Book Review

Tobias Scheer (2004) *A Lateral Theory of Phonology. What is CVCV, and why should it be?*, Mouton de Gruyter, Berlin and New York.

Eugeniusz Cyran

1. Introduction[1]

On first encounter, the *Lateral Theory of Phonology* (LTP) presents itself as a daunting task for the reader and even more so for the reviewer. This is due to the size (854 pages from cover to cover), and the fact that on initial inspection this book looks very different from the majority of current phonological publications (no tableaux). However, the originality of the proposal itself, the incredible wealth of empirical material from an impressive number of unrelated languages, and the sheer amount of theoretically pertinent issues discussed in this book, should motivate the potential reader of all theoretical persuasions to make a worthwhile effort. Despite the initial forbidding impressions, the reading is pleasurable, informative and intellectually stimulating. Scheer offers a dramatically different outlook on what phonology is, how it works, and how it should be done. One possible difficulty might lie in the continual and frustrating promise of volume two (*A Lateral Theory of Phonology vol. 2: On Locality, Morphology and Phonology in Phonology*), in which a number of crucial theoretical points, which we may have already grown to accept, are to be more or less substantially revised, while some crucial answers are simply delayed till then. This, however, concerns only a fraction of Scheer's theory, including such issues as the status of clusters of rising sonority (TRs), or a complete system of relationships between different types of nuclei and their varying role as licensers and governors.

Due to the size of the work, some crude decisions had to be made for the purpose of this review. First of all, the focus is mainly theoretical. My aim is to show the internal logic of the theory and only the most important points of it. Regrettably, this is done at the cost of omitting the empirical coverage, which in turn is the main focus of Scheer's book. For example, this review does not cover the discussion of the yer context and the arguments given to demonstrate that it is not a specific Slavic phenomenon. No mention will be made here of the intriguing discussion of syllabic and trapped consonants, or the novel take on the plight of sonorants in coda position. All these and more are available to the reader in the book itself.

To best realize the scale of the project it is enough to note that we are provided first with an overview of the table of contents. This makes perfect sense, as the actual detailed table takes up 29 pages. It must be said that the author goes out of his way to make the task of reading his work as user friendly as possible, by, for example, writing a section called "How to use this book" in which a suggestion is made that the book should be used more like a dictionary than a textbook. Scheer provides useful cross-referencing and indices as well as an informed reference to a vast literature, including materials that he makes available for downloads from his web site. The book is thematically organized and the paragraphs are numbered to facilitate frequent cross-referencing for those who should indeed succumb to the author's suggestion. However, the book is also perfectly readable in the traditional way. It evolves rather logically, starting with the basic tenets of LTP and its relation to its direct predecessor, that is, Government Phonology (GP), to which a short guide is provided in

[1] I would like to thank Edmund Gussmann, Harry van der Hulst, and Nancy Ritter for their detailed comments on various versions of this review. Thanks are also due to Tobias Scheer who was willing to discuss LTP with me on numerous occasions.

appendices, and moving on to progressively more complex applications of the model with sometimes enviable clarity.[2]

It must be stressed that this book is intended for a much wider audience than GP followers. For one thing, Scheer maintains, as much as it is possible, the lingua franca used in the phonological debate for more than 30 years now. What is more important, most of his proposals are firmly set in the context of corresponding accounts in other models, including the various developments of SPE, Lexical Phonology as well as the more current Optimality Theory and Government Phonology. Secondly, after the break-up of the SPE paradigm: UNDERLYING REPRESENTATION (UR) > RULES / DERIVATIONS > SURFACE REPRESENTATION (SR), the non-derivational research programs, such as GP, which focused on developing theories of phonological representation still constitute a viable, if a little ignored, alternative to models preoccupied with surface-based generalizations and computation. Given this historical context, the reader who is familiar with the basic tenets of SPE and OT will be as qualified to fully benefit from this book as any GP practitioner.

Volume I is divided into two parts. In the first part (chapters 1-10, or paragraphs 1-301), Scheer presents an overview of LTP in constant comparison to Standard GP. The empirical issues included in this part, and their theoretical status within LTP, cover such themes as principles of syllabification, the phonology of closed and open syllables, vowel – zero alternations, the representational status of alternating vowels, the melodic restriction and phonological status of word-initial consonant clusters, as well as the representational difference between weak and strong phonological positions corresponding to segmental restrictions and lenition, or melodic protection and fortition, respectively. This part of the volume also discusses the phonological length of both vowels and consonants and quantity related phonological effects such as tonic lengthening, closed syllable shortening, etc. The second part of the book contains further arguments in favor of the CVCV assumption and LTP, and tries to give credible substance to the sub-title of the book: *What is CVCV, and why should it be?* As the author points out himself, most of these arguments are to do with proving that coda-onset contacts contain an empty nucleus. The arguments refer to a number of unrelated phenomena, all converging on the existence of the empty nucleus in consonant clusters. Particularly noteworthy is the analysis of stress placement in LTP. Details of this proposal can now be fully appreciated also in Scheer and Szigetvári (2005).

In what follows I will present a selection of the main tenets of LTP with some critical remarks to follow. While comparison with other frameworks is always the ultimate tool in evaluating theories, I will try to limit any comparison to an absolute minimum, not only for lack of space, but also with a view to allowing the reader to concentrate on the essence of LTP itself.[3]

Let us begin with the CVCV assumption (Lowenstamm 1996) which is adopted in LTP as the basic grid for the theory of lateral relations.

[2] The research programme of Government Phonology and its close relatives has yielded a sizeable amount of literature. The reader is referred to such collections of papers as the volume of *Phonology* 7.2, Cyran (1998), Durand and Katamba (1995), van der Hulst and Ritter (1999), Ploch (2003), Rennison and Kühnhammer (1999), or monographs like Brockhaus (1995), Charette (1991), Cyran (2003), Gussmann (2002), Harris (1994), Kula (2002), Nasukawa (2005), Yoshida (1996). The development of LTP can be traced in e.g. Scheer (1996, 1998, 1999), Scheer and Szigetvári (2005), Ségéral and Scheer (2001). Other references can be found in the book under review.

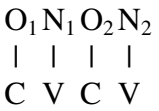
[3] See also a review of this book by Katalin Balogné Bérces at *http://linguistlist.org/*. LL Issue: 16.1597.

2. CVCV

The main assumptions of CVCV are very simple and elegant in their extremity. The phonological representation consists of sequences of CV (onset-nucleus) pairs regardless of the actual phonetic shape of the string.[4] Thus both long vowels and consonant clusters, including those involving more than two members, must have a CVCV representation. The structures below are schematic configurations of the relevant fragments of phonetic strings occurring in languages.

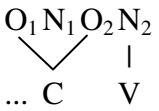
(1)

a. *open syllables*



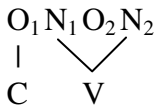
[s ɪ t ɪ]
city

b. *geminate*



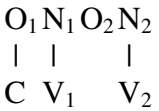
[fa tt o]
Italian *fatto* 'fact'

c. *long vowel*



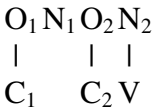
[b i:]
bee

d. *diphthong*



s e ɪ
say

e. *cluster*

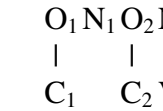


æ k t ə
actor

f. *closed syllables*

s ɪ t
sit

g. *'branching onset'*



t r æ p
trap

The structure in (1a) does not require a special comment as it is the classic form with two open syllables. On the other hand, the representation of geminates and long vowels (1b,c) must involve two consonantal or vocalic positions respectively, which straddle an empty position. In the case of geminates, it is an empty nucleus N_1, while in the case of pure long vowels, empty is the intervening onset position O_2. Diphthongs and consonantal clusters involve similar empty positions (1d,e). The difference here is that these structures do not possess one melody spanning the respective empty constituent, but two independent melodies. As shown in (1f), words which end with a phonetic consonant, or indeed a cluster, will always end with an empty nucleus. Thus, phonologically speaking, words always end with open syllables, only sometimes the final nucleus is not linked to any melody and remains silent. Finally, (1g) illustrates the structure of what is known as the branching onset.

The CVCV assumption imposes a new way of looking at phonological structure. For example, long segments and clusters in this approach must straddle empty positions, which are used on a large scale here. We are also dealing with a dramatic redefinition of familiar contexts into a new system. For example, an onset is no longer a sufficiently distinctive label because all consonants are onsets, only some of them are followed by melodically expressed nuclei while others precede empty ones. A coda in CVCV receives an altogether new definition and status. It is an onset followed by an empty nucleus.[5] Thus, an arboreal definition is replaced with a lateral one. A coda consonant knows its status by looking to the right, not up. In (1e,f) we see that this definition covers both internal codas as in *actor*, and

[4] Throughout this review the CVCV template will be represented as a consecution of (O)nset-(N)ucleus.

[5] The careful reader will have noticed that branching onsets also involve an intervening empty nucleus in LTP (1g), begging the question whether the head of the branching onset should not be viewed as a coda in this model. An answer to this problem must be delayed till section 6, in which the structure of branching onsets is discussed.

the word final codas as in *sit*.[6] It is worth mentioning that in traditional syllabification a coda is the final product if not a by-product of the syllable building algorithm, in which what is important is that there is a nucleus and that onsets are maximized in accordance with the language specific phonotactics. On the other hand, what does not get into the onset constituent must end up in the coda.

In CVCV the representational difference between codas and other consonants is only too obvious. Codas do not arise as a result of an algorithm but strictly depend on the nature of the following nucleus, which is a lexical property of a given word. That alone provides non-arbitrary explanations for quite a few basic questions, such as, for example, why codas are weak. They are weak not because they are codas (circularity), but because there is something in the context that limits the melodic potential of that position, and that something is an empty nucleus. Thus CVCV is successful in determining *where* we expect to find weakening effects, and is to some extent self-explanatory as to the question *why*.

However, phonology poses more subtle questions where bare CVCV becomes insufficient. One such question concerns the disparate behavior of internal and final codas, which requires a theory of parameterization of the properties of medial and final empty nuclei. Similarly, consonants which are followed by a melodically filled nucleus may be considered strong in contrast to the aforementioned codas. But it appears that among such consonants some are consistently strong – specifically, word-initial and post-coda onsets exhibit systematic resistance to weakening – while intervocalic consonants may be subject to lenition. Since all three contexts are prevocalic, the obvious question would be what makes them different.

There are further questions that one might ask with respect to the CVCV assumption, such as why some clusters curb vocalic length if CVCV renders all syllables formally open, etc. To respond properly to the more subtle issues, a theory of interaction between segments is needed, and the work under discussion is but one of the existing attempts to accommodate the CVCV assumption into a complete theory of speech sound organization.[7]

3. The Lateral Theory of Phonology

The aim of the Lateral Theory of Phonology is precisely to build a system of principled organization of speech sounds against the backdrop of the CVCV assumption in order to attain relatively non-arbitrary answers to the more subtle questions. LTP like GP is a theory of representations. At the heart of this proposal is the assumption that phonological objects enter into relations which are typically triggered by nuclei while the targets may be vocalic or consonantal, depending on the configuration at hand. The lateral relations are directional in that they are always right-headed, that is, leftward. Their role is to control the organization of speech sounds and define all the syllabic functions and syllable-related processes. As a result, Scheer hopes to achieve a complete lateralisation of structure and causality, a system in which structure and process are unified by stemming from the same set of principles, and in which there is no need for an additional tree structure of the syllable, or extrinsic statements akin to the Sonority Sequencing Generalization, Onset Maximization, extrasyllabicity, etc. There is only structure, built according to the principles of segmental interaction, and phonetic interpretations of this structure.

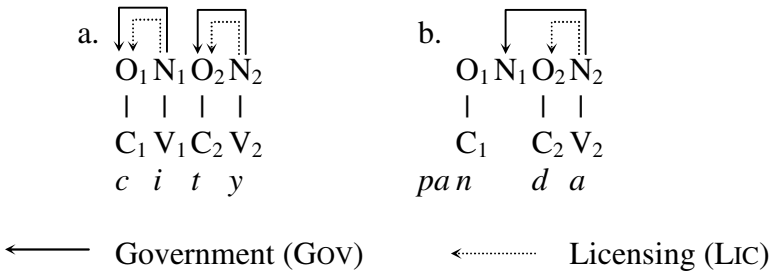
As said before, nuclei are the primary source of lateral relations of which there are two types: *Licensing* and *Government* of the preceding positions. Both terms have been used in

[6] Although codas, onsets, rhymes and branching onsets or nuclei have a new definition in this model, the traditional terminology will be consistently used to facilitate discussion.

[7] LTP is only one of the existing theories of segmental interaction. Other proposals based on the CVCV grid can be found in, for example, Cyran (2003), Polgárdi (1998), Rennison and Neubarth (2003), Rowicka (1999), Szigetvári (1999, 2001). All share the lateral approach, but with different lateral systems.

GP, but, as Scheer claims, in a theoretically confusing way, in that sometimes government was understood to be a kind of licensing. Scheer strives to systematize the function of the two notions and consistently distinguishes *Licensing* (Good), the force that supports melodic material, from *Government* (Evil), which is the force that spoils the melodic material. The actual phonological effect relatable to the various arrangements of the lateral relations will be discussed below. At present we will concentrate on a simple illustration of the lateral forces that are solely responsible for the entire organization of speech sounds into syllables and words on the basis of two English words: *city* and *panda*.

(2)



Let us first clarify the role of Government and Licensing in terms of their sources and targets. Every nucleus with attached melody, that is, every full vowel, is a lateral actor. It governs and licenses a position to the left. Empty nuclei are different in that they are deprived of lateral actorship if they are word-medial. The behavior of word-final empty nuclei is parameterized in that they either behave like full vowels, that is, they may govern and license, or they pattern with medial empty nuclei in that they neither govern nor license the positions to their left.

As far as the targets of government and licensing are concerned, LTP claims that the lateral relations are generally aimed at the preceding onset (2a), unless government or licensing is called for from the preceding lexically empty nucleus, whose presence in the structure is never granted for free. In these cases, government is required to satisfy the Empty Category Principle by silencing the preceding empty nucleus (2b). Internuclear licensing, on the other hand, is needed for sanctioning long vowels. Both instances enforcing the nucleus-to-nucleus relations as opposed to the regular onset-to-nucleus (CV) ones will be discussed in detail presently.

Returning now to the diagrams above, (2a) illustrates the arrangement of the lateral relations in a simple bi-syllabic word like *city*. The relations are always right-headed in LTP, that is, the target is always on the left. Note that each onset is both licensed and governed, which suggests that we are dealing with parallel or symmetrical mechanisms, an issue to be further discussed in later sections.

The representation in (2b) shows the structure of a consonant cluster. The empty nucleus in N_1 calls for government which can be issued only by the following, melodically filled nucleus N_2. There are two more interesting aspects of (2b). One of them concerns the status of O_2, which is now still licensed but not governed. Scheer assumes that government may strike once and the ECP forces the nucleus N_2 to redirect the 'fury' of government onto N_1, thus sparing the intervening onset. Anticipating slightly the discussion below, we observe that the position in which O_2 finds itself is most enviable from the point of view of the theory of lateral relations because it is a target of the supporting force but escapes the destructive one. Structurally, the position of O_2 in (2b) is directly opposite the coda. For this reason, this position is called the Coda Mirror in LTP (Ségéral and Scheer 2001), and is predicted to be strong with respect to melodic health. Note that the interaction between the ECP and the

lateral relations provides us with a theoretically non-arbitrary explanation of the problem of consistent resistance of post-coda consonants to weakening.[8]

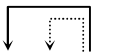
Another aspect related to (2b) concerns the position O_1. Word-medial empty nuclei are not granted any lateral actorship in Scheer's model, that is, they cannot govern or license. Thus, it is not directly clear in which situation this position finds itself because it is neither governed nor licensed. In this respect, LTP is very different from Standard GP, in which every position is stipulated to be licensed, even if the licenser is an empty nucleus. In LTP, onsets seem to come for free, in that licensing is not an absolute condition on the existence of consonants, which may turn out to be a weak point of this model. To facilitate a better understanding of this system of weak and strong positions, a typology of potential configurations in which a consonant may find itself is listed below.[9] We will only concentrate on the relevant fragments of the representations concerning the O_2 position.

(3)

a. *intervocalic*

$O_1 N_1 \mathbf{O_2} N_2$
C V **C** V
[s ɪ **t** ɪ]

b. *Coda Mirror*



... $O_1 N_1 \mathbf{O_2} N_2$
C **C** V
[p æ n **d** ə]

c. *internal coda*

$O_1 N_1 \mathbf{O_2} N_2$ ...
C V **C**
[p æ **n** də]

d. *final coda*

$O_1 N_1 \mathbf{O_2} N_2$ #
C V **C**
[s ɪ **t]**

Scheer claims that it is not the role of phonology to determine when a process will take place, but to predict where it will occur when it does. There are three basic logical possibilities which follow from the application of the lateral forces of government and licensing in LTP. Firstly, an onset may be both governed and licensed (3a). A second option involves licensing but no government (3b) and is called the Coda Mirror, while the third configuration is that relating to the internal and final codas which are neither governed nor licensed (3c,d).

It is obvious that the clearest situation is present in the context of the Coda Mirror. The O_2 in (3b) is licensed but escapes government and is therefore positionally strong. The other two contexts are relatively weaker for one simple reason: they are not in the Coda Mirror. That is, LTP predicts that the consonant (O_2) in these configurations is relatively weaker than that in (3b), and is not guaranteed a segmental health. Note that, without the comparison with the Coda Mirror configuration of government and licensing, it is very difficult to ascertain why being both governed and licensed should mean weak, unless some fine tuning is introduced in the model to handle the mutual relationship between government and licensing to the effect that they may have equal impact on the onset (GOV = LIC), or one of the relations is stronger, yielding melodic security when licensing prevails (GOV < LIC), or depletion if government wins (GOV > LIC), respectively.

This still leaves us with the uncertain fate of internal and final codas (3c,d). Recall, that what is meant by the term coda in LTP is in fact an onset followed by an empty nucleus. In this sense, codas are internuclear objects, though not intervocalic. Given the absence of any lateral force originating from empty nuclei, codas remain weak only by virtue of being on the

[8] In section 8, we will see how Scheer accounts for the strength of word-initial onsets as opposed to onsets which find themselves between two full vowels.

[9] Formally, there is another possible configuration, which however involves an empty onset rather than a consonant with melody. In this structure an empty onset finds itself between two nuclei making-up a long vowel. Depending on the type of long vowel (see section 7), it may be governed but not licensed – the worst configuration from the point of view of melody survival. This neatly tallies with the fact that this onset must be empty to allow for the long vowel (Harry van der Hulst p.c.).

wrong side of the empty nucleus, and not by virtue of interacting with that empty nucleus in any way. To be more precise, LTP predicts that codas will be weaker than consonants in the Coda Mirror, because the latter are licensed while codas are not. However, if one compares the situation of codas (3c,d) and intervocalic onsets (3a), the model in its current shape is rather unable to express any relative hierarchy of strength between the two non-strong contexts. It is theoretically unclear whether being both governed and licensed is better than being neither governed nor licensed.

It is true that the melodic weakening effects in the intervocalic context rarely overlap with those in the coda position, which, in a sense, relieves LTP of the immediate obligation to make a theoretically predictive distinction between the relative hierarchy between these two contexts. However, a formal distinction between a position which is both governed and licensed and one which is deprived of both appears to be necessary when it comes to accounting for the empirical distinctions in the behavior of internal and final codas. In short, the implicational relationship between internal and final codas is such that the internal codas may be equal or weaker than the final ones, but they may not be stronger. The representations in (3c,d) cover only the first half of the facts. Namely, when both types of codas behave alike. This is due to the fact that both remain untouched by any lateral force.

To express the disjunction when internal and final codas behave disparately Scheer proposes that the word-final empty nucleus, but not the medial one, may be parametrically granted lateral actorship. He assumes that the final empty nuclei (FEN) which dispense government and licensing, due to a morphologically driven parametric option, render the preceding codas stronger than word-medial empty nuclei. Recall, however, that there is no clear comparison really between a position which is both governed and licensed and one that is free of either force. The comparison that is meaningful and clear exists only between the Coda Mirror and the other three structures in (3) taken together. We will return to these issues in later sections.

4. Empty positions

Although it transpires from the representations in (1) that theoretically and logically there can be two types of empty positions, that is, an empty onset and an empty nucleus, the former seems to enjoy wide acceptance in phonological theory, while the latter cannot really make it to the phonological drawing rooms and still remains a characteristic feature only of the various varieties of GP. Due to the special status of melodically deprived nuclei which require constant theoretical justification the term ‘empty position’ has become almost synonymous with ‘empty nucleus’, despite the fact that theoretically speaking it should have the same status as empty onsets. This obvious conclusion trivially follows from the idea of autosegmentalism alone, if taken seriously, and is not a special invention of CVCV. Not surprisingly, in these unforgiving circumstances, though surprisingly from the theoretical point of view – empty categories are part and parcel of syntactic theory – almost all varieties of GP display a self-inflicted instinctive compulsion to justify the usage of empty nuclei by means of mechanisms of control lodged outside these nuclei rather than concentrating on their own functional properties. As a consequence of this moral constraint, the early nineties witnessed undue focus on providing mechanisms to license empty nuclei to remain silent in GP. Symptomatic for that period were workshop presentation titles like “Licensing of consonant clusters by licensing of empty positions”, replacing the brave new question of ‘what empty positions could offer to phonological theory’, if we better understand their function, with the erroneous travesty ‘what phonology could do for empty positions’.[10]

[10] See e.g. Gussmann (2002), who voices similar concerns.

In this respect, CVCV in general, and Scheer's work (LTP) in particular, is a clear break with that tradition, but only just. Scheer unabashedly introduces more empty nuclei into phonological representation than Standard GP would have, and is determined to demonstrate that their role is absolutely central to defining the well-formedness of phonological representations, making meaningful generalizations about phonological processing, and that empty categories do not burden the grammar. Quite conversely, they are necessary if a level of explanatory adequacy is to be achieved, and the Coda Mirror is definitely one of such significant results. However, like Standard GP, LTP is also trying to make sure that every instance of an empty position is sanctioned by a relevant mechanism. In other words, Scheer partly follows the tradition that the role of empty nuclei is to be licensed or governed.

As mentioned earlier, the distribution of empty nuclei is controlled by the Empty Category Principle (ECP) which stipulates that every instance of an empty nucleus must be sanctioned by government. The absence of such a mechanism renders the entire form ungrammatical and hence impossible. If viewed as a requirement – all empty nuclei be sanctioned – the ECP of Standard GP and that of LTP are not different. What is different is how this requirement is fulfilled in the two approaches, and what happens if the ECP is not satisfied.

Starting with the right edge, the word-final empty nucleus (FEN) in *sit* (1f), is parametrically governed in LTP.[11] When the parameter on the final empty nucleus (FEN) is not activated, as is the case in for example Italian, then a given linguistic system will simply lack word-final consonants. For this reason, Italian words must end in a phonetically expressed vowel, and forms like *[fat] are impossible.

Word-medially, the main device that is responsible for silencing empty nuclei is also government. This time it is an internuclear relation rather than a parameter, whose source is in the following vowel (3b). One of the conditions on internuclear government is that the governor be melodically filled. In LTP, this latter condition does not concern word-final empty nuclei which may be granted governing abilities, as shown in (5) below. Let us now look at the effects of internuclear relations in LTP.

5. Vowel- zero alternations

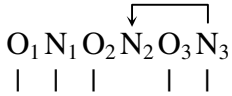
Generally, Scheer recognizes three types of nuclei: *full vowels*, which are ideal lateral actors, *empty nuclei*, which are generally deprived of governing and licensing abilities and whose distribution is controlled by the ECP, and *floating vowels*, which structurally constitute a halfway house between full vowels and empty nuclei in that their melody is present but it is not lexically linked to the nucleus. For this reason, they require government like true empty nuclei. If such a nucleus is governed, it may remain empty, and if not, then the melody is linked and the nucleus is phonetically expressed. Thus the phonetic interpretation of the floating vowel depends on whether it is followed by a potential governor or not. The mechanism just described is responsible for vowel – zero alternations. Below we reproduce the Czech alternation *lokte / loket* "elbow, gen.sg./nom.sg." after Scheer (p.11) with some modifications, and compare it to the representation of English *actor*.[12]

[11] The use of the term *government* follows from the desire to achieve uniform effects of government and licensing as depletion and support of melody respectively. Thus, a word-final empty nucleus will remain silent as a result of government, not licensing, as Standard GP would have it.

[12] For simplicity, only the relations of government are shown in (4). The arrow pointing at N_3 in (4b) expresses the fact that Czech final empty nuclei are parametrically governed. Such nuclei are universally unable to govern floating vowels.

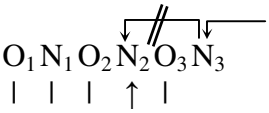
(4)

a.



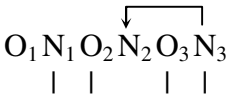
lokte

b.



loket

c.

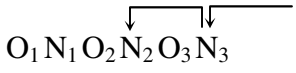


The alternating nucleus N_2 in (4a) and (4b) is an intermediary between a real vowel, which has a lexically associated melody, such as, for example (N_1), which never alternates with zero, and a true empty nucleus (N_3 in 4b), which can never vocalize. There are only two possibilities in which this floating structure can be interpreted by grammar. Namely, if the following nucleus contains a full vowel, then the floating vowel is governed and remains silent (4a). Thus, the phonetic interpretation of this representation must be [lokte] and not *[lokete]. On the other hand, (4b) illustrates a situation in which N_3 is itself empty, and therefore not a possible governor. Then, the floating structure in N_2 must be phonetically realized. The vertical arrow illustrates the fact that this nucleus must be associated with the lexically present floating melody, yielding [loket] and not *[lokt].

Let us now move to the government of true empty nuclei. If a real empty nucleus is not governed, then the entire structure is illicit. Recall that N_3 in (4b) is such a true empty nucleus, and that it is governed by parameter.[13] The N_2 in (4c), on the other hand, is a medial empty nucleus which is governed by N_3.[14] The question is what happens if the word *actor* is deprived of the agentive suffix. Given what we know so far, the word *act* should be ungrammatical because the final nucleus is empty and only filled nuclei can properly govern. To deal with word-final clusters, Scheer has to assume that in words like *act* the grammaticality is due to the fact that the final empty nucleus is granted the ability to govern, but only to govern truly empty nuclei (5), and not floating vowels as in (4b). This stipulation allows LTP to sanction word-final clusters, although it may appear to be rather unconvincing because from the formal point of view floating vowels are also empty at the level at which government operates, which is why such vowels call for government in the first place. It would seem that government, as a formal device, should be blind to unattached melodies.[15]

In (5), N_3 is governed by final parameter, and is granted the ability to govern the preceding N_2.

(5)



act

It appears that from the formal point of view the word *act* ends in two codas because both occur before a governed empty nucleus. We will return to the problem of the right edge in later sections.

[13] The nature of this parameter is to be fully worked out in volume 2, as it is connected with the morphology – phonology interface.

[14] Thus, a more precise definition of what a coda is should include the information that it is followed by a governed empty nucleus (p.164).

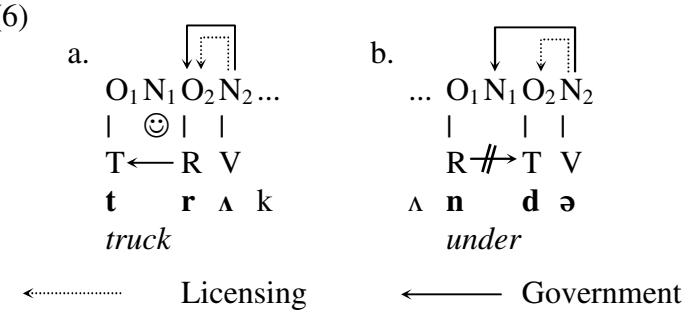
[15] Further problems connected with the ability of final empty nuclei to govern will be discussed below in section 11.

6. TRs inter pares

Government is the *primum mobile* of the phonological representation in the GP tradition. While governing relations between nuclei controlled the grammatical distribution of empty positions, government between consonants played two important roles. Firstly, formal conditions on government ensured that syllabic constituents were maximally binary, secondly, the direction of government between two consonants determined whether they were a branching onset or a coda-onset contact. Thus, governing relations expressed basic phonotactic patterns in Standard GP. The typical governors were obstruents, symbolized as (T), while sonorants (R) were archetypal governees. The direction of the relation was determined on the basis of the relative sonority slope, which in GP is translated into a truly phonological notion of subsegmental complexity differential. Like in physics, where bodies with greater mass attract or control smaller bodies, so in phonology objects which contain more elements have influence over less complex objects / governees.[16]

Scheer reverses the complexities of consonantal segments by arguing that it is sonorants that have a more complex structure rather than obstruents.[17] This can be done if resonance, that is, place elements, are allowed to contribute to the complexity of consonants, while the manner elements are disregarded as irrelevant for that purpose.[18] With this move Scheer also reverses the direction of government between consonants, and consequently, breaking the symmetry between TR and RT sequences in that only TRs may now contract a governing relation in his model. Consider the following diagrams, bearing in mind that every surface sequence of consonants contains an empty nucleus. As above, a dotted arrow illustrates a relation of licensing, which in the face of a preceding governing relation T←R is called Government Licensing (GL) in GP tradition – the nucleus licenses the head to govern (Charette 1990). The solid arrow refers to government which in inter-consonantal relations is called Infrasegmental Government (Scheer 1996). Government Licensing is a necessary condition on Infrasegmental Government. This way, Scheer predicts that a sequence of two branching onsets should be impossible */T←RØT←RV/ because it would have to involve a licensing relation dispensed by a word-medial empty nucleus.[19]

(6)



[16] There is no absolute agreement as to the size of the universal set of elements in GP, but the standard model uses the resonance elements (I,A,U) for defining place, and the elements (ʔ = stopness, h = noise, N = nasality, H = aspiration, L = voice) for manner (Harris 1990, 1994; Harris and Lindsey 1995). For other approaches to GP elements see, for example, Backley and Takahashi (1998), Charette and Göksel (1998), Cobb (1997), Nasukawa (2005), Ploch (1999), Rennison (1998), Ritter (1997).

[17] See also Rice (1992) for similar proposals.

[18] A detailed discussion of the subsegmental representations in LTP would occupy too much space. Suffice it to say that in a branching onset /tr/, as in *truck*, /t/ is assumed to have three manner elements and no specification of place, which I illustrate here empty parentheses {( ),h,ʔ,H }. On the other hand, /r/ has two resonance elements {(I,A)} and is therefore able to govern /t/ (see p. 64).

[19] Exceptional, but existing Polish forms like *drgnąć* 'shudder' which seem to instantiate the T←RØT←RV pattern may prove to be problematic for LTP, unless word-medial empty nuclei are granted at least licensing abilities.

The fact that the two types of clusters in (6), that is, RT and TR contain an empty nucleus might wrongly suggest that there is some kind of symmetry amongst them in that they should all behave similarly because they are formally identical. According to Scheer, they are neither formally symmetrical, nor do they behave similarly. In fact there is a clear asymmetry in Scheer's model in that the TR sequence is the only one able to contract a governing relation (6a). Scheer calls this relation Infrasegmental Government (IG) because it is driven by melody and takes place at the melodic level. Hence, the IG arrow is placed at this level.[20] One consequence of IG is that the ECP of the intervening empty nucleus is satisfied – it does not require government from N_2, a fact which is marked by the symbol ☺. This mechanism is then similar to the operation of Interonset Government in Standard GP (e.g. Gussmann and Kaye 1993). Note that this effectively means that the nucleus N_2 is free to properly govern another empty nucleus, should there be one in front of the TR cluster. Thus LTP has three mechanisms that satisfy the ECP: internuclear government, final parameter, and Infrasegmental Government.

On the other hand, as illustrated in (6b), the reversed order of the segments excludes the possibility of a governing relation. First of all, the word-medial empty nucleus N_1 is unable to license such a relation because it is deprived of lateral actorship. Secondly, and more importantly, LTP recognizes only leftward governing relations. In the absence of a governing relation between the two onsets, the empty nucleus N_1 must be governed by N_2. In fact, with the reversal of the roles of T and R in LTP Scheer achieves a consistent system in which all relations, be it government or licensing, are now right-headed.

Thus, Scheer predicts that RT sequences cannot be preceded by another consonant, and consequently another empty nucleus (*CØRØTV), because the final vowel can only govern one empty nucleus in this sequence of two.[21] CØT←RV, on the other hand, is perfectly grammatical because it involves only one nucleus that requires government. The RT sequence, which functions as a coda-onset cluster, may be therefore called a 'bogus' cluster. In fact, all sequences of two consonants which are not of the TR profile must have this structure, that is, TØT, RØR, RØT. Interestingly, surface TRs may also be phonological bogus clusters. This may happen, for example, due to the fact that IG cannot be licensed by the following nucleus, which is a language specific property. TRs may also be bogus due to mere phonotactics. For example **tl* in English is not a possible branching onset, which in LTP translates into an impossible IG domain. Finally, TRs may be bogus due to lexical marking (Cyran 2005). Then the empty nucleus inside such a sequence is governed, as in the case of other bogus clusters.

One of the most important functions of the distinction between TR clusters involving Infrasegmental Government and bogus clusters, which require government of the intervening empty nucleus, is that TRs and single consonants render the preceding syllable open, while the CØC structure corresponds to coda-onset clusters, and closed syllables, which has consequences for the distribution of length in the preceding context, a point to which we turn now.

[20] We are informed in a few places in the book that Infrasegmental Government is one of the notions of LTP which will be thoroughly revised in volume 2.

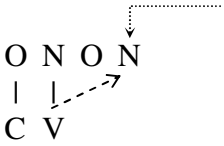
[21] There are apparent counterexamples to this prediction, e.g. Polish *krtań* 'larynx'. Scheer offers an analysis of such clusters in chapter I, 10, which places them in a broader context, also including syllabic consonants. One might also mention the English forms like *holster, hipster*, which have the illicit phonological shape *CØsØTV (Nancy Ritter p.c.). Due to the presence of /s/ in such clusters, they remain problematic for any theory (see, e.g. Kaye 1992), not only LTP.

7. Vowel length

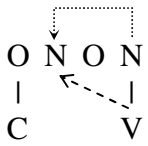
Let us briefly concentrate on the distribution of length in closed and open syllables. Scheer (p. 267) recognizes two types of long vowels: alternating and non-alternating, or to put it differently, those which are sensitive to the following material in the word and those which are not.[22] The representations below ignore the relations of government.[23]

(7)

a. alternating long vowels are head-initial



b. non-alternating long vowels are head-final



It is assumed that long vowels involve two consecutive nuclei of which one is empty and receives the melody lodged in the other position by spreading under licensing. The requirement of licensing here is consistent with the overall view in LTP that this force supports melody. As can be seen, the non-alternating long vowel (7b) is 'self-licensing' and hence independent of the following context. This vowel is assumed to be present in the so called super heavy rhymes.[24] On the other hand, the alternating long vowel (7a) requires licensing from the following context as the melody of that vowel is lodged on the left. This vowel is not self-licensing because there is no rightward licensing, or any rightward relation for that matter in LTP.[25] Such licensing of the target of melodic spreading may come only from the following vowel, which effectively means that the long vowel of type (7a) must find itself in an open syllable, in traditional terms.

The representations below illustrate two possibilities of open syllables and the resulting tonic lengthening observed in Italian, where the structure of the alternating long vowel is involved. According to Scheer (p.172), tonic lengthening can be analyzed as an insertion of an empty CV sequence representing stress, the interpretation of which depends strictly on whether the target of spreading can be licensed or not by the vowel in the right-hand context.

[22] A similar distinction between alterable and inalterable long vowels has been made within GP by e.g. Ritter (1994).

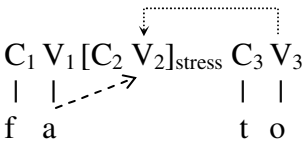
[23] This also refers to the fact that the empty onset within the long vowel structures is governed. It is interesting that in (7a), this onset will be governed and licensed, while in (7b), it can only be governed, as the licensing relation is used up in the inter-nuclear relations. Predictions connected with this distinction are not discussed in the book.

[24] This probably does not refer to the English super heavy rhymes. For one thing, one would have to assume that two types of long vowels are present in one system, as English also shows closed syllable shortness, i.e. right-hand context sensitivity of its long vowels. Secondly, the super heavy rhymes in English are very much dependent on the following context in terms of the melodic make-up of the following cluster (see, e.g. Harris 1994). On the other hand, one should ask what licenses word-final long vowels in English if they are of the (7a) type – final empty nuclei are governed in LTP, not licensed.

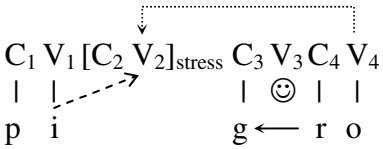
[25] Contrary to the lateral relations which must be leftward, at the melodic level spreading is stipulated to be bi-directional in LTP.

(8)

a. VVCV *faato* ‘destiny’



b. VVTRV *piigro* ‘lay’



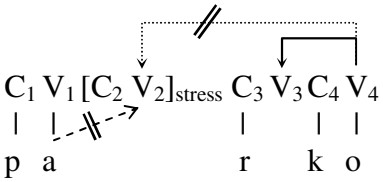
licensing, government melody spreading

The lengthening occurs in open syllables, that is, those which are followed by an expressed nucleus able to license the target of melody spreading. Since the internuclear relation supports melody spreading to the target rather than thwarts it, Scheer must call it licensing, following Yoshida (1993), rather than government (e.g. Larsen 1998). This move has no great consequence on the analysis because it just reinterprets the causality in an otherwise well defined context, but it has certain theoretical consequences relating to the status of the onset C_3. We will return to this point presently, but first let us look more closely at (8b).

The TR cluster, just like branching onsets in other models, allows the preceding stressed vowel to be long. The IG relation between the onsets sanctions the intervening nucleus V_3, while V_4 is free to contract a licensing relation with V_2. Thus, branching onsets behave identically with respect to vowel quantity as simplex onsets: both form open syllables, or to put it in LTP terms, both allow for a licensing relation between the following nucleus and the target of melody spreading. Let us see what happens if the cluster following a long vowel is not TR but RT.

(9)

VRTV *parko* ‘park’



The representation in (9) illustrates the treatment of closed syllable shortness in LTP. The stress-inserted empty CV cannot become the target of melody spreading because V_2 is not licensed. This, in turn, results from the fact that the RT cluster requires that the intervening nucleus V_3 be governed. For this reason, V_4 cannot dispense another internuclear relation even though what is required is licensing, that is, the other type of lateral force that is at the disposal of nuclei. It is immediately apparent that if Scheer accepted Larsen’s view that what sanctions the length is a governing, rather than a licensing relation, he would not have to patch up his system with extraneous, if not extrinsic, conditions stipulating one type of internuclear relation at a time (p. 174), especially since the LTP model is strongly based on the assumption that government and licensing are separate entities which are subject to independent parameterization.[26] Recall that the mutual exclusiveness of government and licensing has no place, for example, in relation to onsets, in that both forces may jointly apply to them (3a). The complementary distribution of government and licensing in internuclear relations strongly suggests that we may be dealing with one force and not two. That would be the only theoretically sound conclusion for someone who does not wish to use ad hoc and extrinsic claims concerning the interaction between two seemingly independent mechanisms,

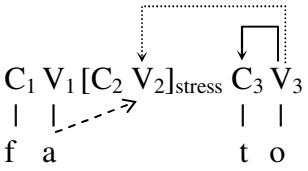
[26] Scheer is explicit on this shortcoming and advertises a natural solution to this problem in volume 2.

as is the case here. These problems do not really affect the analysis, as the context in which the vowel preceding an RT sequence must be short is clear in Scheer's model. It is rather a matter of unnecessary theoretical confusion as to the status of government and licensing given that the aim of the author was to finally clarify the situation. Admittedly, giving up on one of the lateral forces would have severe consequences for the entire model of LTP, in that some of its most significant results, such as the Coda Mirror, would be lost.

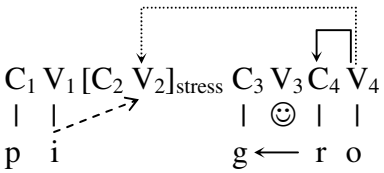
To emphasize some of the hitches, but also to point to some unexpected predictions concerning government and licensing in LTP with respect to long vowels, let us briefly return to the representation of *faato* and *piigro* (8). For the sake of exposition I repeat the structures, complementing them with the missing lateral relations and contrasting them with the representations in (10c,d) assuming that length is sanctioned by government *à la* Larsen (1998).

(10) *Length under licensing*

a.

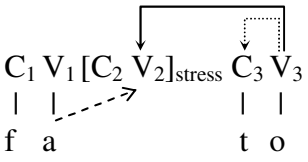


b.

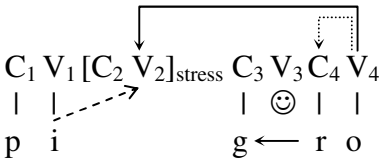


Length under government

c.



d.



Given what we know about the lateral actorship of vowels in LTP, we expect that the contrasted analyses will have quite disparate predictions with respect to the onset C_3 in (10a,c) and the complex onset C_3←C_4 in (10b,d). Starting with the competing analyses of *faato* we note that in (10a) the internuclear licensing relation V_2–V_3 excludes the licensing of C_3, which is now only governed. On the other hand, in (10c), C_3 is licensed and not governed, as government is directed at V_2.

It is immediately obvious that whether tonic lengthening happens under government or licensing, is not inconsequential theoretically and may lead to certain straightforward predictions in LTP. Namely, in Scheer's analysis C_3 is in a weak position because it is targeted by a destructive force and has no licensing support, while in Larsen's analysis (10c) the status of C_3 is quite the opposite – it escapes government and is supported by licensing, very much the situation found in the Coda Mirror. In other words, the analysis based on government of long vowels predicts no lenition of the following consonant, whereas Scheer predicts that this consonant may be prone to lenition.[27] This is yet to be tested against empirical facts. However, such clear predictions must be considered an advantage of LTP in general, even if individual analyses are shaky.

As for *piigro* (10b,d), the situation is a little more complicated. (10b) shows that the head of the branching onset is governed, while in (10d) it is licensed. However, here the potential problem is that it is difficult to tell which part of the TR cluster would be in a strong (non-leniting) or weak (leniting) context, and what effects one should expect. In fact, LTP is mute

[27] In fact, C_3 here is even weaker than intervocalic consonants (3a). Thus, Scheer predicts an implicational relationship whereby C_3 in (10a) is much more prone to weakening than onsets surrounded by short vowels.

on the status of TRs regarding lenition, and our hopes, must again spring to volume 2 for a final clarification. Note that if the head of the IG relation is governed in (10b), it means that it is relatively weak. However, it also governs another position. Should we not expect that there would be systems in which this positional weakness of R would translate into an absence of branching onsets after long vowels?

As opposed to single segments, a governing relation like T←R should probably be looked at with respect to the integrity of the cluster rather than the potential lenition of the individual members depending on the weak / strong configuration. Thus, the first effect of weakening should probably be a break-up of the IG and, for example, epenthesis. If Scheer is right that the long vowel preceding a TR cluster is licensed, then R must fall victim to a governing relation as in (10b). Consequently, the TR relation should be relatively more prone to disintegration. If, however, the preceding long vowel requires government (10d), then R is strong and the cluster relatively more integral, as per Coda Mirror. It is not difficult to see how the predictions of (10b) can be tested. Let us speculate a little. If alternating long vowels require licensing, then the TR clusters indeed are subject to government from the following nucleus, like simplex onsets (10a). Consequently, their integrity is endangered after long vowels (R is governed but not licensed (10b)). The second logical possibility is one after ordinary, lexically filled short vowels which require neither government nor licensing from the following context. In this configuration, it is the head of the following TR that is both governed and licensed by its nucleus. Thus, TRs after short vowels are relatively better off than those after alternating long vowels (8). There is a third possibility, too. It involves TRs which follow a coda (CØT←RV). Such TRs should be in the strongest possible context because government is dispensed on the preceding empty nucleus and the head of the TR is licensed but not governed (Coda Mirror), e.g. English *pantry* (/pænØt←rɪ/). The scale presented above is strange for one reason; it predicts melodic preference for clusters of three consonants (CØT←RV) over bi-consonantal clusters (VTRV).[28]

By contrast with the above scale, the analysis of long vowels presented in (10d) makes a completely different prediction. Namely, it suggests strong integrity of TRs after long vowels and CØT←RV, as both contexts require government to be directed at the pre-cluster nucleus, and relative weakness after short vowels.

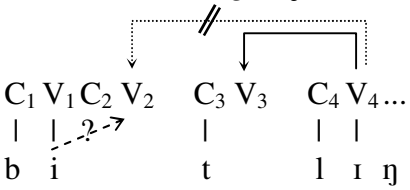
Although the predictions are quite clear and distinct – (10b) predicts a different empirical pattern than (10d), the verification of our speculation may be difficult for a few reasons. Firstly, it is still not clear what effects should go with particular configurations in which TRs find themselves. And secondly, we must be absolutely sure that we are dealing with alternating long vowels in a given system, that is ones which are dependent on what follows.

A final point I want to make about vowel quantity before TR clusters concerns the theoretical possibility that some TRs may be bogus, and how this fact relates to vowel quantity. Scheer distinguishes between the so called bogus clusters on the one hand and TRs with Infrasegmental Government on the other. Some TRs may be bogus due to melodic restrictions or systemic parameters on government licensing. English seems to exhibit a melodic restriction whereby homorganicity is banned from branching onsets (TRs). Word-initially, this restriction eliminates clusters like /tl, dl/. Word-medially, such clusters may occur but have to be treated as bogus, for example, /botØling/ rather than */bot←ling/. One direct consequence of these facts on our discussion is that bogus clusters should disallow preceding long vowels in systems with closed syllable shortness – to which English belongs – because the intervening nucleus must be governed just as in the RT cluster in Italian *parko* (9). This should exclude licensing of the preceding long vowel in words like *beetling* or *cradling*.

[28] It must be stressed that Scheer refrains from such speculations as these, and delays any serious discussion of TRs till volume 2.

(11)

VVTØLV *beetling*, adj.



It is true that English does not oblige us with too many examples of this type which would be free of morphological complexity and therefore unsuspicious. However, the morphological bases of *beetling* and *cradling* are not */bi:t/ and */kreid/ but *beetle* [bi:tl] and *cradle* [kreidl]. This undeniably tells us that the sequences /tØl/ and /dØl/ belong to one morpheme and the intervening empty nucleus is therefore medial and requires government. The prediction of LTP is clear in this respect: we expect an effect of closed syllable shortness, which does not occur.

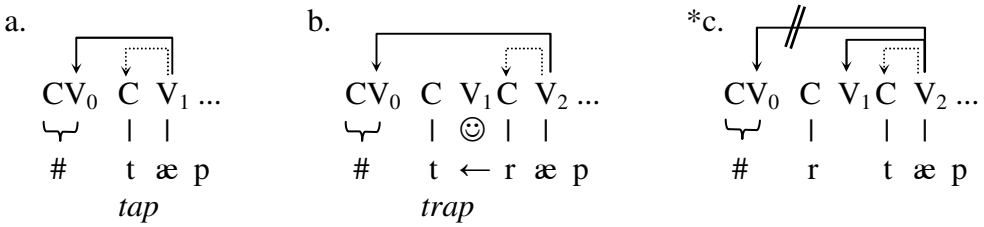
Below, we turn to one of the most interesting aspects of LTP, which concerns the structure of the left edge of words.

8. The beginning of the word (#) is an empty CV

The proposal that major categories begin with an empty CV sequence is due to Lowenstamm (1999). Its utilization in LTP provides one of the most convincing theoretical analyses of the phonotactic patterns of consonant clusters word-initially to date. Scheer assumes that the empty CV site is parametrically present or absent in languages, thus dividing linguistic systems into two categories: those enjoying relatively free sonority profiles of initial clusters, e.g. Polish, and those which exhibit a rigid pattern of rising sonority (TR), e.g. English.

In short, languages may either utilize the empty CV site or not.[29] If the empty CV appears at the beginning of words, the empty nucleus of that CV must be governed for the structure to be grammatical.

(12)



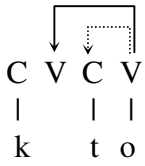
As we see, the empty nucleus V_0 can only be governed in (12a) and (12b), whereas (12c) is ruled out because government is used to silence the empty nucleus V_1, and V_0 remains without a governor. Note that the absence of initial RT clusters is therefore due to the same principles of speech organisation which eliminate tonic lengthening in Italian *parko* (9), or word-internal sequences *CØRØTV. Namely, any RT contains an empty nucleus which requires government from the following vowel. This excludes the possibility of having another empty nucleus in front of RTs. Thus, in systems which employ the initial empty CV site, initial consonant clusters will be restricted to the T←R type (12b), and no bogus clusters of the type RØT, TØT, RØR will be allowed. Excepting the perennial problem of s+TR, English seems to belong to this category of languages.

[29] In Lowenstamm (1999), the initial CV is present in all major categories, and while some languages require that the empty site be licensed, other systems might not have this requirement.

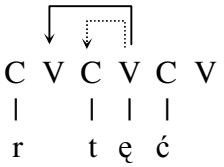
Polish, on the other hand, belongs to the group of languages in which the initial empty CV is not used. This accounts for the relative phonotactic freedom at the left edge of words in that RØT, TØT, and RØR are perfectly possible, as illustrated in (13) below.

(13)

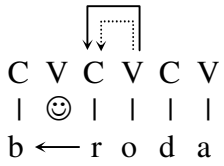
a. *kto* 'who'



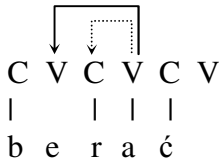
b. *rtęć* 'mercury'



c. *broda* 'beard'



d. *brać* 'take'



Since there is no initial CV that would require government from the first vowel of the stem, the governing relation can be utilized to silence the empty nucleus inside any type of bogus cluster. Note that a TR sequence can have a phonological structure corresponding to a 'branching onset' (13c), or a bogus cluster (13d).[30]

Another interesting offshoot of this proposal concerns the problem of strong positions. It was mentioned earlier that two positions exhibit consistent strength: the post-coda context and the word-initial position, a disjunction of contexts that appear to have nothing in common. Earlier we saw how the Coda Mirror accounts for the former context, that is post-coda. Now it becomes apparent that the same explanation can be used with respect to the word-initial context as well, at least in the group of languages which use the initial empty CV. Note that in (12) both the single consonant in *tap* and the head of the 'branching onset' TR in *trap* escape government from the first vowel, because the governing relation is targeted at the empty nucleus of the initial CV. These onsets are therefore strong – licensed but not governed – for the same reason as the post-coda onsets. This way the disjunction between the post-coda and word-initial positions is eliminated. Their relative strength is due to the same mechanisms, that is, the distribution of government and licensing.

Apart from the effects of strength observable on initial consonants and the phonotactic patterns mentioned above, the left edge of words may also exhibit another regularity, namely, the relative strength of the first vowel, in that it may not alternate with zero in some languages. Scheer connects the effects of stability of the first vowel with their role as governors of the initial CV as well. This convergence of seemingly unrelated phenomena must be viewed as an advantage of LTP, in which the consequences of the empty initial CV presence in languages follow from the otherwise independent system of lateral relations.

Clearly, we cannot do full justice to the initial CV site in so few words. However, it must be said that the consequences of this proposal are yet to be fully worked out. One area of investigation which looks promising is connected with the question how the parametric nature of this site might bear on historical explanations, that is, what effects can be expected when the parameter is switched on or off at a given stage in the development of a particular linguistic system. We can only imagine that if modern English lost the initial CV, there would be no tragedy, but if Polish suddenly decided to utilize it, this would bring havoc to the consonantal clusters at the left edge of words.

It is time to say what aspects of LTP are less convincing and may need to be argued for better or modified. I will concentrate on two aspects only. However, these are vital points from the point of view of the entire theory of lateral relations.

[30] One reason why *brać* should be viewed as a bogus cluster in Polish is that this form alternates with *bierze* 'he/she/it takes'.

9. Good vs. Evil

There is a number of questions that need to be raised in connection with the status of the lateral actorship of nuclei in LTP. At the heart of this proposal is the assumption that two opposite forces operate on phonological representation, of which one is positive and supports melodic material of consonants (licensing), and the other is negative and despoils the material (government). Scheer claims that 'government and licensing are not a product of the theory; they encode two distinct situations that are found in nature' (p. 165).[31] The question is whether a direct encoding of the two situations as phonological mechanisms is correct.

There are a few things that suggest it is not. The first objection against the system of lateral actorship of nuclei, that is their function as both governors and licensers at the same time and with respect to the same target, refers to the concept of privativity, which plays a central role in theories of representation, and to which LTP clearly ascribes as well. In short, the idea of privativity tells us that opposite effects, or binary contrasts, need not be symmetrically represented because they may be derivable from the presence versus absence of one privative category or property. Thus, melodic deletion may result from the absence of licensing, or its weaker instantiation, rather than necessarily from the presence of government. Likewise, strengthening may stem from a stronger instantiation of licensing rather than from the absence of government. Scheer seems to be aware of this fact and he is trying to justify the existence of both mechanisms by systematizing the respective effects and by showing that they must act independently and may be independently parameterized. An example of the former way of justification is pointing to the clear distinction between the respective functions of government and licensing as inhibitive and supporting with respect to their targets, a distinction on which the central finding of LTP, that is, the Coda Mirror rests. Unfortunately, this distinction often remains valid only at the level of intentions, because the direct effects of government and licensing are not clear in the representation, nor are the effects of their absence. As I will try to show, the use of the two terms is slightly instrumental and ambiguous in LTP.

Let us begin with the effects of internuclear government. One can hardly say that government inhibits any melody because the governed empty nucleus has no melody to speak of in the first place. And the truly empty nuclei are not allowed to vocalize in LTP. Even the floating vowels are formally empty, which is why they require sanctioning by government. Unless grammaticality is justification enough, the absence of government of an empty nucleus is only observable by the absence of such a structure – due to ungrammaticality – rather than through an observable repair that would in fact motivate the existence of government, or at least show its vital role in the silencing of empty nuclei.[32] Thus, the presence of government has an equally unobservable effect on empty nuclei as the absence of it, if viewed from the point of view of Scheer's classification of what government and licensing are supposed to do.

Unfortunately, the same can be said about the effects of licensing. The best motivation for licensing is a situation which clearly shows the effects of its withdrawal. Unfortunately, in LTP licensing is not an absolute condition on segment pronounceability. Recall that internal codas, and final codas in some languages, are neither licensed nor governed. They are weak and may show some melodic restrictions only by virtue of being relatively weaker than strong positions, i.e. the Coda Mirror, defined by an interaction of both government and licensing.

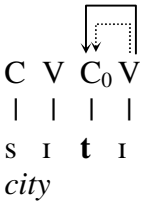
[31] If any connection can be established between LTP and OT it is in this philosophical, almost Manichean, attitude towards linguistic events as emerging out of a perennial struggle between opposite forces. In OT these forces are Faithfulness and Markedness constraints, while in LTP these are licensing (protecting content) and government (eroding content), respectively.

[32] In Standard GP, ungoverned empty nuclei are vocalised and receive language particular default melodies.

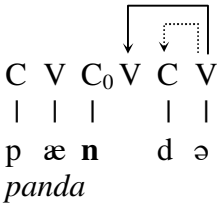
To close the issue of privativity and ambiguity, it is interesting to note that Scheer's own interpretation of this dual system of government and licensing is in fact privative and truly Augustinian. Let us recall that a weak prosodic position in LTP is not one with particularly strong or vicious government in place, or even one with particularly weak licensing. There is no serious mention of a possible scalar grading of the strength of these forces in LTP. The only common denominator for positional weakness is: not being in a strong position. That is, weak is a relative notion understood as the absence of strength. In short, anything that is not in Coda Mirror is weak. Let us reiterate the weak contexts below, marking them with C_0.

(14)

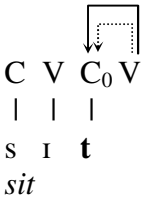
a. *intervocalic*



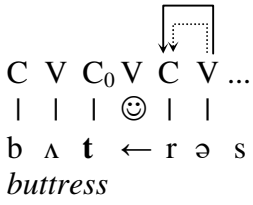
b. *internal coda*



c. *final coda* ?



d. *complement of IG*



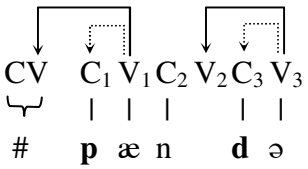
What makes the respective instances of C_0 in (14) weak is not something that can be defined independently by direct reference to government and licensing, but rather with reference to the so defined strong position in the Coda Mirror (14b). The question mark in (14c) shows that the lateral actorship of final empty nuclei (FEN) is set parametrically, in that this nucleus may act as a governor and licenser as in (14a), or it may be deprived of these functions and then it would pattern with the internal empty nuclei like the one in (14b). Note that in (14a,c) both lateral relations targeting C_0 are present, while in (14b) both are in fact absent. One positive effect of this distinction is that we need two different types weak positions, as the segmental phenomena on coda consonants are different from those on intervocalic consonants (p.666). However, given the fact that final empty nuclei may also be lateral actors due to parametric settings (14c), it becomes clear that it is not the presence versus absence of lateral relations that underlies the necessary distinction, but rather the type of the lateral actor or non-actor.

The structure in (14d) may be given as a fourth type of weak position for completeness. It was mentioned earlier that the configuration of Infrasegmental Government is to be revised thoroughly in volume 2. Here, I will only give one more reason why such revision is indeed in place. Clearly, even if we agree with Scheer that IG cannot be viewed on a par with other instances of government – due to the fact that this relation occurs at the melodic and not syllabic level, the position of T in TR clusters is still deemed weak in LTP as it stands, because T is neither governed nor licensed, very much like internal codas. Yet, the melodic patterns found in that position are identical to what is typically found in the Coda Mirror – both post-coda onsets and complements of IG are ideally occupied by obstruents. This is clearly not a most welcome effect of LTP. If the melodic distribution of obstruents in post-coda and TR were to be correlated with positional strength then maybe IG should be renamed as infrasegmental licensing?

Indeed, LTP is primarily an effect driven theory, in that it aims at predicting contexts for segmental effects when they occur, as well as the implicational relationship between various types of contexts and effects. Disregarding the melodic patterns in word-initial clusters and the distribution of vowel length, which were discussed in the preceding sections, phonotactics, viewed as a static distribution of consonantal melodies is not at the center of attention, and one may only hope that this aspect of LTP will also be developed at some stage. One potential problem connected with the distribution of obstruents in TR and RT clusters was mentioned above and related to the peculiar requirement that T seems to be strongly preferred in two

disparate contexts. In RT clusters, the T stands in the Coda Mirror, that is, the strongest possible context, while in TR, the T stands in a weak context. Related to this paradox is another one. In (15) below, I return to the representation of the two types of strong position in LTP.

(15)



The word *panda* has two strong positions in English. One is due to the initial empty CV which requires government. As a result C_1 is in the Coda Mirror position (licensed but not governed), just as the post-coda consonant in C_3 is.

The substantive problem connected with the two strong positions in (15) is as follows. They are markedly different in terms of melodic requirements, a disjunction that this formal account does not seem to capture. Specifically, a strong position is one in which any material can feel safe. There is no *a priori* requirement that a strong position must contain certain melodic expressions only. For example, in English words may begin equally well with obstruents (*put*), or sonorants (*lip*), not to mention empty onsets (*under*). Given that post-coda consonants find themselves in an identical formal configuration, it is most surprising that the best syllable contacts prefer an obstruent in that position (T). Thus, the relationship between obstruents and sonorants with respect to strong and weak contexts is rather confusing, if not contradictory in LTP. A similar melodic dilemma concerns the distribution of sonorants (Rs), which are governors by virtue of being melodically complex. These functionally 'strong' objects – they are governors – are typically found in weak positions, i.e. before empty nuclei.

10. GOV is blind, LIC inherits?

In the face of the ambiguities and inconsistencies concerning the interaction between government and licensing, short of eliminating one of the forces from the theory of lateral relations, the need to formalize the interaction between GOV and LIC appears to be obvious. It seems that LTP is not incompatible with a potential modification whereby government is treated as an invariable force while licensing is subject to gradation of strength.[33] Intuitively, there is nothing wrong in saying that stronger licensing may be dispensed by full rather than reduced vowels, and that melodically expressed vowels, in general, license better than empty nuclei. Scheer notes himself that his theory of positional strength does not express the obvious stress-related and melody-related strength.[34] If government is always constant and licensing is somehow connected with the aspect of representation below the skeleton, that is, to melody, then it becomes quite obvious why the position before an empty nucleus is relatively worse off than the one before a melodically expressed vowel. This is because the onset is governed with the same constant strength in both contexts, while the empty nucleus is less effective as a licenser.

Such modifications may allow some ambiguity that besets the interaction between government and licensing to be eliminated, but clearly not all. Whether this means that, after

[33] See e.g. Harris (1997) for a theory dealing with the distribution of licensing strength in a phonological word.

[34] After all, if English has intervocalic lenition in *city* [sɪʔɪ] / [sɪɾɪ], then the only reason why nothing happens in *settee* [səˈtiː] / *[səˈʔiː] / *[səˈɾiː] is not because the configuration of government and licensing is different, but perhaps because the stressed vowel is somehow able to offset the effect of government.

all, the model would benefit more from eliminating one of the lateral relations, and which one should remain in place, is not something that can be determined at this stage. What is obvious, however, is that the theory has a great potential for further research.

In the final section, I will look at one more problematic aspect of LTP, namely, the phonology of the right edge of words. Interestingly, the problems encountered here are also very much connected with the interaction between government and licensing.

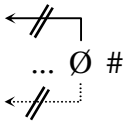
11. The right edge

In one of the earlier sections it was said that the proposal of empty initial CV together with LTP mechanisms offer a most elegant and impressive analysis of the left edge of words. Unfortunately, the same cannot be said about the phonology of the right edge. Before we look at it from the theoretical perspective, some empirical background must be given to know to what facts particular configurations will relate. Primarily, phonological effects occurring at the right edge are connected with the notion of coda, both with respect to what happens to the coda itself, for example, phenomena such as final devoicing or deaspiration, and in relation to how final codas influence the preceding context, that is, the preceding vowels. It will be recalled that no variation is found in internal codas, while final codas display varying behavior. The typical device in phonological theory to deal with this variation is extrasyllabicity, in that extrasyllabic consonants do not behave like internal codas, and, for example, do not induce closed syllable shortness. It must be said that LTP eliminates part of the extrasyllabicity problem by simply ending words with empty nuclei. This accounts for extrasyllabic consonants by deeming them to be onsets and not codas. By contrast, the interesting question for LTP is how to account for word-final consonants (onsets) behaving like internal codas. The answer to this problem lies in the lateral relations of government and licensing.

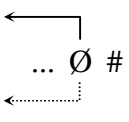
Recall that in LTP the final empty nucleus (FEN) may either be granted lateral actorship or not, depending on language particular parameters, whose source is in the morphology. A FEN which is deprived of lateral actorship behaves like word-medial empty nuclei with respect to the preceding context. On the other hand, any lateral relation that can be dispensed by FEN changes the behavior of final codas. Admittedly, a clear demonstration that government and licensing from FEN may be subject to independent parametric switches is a good way to provide further support for the dual system of lateral relations in LTP. It is probably for this reason that Scheer ventures a discussion of a typology of effects on the shape of the right edge depending on such parameterization (p. 648). Below, I take a close look at the logically predicted configurations where FENs have different properties with respect to government and licensing and attempt to demonstrate that this parametric variation is a bad idea. To be precise, it seems that the most welcome effects are predicted if both licensing and government are switched on and off in conjunction, rather than independently.

(16)

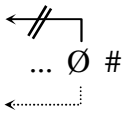
a. *GOV & LIC absent*



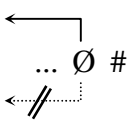
b. *GOV & LIC present*



c. *LIC present*



d. *GOV present*



Let us consider the predictions made by the logical possibilities in (16) with respect to the preceding material, bearing in mind that the lateral forces or their absence are supposed to have a direct influence not only on the preceding consonant but also on the context which

directly precedes that consonant. For example, if a FEN is able to govern, it may inhibit the melody of the preceding consonant, but it may also, though not simultaneously, govern a preceding empty nucleus, thus creating word-final clusters of two consonants, e.g. English *act*. Likewise, a FEN that can license offsets the effects of government on the preceding consonant, but may also license, again not simultaneously, vocalic length in the preceding context.[35]

The main prediction of (16a) is that final codas followed by such a nucleus pattern with word-internal codas, in that, for example, they exclude licensing of alterable long vowels in the preceding context, which, it will be recalled, require licensing from the following nucleus (7a). In short then, (16a) defines a language with no extrasyllabicity. The settings in (16a) also preclude word-final clusters of consonants. The FEN, being deprived of the ability to govern, cannot generate clusters of two consonants (*...CVC$Ø_1$C$Ø_{FEN}$) because $Ø_1$ cannot be governed.

In (16b), on the other hand, where the FEN can both govern and license, we expect single consonants word-finally, clusters of two consonants, and long vowels in the preceding syllable. As for the single consonants, the presence of both lateral forces is claimed to produce disjunctive behavior between internal and final codas. However, granted that the situation is indeed different from (16a), it is difficult to ascertain how the final consonants should differ from internal codas. Scheer assumes that they will be stronger, but in a system where the two opposite forces cancel each other out it is far from clear what exactly makes the final codas stronger, or indeed what prevents them from being weaker than internal codas.

The other two effects generated by the configuration in (16b) are much more clear. Namely, it is able to produce final clusters (^{OK}...CVC$Ø_1$C$Ø_{FEN}$), because now $Ø_1$ can be properly governed, and may generate long vowels before word-final consonants – with FEN being able to govern and license, the preceding long vowels behave as if they were in open syllables. Thus, the settings in (16b) are responsible for what is in other models referred to as extrasyllabicity.

There is also a phonotactic effect that (16b) can generate, which is not sufficiently advertised in LTP. We have already noted in the discussion of words like *act* (/æk$Ø_1$t$Ø_{FEN}$/), that $Ø_1$ must be governed by $Ø_{FEN}$. Meanwhile, if the final empty nucleus is also allowed to license the preceding consonant, then, by virtue of this configuration, the position of the final consonant /t/ would be relatively stronger than that of /k/. In fact, we would be dealing here with a version of the Coda Mirror, only the licenser would be empty.[36] This configuration might be made responsible for the recurrent phonotactic RT pattern of the final clusters, even though, it must be stressed, there is nothing in the Coda Mirror that tells us that the post-coda onset must be an obstruent, as I suggested in the previous section. A strong position is rather understood as a context where any melody will be relatively safe from lenition. In other words, while the Coda Mirror might be responsible for the preferences with respect to the sonority profiles of final clusters – favoring RT clusters in that position – it does not exclude the full gamut of bogus cluster profiles, that is TT, RR and even TR. There is nothing obvious in the Coda Mirror context found in *act*, that would exclude, **atk, *aml, *akl, *apr*, etc. This is because bogus clusters do not interact in a meaningful phonological way in LTP, as they are produced by government of the intervening empty nucleus, a relation which is blind to the melodies of the surrounding consonants. It seems however, that the entire cluster is somehow related to the shape of the final nucleus, not just the silencing of the intervening empty nucleus. Thus, LTP has yet to say its final word on melodic profiles of final clusters.

[35] Recall our discussion of tonic lengthening in section 7.

[36] The conditional mode of this supposition follows from the fact that at this stage English FENs are believed to be governors but not licensers (Scheer p.c.).

Further extension of (16b) is possible whereby the FEN would also be allowed to government license a preceding infrasegmental relation (T←R). This would account for word-final branching onsets like those in Polish *wiatr* 'wind', Icelandic *snupr* 'scolding', or French *vitre* 'pane'. Such an extension would also allow the model to cover instances of three consonant clusters at the right edge of words, such as the Polish *blichtr* 'sham' (/blix$Ø_1$t←r$Ø_{FEN}$/), where the post-coda empty nucleus $Ø_1$ would be properly governed by $Ø_{FEN}$. This move, however, would not explain why bogus TRs are so restricted at the right edge cross-linguistically, if all that is needed to produce them is the ability of FEN to govern. Nor would it provide any answer to the question how bogus TRs should be distinguished from branching onsets word-finally, if the FEN in (16b) was indeed granted the government licensing power.

To conclude this part of the discussion of (16), one must say that the effects predicted by the settings in (16a) and (16b) cover quite a range of facts concerning the right edge. As we saw, what could be added here is the ability of final empty nuclei to government license, that is, to sanction T←R relations. Government licensing is an additional property of nuclei and it would be necessary to establish if this property is allowed only in (16b) when the FEN is a complete lateral actor anyway, or also in (16a). One can immediately answer the latter question in the negative. A system produced by (16a) and supplemented by the ability of the FEN to government license would have only one type of clusters word-finally, namely, TRs, because any other clustering (TT, RR, RT) requires government of the intervening empty nucleus. Such systems are not found in natural languages, therefore, logically, government licensing must go together with other lateral forces. To be more precise, the presence of government licensing must somehow imply the presence of the other lateral relations in place, though not necessarily vice versa, as final TRs appear in most marked systems. LTP has yet to express the implicational relationship between TR and RT clusters both finally and medially, which was observed in Kaye and Lowenstamm (1981), whereby the presence of TR implies the existence of RT in a given system and not vice versa.[37] Let us now turn to (16c,d) in which government and licensing are manipulated separately.

The remaining two configurations in (16) are to demonstrate that independent deployment of governing and licensing relations produces existing empirical situations. The setting in (16c), with only licensing present, is able to generate only single consonants word-finally, and no clusters. These consonants are predicted to be relatively strong, because being licensed but not governed, they are formally in a Coda Mirror context. Thus, in fact, in (16c) we are not just dealing with a final coda that happens to be stronger than the medial ones. It is, in fact, a new strong position, identical to post-coda and word-initial contexts, which for some reason does not figure in the typology of strong positions discussed in LTP.

As for the ability of this FEN to government license, the situation resembles that of (16a). If a FEN that does not govern was able to government license then the configuration in (16c) would be able to produce final branching onsets (T←R), at the same time disallowing any other clusters. The two points concerning (16c) should be sufficient to abandon the possibility of having such a parametric setting.

Finally, let us consider (16d). This configuration is the most controversial. It predicts that a single consonant followed by a FEN with such properties will be very weak (p. 648). Although, no doubt, there are languages with harsh melodic restrictions in that position (Bell 1971), the idea that FEN can govern its onset, but not license, may turn out to be highly problematic for LTP. Scheer himself points out on a few occasions that internal codas may be melodically equal to final codas, or weaker, but not stronger. This implication was to be derived from the fact that medial empty nuclei never take the role of lateral actors, while the

[37] See e.g. Cyran (2003) for a GP take of these markedness tendencies.

final empty nuclei may. Unfortunately, while we still cannot understand how this implication follows from the ability to act as a governor and licenser, we know for sure that the configuration in (16d) generates the opposite effect to the one intended by Scheer. In (16d) LTP predicts that a final coda will be much worse off than the internal one because it is governed, while internal codas are not bothered by any lateral relation from the following nucleus.

Additionally, the arrangement in (16d) is able to generate clusters by virtue of the governing relation which may be directed at the preceding empty nucleus ($CVC\emptyset_1C\emptyset_{FEN}$). A system possessing word-final consonant clusters, while its single final consonants are severely restricted, is also not very likely from the point of view of typology and markedness, especially that the consonant clusters, contrary to single consonants in this system, will have no reason to be melodically restricted. This is because destructive force of government from the FEN will be dispensed at silencing the intervening empty nucleus. Note however that this time the situation is slightly different from what we speculated about in connection with words like *act*, because, formally, the word is predicted to end with two identical codas, that is, both consonants are neither licensed nor governed. The question is if this reflects an existing situation, that is, a language in which final clusters will show similar melodic status. If word-medial codas in such a system are only sonorants, then we can predict that the final clusters will be of the RR type only.

This assessment may be oversimplifying things a little. Nevertheless it appears that the idea of the independent deployment of the lateral relations in the case of final empty nuclei yields unwelcome results, and may need to be reconsidered. However, this refers only to half of the configurations in (16). The rest stands and looks very promising. What needs to be changed is the nature of the parameters defining the properties of final empty nuclei. In a nutshell, morphology may tell the FEN to act like a vowel, that is, become a complete lateral actor, or not. It does not have access to the individual lateral forces independently. One may hope, that together with the redefinition of T←R relations, also government licensing will find its place in this system of parameters somehow.

12. Conclusion

Theoretical assumptions are only assumptions. It is up to scientific methods to evaluate their adequacy. Despite the critical comments above, the model built by Scheer covers a vast area of syllable-related phenomena and represents an insightful contribution to the theory of phonology. At the beginning of this review, it was said that CVCV is elegant in its extremity. Indeed, the sweeping assumption, stipulating that the phonological structure is built on a strict consecution of C and V positions, is more or less as far as one can go in simplifying the structure. It would appear that the phonological machinery that would have to operate on this abstract backdrop to derive the required concrete effects can be all but simple. Scheer's unquestionable contribution to the CVCV assumption is that he managed to reduce all the devices responsible for segmental interaction to just two: government and licensing, creating a system of dependencies which is able to cover all major syllable-driven phenomena. Notions such as codas, closed and open syllables, closed syllable shortness, compensatory and tonic lengthening, extrametricality, extrasyllabicity, stress attraction, strong and weak positions, vowel – zero alternations, and many others receive new definitions in LTP, as well as new interpretations, which more often than not combine a number of seemingly unrelated aspects. This is a direct effect of the paucity of the available mechanisms.

As mentioned earlier, the volume does not present a final stage of the proposal, though it shows enough of the working of the model and of the new way of thinking that it requires.

Surely the Lateral Theory of Phonology and, more generally, the CVCV assumption has a great potential for further research despite, or because of the inherent simplicity.

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