rival approach to the phonological status of soft labials, i.e. /pʲ/, resorts to the insertion case in order to account for the predominant variant, that is, [pʲj]. It has been claimed that the glide /j/ is inserted after soft labials in the course of derivation. The main problem with the latter approach, however, is the need to postulate five additional underlying segments /pʲ bʲ f vʲ mʲ/.[29] Bearing in mind the unstable phonological status of soft labials let us present the last set of data coming from the Mazovia region, in particular from the Kurp dialect.

4.2.2. The realisation of soft labials in the north-eastern dialects

Putting aside the problem of the phonological representation of soft labials, let us look more closely at the remaining two asynchronic realisations. In the previous section it was noted that the most widespread realisation of soft labials is the asynchronic one, i.e. [pʲj]. The same realisation is also found in the north-eastern part of Poland, the area of Northern Mazovia which encompasses the Kurp region. However, in this part of Poland the glide appendix /j/ has undergone an interesting development, which has been described by Friedrich (1955) and Furdal (1955) among others. In the area mentioned the predominant variant is a labial consonant plus a voiceless or voiced palatal fricative [χʲ] and [ɣʲ] respectively. The distribution of the two is conditioned by the voicing of the preceding labial consonant: voiceless labials co-occur with [χʲ], while voiced labials with [ɣʲ]. The soft labial sonorant /mʲ/ is realised as [m] plus the prepalatal nasal sonorant [ɲ]. As has already been mentioned, the Northern Mazovia area encompasses the Kurp region where the glide appendix is shifted a little further forward and is realised as a voiceless or voiced prepalatal fricative [ç] and [ʑ] respectively after [p b f v] (especially North-Eastern Kurpie). The choice between the two is again conditioned by the voicing of the preceding labial. Similarly, the

[29] For a more thorough comparison of both approaches see Czaplicki (1998).

labial nasal [m] is pronounced with the following prepalatal nasal sonorant. The forms presented in (41) above, plus some additional examples, would be pronounced in both dialects as illustrated in (42). Data adapted from Furdal (1955) and Zduńska (1965).

(42)

Northern Mazovian	*Kurp*	
[pχ']asek	[pɕ]asek	'sand'
[pχ']óra	[pɕ]óra	'feathers'
[pχ']osenka	[pɕ]osenka	'song'
[pχ']ana	[pɕ]ana	'foam'
[bɣ']ały	[bʑ]ały	'white'
[bɣ']eda	[bʑ]eda	'poverty'
[fχ']esta	[fɕ]esta	'fiesta'
[fχ']ołek	[fɕ]ołek	'violet'
[fχ']olet	[fɕ]olet	'purple'
[vɣ']adro	[vʑ]adro	'bucket'
[vɣ']oska	[vʑ]oska	'village'
[vɣ']ęcej	[vʑ]ęcej	'more'
[mɲ]asto	[mɲ]asto	'city'
[mɲ]ód	[mɲ]ód	'honey'
[mɲ]ednica	[mɲ]ednica	'basin'
[mɲ]otła	[mɲ]otła	'broom'
[mɲ]ara	[mɲ]ara	'measure'
[mɲ]esiąc	[mɲ]esiąc	'month'

Another interesting observation concerning soft labials in both dialects is the process of cluster simplification, which affects [fχ' vɣ' mɲ] and [fɕ vʑ mɲ] and deletes the first segment in each of these clusters, producing [χ' ɣ' ɲ] and [ɕ ʑ ɲ] respectively. It must be stressed here that the labial plosives [p/b] are never affected by the cluster simplification rule, either in the Kurp or in the Mazovian dialects. This process is non-obligatory, and can not only vary from one speaker to another, but a single speaker can display a certain degree of inconsistency in the application of the rule. Table (43) offers some illustration of the cluster simplification rule in the Kurp dialect.

(43) a. initial clusters

[fɕ]ołek	[ɕ]ołek	'violet'	[vʑ]adro	[ʑ]adro	'bucket'
[kfɕ]at	[kɕ]at	'flower'	[gvʑ]azdy	[gʑ]azdy	'stars'
[mɲ]asto	[ɲ]asto	'city'	[mɲ]ód	[ɲ]ód	'honey'

b. internal clusters

o[fɕ]ara	o[ɕ]ara	'victim'
para[fɕ]a	para[ɕ]a	'parish'
zdro[vʑ]e	zdro[ʑ]e	'health'
w gło[vʑ]e	w gło[ʑ]e	'in the head'
ru[mɲ]anek	ru[ɲ]anek	'camomile'
pa[mɲ]ętam	pa[ɲ]ętam	'I remember'

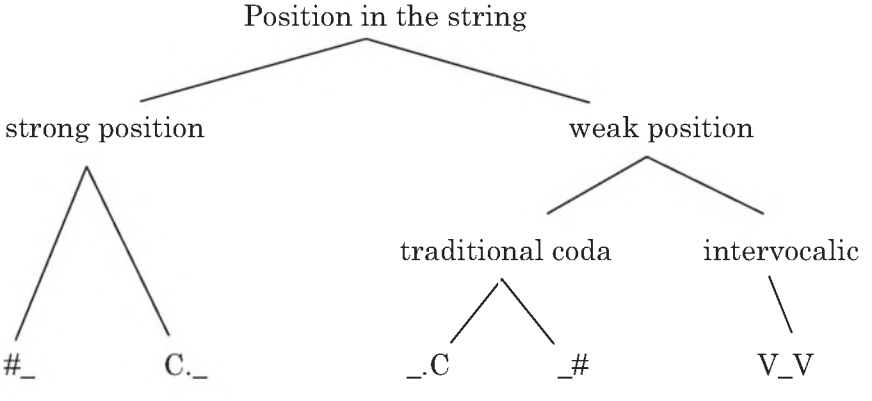
Summing up, the data presented in this section lead to two immediate observations. Firstly, what we are faced with here must be a fortition process, i.e. the front glide [j] is strengthened either to the palatal fricative [pʲj]asek > [pχʲ]asek or the prepalatal fricative/nasal, e.g. [pʲj]asek > [pɕ]asek, [mʲj]asto > [mɲ]asto, 'sand', 'city', respectively. Secondly, the glide is strengthened only in the post-consonantal position and never word-initially, intervocalically or in the preconsonantal position, e.g. *jabłko* 'apple', *nawijać* 'to wind' and *stajnia* 'stable' respectively. Note that in such contexts the glide never reacts in either of the dialects mentioned above. Furthermore, if we are dealing here with a fortition phenomenon, it means that the glide appendix /j/ must be assigned the status of a separate segment, at least in those dialects. This conclusion allies us with the supporters of the two-segment analysis. However, before we propose a solution to the problem outlined in this section, we should first introduce the theory of lenition called *The Coda Mirror* (Ségéral and Scheer 1999). This theory is presented in the following section.

4.3. The Coda Mirror (Ségéral and Scheer 1999)

The Coda Mirror put forward by Ségéral and Scheer (1999) is a theory of consonant lenition that operates on the strict CV skeleton. In this theory the melodic structure of segments is modified depending on the particular position they occupy in the string. The authors predict five crucial positions in which consonants may appear and which exert an influence on them, that is, word initial #_, after a heterosyllabic consonant C._, intervocalically V_V, before a heterosyllabic consonant _. C and word finally _#. The main idea behind the Coda Mirror, however, is to identify the disjunctive context C._ and #_ which stands in opposition to the coda position, i.e. _.C and _#. A word of clarification is in order here. It may seem alluring to state that since the latter two positions are

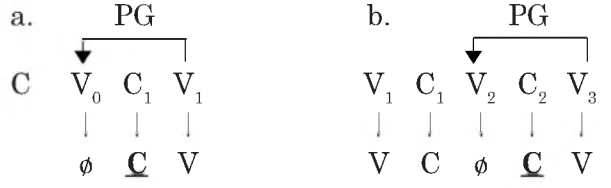
usually ascribed to coda, the former ones should belong to onset. It is generally accepted that consonants in codas undergo lenition while those in onsets are protected from this fate. However, the traditional syllabification procedures are of no use here. Note that in Government Phonology the coda as a constituent does not resemble the traditional coda whatsoever. In this model the coda is reduced to a post-nuclear rhymal complement which may exist only when followed by an onset (Kaye 1990, Harris and Gussmann 1998, 2002). Thus, in GP word-final consonants are never codas. Furthermore, in the Strict CV model codas as constituents do not gain formal status; they are simply absent from the theory. As for the Coda Mirror context, i.e. #_ and C._, it is again not possible to associate this disjunctivity with the traditional onset. This is so because there is another context which is traditionally recognised as onset, the intervocalic position, but this, unlike the former two, is affected by the lenition rather than the fortition phenomena. It is generally prone to lenition and hence weak but the lenition effects it shows are different in kind from those observed in the traditional coda. It follows that the intervocalic position cannot be an onset (as it is weak) and it cannot be a coda either (different effects). The conclusion drawn from the discussion above is that any theory of lenition should recognise at least five relevant positions, which are represented in (44) below. The diagram is taken from Scheer (2004:116).

(44)



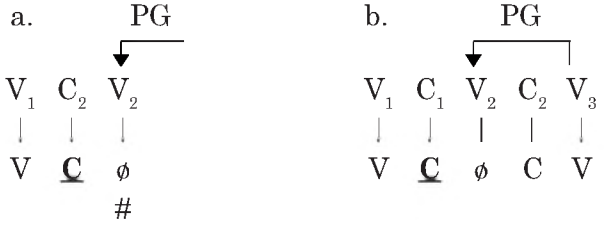
Ségéral and Scheer (1999) point out that the disjunctive definition of both the strong and weak contexts can be given a uniform explanation if the strict CV skeleton and Lowenstamm's (1999) proposal to exchange the boundary marker with the empty CV unit are accepted. Consider first the representation of both the strong (45) and the weak context (46), where the relevant positions are underlined.

(45) Strong positions



(45a) displays the word-initial position where CV_0 stands for the boundary marker '#'. In (45b) we have the postconsonantal position. What is crucial, however, is the fact that both positions occur in the identical context, namely, after a governed nucleus.

(46) Weak positions



Both representations in (46) depict the weak context. In (46a) the consonant occurs in a word-final position, while the one in (46b) before a heterosyllabic consonant. Similarly to (45) the disjunctive context is unified as both consonants appear in the same context, i.e. before a governed nucleus.

The last context, namely V_V, is structurally different from the previous two as a consonant appears between two nuclei which are phonetically realised. Now, the reason why a position occurring after a governed empty nucleus is strong and why the one before an empty nucleus is weak follows from two forces, i.e. Government and Licensing, which are independently motivated in the Strict CV theory. In short, Government and Licensing are the two forces driving lenition and fortition. The former is a destructive power reducing a position's ability to maintain melodic content (recall Proper Government and vowel-zero alternations in the previous sections). The latter, on the other hand, backs up segmental expression: licensed positions are better at holding their melodic content (recall Infrasegmental Government and the requirement that the head must be licensed in order to govern the preceding governee). Both forces apply from right to left, i.e., the governor and the licensor are uniformly to the right of the governee and the licensee. What is important, however, is that a nucleus is allowed to simultaneously govern and license.

Thus, phonetically interpreted nuclear positions can govern the preceding V position either if the latter is melodically empty or if it is occupied by the alternating vowel (Proper Government); in case it is occupied by a non-alternating vowel the nuclear position strikes the preceding consonant (Government). Additionally, phonetically realised nuclear positions can also license, but this time the target is always the preceding consonant position. Unpronounced nuclear positions are inert, that is, they neither license nor govern.[30] Thus, the theory makes the following predictions about the phonological strength of consonantal positions.

(47) Strong positions: are licensed but ungoverned
Weak positions: are either unlicensed or governed.

For a position to be licensed, it must be followed by a phonetically realised nuclear position (45). This means that all traditional codas are unlicensed, therefore weak, since they occur before an empty nucleus which is not a potential licensor (46).

To sum up, the only way for a consonantal position to retain its full strength is to be followed by an audible vowel and be preceded by an empty nuclear position, the situation displayed in (45). Weak positions, as we have seen in (46), are of two types: either unlicensed when followed by an empty governed nucleus or licensed and governed when both the following and the preceding nuclear positions are linked to some melodic material, i.e. the intervocalic position. The fourth possibility, namely, governed and unlicensed, is logically impossible in this system, as this would require the consonantal position to be followed simultaneously by an active, governing nucleus and at the same time an inert, non-licensing nucleus.

After this rather lengthy introduction to the theory of lenition, we are finally in a position to suggest a solution to the realisation of soft labials in the Kurp dialect.

[30] The licensing/governing ability of word-final empty nuclei is parameterised (see section 3 in Chapter One).

4.4. Two-segment analysis of soft labials in the Kurp dialect[31]

In this section we shall make an attempt to explain the behaviour of soft labials in the Kurp dialect. It will be demonstrated that soft labials are sequences of two consonants and their behaviour can be explained according to the position they occupy in the syllable structure. Moreover, the findings of this section confirm the claim that the initial empty CV unit is inactive in Polish.

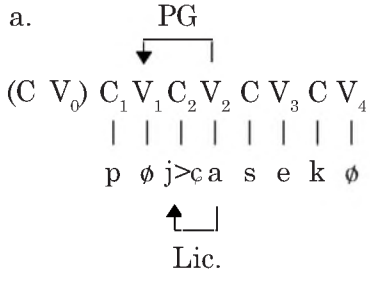
In section 4.2 we have presented the realisation of soft labials in the Mazovian and Kurp dialects. Recall from that section that in those dialects the 'glide appendix' is realised either as a palatal fricative [χ'/ʏ'] or a prepalatal one [ɕ/ʑ], after the bilabial nasal it surfaces as a prepalatal nasal [ɲ]. What is striking, however, is the fact that /j/ evolves into a fricative only in the post-consonantal position and never word-initially, intervocalically or preconsonantally.[32] Thus, while *piasek* 'sand' is pronounced in the Kurp dialect as [pɕasek], the only possible realisation of *jabłko* 'apple' is [japko] and not *[ʑapko]. What we are faced with in the former example must be a fortition process, where the front glide [j] has been strengthened to a prepalatal fricative [ɕ]. The Coda Mirror, outlined in the previous section, predicts two strong positions where consonants may undergo fortition, namely, word-initially and after a heterosyllabic consonant. However, as argued in this chapter, the Polish initial empty CV unit is inactive, hence it does not require a governor. This single fact has far-reaching consequences. Firstly, there is only one strong position in this language, that is, a post-consonantal position. Secondly, word-initial position is equated with the intervocalic one as it is both governed and licensed. The latter prediction is confirmed by the form [japko] in which the glide, similarly to the intervocalic position in, for example, *wieje* 'it blows', does not react. Since the initial empty CV unit is inactive, the initial [j] in [japko] appears in unfavourable conditions. It is both governed and licensed, which, according to the Coda Mirror, is a weak position, hence the lack of the change j < ʑ (48b).

[31] The discussion in this section is confined to the Kurp dialect. The solution offered here, however, can be applied to the Mazovian data as well.

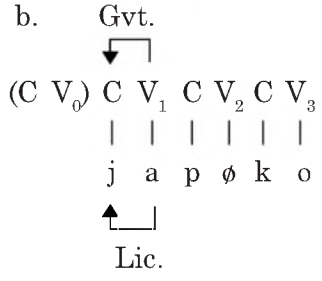
[32] What is crucial here is the presence of the preceding labial consonant from which the glide seems to 'borrow' some elements. Note that this fact alone might explain the absence of the fortition process in other contexts. The latter observation weakens somewhat our argument in this section. However, in the light of the discussion in the following section, the analysis proposed here is still validated.

Furthermore, since a strong position appears after a governed empty nucleus, soft labials are not only two separate consonants — they are two heterosyllabic consonants separated by a governed empty nucleus (48a).

(48) a.



b.



The initial empty CV unit in (48a) is inactive, hence the nucleus V_0 does not require a governor. This means that the empty nucleus between /pj/ can be properly governed by the following nucleus V_2. Now, the reason why the glide reacts in this position is the fact that it escapes government while being licensed — a typical strong position. In (48b), on the other hand, the initial consonant is both licensed and governed, thus the position is weak. In other words, the initial position in (48b) is identical to the intervocalic one and hence the glide does not react. This is the reason why the word-initial /j/ is never strengthened to a prepalatal fricative in the dialect.

To sum up, the explanation of the Kurp facts is possible only on two conditions. Firstly, the initial empty CV unit is inactive in Polish. Secondly, soft labials are two separate segments. Note that it could be claimed that since the labial consonant plus the glide resemble a typical TR cluster, they should contract the IG relation. However, were that the case, the glide would occur in a weak position as it would be both governed and licensed. This is because an empty nucleus enclosed in the domain of IG does not require an external governor; it can remain empty for a different reason, namely, it is sandwiched between two consonants holding a governing relation. Thus, a vowel following the IG relation both governs and licenses the immediately preceding consonant. The heterosyllabic status of a labial consonant plus the glide is independently confirmed by a frequent, non-obligatory cluster simplification phenomenon which can be observed in this dialect. It affects only labial fricatives and a labial nasal [f], [v], [m], while the labial plosives [p/b] are never dropped. Consider again the forms presented under (43) repeated here for convenience.

(49) a. initial clusters

[fʲ]ołek	[ʲ]ołek	'violet'	[vʲ]adro	[ʲ]adro	'bucket'
[kfʲ]at	[kʲ]at	'flower'	[gvʲ]azdy	[gʲ]azdy	'stars'
[mɲ]asto	[ɲ]asto	'city'	[mɲ]ód	[ɲ]ód	'honey'

b. internal clusters

o[fʲ]ara	o[ʲ]ara	'victim'
para[fʲ]a	para[ʲ]a	'parish'
zdro[vʲ]e	zdro[ʲ]e	'health'
w gło[vʲ]e	w gło[ʲ]e	'in the head'
ru[mɲ]anek	ru[ɲ]anek	'camomile'
pa[mɲ]ętam	pa[ɲ]ętam	'I remember'

Crucially, it is always the labial part of the sequence that disappears, no matter whether there are two or three consonants in the cluster. In fact, the loss of the labial in such sequences is predicted by the Coda Mirror. In every case the labial appears before a governed nucleus, which is a typical lenition context. Moreover, the disappearance of the labial consonant can only be explained if both the labial and the glide are considered to be separate segments.

In the following section we shall focus our discussion on the French evolution from Latin [j]. This phenomenon, which is nearly a copy of the situation described above, confirms our findings.

4.5. Yod fortition in Gallo-Romance

In the present section we shall present the evolution of labial + yod sequences in Gallo-Romance which supports the analysis applied to similar cases in the Kurp dialect offered in the previous section. It will be demonstrated that, similarly to the Kurp case, yod occurs in the strong position, hence evolves, while the labial appears in a weak position and disappears.

Scheer and Ségéral (2001) analysing the evolution of /Cj/ sequences in Gallo-Romance set two major objectives. They aspire to show that, despite evident diversity, the evolution of the /Cj/ sequences is a coherent process. Moreover, they claim that the phenomenon is context-dependent, that is, it depends on the position the segments occupy in the syllable structure. In short, the evolution of /j/ does not result from the melodic interactions. Since we are searching for similarities with the

Kurp case, in what follows we shall concentrate only on the labial plus /j/ sequences.

The process of consonantification of short high and mid vowels in hiatus is one of the characteristic features of vulgar Latin. In this context the front vowels /i/ and /e/ change into a glide /j/, while the back vowels /u/ and /o/ become a velar glide /w/, e.g. *fi**i**li**a* > *fi**lj**a* 'daughter', *vi**du**a* > *we**dw**a* 'widow' respectively. Scheer and Ségéral (2001) point to the fact that none of the /Cj/w/ clusters, having their origin in the process outlined above, survived in identical shape into Modern French. Of all the /Cj/ sequences the most representative are those which are composed of the labial consonant plus yod. This is so because they produce identical results, i.e. postalveolar affricate [dʒ]. Moreover, the resulting affricate does not reflect any melodic element of the preceding labial consonant. Consider the examples in (50), which are adapted from Scheer and Ségéral (2001:89).

(50)	**bj>dʒ>ʒ**	**gloss**	**mj>ndʒ>~ʒ**	**gloss**
	rabia>rage	'fury'	siimiu>singe	'monkey'
	rubeu>rouge	'red'	vindeemia>vendange	'grape picking'
	vj>dʒ>ʒ		**pç>tʃ>ʃ**	
	leviu>liège	'cork'	sapiam>sache	'know' (subjunctive)
	cavea>cage	'cage'	apiu>ache	'celery'

Since labials, unlike the coronals and velars, cannot be palatalised, it means that the result of the evolution [j] > [dʒ/ʒ] must reflect a pure strengthening of yod. The latter suggestion is confirmed by the same change occurring at the beginning of the word, e.g. *jugu* > [ʒ]*oug* 'yoke', *jocu* > [ʒ]*eu* 'game', *jurure* > [ʒ]*urer* 'swear'. Finally, if the source of the fortition [j] > [dʒ/ʒ] is the yod itself, the labial consonant in this context is predicted to fall out completely as everywhere else in the language,[33] e.g. *ru**p**ta* > *route* 'road', *fa**c**ta* > *faite* 'done', etc. Scheer and Ségéral (2001) indicate that these results are predicted by the Coda Mirror. Thus, yod in a strong post-consonantal position evolves into [dʒ/ʒ], while the labial occurring in the pre-consonantal weak position disappears /p,b,v/ > ϕ, /m/ > ~ϕ. Furthermore, it is claimed that since yod is strengthened in this position it does not belong with the preceding consonant to the same syllable. In other words, a labial + yod is a heterosyllabic sequence separated by an empty position. Recall from section 4.3 that this is one of the

[33] This fate does not affect the nasal [m] which ends up as the nasalization in the preceding vowel.

two positions where consonants can undergo fortition. Similarly to the case discussed in the previous section, labial + yod sequences cannot interact in the IG domain. The argument against this solution is that in French the sonorants appearing in IG relations are preserved without any change. Moreover, in other Romance languages this position is weak, which is illustrated by the Italian evolution /l/ > /j/, e.g. *pleenu* > *pieno* 'complete', *blancu* > *bianco* 'white', etc.

To sum up, the evolution of Latin /j/ presented in this section is nearly identical to the development of the soft labials in the Kurp dialect. In both cases the post-consonantal /j/ is strengthened to a fricative. The fortition occurring in this position results naturally from the theory of lenition outlined in section 4.3. The post-consonantal segment appears in a strong position as it is preceded by an empty nucleus which absorbs the government. The main difference is that while in French the word-initial /j/ behaves identically to the post-consonantal one, i.e. it is strengthened, in the Kurp dialect the word-initial yod does not react. The difference is explained by the fact that French, according to the division presented in Chapter One, belongs to the group of languages in which the initial empty CV unit is active. This simply means that the word-initial /j/ occurs in the strong position and in consequence it evolves into [ʒ]. In Polish, on the other hand, the initial empty CV unit is inactive, consequently the word-initial /j/ does not occur in a strong position and hence it is never strengthened into a fricative.

5. Conclusions

In this chapter we have focused our attention on the syllabification of consonant clusters at the left margin in Polish. One of the main objectives was to find evidence for the inactive character of the initial empty CV unit.

The idea that languages fall into two general groups, where the division is based on the active/inactive character of the initial empty CV unit, has been tested on Polish consonant sequences occurring at the left margin. The syllable structure advocated by the Strict CV proponents together with the idea of the active/inactive character of the initial empty CV unit suffice to explain why languages allow for different word-initial consonant sequences. Moreover, it has been demonstrated that the Strict CV model, using only two mechanisms, Proper Government and Infrasegmental Government, is able to cover the Polish facts. On the

basis of the prefixation and vowel-zero alternation both in Polish and Czech we have seen that the postulation of two representations for phonetically the same cluster is fully justified. Moreover, the solutions applied in this chapter make it possible to give a uniform explanation to the vocalisation of the prefix vowel in the group of Derived Imperfectives. Finally, it has been demonstrated that /m/ plays a special role in the Polish phonological system in that it behaves like a regular obstruent being a governee in consonant relations.

In section 3 we have analysed three-consonant clusters occurring at the left margin in Polish. It has been demonstrated that Polish allows for complex word-initial consonant clusters not because it is 'privileged', but because the initial empty CV unit in this language is inactive. In other words, three-consonant clusters are possible in Polish due to the fact that in this language the initial CV unit is inactive, hence does not need to be governed. In this situation the two mechanisms available in the Strict CV model have a chance to occur giving rise to such complex consonant sequences. The second part of section 3 dealt with Polish trapped consonants occurring word-initially but also word-finally. We have provided some evidence demonstrating that syllabic and trapped consonants, although related, call for two separate representations. Thus, on the basis of disparate behaviour concerning metrical structure, stress placement and prefixation in various Slavic languages syllabic and trapped consonants have been assigned two separate representations. Syllabic consonants are left-branching structures, while their cognates, that is, trapped consonants, spread to the right. Finally, it has been proposed that the nuclear position which hosts the right branch of the trapped consonant is able to both govern and license.

The inactive character of the initial empty CV unit in Polish is independently confirmed by the development of soft labials in the Kurp dialect of Polish. It has been proposed that the realisation of soft labials in this dialect should be treated as a regular fortition case. Thus, the Kurp data have been analysed from the perspective of the Coda Mirror. This theory of lenition helped us explain why /j/ is strengthened in the post-consonantal position only and never word-initially, intervocalically or preconsonantally. Moreover, it has been demonstrated that soft labials are sequences of two consonants and their behaviour can be explained according to the position they occupy in the syllable structure. Finally, the conclusions reached in section 4 may contribute to the discussion concerning the phonological status of soft labials. The conclusions at which we arrived in the analysis of soft labials are further confirmed by the evolution of labial + yod sequences in Gallo-Romance. It has been shown that the development of Latin /j/ is nearly identical to the development of

soft labials in the Kurp dialect. The main difference is that in French, unlike in the Kurp dialect, the glide /j/ behaves identically both word-initially and post-consonantally. The explanation of the facts follows naturally from the behaviour of the initial empty CV unit.

In Chapter Three we shall look more carefully at the syllabic consonants in English and German. Additionally, the following chapter deals with the vowel syncope and the so-called bogus clusters in English. It will be demonstrated that English is rightly predicted to belong to the group of languages where the initial CV unit is active. The active status of this unit resolves some of the traditional problems concerning the syllabification of consonant clusters in English. Finally, we shall address the questions of the origin of syllabic and trapped consonants and why they arise in the first place.

III. Bogus clusters, syllabic consonants and vowel syncope and what they have in common

1. Introduction

The present chapter explores three apparently unrelated phenomena, i.e. syllabic consonants, vowel syncope and bogus clusters. The analysis is based on the examples from two languages, English and German. It is our ambition to provide convincing evidence for the intimate relationship between the three phenomena, which will in consequence allow us to offer a unified solution to them. Since the phenomena in question have always been a source of bewilderment among linguists, the first part of the chapter will be devoted to an introduction of the relevant facts and a brief discussion of previous accounts. We shall look at the distribution of syllabic consonants in English and discuss a rare process of progressive nasal assimilation in German. Since it is a sonorant which plays a key role in such phenomena, we shall look more deeply at the behaviour of these consonants in similar structures, i.e. vowel syncope and bogus clusters. It will be pointed out that the result of vowel syncope is the consonant sequence which resembles a bogus cluster, that is, a cluster which is neither a branching onset nor a coda-onset sequence. Moreover, it will become evident that although English abounds in syncope-related and true bogus clusters, their distribution is severely curtailed, that is, they are possible only in the word-internal position. A similar situation is found in German with the difference that this language is said to allow for word-initial bogus clusters. The second part of the chapter addresses the questions and problems which are accumulated in the initial sections. It will become evident that all three phenomena, i.e. syllabic consonants, vowel syncope and bogus clusters, have the same origin and stem from

the expansionist behaviour of sonorants, which in turn is a reaction of the latter to a positional weakness. Moreover, it will be proposed that in English, unlike in Polish, lexically present nuclei are never properly governed even by the strongest governors, that is, realised vowels. We shall work out a governing-ability scale for different types of nuclei. In the analysis of the relevant facts we shall adopt the lenition theory, which was introduced in Chapter Two, that is, the Coda Mirror (Ségéral and Scheer 1999). Crucially, it will be shown that the postulation of the active initial empty CV unit at the beginning of the word in English and German can predict the distribution of the structures in question. The latter observation further confirms the idea advocated in the previous chapter, i.e. that the initial empty CV unit is a phonological object which takes part in syllabification and phonological processes.

Generally, this chapter deals with various phenomena which allow us to understand the role of sonorants in syllabification procedures. Thus, apart from syllabic consonants, vowel syncope and bogus clusters, we shall look at the progressive nasal assimilation, final obstruent devoicing, partial geminates and governing abilities of nuclei. The findings of this chapter point to the possibility for a sonorant to cover a long distance from a syllabic consonant to a governing relation with the preceding consonant. We start the discussion with the presentation of the relevant facts concerning syllabic consonants.

2. Syllabic consonants

The aim of this section is to present and discuss some basic facts concerning syllabic consonants in English and German. Although syllabic consonants do not seem to have much in common with either vowel syncope or bogus clusters, the latter two phenomena will also be introduced and discussed in the following sections. As the discussion unfolds, it will become clear that all the three structures are closely related.

In the previous chapter we pointed out some differences and similarities between syllabic and trapped consonants in Slavic. It was stressed there that the crucial difference between these structures lies in the direction of branching. Thus, syllabic consonants are found to be left-branching structures, while trapped consonants are right-branching ones. The left-branching status of syllabic consonants can be independently confirmed by Germanic languages. Thus, in what follows we shall look more closely at the relevant data from two related languages, English and

German. This choice is justified by the fact that both languages, similarly to Slavic, abound in syllabic consonants. Moreover, the phenomenon in question is very productive and well-documented.

The most evident and at the same time the most general observation concerning the consonantal inventory of English and German is the fact that some of the consonants can play a syllabic role. In other words, such consonants take over the syllabic duties. Consonants which are able to function in the way described above are generally referred to as sonorants. It follows that obstruents can never appear in syllabic clothes, at least in the Indo-European languages.[1]

The last few decades witnessed a dramatic shift in the representation of syllabic consonants. In the SPE tradition syllabic consonants were described as consonants which possessed a [+syllabic] feature specification. Together with the development of non-linear frameworks syllabic consonants were perceived as segments which can change the constituent affiliation. More specifically, sonorants were ascribed a special ability to leave the consonantal position and move to the vocalic one. The change of place, however, was possible on condition that the preceding vowel (usually the schwa) had disappeared. In more recent frameworks syllabic consonants are perceived as special in that they are doubly linked. This simply means that while being linked to a consonantal slot a sonorant in certain cases can additionally dock on to the nuclear position. As mentioned in the previous chapter (section 3.5) the double-linking representation of syllabic consonants is especially true in the Government Phonology framework. In the latter model there are at least two theory-internal reasons which call for the representation mentioned above. Firstly, in the Element Theory the realisation of an element depends on the position it occupies in the syllabic structure. This is clearly observable on the example of the element (I), which is realised either as the vowel [i] or the semivowel [j]. The former segment can appear only under a nuclear slot, while the latter one can be linked to a consonantal position. It follows that if a sonorant were able to leave its original consonantal position and dock on to the nuclear one, we would witness a change in the realisation of the sonorant, just like in the [i] and [j] case. Secondly, the change of the constituent affiliation would imply resyllabification, which is banned anyway from the GP framework (1).

[1] Piotr Ruszkiewicz pointed out to me that this statement may be too strong, as even in English we encounter a few forms with a syllabic obstruent, e.g. *psst* [ps:t]. Although rare, languages with 'regular' syllabic obstruents are reported to exist, for example, American native Northwest languages (see Czaykowska-Higgins and Willett 1997, among others).

(1) Projection Principle (Kaye et al. 1990:221)
'Governing relations are defined at the level of lexical representation and remain constant throughout a phonological derivation'

The Principle in (1) excludes any changes in governing relations during the course of derivation. In other words, resyllabification is prohibited and a melodic unit that is linked to a consonantal position cannot surface under a nuclear slot. Thus, it follows that the optimal representation for syllabic consonants is the one where the sonorant is linked to a consonantal slot, while at the same time it spreads to a neighbouring nuclear position. The idea is further discussed in the immediately following subsection.

2.1. Some English facts

The general observation emerging from the short introduction above is that in English, just as in several other languages, sonorants are granted the right to dock on to a nuclear position.[2] Moreover, in order to play a syllabic role a sonorant spreads to the left, i.e. to the preceding nucleus. What is crucial, however, is the fact that this analysis requires a vowel to step aside and make room for the following sonorant. In order not to anticipate the discussion which will appear later in this chapter, we only note here that the schwa for one reason or another becomes delinked from the nuclear position. In this way a receding schwa enables a neighbouring sonorant to take over its duties. However, it is not true that all sonorants have an equal opportunity to become syllabic. Thus, in English only nasals, the lateral and the post-alveolar approximant can play the syllabic role. Furthermore, the syllabicity of the velar nasal is marginal simply because this nasal never appears after schwa (see Szigetvári 1999, Gussmann 1998). Thus, every occurrence of the syllabic velar nasal is the result of the process of place assimilation, e.g. *chicken* [tʃɪkən] > [tʃɪkn̩] > [tʃɪkŋ̍]. Finally, it should be clarified here that in the majority of cases the phenomenon in question depends on the tempo

[2] One may want to include here the forms where the schwa is lost between two obstruents, e.g. *difficult* ['dɪfɪklt] > ['dɪfkl̩t], *potato* [pə'teɪtəʊ] > [p'teɪtəʊ], etc. Since, however, the clusters in question do not contain a sonorant they must be recognised as the instantiation of a different phenomenon, see Abercrombie (1967) and Rodgers (1998).

of speech. Thus, while in a slow, careful and somewhat learned pronunciation of *arrogant*, for example, the schwa separates the [g] from the final [nt] cluster, that is, ['ærəgənt], in fast, less controlled speech the vowel is lost and the sonorant becomes syllabic ['ærəgn̩t]. Another interesting thing to note is that English does not generally tolerate heavy consonant clusters. In the vast majority of cases consonant sequences do not exceed two segments. However, given the double-linking ability of sonorants, English consonant sequences appear to be much more complex, with up to four or even five consecutive segments, e.g. *accountant* [ə'kaʊntn̩t] and *singleton* ['sɪŋgl̩tn̩], respectively. Consider now some more examples of syllabic consonants in (2).

(2)

a. *word-internally*		b. *word-finally*	
legend	['ledʒn̩d]	sudden	['sʌdn̩]
arrogant	['ærəgn̩t]	napkin	['næpkn̩]
cabinet	['kæbn̩ət]	bosom	['bʊzm̩]
cavalry	['kævl̩ri]	gradual	['grædʒul̩]
faculty	['fækl̩ti]	rascal	['rɑ:skl̩]
violin	['vaɪl̩ɪn]	shrapnel	['ʃræpnl̩]

c. *word-initially*	
until	[n̩'tɪl]
balloon	[bl̩'u:n]
convulsed	[kn̩'vʌlst]
confetti	[kn̩'feti]/[kŋ̍'feti]

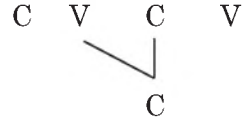
A word of clarification concerning the data under (2) is in order here. In his analysis of vowel syncope in English Szigetvári (2002) points out that syllabic consonants arise only when preceded by a consonant and hence there are no word-initial syllabic consonants. Szigetvári (2002) argues his point by indicating that in the majority of cases the unstressed word-initial vowel fails to reduce to schwa and hence cannot be replaced by the following sonorant, e.g. *angelic* [æn'dʒelɪk]. Moreover, in the forms which do contain the word-initial schwa, e.g. *unless* [ən'les], the sonorant never becomes syllabic *[n̩'les]. The same holds true for word-initial open syllables, e.g. *allow* [ə'laʊ], *[l̩aʊ], *annoy* [ə'nɔɪ], *[n̩ɔɪ]. Finally, Szigetvári (2002) points to the fact that while syllabic consonants can follow unstressed vowels, they do not normally appear after stressed ones, e.g. *casual* ['kæʒuəl] > ['kæʒul̩], *jewel* ['dʒu:əl] > *['dʒu:l̩] respectively. However, the distributional constraints enumerated in Szigetvári (2002) are violated by the examples given in Hammond (1999). Thus, we find word-initial syllabic consonant in *until* [n̩'tɪl], *thank you* [ŋ̍k-ju]

or a syllabic consonant in the word-initial open syllable, e.g. *balloon* [bl̩ˈu:n]. Similarly, the ban on syllabic consonants after stressed vowels does not seem to hold in *violin* [ˌvaɪlˈn], *vowel* [vaʊl̩] or *dial* [daɪl̩]. What seems true, however, is Szigetvári's (2002) observation concerning the restricted distribution of the consonants flanking the receding schwa. Note that while the lateral can become syllabic after the bilabial nasal, the reverse order of consonants is not possible, that is, a syllabic bilabial nasal after the lateral, e.g. *camel* [kæml̩] and *column* *[kɒlm̩] respectively.

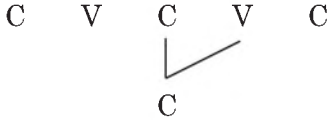
Excluding the fact that syllabic consonants can appear only in the unstressed syllables,[3] the immediate conclusion drawn from the data in (2) is that there are hardly any restrictions on such structures as far as the position of the word is concerned. Thus, they arise in the word-internal (2a), as well as the word-final (2b) position. They can also appear as the second member of the word-initial consonant sequence or even as the first consonant of the word (2c). Furthermore, given the distribution of the syllabic consonant represented under (2), it seems practically impossible to capture the accurate context of the sonorant in question. Thus, although the syllabic consonant is correctly predicted to occur in the place of the previous schwa, the broader context varies dramatically. Note that the sonorant in question can appear between two consonants, e.g. *arrogant* [ˈærəgn̩t], before a vowel, e.g. *cabinet* [ˈkæbn̩ət], after a vowel, e.g. *gradual* [ˈgrædʒuˌl̩], or even intervocalically, e.g. *violin* [vaɪˌl̩ɪn].

While discussing the differences between syllabic and trapped consonants in Slavic (see section 3.4 in Chapter Two), it was noted that the former must be represented as a left branching structure (3a) in opposition to the right-branching trapped consonant (3b).

(3) a. syllabic



b. trapped

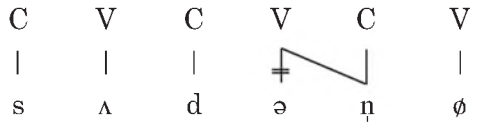


The left-branching structure of the syllabic consonant (3a) is confirmed by the English data. This is clearly observable in the example of the forms under (2), where the representation containing the schwa is equally possi-

[3] As pointed out to me by Piotr Ruszkiewicz, a few cases of syllabic consonants in a stressed syllable may be found in earlier editions of Daniel Jones's *English Pronouncing Dictionary* both in native and borrowed forms, e.g. *thank you* [ŋk-ju] and *Mbabane* [ˌ(ə)mbɑːˈbɑːni] where [(ə)] indicates the syllabicity of the following consonant.

ble, e.g. *sudden* ['sʌdən]. Note that in the latter situation the sonorant is never syllabic. Thus, from what has been said above it follows that the disappearance of the schwa is intimately connected with the appearance of the syllabic consonant. Since it is always the preceding schwa which disappears, the representation in (3a) must be correct. The sonorant spreads to the left and docks on to the position originally occupied by the schwa. This situation is depicted in the example of *sudden* ['sʌdn̩] in (4).

(4)



There are two immediate questions which may occur to the reader. Firstly, is it possible to define the precise context of the phenomenon? Secondly and more importantly, what is the trigger of the expansionist behaviour of sonorants. In other words, why do syllabic consonants appear in the first place? In the remainder of this chapter we shall address both questions and suggest a potential solution to the problem. However, before we start the analysis proper, it seems justified to look at similar cases in closely related German.

2.2. Syllabic consonants in German

The conditions under which syllabic consonants appear in German are almost identical to those presented in the previous section. Thus in German, as in English, syllabic consonants are an extremely common phenomenon. It has been described by, among others, Hall (1992), Brockhaus (1995), Wiese (1996), Scheer (2004). Furthermore, the phenomenon in question affects only sonorants, predominantly nasals and the lateral, which spread to the preceding nuclear position. The nuclear position invaded by a sonorant is occupied by a weak vowel, that is, schwa. There is a close relation between the schwa and a syllabic consonant in that they are mutually exclusive. To put it differently, syllabicity goes hand in hand with the absence of the schwa and vice versa, the appearance of the schwa precludes the existence of the syllabic consonant. It must be noted here that the absence of the schwa is not obligatory, which simply means that the form like *Segel* 'sail' can be pronounced either with the

schwa or with the syllabic consonant [ze:gəl] and [ze:gl̩]. Consider some more examples in (5).[4]

(5)

a.			
wetten	[vɛtən]	[vɛtn̩]	'bet'
Laden	[lɑ:dən]	[lɑ:dn̩]	'shop'
haben	[hɑ:bən]	[hɑ:bm̩]	'have'
Lappen	[lapən]	[lapm̩]	'rag'
Flammen	[flamən]	[flamm̩]	'flame, pl.'
Magen	[mɑ:gən]	[mɑ:gŋ̍]	'stomach'
sagen	[zɑ:gən]	[zɑ:gŋ̍]	'say'
Jungen	[jʊŋən]	[jʊŋŋ̍]	'boy, pl.'
Löwen	[lø:vən]	[lø:vŋ̍]	'lion, pl.'
Hafen	[hɑ:fən]	[hɑ:fŋ̍]	'harbour'
lachen	[laχən]	[laχN̩]	'laugh'
fahren	[fɑ:ʁən]	[fɑ:ʁ N̩]	'go'
b.			
Handel	[handəl]	[handl̩]	'trade'
Mantel	[mantəl]	[mantl̩]	'coat'
in-flexibel	[inflɛksi:bəl]	[inflɛksi:bl̩]	'inflexible'
Henkel	[hɛŋkəl]	[hɛŋkl̩]	'handle'
Löffel	[lœfəl]	[lœfl̩]	'spoon'

A word of clarification concerning the forms in (5) is in order here. First, note that the second column in (5) illustrates an interesting phenomenon where a nasal following an obstruent not only becomes syllabic but also acquires the place of articulation of the preceding consonant. The phenomenon is known in the German literature as the progressive nasal assimilation. This type of assimilation is rarely found cross-linguistically as in the vast majority of languages allowing for consonant clusters it is a nasal which appears before an obstruent that shares the place element, e.g. *finger* ['fɪŋgə], *lumber* ['lʌmbə], *handle* ['hændl̩], etc. (Gussmann 1998, 2002). As has already been mentioned, progressive assimilation, although to a far lesser degree, is also found in English, e.g. *taken* ['teɪkŋ̍], *given* ['gɪvm̩], *open* ['əʊpm̩], etc. Secondly, even though Scheer (2004) reports that a nasal is less 'willing' to become syllabic after the uvular [ʁ], the last example in (5a) shows that this is possible as the nasal is syllabic and acquires the uvular place of articulation. Along with all the similarities discussed above there are also some differences. One

[4] The data have been collected from Scheer (2003) and Hall (1992).

such difference which distinguishes English from German is the lack of the syllabic /r/. Thus, while in English, mostly in accents which are referred to as rhotic, /r/ being a sonorant is allowed to play a syllabic role, e.g. *tiger* ['taigɹ̩], *anchor* ['æŋkɹ̩], *adverb*, ['ædvɹ̩b], etc., in German /r/ does not function as a syllabic consonant. This gap is explained by Scheer (2004:698) who points to the fact that /r/ is not a possible candidate for a syllabic consonant as it undergoes vocalisation and is realised as a low schwa [ɐ]. What is more, the phonological behaviour of the German /r/ is somewhat puzzling. On the one hand, it behaves like a typical sonorant in that it appears in branching onset type of clusters, e.g. [tχ] and [bʁ] and provokes the [ç] - [χ] alternation just like other sonorants do, e.g. *durch* [dʊɐç] 'through', *Dolch* [dɔlç] 'some' or *manch* [manç] 'dagger'. On the other hand, it is claimed to be a uvular fricative. The latter claim may explain the impossibility of /r/ as a syllabic consonant in German.

Let us for a moment concentrate on another peculiar fact concerning syllabic consonants in German, that is, the obligatory alternation between syllabic and non-syllabic consonants. Thus, as pointed out by Scheer (2003), if we attach a vowel-initial suffix to a form terminating in a syllabic consonant, the latter obligatorily alternates with a non-syllabic variant. Note that in this context the nasal not only loses its left branch but also becomes dissimilated from the preceding obstruent, e.g. *trocken* [tχɔkŋ] but *trocken+en* [tχɔkn-ən] or *trockener* [tχɔkn-ɐ]. The alternation in question is exposed at greater length in table (6) below, which is cited from Scheer (2004:703) and slightly modified.

(6)

	a	b.	c.
Segen	[ze:gən]	[ze:gŋ̩]	[ze:kn-ən]
Wagen	[va:gən]	[vɑ:gŋ̩]	----------
Regen	[ʁe:gən]	[ʁe:gŋ̩]	[ʁe:kn-ən]
Garten	[gɑ:tən]	[gɑ:tn̩]	[gɛɐtn-ɐn]
Kasten	[kastən]	[kastn̩]	-------
offen	[ʔɔfən]	[ʔɔfm̩]	[œfn-ən]

d.	
[ze:kn-ɐ]	'blessing'
[vɑ:kn-ɐ]	'carriage'
----------	'rain'
[gɛɐtn-ɐ]	'garden'
[kɛstn-ɐ]	'box'
[œfn-ɐ]	'open'

The forms in (6) can be realised either with (6b) or without (6a) a syllabic consonant. In the latter case, unlike the former, the schwa is realised phonetically. This is a typical situation which is found elsewhere in the language (see (5) above). However, when an infinitive (6c) or agentive (6d) vowel-initial suffix is added to such forms the nasal is obligatorily non-syllabic and non-homorganic. Interestingly enough, the obstruent occurring before the nasal undergoes devoicing, compare [ze:gŋ] vs. [ze:kn-ɐ].

Let us stop for a moment to take stock of the findings in this section. The general conclusion emerging from both the English and German data is that syllabic consonants are left-branching structures. In both languages a sonorant spreads to the left and docks on to the nuclear position occupied by the schwa. The problem which calls for explanation, however, is the origin of syllabic consonants. To put it differently, we should be able to explain the expansionist behaviour of sonorants and capture the exact context in which syllabic consonants appear. In the second part of this chapter it will be shown that the solutions available within the framework applied in this book, that is, the Strict CV model, are able to give an explanation for some minor problems accompanying the occurrence of syllabic consonants. Such problems have been indicated and briefly discussed in this section, and in the section that follows we shall outline the problems connected with the remaining structures, i.e. bogus clusters and vowel syncope. Additionally, we have seen that in certain cases the formation of syllabic consonants is accompanied by the progressive nasal assimilation both in German and English. This problem is worth pursuing as it proves difficult especially for Government Phonology. The analysis of the progressive nasal assimilation, along with partial geminates, will be presented in section 4.2. Moreover, the prospective solution should offer a unified explanation of the inconsistent behaviour of sonorants in (6b) and (6c, d) and the obligatory devoicing of the obstruent preceding the non-syllabic consonant (6c, d). Finally, it seems interesting to look more deeply at the syllabification of syllabic consonants in complex consonant sequences. This is especially true in languages which allow for at most three-consonant clusters.

It follows that in order to find an adequate explanation for the issues mentioned above, we must look more thoroughly at the behaviour of sonorants in general, as they play a pivotal role in all the discussed phenomena. This is especially true because the phenomena presented in the following sections, i.e. bogus clusters and vowel syncope, will be shown to also rely on the syllabic ability of sonorants. Moreover, the idea developed in the previous chapter, i.e. the active/passive character of the initial empty CV unit, will help us to explain the impossibility of the word-

initial bogus clusters. However, since syllabic consonants and bogus clusters are closely related, as will be claimed below, we must find a plausible solution to the fact that the former, unlike the latter, are allowed word-initially. The analysis will further confirm the prediction that the initial empty CV unit can be phonologically active (Germanic languages, among others) or passive (Slavic languages), and as such plays a key role in syllabification and phonological phenomena. Finally, it will be indicated that the analysis presented in this chapter could easily be extended to cover various, often unrelated phenomena from English dialects which have sonorants in their scope, e.g. velarisation of the lateral or the loss of the rhymal /r/. Let us start the discussion by presenting the relevant data concerning bogus clusters.

3. Bogus clusters and vowel syncope

This section aims at presenting relevant data concerning bogus clusters and vowel syncope in English and German. It will become clear that both structures are very closely related in that they appear in the same position of the word and have identical structure, i.e. a consonant followed by a sonorant. It will be pointed out that even though bogus clusters can be given a uniform account in Government Phonology, the proposal suffers from some weaknesses. The most serious one is the inability to ban bogus clusters from the word-initial position. Such clusters are totally ruled out from this context in English, while in German a certain group of bogus clusters is allowed at the left margin.

3.1. English case

In Chapter One (see section 4.2) a short discussion concerning English word-initial consonant clusters was presented. Brief as it was, the analysis of consonant clusters was sufficient to classify English among the group of languages which enjoy the active status of the initial empty CV unit. The latter observation, we recall, is responsible for the fact that in the word-initial position English tolerates only the sonority-rising clusters, that is, #TR. However, it was also pointed out there that in English

there exist consonant clusters which are ruled out from the word-initial position but which nevertheless occur word-medially, e.g. [tl] in *atlas* or [dn] in *kidney*. It is worth mentioning that while such clusters are perfectly possible in the word-initial position in Polish (see Chapter Two), they never start a word in English, or to use traditional terminology, such consonant combinations are forbidden to co-exist in a word-initial branching onset.[5]

The peculiarity of such clusters has long been noted and described in previous studies dealing with English phonotactics, see Giegerich (1992), Harris (1994), Szigetvári (1999, 2002) among others. In the vast majority of cases the absence of such consonant sequences from the word-initial position has been explained by the homorganic ban put on the segments within a branching onset. In other words, identical or nearly identical segments were not allowed to appear in a branching onset. The GP response to this problem formulated by Harris (1990)[6] is much in the spirit of the traditional generalisation. Harris (1990:278) proposes to capture the generalisation in terms of a constraint which forbids segments appearing in a branching onset to be bound for more than one element. The author argues for the presence of the coronal element (R) in the internal representation of the alveolar nasals and the lateral. Since both segments are also specified for the occlusion element (ʔ), the absence of [tl], [dl], [tn] and [dn] clusters occurs naturally as the two segments involved share both elements. Note that the [tr] cluster is correctly predicted to be well-formed as both segments share only one element, that is, (R). If a consonant cluster cannot form a branching onset in the word-initial position, it is perfectly justified to claim that it cannot do it word-medially or in any other position either. Another option available in GP, i.e. to represent word-internal bogus clusters as coda-onset sequences, is similarly doomed to failure. In GP the coda as a separate constituent does not exist. The traditional coda constituent is reduced here to a rhymal complement, which can appear only when it is governed by a following onset (Kaye 1990). In order to establish an inter-constituent governing relation the onset must be occupied by a segment which is at least as complex as the preceding segment in the coda. Thus, it follows that while a [nt] cluster is a perfectly possible coda-onset sequence, the reverse order of consonants, i.e. [tn], never appears in a coda-onset interlude simply because [n] is less complex than the preceding [t].[7] Since

[5] See footnote 17 in Chapter One.

[6] For a similar solution but in a different theoretical framework see Rice (1992).

[7] Recall from Chapter Two that we have opted for a slightly different model of segmental representation. This fact does not bring much to the present discussion as coda is totally absent from the Strict CV model.

the [tl] clusters are not possible branching onsets or coda-onset sequences, the only logical solution left is to admit that they are spurious or bogus clusters and as such separated by an empty nuclear position. This is actually the stand taken by, among others, Harris (1994), Gussmann (2002), and the Government Phonology tradition.

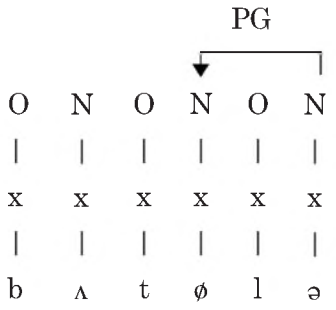
Admittedly, the Strict CV model has nothing more to offer in the discussion concerning bogus clusters. Both Government Phonology and the Strict CV approach represent such clusters in a similar fashion. The only difference between the two theories lies in the fact that, while in the former the representation of bogus clusters is the only possible solution, in the latter this is a consequence of the regular syllabification procedures. Recall that in the Strict CV approach there are no codas or branching constituents at all, hence any consonant cluster is separated by a nucleus. From the above it follows that in the Strict CV model bogus clusters lose their peculiarity. The most serious shortcoming of the representation postulated by both theories, however, is that we still cannot explain why bogus clusters have a limited distribution in that they never occur word-initially. In other words, if bogus clusters are in fact two onsets separated by an empty governed nucleus, they should be possible word-initially as well as word-medially. There is nothing in either of the two theories which would forbid the existence of the empty nucleus between the first two consonants of the word. Note that if we claimed that the word-internal bogus clusters contract Infrasegmental Government, we would face exactly the same problem, that is, why IG cannot hold word-initially. The conclusion we arrive at, therefore, is that both GP and the Strict CV model predict word-initial bogus clusters which are not admitted in English. Table (7) offers some more illustration of bogus clusters.

(7)

a[tl]as	A[tl]antic	bu[tl]er
cu[tl]ass	an[tl]er	mo[tl]ey
ki[dn]ey	me[dl]ey	mau[dl]in
chu[tn]ey	a[θl]ete	be[dl]am

Harris (1994) points out that even though such obstruent plus sonorant sequences are of the rising-sonority profile, they are not allowed to co-occur in a branching onset. In fact, they are not truly adjacent and as such constitute bogus clusters. To sum up, in GP bogus clusters cannot be represented as either a branching onset or a coda-onset sequence. They wind up as two distinct onsets separated by the empty governed nuclear position (8).

(8)



What is crucial, however, is the fact that the representation in (8) is also true for the Strict CV model, the theory advocated in this book. Hence, we are all the more obliged to find the solution to this problem. Before we suggest a solution, however, let us turn to the other, no less relevant, phenomenon, i.e. vowel syncope. As already mentioned, bogus clusters are possible in the language due to the fact that the empty nucleus between the obstruent and the sonorant is governed by the following nucleus. As noted by Harris (1994) and Gussmann (2002) the representation of the bogus cluster in (8) is plausible as the empty governed nucleus between the consonants is realised in certain dialects. This is exemplified by the word *athlete* which is pronounced by some speakers with the schwa [ə] separating the cluster in question. Thus, both authors report on the existence of the alternative pronunciation, that is, ['æθəliːt]. This fact, according to Harris (1994) and Gussmann (2002), confirms the validity of the representation in (8). Another piece of evidence which seems to support the claim that bogus clusters are in fact two onsets separated by the empty governed nucleus comes from a closely related phenomenon, vowel syncope. This could be compared to regular vowel-zero alternations in Polish, for instance, with the difference that in English this is an optional rather than obligatory situation as it appears mostly in casual speech styles. Thus, as pointed out by Harris (1994:67), there exist forms, like *chocolate* ['tʃɒklət], which resemble the examples in (8) in that they contain identical bogus clusters. The only difference is that, while the [kl] cluster in *chocolate* arises due to the operation of vowel syncope, the one in (8) above never alternates with a vowel. This 'static' versus 'dynamic' opposition is clearly observable in the case of *catholic* ['kæθlɪk] and *athlete* ['æθliːt], where both forms possess an identical word-internal cluster [θl]. Furthermore, Harris (1994) precisely defines the context in which vowel syncope may occur. First of all, the alternating vowel is always some kind of schwa. Secondly, the process occurs in the post-tonic nucleus, which means that the

process in question crucially relies on the stress pattern.[8] Finally and most importantly, the syncope depends on the identity of the consonant immediately following the syncope site. Interestingly enough, it is always a resonant. Thus, forms like, for example, ['refrəns], ['tʃɒklət] or ['seprət], etc., satisfy the three requirements. The most remarkable contribution, however, is the latter observation, i.e. the obligatory presence of the sonorant in the second position of the relevant clusters. On the one hand, the presence of the sonorant in this position must be treated as a mere accident as it does not play any active role in either a 'static' or 'dynamic' bogus cluster. On the other hand, however, its presence in this position is obligatory. In other words, bogus clusters are clusters which resemble branching onsets in that they usually consist of an obstruent followed by a sonorant, e.g. ['medli], ['ɒprə], ['tʃɒklət], etc. Note that two-obstruent clusters, even if they satisfy the first two conditions mentioned above, cannot witness a vowel syncope, as is confirmed by the ungrammaticality of the following forms: *bracketing* *['bræktɪŋ], *gossiping* *['gɒspɪŋ], *menacing* *['mensɪŋ]. From this it follows that the role played by sonorants is underestimated.

Interestingly enough, Harris (1994) and Szigetvári (2002) point to the fact that besides unsyncopated and fully syncopated variants there is a third option, one which contains a syllabic consonant, e.g. ['ɒp̩ə], [ɪ'speʃl̩i], ['pɜːsn̩t]. It has already been mentioned in the body of this work that sonorants have the ability to dock on to the preceding or the following nucleus, giving rise to syllabic and trapped consonants respectively. The general ability of sonorants, however, should be increased as they are also responsible for the appearance of syncope-related bogus clusters. Table (9) quoted from Harris (1994:185) and slightly modified offers some more illustration of the facts discussed so far.

(9)

a.		b	
separate	['seprət]	misery	['mɪzri]
temperature	['temprətʃə]]	every	['evri]
elaborate	[ɪ'læbrət]	surgery	['sɜːdʒri]
factory	['fæktri]	nursery	['nɜːsri]
boundary	['baʊndri]	camera	['kæmrə]
chocolate	['tʃɒklət]	prisoner	['prɪznə]
mystery	['mɪstri]	definite	['defnət]
reference	['refrəns]	opener	['əʊpnə]
awfully	['ɔːfli]		

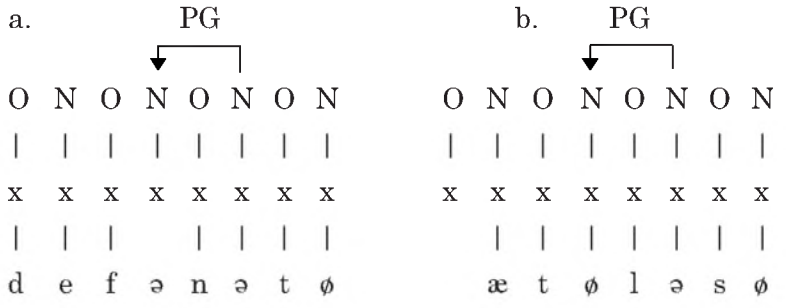
[8] Harris (1994) indicates that if the post-tonic nucleus is followed by a secondary-stressed nucleus occurring in an independent foot, syncope does not take place. It follows that the syncope is possible in the adjective ['seprət], but it is not allowed in the differently stressed verb [sepəˌreɪt], see also Szigetvári (2002).

c.

rocketing	[ˈrɒkɪtɪŋ]	menacing	[ˈmenəsɪŋ]
monitor	[ˈmɒnɪtə]	opacity	[əˈpæsəti]
gossiping	[ˈgɒsɪpɪŋ]	balloting	[ˈbælətɪŋ]

The data presented in (9) is interesting for at least two reasons. Firstly, the examples pinpoint the fact that a syncope-prone schwa can be suppressed not only between two consonants which resemble a possible branching onset (9a), but also between consonants which are not a potential branching onset (9b). Additionally, the forms in (9c) demonstrate the fact that syncope is unable to appear between two obstruents. Secondly, the forms in (9b) contribute to the refutation of the traditional analysis consisting in resyllabification (Harris 1994:186).[9] Note further that GP cannot interpret the resulting clusters in (9b) as either branching onsets or coda-onset sequences. Thus, they are ascribed a different representation: that of a cluster separated by the empty governed nucleus. Harris (1994) concludes the discussion by pointing out that consonants occurring in a syncope-related bogus cluster are not adjacent simply because there is a lexically present schwa which separates both consonants. The schwa is suppressed by the following vowel through Proper Government. Although 'static' bogus clusters are not broken up by the alternating vowel, they are represented in the same fashion. In short, both 'static' and 'dynamic' bogus clusters are separated by the empty governed nucleus (10).

(10)



[9] Harris (1994:183) points out that the epenthetic solution is impossible as well. Very briefly, the appearance of the same bogus cluster in two different words where only one of them alternates with a vowel makes the epenthetic solution inapplicable. For example, a bogus cluster [dl] can be found in *maudlin* [ˈmɔːdlɪn] and *pedalling* [pedlɪŋ] with the difference that the latter, unlike the former, alternates with the schwa [pedəlɪŋ]. It means that a rule which inserts a schwa in *pedalling* should also put one in *maudlin* which is, however, not the case.

The only difference between the representations in (10a) and (10b) is that in the former the bogus cluster is separated by a lexically present alternating vowel, while the latter is separated by a lexically empty nucleus. However, this solution has some serious flaws. First, note that although Harris (1994) hints at the idea that a syllabic consonant can replace the syncope-prone schwa, he does not pursue this idea any further. Secondly, if syncope is triggered by the following nucleus through Proper Government it means that a schwa flanked by two obstruents should disappear due to the same reason, i.e. the application of PG. Additionally, the theory at this stage is still not able to provide a satisfactory explanation of the absence of both 'static' and 'dynamic' bogus clusters from the word-initial position. Finally, we need an explanation for the behaviour of the lateral [l] in two related forms, that is, *fiddle* [fɪdl̩] and *fiddler* [fɪdlə]. More exactly, why in the former case is there only one option available (syllabic consonant), while in the latter instead of a syllabic consonant we find a bogus cluster? We shall address these questions in the second part of this chapter, which is devoted to the analysis of sonorants in the relevant contexts.

To sum up, apart from branching onsets and coda-onset sequences GP is forced to recognise a third possibility, that is, a sequence of onsets separated by the empty governed nucleus. GP makes use of the latter structure to represent both bogus clusters and syncope-created bogus clusters. Crucially, it was noted that there was an attempt to combine syncope-related bogus clusters and syllabic consonants. This line of inquiry, however, rather than being finalised has been abandoned halfway through. Coherent as it is, the solution offered by GP suffers from some weaknesses. The most evident one is the inability to explain the lack of word-initial bogus clusters.

3.2. German case

3.2.1. Introduction

This sub-section aims at presenting the relevant data concerning bogus clusters in German. As was mentioned above, it is not our main concern

here to propose a solution to the occurrence of the clusters in question. Conversely, we shall confine ourselves to introducing the relevant data and pinpointing some problematic areas in previous accounts. The analysis proper will appear later on in the second part of this chapter. A starting point for discussion is the set of variable forms first introduced in Vennemann (1968) and analysed within the GP framework by Brockhaus (1995). Specifically, Vennemann's (1968) set represents consonant clusters which undergo the general rule of Final Obstruent Devoicing (henceforth FOD) in one dialect, Northern Standard German, but which refuse to undergo devoicing in another one, Hochlautung. This set is of particular interest to us as the fluctuating obstruent is always the first consonant of the bogus cluster. Moreover, the German case is interesting as it seems to challenge the general ban on the word-initial bogus clusters. The latter observation, if true, runs counter to our prediction which says that a language possessing the active word-initial empty CV unit does not allow for consonant clusters separated by the empty governed nucleus at the left margin (see Chapter One). Finally, it will become evident that the three phenomena, i.e. syllabic consonants, bogus clusters and vowel syncope, are, as in English, closely related in German. In what follows we draw heavily on Brockhaus's (1995) analysis of FOD in German.

3.2.2. Bogus clusters in German

In her meticulous, book-length analysis of Final Obstruent Devoicing in German, Brockhaus (1995) proposes to explain the phenomenon in question by a single claim, namely, that FOD in German appears before the empty nucleus. The reason why we mention this study is twofold. Firstly, it presents the analysis of German consonant clusters couched within Government Phonology. Secondly and more importantly, Brockhaus (1995) in her analysis discusses a set of words which she classifies (after Vennemann (1968:140)) as variable items. The latter are crucial to our study as they represent bogus clusters. Thus, the words represented in (11) have at least two different pronunciations. The forms in (11a) are characteristic of Hochlautung, while those in (11b) of Northern Standard German (NSG). The data in (11) have been collected from Brockhaus (1995:186).

		a. Hochlautung	b. NSG	
(11)	Rodler	['roːdlɐ]	['roːtlɐ]	'tobogganist'
	Adler	['ʔɑːdlɐ]	['ʔɑːtlɐ]	'eagle'
	Pendler	['pɛndlɐ]	['pɛntlɐ]	'commuter'
	biblisch	['biːblɪʃ]	['biːplɪʃ]	'biblical'
	zwieblig	['tsviːblɪç]	['tsviːplɪç]	'oniony'
	Kübler	['kyːblɐ]	['kyːplɐ]	'cooper'
	üble	['ʔyːblə]	['ʔyːplə]	'bad, fem. sg.'
	Bügler	['byːglɐ]	['byːklɐ]	'sb. who irons'
	Kugler	['kuːglɐ]	['kuːklɐ]	'surname'
	Schmuggler	['ʃmʊglɐ]	['ʃmʊklɐ]	'smuggler'
	Regler	['reːglɐ]	['reːklɐ]	'regulator'
	eignen	['ʔaɪgnən]	['ʔaɪknən]	'suit'
	regnet	['reːgnət]	['reːknət]	'it rains'
	Segnung	['zeːgnʊŋ]	['zeːknʊŋ]	'blessing'
	ebnen	['ʔeːbnən]	['ʔeːpnən]	'level'
	Ordnung	['ɔɐ̯dnʊŋ]	['ʔɔɐ̯tnʊŋ]	'order'

It must be clarified here that even though the forms illustrated above are morphologically complex, in none of the examples is the obstruent adjacent to the domain boundary. This simply means that the bogus clusters are not the result of a concatenation of separate morphemes. Moreover, the difference between both dialects consists in obstruent devoicing. Thus, in NSG the obstruent is found to undergo devoicing, while in Hochlautung there is no change in the obstruent voicing specification. When faced with the data in (11), Brockhaus (1995) tests three different possibilities for the [dl] cluster available within the GP model. Thus, she considers the following representations: a coda-onset sequence, a branching onset and two onsets separated by the empty nucleus. She eliminates the first two options by pointing to the fact that the coda in German cannot license the laryngeal node due to the application of FOD which traditionally occurs in the coda. Thus, the obstruents in Hochlautung cannot belong to the coda. Moreover, even if the obstruent becomes neutralised, just as in NSG, it cannot occupy the coda position simply because it would be followed by the sonorant onset which is less complex. Consequently, the inter-constituent government within the coda-onset sequence could not be contracted. Furthermore, Brockhaus (1995) indicates that the [dl] cluster is not able to appear in a branching onset either. She claims, following Harris (1990), that segments forming a branching onset have to meet certain complexity requirements, i.e. identical

segments are not permitted nor are segments which share more than one element (see section 3 above). Since [tl], [dl] clusters do have more than one element in common this solution is, like the previous one, doomed to failure and hence must be abandoned.[10] According to Brockhaus (1995) the latter ban is responsible for the absence of the word-initial [tl], [dl], [tn], [dn] clusters not only in English but also in German. Ruling out both coda-onset and branching onset representations, she is left with the third solution, i.e. bogus clusters. Recall from the previous section that such clusters are represented as two onsets separated by the empty nucleus. Brockhaus (1995:191) justifies her choice by indicating that this empty nuclear position is actually a vowel-zero alternation site (12).

(12)			
	Rodel	['roːdəl]	'toboggan'
	Edel	['ʔeːdəl]	'noble'
	besiedeln	[bə'ziːdəln]	'settle'
	handeln	['handəln]	'act'
	Pendel	['pɛndəl]	'pendulum'
	Ordentlich	['ɔɐ̯dəntlɪç]	'tidy'

Brockhaus (1995:191) explains in a footnote that the examples in (12) illustrate careful pronunciation and that in rapid and/or casual speech the schwa is not usually realised but the following sonorant becomes syllabic instead. Thus, the conclusion that can be drawn from the data above is that in German, just as in English, word-medial [tl]/[dl] and [tn]/[dn] sequences are separated by the empty nucleus. In short, they are bogus clusters. Brockhaus (1995) extends this solution to cover the remaining clusters in (11), that is, [bn]/[pn], [bl]/[pl] and [gn]/[kn], [gl]/[kl]. Note that the GP model points to the possibility of granting a branching onset status to the [p/bl] and [g/kl] clusters. This solution, however, is once again ruled out by Brockhaus (1995), who points out that in (11) such clusters are spurious. This is especially true in the case of [kl] sequences. Very briefly, the realisation of the word-medial [kl] clusters in (11) has two variants, i.e., it can be realised as [k] plus the sonorant or the obstruent is weakened to the fricative [ç], [x] before [l]. What is crucial here is the fact that the latter change never appears in the word-initial position. She concludes that [kl] clusters are ambiguous in German. In other words, they constitute a branching onset word-initial-

[10] Brockhaus (1995) works in a slightly different model of segmental representation. In her version nodes have to be taken into account for working out the complexity of an expression. This is not, however, essential to the present discussion.

ly but a sequence of onsets separated by the empty nucleus word-internally. In order to prove her point, i.e. that the forms in (11) are bogus clusters, Brockhaus (1995:194) provides additional examples of the vowel-zero alternations (13).

(13)

Bibel	['bi:bəl]	'Bible'
Zwiebel	['tsvi:bəl]	'onion'
Kübel	['ky:bəl]	'vat'
übel	['ʔy:bəl]	'bad'
bügeln	['by:gəln]	'iron'
regeln	['re:gəln]	'regulate'

eben	['ʔe:bən]	'level' (adj.)
Segen	['ze:gən]	'blessing'
Regen	['re:gən]	'rain'
eigen	['ʔaɪgən]	'own'
schmuggeln	['ʃmʊgəln]	'smuggle'
Kugel	['ku:gəl]	'ball'

The conclusion at which she arrives, therefore, is that word-medial obstruent plus sonorant clusters in (11) are separated by the alternating vowel which surfaces in related forms (13). In other words, the underived forms of the stems in (13) indicate that all the clusters in (11) above are in fact bogus clusters — they are separated by the empty nuclear position. Moreover, Brockhaus (1995) captures the difference between the dialects in (11) by claiming that in NSG both final and medial empty nuclei can trigger obstruent devoicing, while in Hochlautung only final empty nuclei are able to devoice the preceding obstruent. Since our main concern in this chapter is the representation of bogus clusters and not FOD, we shall refer to the latter phenomenon only sporadically. For the analysis of FOD in German see Rubach (1990), Wiese (1991), Hall (1992), Brockhaus (1995). Finally, it should be noted that in (13), just as in (12) above, the schwa can be replaced by the syllabic consonant in rapid speech. Another problem Brockhaus (1995) addresses in her analysis and which is of particular interest to us is the appearance of obstruent plus nasal clusters word-initially. To put it differently, if such combinations are claimed to be bogus clusters word-internally, what is then the representation of the same clusters in the word-initial position (14).[11]

[11] The list in (14) is quoted after Brockhaus (1995:194) who additionally incorporates word-initial [pn] and [sl] clusters into this set.

(14) a.

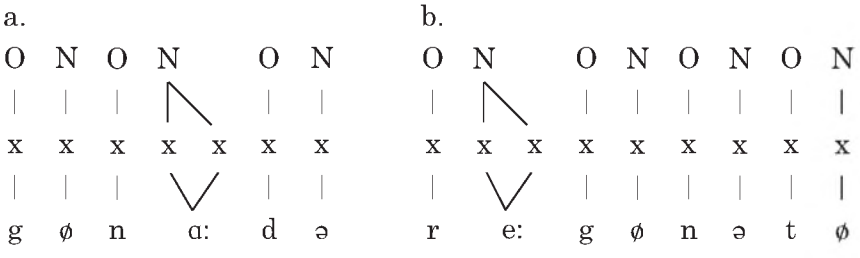
Knie	[ˈkniː]	'knee'
kneten	[ˈkneːtən]	'knead'
Knöchel	[ˈknœçəl]	'knuckle'
Knoten	[ˈknoːtən]	'knot'
Knauf	[ˈknaʊf]	'knob'

b.

Gnom	[ˈgnoːm]	'gnome'
gnostisch	[ˈgnɔstɪʃ]	'gnostic'
Gnu	[ˈgnuː]	'gnu'
Gneis	[ˈgnaɪs]	'gneiss'
Gnade	[ˈgnɑːdə]	'grace'

Brockhaus (1995), similarly to Vennemann (1968:181), claims that the representation of the word-initial [kn]/[gn] clusters does not deviate from that of the same clusters in the word-medial position, i.e. they are separated by the empty nuclear position (15).

(15)



In order to prove the legitimacy of the solution in (15a), Brockhaus provides the historical development of some of the clusters in (14) (see Drosdowski et al. (1976—1981)). Thus, *Gneis* is likely to develop from MHG *g(a)neist* and *Gnade* can be related to OHG *ginâda* and MHG *g(e)nade*.[12] This solution, however, suffers from one serious weakness, namely, given that in NSG both word-final and word-internal empty nuclei trigger FOD, we predict that the same should hold true in the word-initial position. Specifically, the word-initial obstruent [g] in (14b) is followed by the empty nucleus which means that it should be neutralised to [k]. This prediction, however, fails as the word-initial [g] is never affected in any of the dialects. Brockhaus (1995) confines herself to indicating that

[12] Searching for additional evidence, the author reports on the realisation of the forms in (14) by linguistically naive speakers of English. They, according to Brockhaus (1995), insert a schwa between a stop and the nasal so it means that at least for them the [kn] cluster occupies two separate onsets.

it is only the leftmost nuclear position that behaves oddly and that the number of such initial clusters is relatively small (25 items). Despite the fact that in the Government Phonology literature such nuclei have acquired a peculiar status in that they resist being properly governed (Charette 1991, Yoshida 1990),[13] Brockhaus (1995) resorts to this very mechanism in order to explain the forms in (14). One immediate problem with this solution, however, is the fact that such sequences invariably consist of 'TR' clusters. Thus, even if we separate the initial clusters in (14) with a properly governed nucleus, the question remains why they are always of the 'TR' type.[14] To put it differently, there is nothing in the nature of Proper Government that would impose the restriction on the segment types surrounding the properly governed empty nucleus, hence we should expect various combinatorial possibilities and not only 'TR' clusters. Finally, it is worth mentioning that Löhken (1995), tracing the development of consonant clusters such as those in (11) above from OHG to NHG, arrives at similar conclusions concerning the key role played by sonorants in what we call here bogus clusters. She claims that the latter clusters appear as a result of vowel syncope which takes place only before [l] or [n]. Specifically, the syncope process depends on the context in that it did not take place where the vowel was sandwiched between two obstruents or two sonorants.

It must be clarified here that in the end Brockhaus (1995) adopts an alternative solution, namely, she suggests that bogus clusters contract the Interonset Government relation (Gussmann and Kaye 1993). Despite the fact that this mechanism is controversial, Interonset Government, according to Brockhaus (1995:209) holds a promise of shedding new light on the rigid order of consonants in bogus clusters.[15]

Finally, while discussing Brockhaus's (1995) analysis, it is worth mentioning that NSG speakers do not apply FOD to obstruents in certain context, e.g. *Rudrer* [ru:drɐ] instead of expected *[ru:trɐ]. Recall that before other sonorants the obstruents in this dialect do undergo devoic-

[13] Recently Cyran (2003) has made a similar observation. He notes that English mysteriously lacks the word-initial consonant clusters separated by the empty nucleus.

[14] The key role of sonorants in such clusters was indicated by Rubach's (1990) analysis of FOD.

[15] Interestingly enough, if we accepted the idea that bogus clusters are not separated by an empty governed nuclear position, Proper Government would become superfluous in the GP analysis of German and English. The idea that Proper Government does not exist in Germanic languages has been proposed by Kaye (cited by Brockhaus (1995:210) as a personal contact). This idea has been recently pushed to its extreme point by Cyran (2003) who proposes to get rid of Proper Government altogether in the theoretical model he develops.

ing. Thus, for example, *Siedler* 'settler' and *Ordner* 'usher' will be realised as [ˈziːtlɐ] and [ˈʔɔɹtnɐ] respectively. Since both the former and the latter forms exhibit the same stress pattern, have the obstruent in the same position and contain the same agentive suffix – *er*, it must be the sonorant /r/ and its elemental make-up which is responsible for the lack of devoicing of the preceding obstruent.

The conclusion that can be drawn from both the English and German data above is that in the vast majority of cases a bogus cluster can be separated by the schwa in related forms, which is especially true in German. Moreover, when the schwa is syncopated, we arrive at the bogus cluster or a syllabic consonant. The latter choice is connected with the tempo of speech. Thus, it follows that all three phenomena boil down to a single structure, i.e. a consonant followed by a sonorant which are separated by the empty nucleus. One of the most urgent questions to answer, however, is the ban on the word-initial bogus clusters and vowel syncope. Recall that syllabic consonants are reported to be present at the left margin at least in English. In other words, whichever representation we choose, i.e. a governed empty nucleus or Interonset Government, there is nothing in the GP theory which would rule out such clusters from the word-initial position. A similarly urgent problem is the origin of syllabic consonants and bogus clusters or, to put it differently, the question why they arise in the first place. Thus, in what follows we shall address the latter questions along with some minor problems outlined in the sections above. We start with the progressive nasal assimilation in German.

4. Sonorant conspiracy

4.1. Introduction

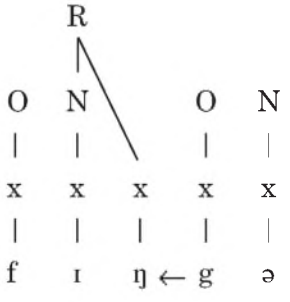
In this section we would like to propose a unified solution to seemingly unrelated phenomena which have been introduced and discussed above, that is, vowel syncope, bogus clusters, and syllabic consonants. Moreover, we shall address the questions and problems outlined in the first part of the chapter. The solution to be offered integrates all three structures and accounts for the traditional problems. We begin the discussion with the syllabic consonants.

4.2. Partial geminates in German (Scheer 2003)

The subject of our investigation in the present section is the representation of partial geminates in English and German. Specifically, we shall focus on progressive nasal assimilation in the latter language. As pointed out in section 2.2 above, in progressive nasal assimilation a nasal not only acquires the same place of articulation as the preceding obstruent, it also becomes syllabic. In order to explain the behaviour of the nasal in such clusters, we shall present and discuss the solution put forward in Scheer (2003), who contrary to the previous accounts ascribes an active role to nasals in partial geminate clusters. The solution to be discussed is based on the lenition theory, i.e. the Coda Mirror (Ségéral and Scheer 1999) introduced in the previous chapter (section 4.3). The lenition theory, as will be shown in the following sections, allows us to propose a uniform solution to various apparently unrelated phenomena illustrated in this chapter.

In all previous accounts of partial geminates it is always the obstruent which is the trigger of the place assimilation process.[16] An identical view is advocated in Government Phonology, which is in fact a welcome result of the governing relations postulated in the model. Note that in the latter theory the nasal (in partial geminate clusters) appears in a rhymal complement and must be governed by the following obstruent onset. In such a relation the obstruent, being a governor, imposes the place of articulation on the preceding governee, that is, the nasal (16).

(16) partial geminate clusters in GP

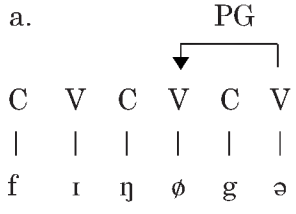


In (16) the nasal [ŋ] is governed by the following obstruent [g] through the inter-constituent government ' ← ', hence it is the latter which is the

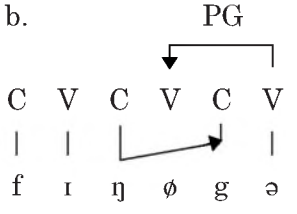
[16] Gussmann (2002:78) uses the neutral term 'nasal place sharing' to stress the fact that neither the nasal nor the obstruent is the dominating member of the cluster.

agent and forces the preceding nasal to acquire the same place of articulation. Admittedly, this kind of explanation is not possible in the Strict CV model advocated in this study. Recall that in the latter model the inter-constituent government along with the intra-constituent government are totally dispensed with. In other words, coda-onset sequences and branching onsets do not exist. From the above it follows that partial geminates, similarly to other consonant clusters, are separated by the empty nucleus. The latter fact precludes any kind of relationship between the partial geminates, which apparently constitutes a problem for the strict CV model. Note that it is not possible to explain why obstruents should impose the place of articulation on the preceding nasals. Both consonants are separate onsets which do not hold any governing relation; they are even not adjacent. The inadequacy of the Strict CV approach to explain the phenomenon in question is one of the reasons why S c h e e r (2003) poses a challenge to the traditional view on the partial geminates. More specifically, S c h e e r (2003) explores the idea that it is not the obstruent which enforces the place specification on the preceding sonorant. Quite the contrary, it is the sonorant which is an active member of the partial geminate cluster and it takes what it needs from the following obstruent. The reason behind the active status of sonorants lies in the fact that in such clusters they appear in a weak position. Specifically, according to the lenition theory, that is, the Coda Mirror, the nasal in *finger*, for instance, appears before an empty nuclear position and this position is identified with the lenition site (17a). The following obstruent, on the other hand, occurs after a governed empty nucleus and before a vowel, and this is a typical strong position. The representation of *finger* in the Strict CV model is given in (17) below.

(17) a.



b.



The empty nucleus separating the nasal from the plosive is properly governed by the following vowel. Since internal empty governed nuclei cannot dispense government or licensing, it means that the nasal in (17) is neither governed nor licensed. Thus, it follows that the nasal appears in a weak position. The most common response of segments to this unfavourable position is the loss of the melodic material, i.e. lenition. Interestingly enough, in weak positions sonorants, unlike obstruents, have the

ability to spread and dock on to a neighbouring position. In this way they gain the stability required to avoid lenition. As depicted in (17b) the nasal can reach the following plosive and dock on to its place of articulation. In consequence, they end up as a partial geminate cluster. Such structures, as pointed out by Scheer (2003), are generally recognised as more stable, geminates being the most stable structures of all. See Kenstowicz and Pyle (1973), Schein and Steriade (1986), McCarthy (1986), Honeybone (2002).

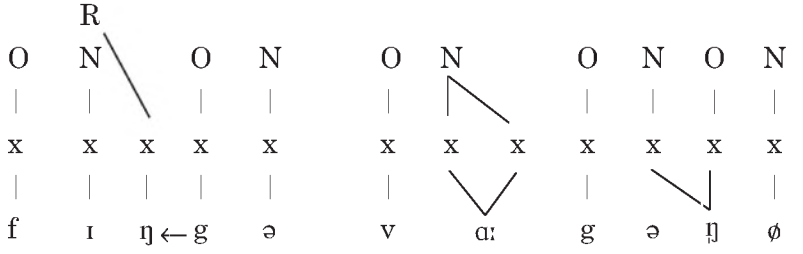
Summing up, the general picture emerging from Scheer's (2003) proposal is that it is a sonorant that is the agent, while an obstruent behaves like a patient. This is, in fact, a welcome situation as sonorants in the Strict CV model play an active role in other structures like in, for example, Infrasegmental Government (see Chapter One). Furthermore, in the vast majority of cases the nasal assimilates to the following obstruent as depicted in (17); there are, however, rare cases like German (see section 2.2 above) where the nasal assimilates to a preceding obstruent, e.g. *offen* [ʔɔfən] > [ʔɔfm̩] 'open'. The phenomenon in question has been described and analysed in the Strict CV framework by Scheer (2003). Thus, in what follows we shall discuss the solution to progressive nasal assimilation in German offered by him. As will be shown in the following sections, this proposal can be used to explain not only syllabic consonants but also bogus clusters and vowel syncope, in this way yielding the promised common link between all three phenomena.

In order to provide positive evidence for the assumption mentioned above, i.e. that sonorants in weak positions become active, Scheer (2003) analyses various phenomena in different languages. He presents the solution to the behaviour, i.e. lenition, of nasals in final codas (in southern dialects of French, in Somali and Polish), as well as the genesis of nasal vowels in French, Portuguese and Slavic. He also gives the example of progressive nasal assimilation and syllabic consonants in German. Since, however, this chapter deals mostly with syllabic consonants, in the remainder of this section we shall concentrate only on the latter.

Homorganic nasal plus obstruent clusters are a well-documented, cross-linguistic phenomenon (Gussmann 2002). As mentioned above, the direction of assimilation is granted a universal status, i.e. an obstruent imposes its place of articulation on the preceding nasal. There are, however, rare cases where an obstruent is followed by a sonorant, e.g. German. What is important here is the fact that the result in both scenarios is identical, that is, a nasal acquires the place of articulation of the neighbouring obstruent. Note that the reverse homorganic clusters are problematic for GP as it is the nasal that follows an obstruent. As mentioned above, in the GP model nasals are not complex enough to govern

obstruents; in other words, they never contract an inter-constituent government. They cannot constitute a branching onset either. Thus, if partial geminates arise due to the imposition of the place element by the governor on the governee in the inter-constituent government (18a), the answer to the progressive assimilation in German must be sought elsewhere (18b).

(18) a. b.



In (18b) the reason why the cluster [gŋ] is not a possible coda-onset relation is twofold. Firstly, as mentioned above, nasals are less complex than obstruents and so the former never govern the latter. Secondly, and more importantly, the consonants are separated by the schwa, which means that this cluster is not a coda-onset relation. It could be claimed that the syllabicity of the nasal is the key to the explanation of the progressive assimilation. Note, however, that if we followed this line of inquiry, we would obtain the same result, i.e. partial geminates, by means of two totally different mechanisms, that is, inter-constituent government and syllabicity. The proposal developed by S c h e e r (2003), on the other hand, not only explains why sonorants react in this context but also unifies the trigger of the phenomenon in question. Let us briefly discuss S c h e e r ' s (2003) analysis of the German nasals. In Standard German, nasals can appear in post-consonantal position word-finally. Such clusters arise due to the optional realisation of the schwa separating both consonants. In the situation when the schwa is dropped, the nasal obligatorily agrees in place with the preceding consonant, e.g. *Wagen* [vɑːgən] > [vɑːgŋ̩]. Note that the real identity of the nasal can be established on the basis of the schwa-zero alternation. Table (5a) repeated in (19) for convenience offers some more illustrations of the relevant data.

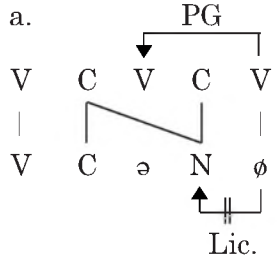
(19)

wetten	[vɛtən]	[vɛtn̩]	'bet'
Laden	[lɑːdən]	[lɑːdn̩]	'shop'
haben	[hɑːbən]	[hɑːbm̩]	'have'
Lappen	[lapən]	[lapm̩]	'rag'
Flammen	[flamən]	[flamm̩]	'flame, pl.'

Magen	[mɑ:gən]	[mɑ:gn̩]	'stomach'
sagen	[zɑ:gən]	[zɑ:gn̩]	'say'
Jungen	[jʊŋən]	[jʊŋn̩]	'boy, pl.'
Löwen	[lø:vən]	[lø:vm̩]	'lion, pl.'
Hafen	[hɑ:fən]	[hɑ:fm̩]	'harbour'
lachen	[laχən]	[laχN̩]	'laugh'
fahren	[fɑ:ʁən]	[fɑ:ʁ N̩]	'go'

From the data above it follows that the place of articulation of the post-consonantal word-final nasal depends entirely on the preceding obstruent, hence we can find a nasal with the bilabial, labiodental, dental, velar, and uvular place of articulation.[17] Moreover, the nasal in this position becomes syllabic. Faced with two possible but slightly different reasons of the schwa absence in the 'CəN' context (20), Scheer (2003) opts for the one represented under (20b), where 'C', 'N' and 'V' stand for any obstruent, nasal and realised vowel respectively.

(20) a.



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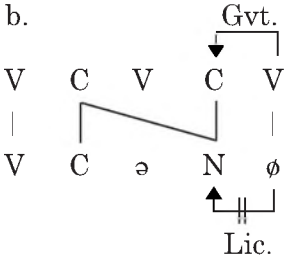


At first glance both representations in (20) seem to be correct. Although word-final nuclei in German are not possible licensors (Scheer 2004:674), they are able to dispense government. This extra ability of the word-final empty nuclei may be ascribed to the fact that they function as word boundaries pretty much the same as the word-initial empty CV unit we argued for in the previous chapter.[18] Moreover, the governing ability of final empty nuclei is confirmed by the existence of the word-final RT# or TT# clusters, e.g. *alt* 'old', *herb* 'bitter', *Dorf* 'village', or *Abt* 'abbot'. The forms end in a consonant cluster which must be separated by an empty nucleus. This simply means that the word-final empty nucleus is able to govern it. Thus, it follows that both possibilities represented under (20) are plausible. In both representations the nasal appears in

[17] Scheer (2003) points to the fact that a nasal following a uvular fricative [ʁ] as in *fahren* [fɑ:ʁ N̩], is more 'hesitating' in acquiring its place of articulation.

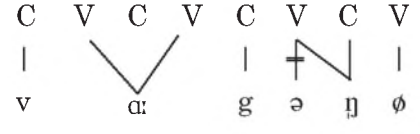
[18] For special abilities of the word-final empty nuclei see Cyran (2003) and Scheer (2004).

a weak position, the difference being that in (20a) it is neither governed nor licensed, while in (20b) it is governed but unlicensed. The reason why the representation in (20a) is abandoned is the fact that word-final empty nuclei are banned from governing lexically present nuclei. Recall the discussion from the previous chapter (section 3.2) where it was pointed out that alternating vowels are not good governors of other alternating vowels. The same is true for word-final empty nuclei. Thus, given the Polish examples like *sen* 'dream', *len* 'flax' which possess the alternating vowel in roots *sønu* 'iden. gen.', *lønu* 'iden. gen.', respectively, the word-final empty nucleus cannot be granted the ability to govern such root vowels. Were it possible, we would arrive at roots without any realised vowel, that is, **ln, sn*. Such roots are ill-formed not only in Polish but rather cross-linguistically. On the basis of this observation S c h e e r (2003) proposes the following restriction:

(21) Final Empty Nuclei may or may not govern; however, they can only govern nuclei which are lexically empty.

Given the above restriction the representation in (20a) is predicted to be false. This is because the vowel separating both consonants, i.e. schwa, is lexically present. Furthermore, the nasal in (20b) appears in the worst situation possible: it is unlicensed but at the same time governed (see section 4.3 in Chapter Two). Thus, in order to survive the nasal spreads and displaces the preceding schwa giving rise to the syllabic consonant (22).

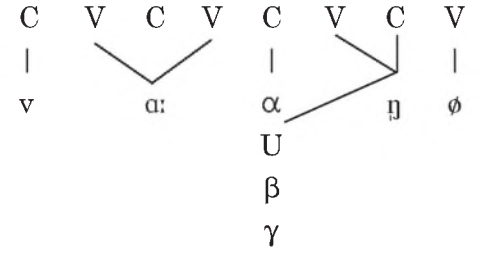
(22)



In German nasals share this stage with another candidate for syllabic consonants, that is, the alveolar lateral [l]. The lateral can displace the preceding schwa and become syllabic in exactly the same way as the nasal in (22). Similarly to the examples in (19), the forms, e.g. *Segel* 'sail', *Handel* 'commerce', *Henkel* 'handle', can be realised with the schwa or without it. In the former situation the lateral is not syllabic but becomes syllabic in the latter scenario ['zeːgəl], ['handəl], ['hɛŋkəl] and ['zeːgl̩], ['handl̩], ['hɛŋkl̩], respectively. However, syllabicity is not the end of the road for the nasal as it can reach as far as the obstruent to dock on to its place of articulation. In this way the nasal creates a structure which is branching; it displaces the preceding schwa and additionally docks on to the

place of articulation of the obstruent. This situation is illustrated in (23) where (U) stands for velarity and α, β, γ represent some melodic elements of the internal make-up of [g].

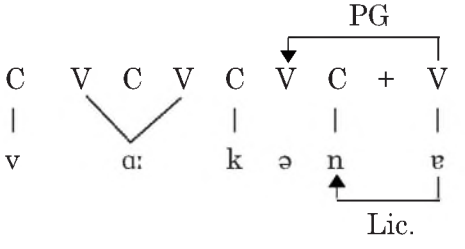
(23)



The general conclusion drawn from Scheer's (2003) analysis is that the formation of syllabic consonants does not depend on the status of the schwa. Conversely, syllabic consonants arise in response to the weak position they happen to appear in. In order to survive the sonorant spreads and replaces the schwa.

As has already been mentioned in the course of our previous discussion, progressive nasal assimilation is blocked when a vowel initial suffix is added to forms ending in obstruent plus nasal clusters. The relevant data were illustrated under (6) above. Very briefly, the same cluster can be realised in three different ways, for example, the cluster [gn] in *Wagen* 'carriage', can be separated by a schwa [vɑ:gən], can appear without the schwa but with a syllabic and homorganic nasal [vɑ:gŋ] or can be produced with the devoiced obstruent when followed by a suffix [vɑ:kn-ɐ]. The explanation of the former two forms has already been presented, i.e. the nasal displaces the preceding schwa and docks on to the place element of the obstruent. On the other hand, the latter form is interesting for at least two reasons. First, the nasal is neither syllabic nor homorganic but the schwa is dropped. Second, the obstruent undergoes devoicing. Scheer (2003) claims that it is the presence of the suffix vowel which is responsible for the latter situation. Note that in this context the situation of the nasal is radically changed, that is, it is licensed but ungoverned which is a typical strong position (24).

(24)



It should be clarified here that the representation of the agentive suffix *–er* in (24) is not complete. The low schwa [ɐ] of the suffix results from the vocalisation of /ʀ/ in the word-final position. It is perfectly logical to ascribe a greater potential to full vowels than to empty ones (C y r a n 2003). It means that the suffix vowel in [vɑ:knɐ], unlike the empty one in [vɑ:gŋ], has the ability to both govern and license. Now the reason why the schwa in (24) disappears is the fact that it is governed by the suffix vowel. Moreover, the latter vowel licenses the preceding nasal. In this situation the nasal escapes the negative influence of the government while being licensed at the same time. As the latter context describes a strong position it explains the fact why the nasal does not search for the place to spread, hence the lack of both homorganicity and syllabicity in (24). Furthermore, note that the schwa in (23) and (24) is suppressed for two different reasons. In (23) it is displaced by the spreading nasal, while in (24) it is governed by the following suffix vowel. Finally, the reason why the obstruents in suffixed forms undergo devoicing again boils down to the presence of the suffix vowel or, to be precise, to the presence of the governed empty nucleus following the obstruent. In traditional accounts of German final devoicing the phenomenon is claimed to take place in the coda position (R u b a c h 1990, H a l l 1992, W i e s e 1996). In B r o c k h a u s's (1995) account obstruent devoicing appears before an empty nuclear position. The Strict CV model combines both proposals because the traditional coda is described here as the position before a governed empty nucleus. Furthermore, this solution provides a ready answer to the absence of obstruent devoicing before syllabic consonants and additionally confirms the leftward spreading of the structures in question. In short, in the latter situation the nuclear position after the obstruent is not empty, but is occupied by the following sonorant. Note that by claiming that devoicing appears before governed empty nucleus we can rule out the representation under (20a) above. Were it correct, we would observe obstruent devoicing in all the forms under (19), which is, however, not the case there. Finally, the solution proposed by S c h e e r (2003) explains why syllabic consonants arise only after a schwa and why they are so common word-finally. As for the former, it is a widely accepted fact that the schwa is the next but last step on the lenition trajectory from a full vowel to zero. It follows that a full vowel, unlike a schwa, is not weak enough to be displaced by the sonorant. The reason why they appear so readily at the right margin is the fact that this is a weak position. Concluding, S c h e e r (2003) predicts three different reactions of sonorants to the positional weakness. Thus, in order to gain stability the sonorant may spread to a neighbour to share the place element. Secondly, it may spread to the preceding nucleus displacing schwa

and taking over its duties. Finally, the sonorant is not able to spread to a neighbouring position and hence faces decomposition or lenition, losing manner or place elements.

4.3. English syllabic consonants

4.3.1. Introduction

In this section we focus our discussion on syllabic consonants in English. We introduced the basic facts and pinpointed some problems concerning the appearance of syllabic consonants in the language in section 2.1 above. In what follows we shall address the questions raised in that section and offer a unified solution to the phenomenon in question. It will be pointed out that syllabic consonants arise in response to a positional weakness as predicted by S c h e e r (2003). Since, however, syllabic consonants are possible not only before empty nuclei but also before realised vowels, it will be claimed that syllabic consonants appear in the intervocalic position, that is, after schwa and before a nucleus, be it empty or realised. As the discussion unfolds, it will become evident that lexically present nuclei are never properly governed and vowel syncope is always the result of the expansionist behaviour of sonorants.

4.3.2. In search of a unified context for syllabic consonants

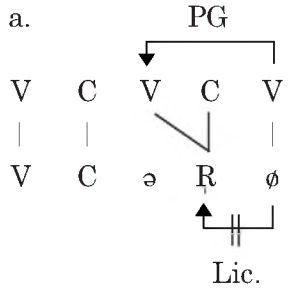
The preceding section has been devoted to German homorganic clusters of the obstruent plus nasal type, with some reference to English nasal plus obstruent clusters. Since partial geminates, especially those appearing in progressive nasal assimilation, are intimately connected with syllabic consonants, the latter phenomenon has also been discussed. Having introduced S c h e e r's (2003) proposal to explain partial geminates in German, we are in a position to address the questions raised at the end of section 2.1 above. Namely, what is the precise context and the trigger

of the phenomenon in question? In what follows, we shall apply S c h e e r' s (2003) solution to the English data and see whether it can capture the English facts.

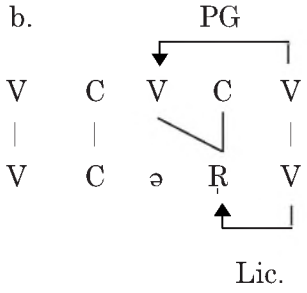
Let us start by pointing out some similarities between German and English. First of all both languages allow for the word-final 'TR' clusters, which are the result of the schwa syncope, e.g. *button*, *happen*, *chicken* ['bʌtn̩], ['hæpm̩], ['tʃɪkŋ̍], respectively. As can be seen in this context the nasal becomes syllabic. Moreover, progressive nasal assimilation, although far less productive, is also admitted in English. Another similarity between both languages is the governing ability of final empty nuclei. Thus, the grammaticality of forms like, for instance, *fact*, *apt*, *lamp*, etc., shows that the empty nucleus separating the last consonant cluster in those forms must be governed by the final empty nucleus. Moreover, as will be pointed out below and in the following sections, final empty nuclei are not able to govern lexically present nuclei. To anticipate the discussion below, it suffices to note that although vowel-zero alternations are possible in English and they do appear in the word-final position, they occur only in a highly restricted context, that is, before a sonorant. It follows that if we compare the situation in which the final nasal in the German word *Magen* 'stomach' ['mɑ:gən] > ['mɑ:gŋ̍] appears with that in the English word *chicken* ['tʃɪkən] > ['tʃɪkŋ̍], we arrive at the same conclusion. Namely, the nasal [n] appears in a weak position, that is, it is governed but unlicensed. In this position a nasal is predicted to react and search for a place to spread on to, which is the case in English as well as in German. In brief, the nasal displaces the preceding schwa and takes over its position. However, this is not the only position in which syllabic consonants appear. At the beginning of this chapter (in section 2.1) it was pointed out that there are hardly any restrictions on the distribution of syllabic consonants in English. They can be found not only word-finally but also word-internally and word-initially before consonants, vowels and intervocalically. The only requirement that must be satisfied is the presence of the preceding schwa. This, as was pointed out in the previous section, is a natural consequence of the fact that schwa is the weakest vowel and can be easily displaced by the spreading consonant.

To find an adequate explanation for the syllabic consonant we should, first of all, reject a solution which may seem promising at first sight, i.e. syllabic consonant as the result of the application of Proper Government. This solution has already been mentioned in the analysis of German syllabic consonants under (20a), which is slightly modified and repeated as (25a) for the reader's convenience.

(25) a.



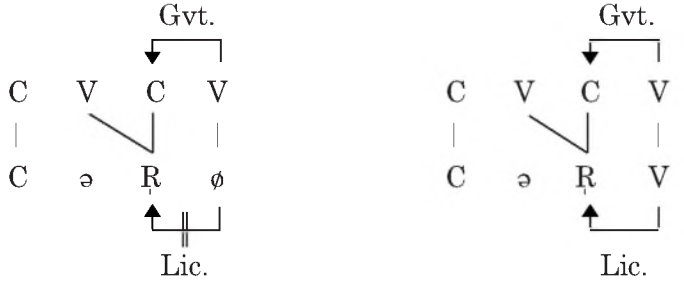
b.



In (25a) the position occupied by the schwa is properly governed by the following empty nucleus. The schwa disappears making room for the sonorant to spread. However, it has been mentioned above that final empty nuclei are not able to govern lexically present nuclei. Thus, (25a) is not a possible representation of syllabic consonants. The impossibility of final empty nuclei to govern lexically present vowels is additionally confirmed by the fact that the schwa disappears only before sonorants and never before obstruents, e.g. *cabinet* ['kæbɪnət], *definite* ['defɪnət], *barrack* ['bærək], *chocolate* ['tʃɒkᵊlət], *separate* ['sepərət], etc. Nobody would be persuaded of the validity of the claim that final empty nuclei can govern the preceding schwa only if the latter appears before a sonorant and never before an obstruent. The same line of reasoning applies to the word-internal and the word-initial position where a syllabic consonant is followed by an audible vowel (25b). Thus, if a full vowel is able to govern the schwa before a sonorant, it should in principle also govern the schwa before an obstruent. The latter situation, however, is again not admitted in the language. Another consequence of the fact that the sonorant in (25b) is followed by the full vowel is that the former is licensed. Full vowels, unlike empty ones, are sound licensors. Thus, it follows that the sonorant in (25b) appears in a strong position. It escapes government, while being licensed at the same time. If we want to claim that syllabic consonants arise in response to positional weakness, there is no reason why the sonorant should be active in (25b). From the discussion above it follows that both representations in (25) are incorrect. Vowels which are lexically present are never targets of Proper Government in English.

One observation that follows directly from the discussion above is that in English syllabic consonants appear before both the empty and full nuclei. Given the fact that they are always preceded by the schwa, we can conclude that syllabic consonants appear intervocalically. Furthermore, according to the Coda Mirror both contexts, i.e. before the empty nucleus and intervocalically, are weak, hence it follows that syllabic consonants arise in response to positional weakness (26).

(26) a. before an empty nucleus b. before a full vowel

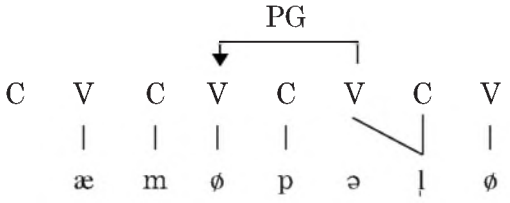


In (26a) we have the representation of the word-final syllabic consonant. The sonorant is followed by the empty nucleus which, as in German, is not allowed to govern the preceding schwa. In consequence, the government strikes the sonorant. Additionally, the sonorant lacks a licensor as English final empty nuclei are not allowed to license. This simply means that the sonorant appears in a weak position and in order not to fall prey to lenition it spreads to the left and docks on to the nuclear position. In (26b), on the other hand, the sonorant appears in the intervocalic position, before an audible vowel. The solution we propose here is that nuclei in English, be they empty or full, are not allowed to govern lexically present vowels. It means that the sonorant under (26b) is both governed and licensed. The latter context, like the former one, represents a weak position,[19] and hence the sonorant becomes syllabic. Furthermore, this solution predicts the position in which syllabic consonants arise more frequently. Thus, in the intervocalic position they are optional, depending on the tempo of speech; however, before a governed empty nucleus the sonorant gets syllabic more readily. This fact falls out naturally from the lenition theory, i.e. the Coda Mirror, where the intervocalic position is less 'destructive' than the position before a governed empty nucleus (see Ségéral and Scheer 1999).

It has already been mentioned in the body of this chapter that the sonorant spreading ability contributes to the existence of heavy consonant clusters of up to even five consonants in a row, e.g. *singleton* ['sɪŋgl̩tn̩]. This is possible since, as was mentioned in Chapter Two (section 3.5), the nucleus invaded by the following sonorant can dispense government just like a regular vowel. It should be borne in mind, however, that neither syllabic consonants nor regular vowels are able to govern lexically present nuclei. To put it differently, they can govern only nuclei which are lexically empty (27).

[19] Recall the discussion concerning the theory of lenition — The Coda Mirror in Chapter Two (section 4.3).

(27)

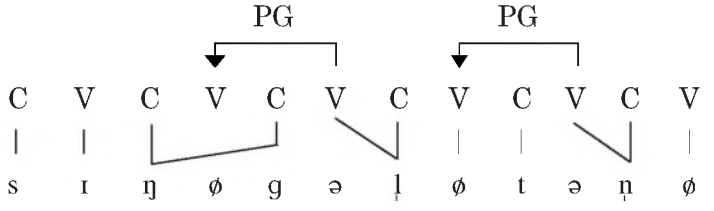


In (27) the lateral [l] appears before a final empty nucleus, hence it is governed but unlicensed and this, according to the Coda Mirror, is a weak position. The sonorant spreads to the left and displaces the schwa. The nuclear position occupied by the sonorant is not empty, which means that it can function as a governor and govern the preceding empty nuclear position. In consequence we arrive at the three-consonant cluster. Similar examples can be multiplied, e.g. *napkin* ['næpkn̩], *twinkle* ['twɪŋkl̩], *falcon* ['fɔːlkn̩], *husband* ['hʌzbn̩d] *faculty* ['fækl̩ti], etc. As mentioned above, what syllabic consonants, vowels and final empty nuclei have in common is the ability to govern lexically empty nuclei. All three structures, however, never govern vowels which are lexically present. This is clearly observable in the case of *faculty* ['fækl̩ti], *arrogant* ['ærəgn̩t], *cavalry* ['kævl̩ri]. Thus, in such forms a syllabic consonant is not able to govern the preceding nuclear position simply because it is not empty. Furthermore, given the forms containing two sonorants in a row before an empty nucleus, e.g. *shrapnel*, *grapnel*, we should wind up with two consecutive syllabic consonants. This is, however, not the case here as the first sonorant is preceded by an empty position which is properly governed by the second sonorant which is syllabic, e.g. ['ʃræpn̩l] and ['græpn̩l] respectively. In other words, the nuclear position between [p] and [n] is lexically empty, which means that it can be properly governed. This can be done by the nuclear position occupied by the syllabic consonant. In consequence, the nasal [n] appears in a strong position, i.e. it is licensed but ungoverned, and does not have to spread to the left to survive. Note, however, that the solution offered here predicts two syllabic consonants in a situation where both sonorants are preceded by the schwa, e.g. *general* ['dʒenr̩l̩], *marginal* ['mɑːdʒn̩l̩], *personal* ['pɜːsn̩l̩], *national* ['næʃn̩l̩], etc.[20] Two syllabic consonants in one word do appear but in the vast majority of cases they are separated by at least one obstruent. This is illustrated

[20] We have managed to confirm the existence of *personal* ['pɜːsn̩l̩] only (Jones *English Pronouncing Dictionary* 12th ed.). In Harris (1994:185) such forms are the representatives of a different phenomenon, that is, vowel syncope, hence they are represented as ['dʒenrəl], ['mɑːdʒnəl], ['pɜːsnəl], ['næʃnəl], respectively. We shall return to such forms in the immediately following sub-section.

on the example of *singleton* ['sɪŋg̩tn̩] in (28). Note that this form is interesting for at least two reasons. Firstly, it represents a complex five-consonant cluster. Secondly, there are three sonorants and all of them appear in a weak position, hence are predicted to respond to the positional weakness.

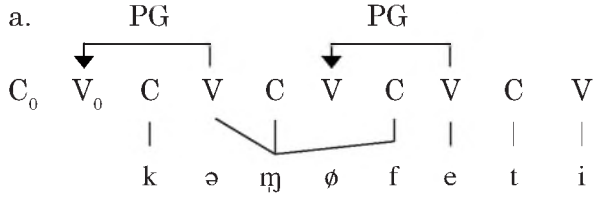
(28)

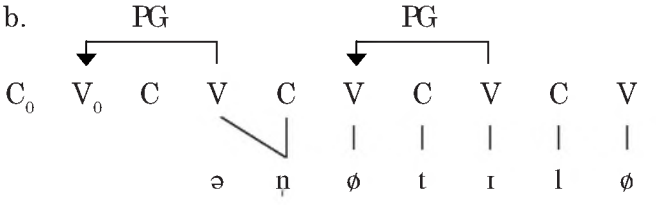


In (28) the final sonorant being in a weak position spreads to the preceding nucleus and docks on to it, replacing the original segment, that is, the schwa. The nuclear position occupied by the sonorant governs the preceding empty nucleus, the one between [løt]. This governed empty nucleus follows another sonorant [l] which, similarly to the final [n], appears in a weak position. The situation here is identical to the one found at the end of the word and so the syllabic consonant governs the preceding empty nucleus. The first sonorant of this word also appears in a weak position. However, being preceded by a regular vowel, it spreads backwards and docks on to the place element of the obstruent, that is, [g]. In consequence, both consonants give rise to a partial geminate, i.e. [ŋg].

Let us now focus our discussion on the last context in which syllabic consonants arise, that is word-initially. In what follows we provide some evidence demonstrating that syllabic consonants, in contradistinction to bogus clusters and vowel syncope (to be discussed in the following sections), can appear word-initially. Word-initially, just as in other contexts discussed above, one condition which allows the sonorant to spread must be satisfied, namely, the sonorant is preceded by the schwa. This simply means that the initial syllable is unstressed and hence contains the schwa, e.g. *until* [ŋ̍'tɪl], *balloon* [bl̩'uːn], *convulsed* [kn̩'vʌlst], *confetti* [kn̩'feti]/[kŋ̍'feti]. The representation of *confetti* and *until* is provided in (29).

(29) a.





Similarly to other contexts, word-initial syllabic consonants arise in response to the positional weakness. Interestingly, the sonorant in (29a) simultaneously spreads in two opposite directions. It replaces the schwa on the left and docks on to the place of articulation of the following obstruent. In (29b) the syllabic consonant is the first segment in a row. Recall from the previous chapter the discussion of the possible word-initial consonant clusters in English and Polish. It was pointed out that the difference in the phonotactic patterns between English and Polish boils down to the status of the word-initial empty CV unit. Thus, English in opposition to Polish enjoys an active CV unit, which is represented in (29) as CV_0. Since the initial CV unit is a phonological object and is empty it requires a governor. This requirement is satisfied by the syllabic consonant which, recall, is a sound governor and licensor. Additionally, it must be noted here that in Czech, in which the initial empty CV unit is claimed to be inactive, syllabic consonants never appear word-initially.

To sum up, the analysis of English syllabic consonants in this section confirms the proposal put forward in Scheer (2003). Thus in English, just as in German, the reaction of sonorants to positional weakness is the spreading to the preceding nuclear position if it is occupied by the weakest vowel, that is, schwa.[21] It has been pointed out that syllabic consonants appear in the intervocalic position, i.e. after schwa and before a nucleus either empty or realised. Sonorants react in the intervocalic position due to the fact that vowels in English are not able to govern nuclei with lexically present material. In other words, our stand is that in English Proper Government can hold only between a vowel and a lexically empty nuclear position. In consequence, the sonorant in the intervocalic position is both governed and licensed. According to the Coda Mirror both contexts, i.e. before an empty nucleus and intervocalically, represent weak positions. The general conclusion emerging from the analysis above is that syllabic consonants appear in weak positions. Another consequence of the discussion in this section is that the schwa-zero alternations or vowel syncope in English are never the result of Proper

[21] Note that the origin of Polish trapped sonorants can be explained in the same fashion, that is, as the reaction to the positional weakness. The only difference between syllabic consonants and trapped sonorants is the direction of spreading.

Government but of the sonorant evacuating from the endangered position. Vowel syncope will be discussed at greater length in the following subsection.

4.3.3. Vowel syncope

The discussion in section 3.1 above was confined to the presentation of the phenomenon known in the literature as vowel syncope. We have presented the basic facts and indicated the problematic areas concerning the alternation in question; however, no ready solutions have been offered. In what follows we shall make an attempt to explain the phenomenon of vowel syncope in English. It will be claimed that vowel syncope is related to both syllabic consonants and bogus clusters. Specifically, it will be pointed out that syllabic consonants and vowel syncope have the same trigger (see also Szigetvári 2002). Moreover, the result of vowel syncope is a consonant cluster which is identical to a bogus cluster.

As mentioned in section 3.1, vowel syncope affects only the weak vowel, i.e. the schwa, and appears in a rigidly defined context – between a consonant, usually an obstruent, and the following sonorant,[22] e.g. *company* ['kʌmpøni], *chocolate* ['tʃɒkølət], *separate* ['sepørət], *family* ['fæmøli], *silvery* ['sɪlvøri], etc., where 'ø' denotes the vowel syncope site. The immediate observation is that vowel syncope and syllabic consonants operate on the consonant cluster which can be represented schematically as 'CøR' (an obstruent followed by a sonorant).

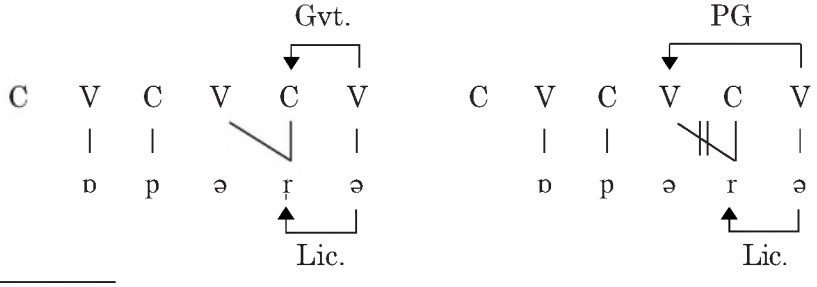
As mentioned above, in GP the phenomenon of vowel syncope is perceived as a regular case of the relation between two nuclei, that is, Proper Government. Thus, Harris (1994) suggests that the syncopated schwa is properly governed by the following nucleus. The representation of vowel syncope was illustrated in (10a) above. Recall that this solution suffers from two serious drawbacks. Firstly, it is impossible to explain why vowel syncope occurs only in the 'CR' context. Given the nature of PG the schwa between two obstruents should in principle be as easily syncopated as the one between an obstruent and a sonorant. However, the former context does not witness the alternation in question (see (9c) above). Secondly, a pertinent question to ask is why the vowel syncope

[22] Although in the vast majority of cases it is an obstruent followed by a sonorant, two sonorants are also possible. In the latter case the first sonorant is always a nasal, e.g. *finally* ['faɪnøli], *general* ['ʤenørəl], *family* ['fæmøli].

never appears between the consonants of the word-initial cluster. Even if PG were the real trigger of the vowel syncope, it would be difficult or downright impossible to ban the application of this mechanism in the word-initial position. The general conclusion emerging from the GP analysis is that the schwa between an obstruent and the following sonorant disappears for two independent reasons. The schwa either disappears and makes room for the sonorant to spread (syllabic consonant), or is properly governed and hence syncopated (vowel syncope).

The Proper Government solution offered in GP is not available in the present analysis simply because we have suggested that English vowels do not function as proper governors. In other words, they are not able to govern other nuclear positions unless the latter are lexically empty. In consequence the sonorant following a vowel syncope site appears in the same weak position as the syllabic consonant, that is, it is governed and licensed. This let us claim that an essential prerequisite of vowel syncope is the syllabic consonant.[23] To put it differently, the syncopated schwa is not properly governed; it is displaced by the following sonorant. This solution is further confirmed by Harris (1994) who points out that vowel syncope has an intermediate variant containing a syllabic consonant, e.g. *opera* ['ɒpɻə] > ['ɒprə], *especially* [ɪ'speʃl̩i] > [ɪ'speʃli], *personal* ['pɜːsn̩əl] > ['pɜːsnəl]. The conclusion drawn from the discussion above is that the first step to vowel syncope is sonorant syllabicity. Crucially, this analysis is possible on condition that the nuclear position occupied by the left branch of the sonorant can be properly governed. Our stand is that in English vowels are not allowed to govern nuclear positions occupied by lexically present vowels but they are able to govern nuclei which host the left branch of the sonorant. Thus, it follows that the sonorant displaces the schwa only to be governed by the following vowel, and this situation is illustrated in (30).

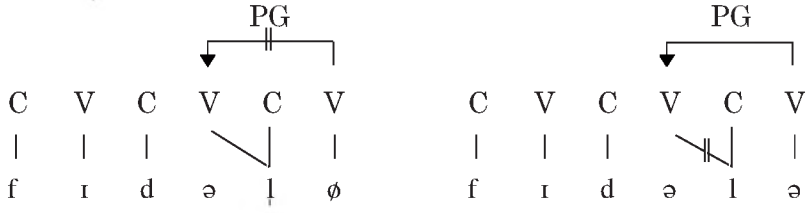
(30) a. first step — syllabic [r̩] b. second step — syncope



[23] I agree with Piotr Ruszkiewicz that vowel syncope and syllabic consonants are two independent configurations from which a particular speaker can choose. What is meant here by "an essential prerequisite" is that vowel syncope is possible only because the sonorants have the ability to spread and dock onto a nuclear position.

From the discussion above it follows that both phenomena, that is, vowel syncope and syllabic consonants, have a common trigger, that is, a resonant occurring in a weak position. This proposal results naturally from the observation that in English only sonorants can enjoy a syllabic status. Moreover, this solution resolves the mystery of the context in which vowel syncope operates. It is always a sonorant that follows a syncope site as only sonorants can spread and become syllabic. Interestingly enough, vowel syncope never appears before an empty nucleus; it can only appear in a situation where a sonorant is followed by a realised nucleus (see again (9a—b) above). Thus, in the word *fiddle* ['fɪdəl], for example, the final cluster is either separated by a schwa (in a very slow and careful pronunciation) or the sonorant [l] becomes syllabic ['fɪdl̩]. Note, however, that the schwa separating the cluster is never syncopated. To put it differently, it is impossible to arrive at the situation where the left branch of the syllabic consonant is governed by the empty nucleus, that is, *['fɪdl] (31a). On the other hand, the latter situation is possible if the cluster is followed by a vowel, e.g. *fiddler* [fɪdlə] (31b).

(31) a. [fɪdl̩] b. [fɪdlə]



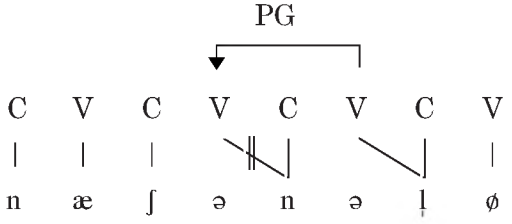
The conclusion at which we arrive, therefore, is that in English different nuclei have different governing abilities. This situation is not specific to English only; on the contrary, it is a cross-linguistic phenomenon (see C y r a n 2003). The scale is represented schematically in (32).

(32)

Governing abilities of nuclei	Lexically empty nucleus ø	Left branch of syllabic consonants R̩	Lexically present vowels V
Final empty nucleus can govern	yes	no	no
Nucleus occupied by a syllabic consonant can govern	yes	yes	no
Realised vowel can govern	yes	yes	no

The above table presents a possibility which has not been discussed yet, namely, a situation where a syllabic consonant governs the nucleus occupied by another syllabic consonant, e.g. *general* ['dʒenrl̩], *marginal* ['mɑːdʒnl̩], *personal* ['pɜːsnl̩], *national* ['næʃnl̩]. In principle both final sonorants, as occurring in a weak position, should become syllabic. However, since the nuclei which host the left branch of the syllabic nucleus behave like regular vowels, one more option becomes available, that is, syncope followed by a syllabic consonant (33).

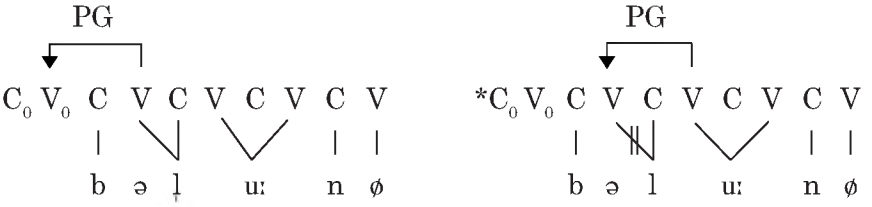
(33)



In (33) the final sonorant [l̩] appears before an empty nucleus, hence it spreads and docks on to the preceding nucleus. It is not allowed to govern vowels which are lexically present, so the government strikes the preceding nasal, which in this situation also becomes syllabic. Only in this situation is restructuring possible, i.e. the syllabic [l̩] can govern the preceding nucleus which hosts the left branch of the syllabic nasal. In consequence we arrive at the form with a syncopated vowel followed by a non-syllabic [n] and the syllabic lateral, that is ['næʃnl̩].

Finally, if it is true that the first step to syncope is the spreading of a sonorant, i.e. syllabic consonant, we should be able to find word-initial syllabic consonants, while vowel syncope should be banned from this position. In the previous section it was pointed out that syllabic consonants do arise word-initially, e.g. *until* [n̩'tɪl], *balloon* [bl̩'uːn], *convulsed* [kn̩'vʌlst], *confetti* [kn̩'feti]. This was made possible because syllabic consonants are able to govern the empty nucleus of the word-initial empty CV unit (see the representation in (29) above). Note, however, that the second step which leads to the vowel syncope is not possible in the word-initial position. In other words, the restructuring from a syllabic consonant to vowel syncope is not admitted word-initially. This follows naturally from the existence of the word-initial empty CV unit advocated in this work (see Chapter One). Note that if the nucleus hosting the left branch of a syllabic consonant were governed, the initial CV unit would be left out ungoverned. It follows that while *balloon* [bl̩'uːn] is possible in English (34a), [bluːn] is totally ruled out (34b).

(34) a. word-initial syllabic consonant b. word-initial vowel syncope



What is interesting is that the consequence of the vowel syncope in both (33) and (34b) is a consonant sequence which resembles a bogus cluster. Thus, in the following section we shall look more deeply at the phenomenon described above in section 3, that is, bogus clusters in English and German.

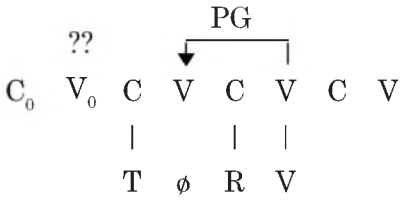
4.4. Bogus clusters revisited

This section explores a group of consonant clusters which resemble sequences hosting vowel syncope and which have been dubbed bogus (Harris 1994). Due to their similarity the former ones were called 'dynamic' (see sections 3 and 4.3.3 above), while the latter 'static' bogus clusters. The difference between them boils down to the fact that in 'dynamic' bogus clusters we observe schwa-zero alternation, which is absent from 'static' clusters. It will be claimed below that both types of clusters, i.e. 'dynamic' and 'static', have their origin in the sonorant spreading, i.e. syllabic consonant. Recall from section 3 that such clusters proved problematic for GP. They are not allowed to constitute a branching onset or a coda-onset sequence. The only solution available is to separate both consonants by an empty nucleus which is properly governed (Harris 1994). This solution, however, suffers from two fundamental flaws, namely, it has nothing to say about the ban on such clusters in the word-initial position and the presence of a sonorant in bogus clusters is purely accidental. In short, while word-internally there are a number of [tl] clusters, e.g. *a*[tl]*as*, *bu*[tl]*er*, *mo*[tl]*ey*, this sequence cannot start an English word. If they are separated by the empty governed nucleus word-internally, in principle the same should be possible word-initially. The lack of empty governed nuclei separating the leftmost consonant clusters in English has been mentioned by many researchers, e.g. Harris (1994), Brockhaus (1995), Cyran (2003). In their studies they claim that

English is special as it does not allow for empty nuclei at the left-edge of the word and in this way it differs from languages like, for instance, Polish.

One of the main aims of this work is to prove that the beginning of the word plays a crucial role in syllabification. Thus, what was traditionally a boundary marker is represented here as the empty CV unit. As was pointed out in Chapter One, this unit is a fully phonological object and since its nuclear position is empty it requires a governor just like other empty nuclei under this theory. Note that this fact alone can explain the absence of bogus clusters from the word-initial position. If the empty nucleus separating the [tl] cluster is properly governed, it means that such clusters are not possible at the left margin, because the empty nucleus of the initial CV unit would remain ungoverned. This is represented schematically in (35), where 'TR' stands for a bogus cluster and 'V' (at the melodic level) for a realised vowel.

(35)



Although this solution is able to explain the absence of the word-initial bogus clusters, it has nothing to say about the nature of consonants constituting such sequences. In other words, the theory should be able to explain the obligatory presence of sonorants in bogus clusters. The latter fact immediately brings to mind the similarity to vowel syncope and syllabic consonants in that all three phenomena operate on a similar type of clusters, that is, a consonant followed by a sonorant. On the basis of the analysis in this chapter we can suggest a unified solution to all three phenomena. Both 'dynamic' and 'static' bogus clusters arise due to the expansionist behaviour of sonorants. Similarly to the syncope case, the sonorant of the 'static' bogus cluster appears in a weak intervocalic position. In order not to suffer from lenition, it docks onto the preceding nucleus. As argued in the previous section, nuclei hosting the left branch of syllabic consonants can be properly governed, which is also the case here. In consequence we arrive at the bogus cluster. Synchronically in 'static' bogus clusters, unlike in 'dynamic' ones, there is no trace of the syncopated schwa or the syllabicity of the sonorant. However, as pointed out in section 3, such clusters are in certain dialects broken up by the schwa, e.g. *athlete* [æθliːt] > [æθəliːt].

The solution offered above allows us to capture two peculiarities of bogus clusters, namely, the rigid order of consonants, i.e. an obstruent followed by a sonorant, and secondly, their absence from the word-initial position. As for the former, the reason why bogus clusters are always of the obstruent plus sonorant type is explained by the fact that obstruents cannot act as syllabic consonants (at least in Germanic and Slavic languages); consequently, two-obstruent bogus clusters are not admitted in the language, e.g. *[rɒkøtɪŋ]. The reason why bogus clusters are absent from the word-initial position is the active status of the initial empty CV unit. Simplifying, from the three phenomena described in this chapter, only syllabic consonants can appear at the left margin. Further restructuring leading to 'dynamic' and 'static' bogus clusters is not possible in this context as it would leave out the initial site without a governor. Moreover, this solution can also explain the absence of bogus clusters from the word-final position. Similarly to the left margin of the word, word-finally only syllabic consonants are admitted. This results naturally from the fact that neither lexically present vowels nor nuclei hosting the left branch of the syllabic consonant can be governed by the word-final empty nucleus.

Finally, note that although some exceptional cases of the word-initial bogus clusters do appear in English, they are only apparently problematic as they are usually some borrowings like *knish* [knɪʃ], *tmesis* [tmɪsɪs], or *knesset* [knɛsət]. For most speakers, such clusters are realised with a schwa separating the consonants in question, e.g. [kənɪʃ] and [kənɛsət]. Other examples of the apparent word-initial bogus clusters are reduced to a sonorant, e.g. *pneumatic* [njuˈmætɪk], *gnostic* ['nɒstɪk], *knowledge* ['nɒlɪdʒ], etc. Such clusters cannot be separated by a properly governed empty nucleus because the government has to reach the initial empty CV unit. However, when such bogus clusters are preceded by a realised vowel, which can satisfy the governing requirements of the initial site, the whole cluster is predicted to appear on the surface. This is borne out by the facts, e.g. *apnea* [æpˈniːə], *agnostic* [ægˈnɒstɪk], *acknowledge* [əkˈnɒlɪdʒ].

Having suggested a unified solution to apparently separate phenomena in English, we are in a position to address the problem of bogus clusters in German introduced in section 3.2. Consider again the set of words given in (11) above, which is abridged and repeated below in (36) for the reader's convenience.

(36)

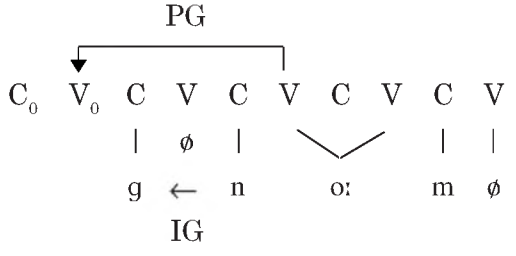
	a. Hochlautung	b. NSG	
Rodler	[roːdlɐ]	[roːtlɐ]	'tobogganist'
Adler	[ʔɑːdlɐ]	[ʔɑːtlɐ]	'eagle'
Ordnung	[ʔɔɐ̯dnʊŋ]	[ʔɔɐ̯tnʊŋ]	'order'

biblisch	[biːblɪʃ]	[biːplɪʃ]	'biblical'
zwieblig	['tsviːblɪç]	['tsviːplɪç]	'oniony'
ebnen	['ʔeːbnən]	['ʔeːpnən]	'level'
Bügler	[byːglɐ]	[byːklɐ]	'sb. who irons'
Kugler	['kuːglɐ]	['kuːklɐ]	surname
regnet	[reːgnət]	[reːknət]	'it rains'

In Brockhaus's (1995) analysis such forms are said to possess bogus clusters which are separated by a governed empty nucleus. She proves her point by indicating that the clusters in question are separated by a schwa in underived or related forms, e.g. *Rodel* [roːdəl] 'toboggan', *Ordentlich* ['ʔɔɐ̯dəntlɪç] 'tidy', *Bibel* ['biːbəl] 'Bible', *Zwiebel* ['tsviːbəl] 'onion', *eben* ['ʔeːbən] 'level, adj.', *bügeln* [byːgəln] 'iron', *Kugel* ['kuːgəl] 'ball', *Regen* [reːgən] 'rain'. What we are facing here is a regular schwa-zero alternation which brings to mind the similarity to English vowel syncope. Moreover, as reported by Brockhaus (1995), the schwa in the latter forms can be optionally replaced with a syllabic consonant, e.g. [roːdl̩], ['tsviːbl̩], ['kuːgl̩], [reːgn̩], etc. As pointed out in section 4.2 above in German, as in English, word-final empty nuclei are not able to govern lexically present vowels. It means that a final sonorant in *Kugel* ['kuːgəl], for example, appears in the worst scenario; it is unlicensed but at the same time governed. In consequence, in order to survive, it spreads and replaces the preceding schwa winding up as a syllabic consonant. However, in a situation when the sonorant happens to be followed by a realised nucleus, for example of a vowel-initial suffix, a new situation arises: the nuclear position occupied by the left branch of the syllabic consonant is governed by the following suffix vowel and we arrive at the bogus cluster, e.g. [roːdlɐ] and the forms in (36). Thus, the solution proposed for both English and German bogus clusters captures two facts, namely, the rigid order of consonants forming a bogus cluster, that is 'CR' and their absence from the word-initial position. Moreover, note that what is a true cluster in certain forms, e.g. [gl]*auben* 'believe', [gl]*ocke* 'bell', is a result of the formation of syllabic consonants in others, e.g. *Bü*[gl]*er*, *Ku*[gl]*er*. The status of the latter cluster is betrayed by the fact that the velar plosive [g] in this context is realised by some speakers as [ç]. This results naturally from the fact that the former appears in the domain of Infrasegmental Government (see Chapter One), while the latter is followed by a governed empty nucleus, which is a lenition site according to the Coda Mirror. We should also emphasise the fact that there are instances where the ban on the initial bogus clusters seems to be violated. The violation of the ban boils down to the appearance of [kn] and [gn] clusters word-initially. Recall the examples represented under (14) above. According to

Brockhaus (1995) such clusters are separated by the empty governed nucleus both in the word-medial and word-final position. She justifies her choice by indicating that from the diachronic point of view such word-initial clusters are separated by a nuclear position, e.g. *Gneis* > MHG *g(a)neist*, *Gnade* > MHG *g(e)nade* > OHG *gināda* (see section 3.2.2 above). She immediately admits, however, that this solution is problematic as it cannot explain the lack of two-obstruent clusters in the word-initial position and the fact that in Northern Standard German the initial [g] is never devoiced, which is the regular case in the word-internal position (see (36b) above). In the analysis developed in this book Brockhaus's (1995) solution is not available. Note that if it is true that in German, just as in English, the initial empty CV unit is active, this means that the initial [kn] cannot be separated by the empty properly governed nucleus. Were it the case, the initial CV site would remain ungoverned. Our stand, therefore, is that the word-initial [kn] and [gn] clusters have their origin in the vowel syncope as confirmed by the diachronic facts. However, due to the presence of the initial CV unit which requires a governor such clusters went one step further and contracted a governing relation, that is, Infrasegmental Government. In other words, word-initial [kn] and [gn] clusters have the same status as other regular clusters, e.g. [gl], [pl], etc., they hold a governing relation (37).

(37)



The Infrasegmental Government domain is the furthest point a sonorant can reach. Note that this solution explains the fact why it must be a 'TR' cluster (only a sonorant can contract a governing relation with the preceding obstruent), and why the initial obstruent does not undergo devoicing in NSG. The situation where the same cluster has two different representations is not unusual, as pointed out in Chapter Two. Specifically, in Polish a 'TR' cluster can either contract IG or be separated by the empty properly governed nucleus. Additionally, this solution can be confirmed by the behaviour of the [dr] cluster in German. Recall that the obstruent in this cluster never undergoes devoicing regardless of the dialect and the position it holds in the word. Thus, the form *Rudrer* [ru:drɐ], for example, is pronounced identically in both dialects, i.e. Hochlautung

and Northern Standard German. It follows that [dr] and [tr] are the best candidates to undergo the change and contract the IG relation. A similar situation can be found in English. To simplify, the alveolar plosive [t] is said to be the most easily affected consonant in English (Paradis and Prunet 1991). As pointed out by Harris (1994:222) in certain contexts the plosive in question can be weakened to a glottal stop in forms such as, for example, *pottery* [pɒʔri], *battery* [bæʔri] (in the expression *assault and battery*). However, many speakers differentiate the latter word and *battery* [bætri] (car) in which the lenition does not affect the plosive. Note that both forms involve the vowel-syncope site. In other words, the cluster [tr] is separated by a syncope-prone schwa. Harris (1994) concludes that for speakers who differentiate [bæʔri] and [bætri] a different structure must be assumed. The cluster in the former example is separated by the governed empty nucleus,[24] while the latter must be represented as a true branching onset. In other words, the form [bætri] has been reanalysed as having an internal branching onset. Looking at the situation from the perspective of the findings in this chapter, we can say that the cluster in [bæʔri] is the result of Proper Government which strikes the nucleus hosting the left branch of the syllabic consonant. On the other hand, the cluster in [bætri] has experienced a restructuring into the Infrasegmental Governing domain, similarly to the German case discussed above.

To sum up, from the discussion in this section it follows that bogus clusters and vowel syncope in English are closely related phenomena. Both structures have the same distribution, namely, they are banned from the word-initial and word-final position. They operate on the identical consonant clusters, that is, an obstruent followed by a sonorant. Finally, they have the same origin, that is, a syllabic consonant. The solution proposed in this section resolves two traditional problems, that is, the obligatory presence of sonorants in bogus clusters and the ban imposed on such sequences to appear in the word-initial position. The latter can be explained only if we assume that the initial empty CV unit in English is active. The findings are then confirmed by similar examples from German. Additionally, we have looked at the rare cases of bogus clusters which appear word-initially in German, only to find out that the extreme point a syllabic sonorant can reach is a governing relation with the preceding obstruent, i.e. Infrasegmental Government.

[24] In his analysis of [t] lenition in different English accents, Harris (1994) indicates that a context in which the stop undergoes glottalisation is always before an empty nucleus.

5. Conclusions

In this chapter we tried to integrate three apparently divergent phenomena in which the leading role is played by a sonorant. Thus, we looked at the formation of syllabic consonants and the instances of 'dynamic' (syncope-related) and 'static' bogus clusters. One of the main aims was to explain the peculiar phonotactic behaviour and offer a unified solution to the phenomena in question.

We began by demonstrating the relevant facts concerning syllabic consonants in English and German. A brief discussion of the earlier accounts and the most serious shortcomings of the previous theories was presented. Specifically, it has been shown that it is extremely difficult to capture the exact context of syllabic consonants as they appear in all three positions of the word, both in the intervocalic and interconsonantal position. Similarly, it is not clear what triggers the formation of syllabic consonants. The same questions arise from the analysis of the German facts. Additionally, since syllabic consonants, vowel syncope and bogus clusters have one common characteristic, i.e. the order of consonants they operate on, we have looked more deeply at the latter two structures. It has been pointed out that vowel syncope and bogus clusters are one and the same phenomenon, with the difference that the former, unlike the latter, involves a syncope-prone schwa. Consequently, they have been dubbed 'dynamic' and 'static' bogus clusters respectively. Just as in the case of syllabic consonants, we have presented the relevant facts and discussed the most serious flaws of the solution offered by Government Phonology. In the second part of the chapter the divergent facts have been brought together with the conclusion that syllabic consonants stem from the expansionist behaviour of sonorants as a reaction to their positional weakness. This solution has then been extended to cover vowel syncope and bogus clusters both in English and German. Crucially, it has been demonstrated that the explanation of the ban on word-initial bogus clusters (both 'dynamic' and 'static') relies on the idea advocated in the previous chapter. Namely, it has been indicated that the active status of the initial empty CV unit in both languages successfully predicts the absence of bogus clusters, to the exclusion of syllabic consonants, from the left margin of the word. Additionally, we have analysed the only counter-argument to the ban on word-initial bogus clusters, that is, German word-initial [kn]/[gn] clusters. It has been suggested that such clusters, similarly to the word-internal bogus clusters, stem from the loss of the vowel separating the consonants. However, the initial clusters, unlike the medial ones, have gone one step further and reached a final stage which is the Infrasegmental Govern-

ment relation. This situation is not infrequent, as confirmed by the English examples. In the course of the discussion in this chapter it was pointed out that in English the application of Proper Government is severely restricted. The only nuclei which can be properly governed are those which are lexically empty or hold the left branch of the syllabic consonant. This fact, along with the idea of the active initial CV site, is responsible for the phonotactic structure of English.

Finally, let us note that the solutions presented in this chapter can be applied in the future to analyse and explain a great number of processes affecting sonorants not only in English but in various unrelated languages. Thus, apart from the phenomena described in this and the previous chapters and the processes analysed in Scheer (2003), (2004), there are many processes falling under the scope of sonorant lenition, for example, the velarisation and disappearance of the English lateral /l/ in the preconsonantal and word-final position, the loss of /r/ in certain non-rhotic accents of English, the vocalisation of /r/ in German, English partial geminates and their absence from the word-initial position, and the existence of pre-nasalised stops in various Bantu languages.

It is hoped that the analysis presented in this chapter proves helpful in the future studies concerning the phenomena mentioned above.

Conclusion

The primary objective of this work was to demonstrate that the initial word-boundary marker '#' is in reality an empty CV unit. In other words, the traditional word boundary, which must be recognised as merely a morphological marker, has been successfully replaced with a genuine phonological object. Since the beginning of the word is the empty CV unit, it is supposed to satisfy certain phonological requirements. More crucially, as a fully phonological object, it plays a pivotal role in syllabification and various phonological processes. This '#' = CV alignment, along with the Government Phonology idea to postulate word-final empty nuclei, contributes to the explanation of a great number of peculiarities occurring at the word-margins.

The point of departure for the analysis was the assumption that the initial empty CV unit can be either phonologically active or inert. The status of the initial site is responsible for the existence of two general groups of languages. Specifically, languages with an active CV unit possess word-initially relatively simple consonant clusters of the rising-sonority type only — 'TR' languages. On the other hand, languages in which the initial site is inactive allow for more complex consonant sequences of both rising- and falling-sonority type — 'RT' languages. This work was devoted to the study of the left-margin phenomena in two languages which are representatives of the two groups, English and Polish. Additionally, it has been shown that the left-margin peculiarities in both languages can receive a more satisfactory explanation only in a recent development of the Government Phonology framework, that is, the Strict CV model.

The reason why Polish allows for word-initial complex consonantal sequences is that in this language the initial CV unit is inactive, and hence does not need to be governed. In this situation the two mecha-

nisms available in the Strict CV model, that is, Proper Government and Infrasegmental Government have a chance to occur, giving rise to such complex clusters. Apart from the static evidence concerning the distributional pattern of the word-initial clusters, the inactive character of the initial CV unit in the language has been independently confirmed by the analysis of the development of soft labials in the Kurp dialect of Polish. Additionally, the analysis of Polish data has contributed to a more complete understanding of other phenomena, like Polish trapped consonants and the phonological status of soft labials.

The active status of the initial empty CV unit in English has been confirmed by the analysis of three apparently unrelated phenomena, that is, syllabic consonants, vowel syncope and bogus clusters. The analysis within the Strict CV framework not only explains why the latter two structures, unlike the first one, do not appear word-initially, but also manages to resolve the mystery of the obligatory presence of sonorants in such structures. It has been demonstrated that all three phenomena have the same origin and stem from the expansionist behaviour of sonorants as a reaction to their positional weakness. The findings have been independently confirmed by the analysis of similar structures in German. In the course of discussion it has become evident that in English the only governable nuclei are those which are lexically empty and those which hold the left branch of the syllabic consonant. The active status of the initial CV unit together with the restricted application of Proper Government results in the phonotactic structure of English.

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Author index

Artur Kijak

Grupy spółgłoskowe w języku polskim i angielskim: analiza kontrastywna w ujęciu modelu ścisłego CV

Streszczenie

Podstawowym zadaniem niniejszej pracy jest wyjaśnienie przyczyny zróżnicowania grup spółgłoskowych w języku angielskim i polskim. Różnica ta sprowadza się do liczby segmentów i kolejności ich występowania, jest ona szczególnie widoczna w nagłosowych zbitkach spółgłoskowych występujących w początkowej pozycji wyrazu. Ogólnie rzecz ujmując, język polski, w przeciwieństwie do języka angielskiego, ma złożone grupy spółgłoskowe (nawet do czterech segmentów), w których kolejność spółgłosek jest stosunkowo dowolna — spółgłoska właściwa może poprzedzać spółgłoskę oraz następować po spółgłosce sonornej. Dodatkowo w pracy tej staramy się wyjaśnić ścisłą zależność między liczbą segmentów pojawiających się w nagłosowych grupach spółgłoskowych i ich stosunkowo dowolną kolejnością. Inaczej mówiąc, próbujemy odpowiedzieć na pytanie, dlaczego w językach o względnie prostych grupach spółgłoskowych, jak na przykład w języku angielskim, segmenty pojawiają się w ściśle określonej kolejności — spółgłoska właściwa zawsze poprzedza spółgłoskę sonorną (pomijając zbitki typu s + spółgłoska), a w językach o złożonych grupach spółgłoskowych kolejność występowania segmentów jest stosunkowo dowolna.

Kolejnym celem, jaki stawiamy sobie w tej pracy, jest udowodnienie, że granica początku wyrazu, tradycyjnie oznaczana symbolem kratki „#", jest w rzeczywistości obiektem o ściśle fonologicznym charakterze — pustą jednostką CV, tj. pustą pozycją spółgłoskową, po której następuje pusta pozycja samogłoskowa. Z uwagi na fakt, że obiekt ten, będąc pustą jednostką CV, musi podlegać tym samym prawom co inne puste pozycje, jego obecność ma bezpośredni wpływ na procesy fonologiczne, a także na sylabifikację grup spółgłoskowych. Ściślej mówiąc, w pracy tej staramy się wykazać, iż zastąpienie granicy początku wyrazu pustą jednostką CV (L o w e n s t a m m 1999) jest nie tyle możliwe, ile bezwzględnie konieczne, szczególnie w przypadku wyjaśnienia różnic w budowie nagłosowych grup spółgłoskowych w różnych językach.

Do zrealizowania wspomnianych celów posłużyła nam szczegółowa analiza procesów fonologicznych, które swoim zasięgiem obejmują spółgłoski sonorne. W języku polskim są to: zbitki spółgłoskowe, w których pojawiają się tzw. uwięzione sonoranty (*trapped sonorants*), jak również zjawisko rozbicia wargowych spółgłosek miękkich na dwa segmenty, tj. na spółgłoskę wargową i półsamogłoskę *j*, i ich dalszy rozwój w dialekcie kurpiowskim. W języku angielskim zajęliśmy się natomiast analizą spółgłosek zgłoskotwórczych. Dodatkowo proponujemy wyjaśnienie przyczyny powstania „pozornych" zbitek spółgłoskowych (*bogus clusters*) i wyjaśnienie mechanizmu synkopy samogłoskowej w języku angielskim. W pracy tej udowadniamy, że zjawiska pozornie niemające ze sobą nic wspólnego, takie jak spółgłoski zgłoskotwórcze, „pozorne" zbitki spółgłoskowe i synkopa, mają w rzeczywistości jedno źródło i można je opisać za pomocą tego samego mechanizmu.

Wnioski płynące z analizy poszczególnych procesów fonologicznych oraz z dystrybucji segmentów w nagłosowych grupach spółgłoskowych potwierdzają konieczność wprowadzenia pustej jednostki CV do fonologicznego opisu języków. Dodatkowo, analiza poszczególnych przykładów z języka polskiego i angielskiego dowodzi, iż spółgłoski sonorne odgrywają aktywną, a nie, jak zwykło się przyjmować we wcześniejszych analizach, bierną rolę w procesach fonologicznych. Dotyczy to również takich procesów, w których spółgłoskom sonornym przypisywano do tej pory zdecydowanie bierny charakter, np.

formowanie półgeminantów typu nosowa + wybuchowa i wybuchowa + nosowa w języku angielskim i niemieckim czy synkopa samogłoskowa w języku angielskim. W niniejszej pracy wykazaliśmy, że czynnikiem warunkującym fonologiczną aktywność sonorantów jest pozycja, jaką spółgłoski te zajmują w strukturze sylaby. W sytuacji, gdy spółgłoska sonorna znajdzie się w pozycji słabej (przed pustą pozycją samogłoskową), możemy obserwować jej ekspansję w kierunku pozycji sąsiednich. To rozwiązanie tłumaczy obecność uwięzionych spółgłosek sonornych w języku polskim, powstawanie spółgłosek zgłoskotwórczych w języku angielskim, niemieckim czy czeskim, a także występowanie takich zjawisk, jak „pozorne" zbitki spółgłoskowe i synkopa samogłoskowa w języku angielskim i niemieckim.

Podsumowując, w pracy tej wyjaśniamy przyczynę zróżnicowania nagłosowych grup spółgłoskowych między językiem angielskim a językiem polskim. Wskazujemy na konieczność zastąpienia tradycyjnego pojęcia początku wyrazu pustą jednostką CV i wprowadzenia jej do teorii fonologii. Ponadto udowadniamy, że część zjawisk fonologicznych, często pozornie ze sobą niezwiązanych, można wyjaśnić, podając ich wspólną przyczynę, którą jest reakcja sonorantów na zajmowane miejsce w strukturze sylaby. Rozwiązanie to otwiera drogę dalszym badaniom, pozwalając spojrzeć w nowatorski sposób na grupy spółgłoskowe w innych językach, może przyczynić się również do zrozumienia procesów, w których obserwuje się obecność spółgłosek sonornych.

Artur Kijak

Die Konsonantengruppen im Polnischen und Englischen: eine kontrastive Analyse nach dem strikten CV-Modell

Zusammenfassung

Das Hauptziel der vorliegenden Arbeit ist, die Unterschiede zwischen den Konsonantengruppen in Englischen und Polnischen zu klären. Der Unterschied ist auf die Elementzahl und deren Erscheinungsfolge zurückzuführen und ist besonders in den am Wortanfang erscheinenden Anlautkonsonantenhäufungen zu erkennen. Im Großen und Ganzen besitzt die polnische Sprache im Unterschied zum Englischen zusammengesetzte (sogar aus vier Elementen bestehende) Konsonantengruppen, in denen Konsonanten in ziemlich beliebig gewählter Reihenfolge auftreten — der eigentliche Konsonant kann sowohl vor, wie auch nach einem sonoren Konsonanten erscheinen. Es wird hier auch versucht, eine enge Wechselbeziehung zwischen der Anzahl von Elementen in Anlautkonsonantengruppen und deren beliebigen Reihenfolge aufzuzeigen, oder anders gesagt die Frage zu beantworten, warum in den Sprachen mit relativ einfachen Konsonantengruppen, zu denen Englisch gehört, bestimmte Elemente immer in folgender Aufeinanderfolge zum Vorschein kommen — der richtige Konsonant geht dem sonoren Konsonanten immer voran (außer den Anhäufungen *s + Konsonant*), während in den Sprachen mit zusammengesetzten Konsonantengruppen die einzelnen Elemente relativ beliebig aufeinander folgen.

In unserer Arbeit möchten wir auch nachweisen, dass die mit # Symbol bezeichnete Wortanfangsgrenze in der Tat ein Objekt von einem deutlich phonologischen Charakter ist — eine leere CV-Einheit, d.i. eine leere Konsonantenstellung, nach der eine leere Vokalstellung folgt. Da für das Objekt als eine leere CV-Einheit dieselben Rechte wie

für alle anderen leeren Einheiten gelten müssen, kann es direkt phonologische Prozesse also auch die Syllabisierung der Konsonantengruppen beeinflussen. Wir zeigen, dass es nicht nur möglich, sondern sogar unbedingt ist, die Wortanfangsgrenze durch eine leere CV-Einheit (L o w e n s t a m m 1999) zu ersetzen, besonders dann, wenn man die in verschiedenen Sprachen bestehenden Unterschiede in der Struktur der Anlautkonsonantengruppen erläutern will.

Zur Verwirklichung der oben genannten Ziele bedienten wir uns der ausführlichen Analyse der phonologischen Prozesse, die sonore Konsonanten umfassen. Im Polnischen sind das: Konsonantenanhäufungen mit den sog. gefesselten Sonoranten (*trapped sonorants*), als auch die Zersplitterung der labialen weichen Konsonanten in zwei Elemente, einen Lippenkonsonanten und einen Halbkonsonanten *j,* und deren weitere Entwicklung im kurpischen Dialekt. Im Englischen dagegen befassten wir uns mit der Analyse von silbenbildenden Konsonanten. Wir beabsichtigten auch zu erklären, warum es zur Entstehung der „scheinbaren" Konsonantenanhäufungen (*bogus clusters*) kommt und worauf eine Vokalsynkope in der englischen Sprache beruht. In vorliegender Arbeit haben wir nachgewiesen, dass die scheinbar miteinander nicht verbundenen Erscheinungen, wie z.B. silbenbildende Konsonanten, „scheinbare" Konsonantenanhäufungen und Synkopen in Wirklichkeit denselben Ursprung haben und sie lassen sich mit Hilfe desselben Mechanismus beschreiben.

Die aus der Untersuchung von den einzelnen phonologischen Prozessen und der Distribution von Elementen in Anlautkonsonantengruppen gezogenen Schlüsse bestätigen, dass es nötig ist, eine leere CV-Einheit in phonologische Sprachbeschreibung einzuführen. Aus der Analyse geht auch hervor, sonore Konsonanten beteiligen sich aktiv an phonologischen Prozessen, obwohl es in früheren Untersuchungen von ihren passiven Rolle die Rede war. Das betrifft auch solche Prozesse, in denen den sonoren Konsonanten eine eindeutig passive Rolle beigemessen wurde, z.B. der Entstehung von Halbdoppelkonsonanten vom Typ: Nasenlaut + Explosivlaut und Explosivlaut + Nasenlaut im Englischen und Deutschen oder eine Vokalsynkope im Englischen. In unserer Arbeit wurde aufgezeigt, dass die phonologische Aktivität der Sonoranten von deren Stellung in der Silbenstruktur abhängig ist. Hat eine Sonorante eine schwache Stellung (steht sie vor einer leeren Vokalstellung), strebt sie nach Eroberung der benachbarten Positionen. Es wird damit aufgeklärt, warum es im Polnischen gefesselte Sonoranten gibt, im Englischen, Deutschen oder Tschechischen silbenbildende Konsonanten entstehen und im Englischen und Deutschen solche Erscheinungen, wie „scheinbare" Konsonantenanhäufungen und Vokalsynkopen auftreten.

Unsere Untersuchungen lassen die Konsonantengruppen in anderen Sprachen neuartig betrachten, was weitere Forschungen in die Wege leiten sollte.

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Małgorzata Pleśniar

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