Development of Language through the Lens of Formal Linguistics

Petr Karlik (ed.)
Preface

The following book was written under the auspices of the Centre for Interdisciplinary Research into Ancient Languages and Early Stages of Modern Languages (MMS 0021622435) at the Faculty of Arts, Masaryk University in Brno, Czech Republic. Its publication has been motivated by a well-known fact that formal approaches to language are typically associated with synchronic linguistics whereas diachronic linguistics is rather connected with traditional philological methods. The goal of this book is thus to demonstrate that formal-linguistic analyses of diachronic language data can not only represent known facts in a new light, but also reveal new facts that have remained hidden to traditional philology.

Therefore, I have invited prominent linguists from distinguished European and American universities to participate in this project, mostly people involved in Slavonic studies and, also linguists of other orientations. Particular studies analyze various phonological, morphological, syntactical, lexical and semantic phenomena, in typologically and genetically diverse languages.

The idea to compile this book emerged during innumerable debates with my colleague Markéta Zíková who originally intended to participate, as a phonologist, in this project. However, pleasant maternal duties have intervened in the end. You will certainly be, dear Markéta, as good a mother as you are a good linguist!

The publication has been made possible thanks to a substantial help of two young colleagues of mine, Jana Zmrczíková and Aleš Bičan, who prepared the particular chapters for printing, sometimes typographically quite challenging. They deserve my gratitude for this. I also would like to thank Prof. George Cummins, Tulane University, for improving English in some of the chapters; all of the remaining shortcomings are mine.

Petr Kralík
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Lenition in branching onsets in French and in ALF dialects

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1. Introduction

Romance languages have long been a privileged theatre for positional phenomena, i.e. lenition and fortition. In the late 19th century, it was probably the young discipline of Romance studies that evidenced the systematic relationship in phonology between the position of a segment in the linear string and its relative strength. When Bourciez (1967:122, first edition: 1910) for example summarizes the findings of the first generation of romanists, he emphasizes the central role played by positional factors in the evolution of segments.

If since these days the lenition and fortition of simplex consonants was amply documented in Romance and elsewhere, little may be found in the literature on the behaviour of branching onsets (explosive groups in traditional terminology). This is true on both the empirical and the theoretical side. This double vacuum is the starting point of our article.

The Coda Mirror (Ségrel & Scheer 2001, 2005, 2008, Scheer 2004:§110) is a general theory of lenition and fortition that takes advantage of the tools of so-called CV.CV (or strict CV, Löwenstamm 1996, Scheer 2004). It offers an explanation for the contrast between weak positions (intervocalic and codas) and the Strong Position (French position appuyée ‘bolstered position’: word-initial and post-consonantal). However, the Coda Mirror only covers simplex consonants. Regarding branching onsets, it does worse than making a wrong prediction: no prediction at all is made. It is well known, though, that just like simplex consonants TR clusters are also affected in languages where lenition processes are active (T is shorthand for obstruents, R for sonorants). The fact that other theories do not fare any better is not a reason for the Coda Mirror to be unable to make sense of this strange animal TR.

In this situation, another peculiarity of TR groups that is entirely unrelated to lenition may offer a line of attack: in CV.CV, branching onsets are the only non-local structures in the sense of syntactic locality (Relativized Minimality, Rizzi 1990). They will therefore be modified below in order to comply with locality requirements.

It so happens that this move, which responds to a purely theoretical issue, modifies the Coda Mirror in such a way that a clear prediction is made regarding the lenition of branching onsets, without the behaviour of the theory being changed otherwise. The prediction made appears under (1) below.

(1) within a branching onset TR, T and R behave in regard of lenition as if they stood alone, i.e. as if the other segment were not there.

Note that this is anything but a trivial prediction: it is intuitively awkward and empirically improbable that a language disregards and forgets about items that are physically and cognitively material. Nevertheless, we will see that this is how French and the dialects recorded in the ALF (Atlas Linguistique de la France, Gilliéron & Edmont 1902–1912) behave (as well as Celtic and the Tuscan dialect of Italian).

The second half of the article thus runs the prediction under (1) against the evidence from the languages mentioned. Due to space restrictions, Celtic and gorgia toscana can only be referred to in passing; we concentrate on the dialectological material, also because it pro-
vides non-static evidence in form of isoglosses: the prediction is that the isoglosses of simplex T and of T that occurs in TR clusters fall together.

We first expose relevant properties of CVCV as well as the inability of the Coda Mirror to make any statement at all regarding branching onsets in section 2. Section 3 introduces the problem that branching onsets as currently conceived of in CVCV have with locality, and proposes a remedy. Based on the modified representation of branching onsets, the Coda Mirror then imposes (1). Finally, sections 4 and 5 run this prediction against the diachronic development of French and the diatopic evidence that is offered by the dialects of the ALF.

2. CVCV, the Coda Mirror and its muteness regarding branching onsets

The Coda Mirror is couched in the framework of Government Phonology in general, and in the approach to syllable structure that is called CVCV (Löwenstamm 1996) in particular. The latter reduces syllabic constituency to a strict sequence of non-branching onsets and non-branching nuclei. Rather than by arboREAL structure, syllabic generalizations are expressed by lateral relations among constituents, government and licensing. It may be seen under (2) that in this environment the coda context \( \text{\#}(\text{C}, \text{C}) \) ("word-finally and before a heterosyllabic consonant") identifies as _\(\text{a}\) (_before an empty nucleus", the contrast between a coda-onset cluster VC.CV and a branching onset V.CCV is discussed shortly).

(2) consonants in coda position are neither governed nor licensed
intervocalic consonants are governed and licensed
\[
\begin{align*}
a. \text{internal coda } & \_\text{C} & \text{b. final coda } & \_\text{C} & \text{c. } \text{V}_\text{c} & \text{V} \\
\text{G} & \downarrow & \text{G} & \downarrow & \text{G} & \downarrow \\
\text{V} & \text{C} & \text{V} & \text{C} & \text{V} & \text{V} \\
\rarrows & \downarrow & \text{V} & \text{R} & \text{V} & \text{C} \\
\text{Lic} & \downarrow & \text{Lic} & \downarrow & \text{Lic} & \downarrow \\
\end{align*}
\]

The two lateral forces mentioned are always regressive (they apply from right to left) and can only be headed by phonetically expressed nuclei. This is why coda consonants (which occur before empty nuclei: note that only coda consonants occur in this environment) are neither governed nor licensed. By contrast intervocalic consonants are both governed and licensed: their nucleus is phonetically expressed.

We know independently that government has a damaging effect on its target. Licensing on the other hand enhances the segmental expression of its target (Sheer 2004:§125). Given furthermore that empty nuclei can only exist if they are governed, the second consonant of a CC cluster will be licensed but escapes government since its nucleus is called to govern the empty nucleus to its left. This is the description of consonants in (word-internal) strong position: (3) shows that they are licensed (that is, backed up) but unlicensed (i.e. undamaged).

(3) consonants in Strong Position: licensed but unlicensed
\[
\begin{align*}
&\text{a. word-initial consonant } \_\text{C} \quad \text{b. post-coda consonant coda } \_\text{C} \\
\text{G} & \downarrow & \text{G} & \downarrow \\
\text{C} & \text{V} & \text{C} & \text{V} & \cdots & \text{V} & \text{C} & \text{V} & \text{C} & \text{V} & \text{V} & \cdots \\
\text{\#} & \text{C} & \text{V} & \text{\#} & \text{V} & \text{R} & \text{T} & \text{V} \\
\text{Lic} & \downarrow & \text{Lic} & \downarrow & \text{Lic} & \downarrow \\
\end{align*}
\]

If post-consonantal consonants are characterized by the fact of occurring after an empty nucleus, this must also be the case for word-initial consonants: the Strong Position is precisely defined by the uniform behaviour of these two positions in regard of lenition. This conclusion ties in with the proposal that Löwenstamm (1999) has made on the grounds of evidence that is unrelated to lenition: the phonological identity of the beginning of the word is an empty CV unit. The initial CV is depicted under (3).

This is how the network of lateral relations and their inherent effect on targets defines positional strength: the Strong Position disjunction \( \#(\text{C}, \text{C}) \) reduces to a uniform and unique context ("after an empty nucleus"). Its strength follows from the fact that it is licensed but unlicensed. Measured by the impact of lateral relations, the two weak positions are certainly weaker than the Strong Position: they identify, respectively, as unlicensed and ungoverned (the coda) and as both licensed and governed (the intervocalic position). The Coda Mirror is thus able to 1) reduce the two disjunctions (of the coda and the Strong Position) to single and unique phonological objects which 2) are symmetrical (\( \_\text{a} \_\text{vs. } \_\text{e} \)) and 3) define, through the network of lateral relations, the hierarchy of positional strength that is indeed observed across languages. The double symmetry between the Strong Position and the coda regarding their structural description \( \#(\text{C}, \text{C}) \_\text{vs. } \#(\text{C}, \text{C}) \) and the effect produced (strength vs. weakness) can hardly be accidental. The Coda Mirror accounts for this pattern by the pivotal role of empty nuclei: \( \_\text{a} \_\text{vs. } \_\text{e} \).

Let us now turn to branching onsets. In order to see how they fit into the Coda Mirror, we first need to know what they are made of. In CVCV, the standard analysis is that the solidarity between the two members of a TR cluster stems from a lateral relation that the two consonants contract at the melodic level: so-called Infrasegmental Government (IG) is responsible for their cohesion (Sheer 1999, 2004:§14).\(^1\)

\(^1\) Another option is to consider TR clusters as some kind of contour segment (like affricates), which represent one single syllabic position. This is argued for by Ségréal & Sheer (2005) for some, by Löwenstamm (2003) for all languages. This issue is discussed at greater length in Ségréal & Sheer (2005).
3. Syntactic locality applied to branching onsets

In syntax, the extraction of items over so-called weak islands (quantifiers, subjects, heads) is governed by the principle of Relativized Minimality. According to the generalization that Rizzi (1990) has established, the extraction of any of the three categories mentioned over weak islands is possible unless an item is moved over another item of the same category. Under (5) for example, the result of the movement of how, a quantifier, over two heads, repair and think, as well as over a subject, Peter, is well-formed. By contrast, (5) is ungrammatical since a quantifier, how, is moved over another quantifier, the negation element.

(5) 
a. How do you think you repair Peter’s car ___?
b. *How don’t you think you repair Peter’s car ___?

There would be much to dwell on from the syntactic point of view, but we do not need to go into any further detail, also in the interest of space restrictions. The principle of locality (which continues to play an important role in syntactic thinking today) is sufficiently illustrated. A formal description of locality appears under (6) below.

(6) Locality Principle

given two sets of items A and B whose respective members belong to the same lexical category, a relationship between A₁ and A₂ is local if and only if no other item belonging to A intervenes.

This principle rules out (5) since the relationship between the position in situ of how and the position where it is pronounced is interrupted by another quantifier. The same principle also invalidates the phonological structure under (4) where two nuclei, V₁ and V₂, contract a relationship over another nucleus, V₃. On this count, thus, the two categories that are subject to locality restrictions in phonology are onsets and nuclei. This scenario does not appear to be outlandish in CVCV where onsets and nuclei indeed contract lateral relations. Finally, an important thing to note is that branching onsets as under (4) are the only structures in CVCV that violate locality.

It may be objected that there is no reason why a syntactic principle should also govern phonological representations. One may also believe, however, that it is advantageous and desirable that restrictions on syntactic and phonological structure converge. Under the heading of structural analogy (Anderson 1992), this is the line of thought developed in Dependency Phonology, and also in Government Phonology (government in phonology is actually an export from syntax, see Kaye 1990); grammar will have a stronger explanatory potential if the same principles can be shown to be active in distinct modules (such as syntax and phonology).

If the violation of locality by branching onsets in Strong Position under (4) is thus taken seriously, their representation needs to be amended. One thing is sure: the empty nuclei to the left of the TR cluster must be governed, otherwise the entire structure would be ill-formed. There are only two potential governors, though, and we know that considering V₁ as the governor of V₃ leads to the locality violation that we try to do away with. The only alternative is thus to make V₂ the governor of V₃ as under (7) below.

(7) branching onset in CVCV: revised representation

In syntax, the extraction of items over so-called weak islands (quantifiers, subjects, heads) is governed by the principle of Relativized Minimality. According to the generalization that Rizzi (1990) has established, the extraction of any of the three categories mentioned over weak islands is possible unless an item is moved over another item of the same category. Under (5) for example, the result of the movement of how, a quantifier, over two heads, repair and think, as well as over a subject, Peter, is well-formed. By contrast, (5) is ungrammatical since a quantifier, how, is moved over another quantifier, the negation element.
governed, i.e. independently of whether they are pronounced or not. This evolution may be seen as a phonologization of phonology (or, perhaps more accurately, its dephoneticization) since it eliminates the last phonetic condition on a phonological potential (i.e. the ability to govern and license). The move from a non-local to a local representation of branching onsets is described at greater length in Scheer (2000a:199ff, 2000b), where further consequences are also discussed.

Regarding lenition, (7) shows that all of a sudden the Coda Mirror makes clear predictions: both members of the branching onset are now fully integrated into the network of lateral relations. Their respective positional strength is indicated under (8) according to the position of the entire TR cluster, which may stand in intervocalic or in Strong Position (there are of course no branching onsets in codas position).

(8) positional strength of T and R in a TR cluster that respects locality

a. TR in intervocalic position V - V

T and R are both governed and licensed, that is in intervocalic position (cf. (2)c).

b. TR in Strong Position (#,C)

1. T is licensed but ungoverned, i.e. in strong position (cf. (3))
2. R is governed and licensed, i.e. in intervocalic position (cf. (2)c)

A more user-friendly translation of (8) into non-technical vocabulary may be the following: for each member of the TR cluster and for each position in which the cluster may occur, the situation is exactly the one that would be encountered if the other member did not exist (cf. (1)). This is thus the prediction made by CVCV when branching onsets comply with locality. We insist on the fact that this is anything but an intuitive or trivial statement: there is all reason to believe that consonants will not behave alike when they occur in isolation or engage in a cluster.

4. Testing ground I: the evolution of French

The lenition of simplex consonants is well documented in a great many of languages and has led to phonological generalizations that are valid across language families. Quite surprisingly, though, nothing even remotely comparable is available for TR clusters: it seems that nobody has ever tried to collect relevant data from different languages. We were able to identify three cases in the literature where the behaviour of branching onsets is documented for a particular language, but with no point of comparison or ambition to establish a cross-linguistic generalization. The three patterns in question concern the lenition of branching onsets in the prehis-

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2 Note that this prediction concerns the behaviour of consonants in isolation and in branching onsets in regard of lenition, but makes no statement regarding their distribution: certain TR clusters may be banned from a given system, which does not mean that the corresponding simplex consonants are also absent. We will see below that the absence of Vl in French, and of Rl, vlr in Provençal, explains the respective evolutions which appear to contradict the prediction. The illicit character of the clusters in question does not imply that the simplex consonant concerned, v, is also banned: the well-formedness of a cluster depends on the relationship that is contracted between its members (**"con" under (7)), and in the case of French and Provençal, this relationship cannot be established between v and Vl. Since intervocalic v does not contract any Infrasegmental Government with any other consonant, its existence in this position is not correlated to the existence of vlr.

3 The situation of velars is complicated by the interference of various palatalizations. Below velars are not considered for this reason.

4 The cluster vi is indeed absent even in Modern French (except in the onomatopoeitic item viner 'noise of a smash or other impact'. Phonetically, vi may be produced by the absence of a schwa in words such as jusleloj 'spear', devlepunter 'to develop', ensevptl on 'to bury' etc., but obviously the cluster is not a branching onset in these cases. For one thing, the intervening schwa may be mobilized. But also, the phonetic existence of a cluster whose sonority profile qualifies for a branching onset does not guarantee that this cluster has indeed the status of a branching onset: only its behaviour is a reliable diagnostic (cf. Ségalès & Scheer 2005, 2007). In our case, the fact that the clusters in question are not branching onsets is shown by Mid French varieties (i.e. spoken in the Southern half of the country) where mid vowels are in complementary distribution regarding ATR: /o, o/ are +ATR in open syllables (i.e. including before true branching onsets), but -ATR in closed syllables. Consider for example the contrast between fiert (feet) - je fete (she) 'to party, I party', mabelique (mytj) - mure (mytj) 'metrical, metre'. In a case a TR cluster is created because a schwa is left out as in bati(brave) [bary] 'sugar beet', post(e)rieur (poty) 'pottery' and bas(e) (boyar) 'capacious', the pronunciation is necessarily -ATR, witnessing the fact that the following phonetic TR cluster is not a branching onset.
The pool of words that are available and useful is therefore quite severely curtailed by the limited number of words that the ALF represents in space, and also by their geographic (non)homogeneity. A word like fr. ivre 'lips' for example is represented by a number of different Latin etymons across dialects: balotus occurs in Poitevin, poēs and pōtēs are found in Gascon, while bocas appears in Provençal. This word is therefore useless for our purpose since we need to be able to follow the evolution of obstruents in the entire diatopic space, which supposes that they share a common lexical source.

Given these restrictions which eliminate most of the lexical stock that is usually used in French diachronics, our lexical basis is as follows. For -B-, the first level of synthesis (B0) is made of the maps of ABANTIARE (>avancer), ABOCULUS (>aveugle), FABA (>fève) and HIBERNUS (>hiver). Unfortunately BR0 contains only one word, FEBREM (>fière). The synthesis map for BR1 that records secondary clusters is made of BIB(EBRE) (>boire) and SCRIB(ER) (>écrire). Finally, the map BL0 is based again on only one word, OBLITERA (>oublier), while the sources of B1 are SAB(U)LU (>sable), DIAB(U)LU (>diable) and STAB(U)LA (>stable). Based on the synthesis level 0, level 1 groups BR0 and BR1 in order to produce BR1. The same is done for the clusters with laterals: BL0 and BL1 are matched into BL1. Finally, BRL2 is the synthesis of BR1 and B1.

Recall that our goal is to compare BRL2 with B0 (which does not have any more levels of synthesis since it does not represent any variation). However, we must be careful not to compare things that cannot be compared. For example, dialects need to be sorted out when the members of primary (and/or secondary) BR clusters have lost their solidarity, that is when the syllable break has moved in the midst of the cluster (V.BRV > VB.RV). In this situation, the fate of B will of course follow the evolution ofoda consonants. FEBREM for example shows solidary reflexes such as fivre, but also appears with vocalized B as in fivre (e.g. in Limousin); TAB(U)LA produces the solidary result table as much as non-solidary reflexes such as tole (in Bourguignon) and taua (in all Occitan varieties). In the case of labials, non-solidary outputs typically produce vocalizations into [w]. These are indicated in our synthesis maps, but not taken into account for the comparison between B0 and BRL2. This is because our goal is, recall, to compare solidary TR clusters with simplex Ts. If [w] is the result of a non-solidary evolution in codas position, it is obvious that these reflexes lie outside of our investigation.

Finally, it goes without saying that the manufacturing of each synthesis map requires making decisions that can only be based on general dialectological expertise, and on the knowledge of the particular Gallo-Romance field. Every map encloses thus a certain amount of subjectivity, and is an analysis by itself. All maps mentioned (BR0, B1R0 etc.) exist materially and will be presented elsewhere – unfortunately for the sake of space restrictions they cannot be included here. Under (13) below, we only show the final comparison that superposes B0 and BRL2 (non-solidary reflexes of -BR- appear in grey).

3 An area that is not represented on the map below is located on the Western side of the Garonne, but excluding Médoc and Basam (32 points of inquiry: 641, 645, 648, 653, 656–599, 662, 664, 667–69, 672, 674, 676, 678–82, 687–89, 696, 698, 699, 760, 771, 780, 781, 790). In this area -B- comes out as -w-/p-, but the comparison with -BR- is inconclusive because of a metathesis that affects -BR- clusters in these dialects (e.g. FABA > fawei vs. FEBREM > reflé).
It may be seen that the superposition of the isoglosses that represent B in isolation and in clusters is complete, except for Provence (encircled) where B spirantizes (B>v), but BR does not (BR > BR). A useful observation is certainly that this is exactly the area where Latin V ([w] strengthens into [b]) (VACA > baca). But it is the complete absence of [vr] in Provençal that provides the critical clue: the language "tries" to spirantize B everywhere, but cannot produce a result that happens to be ill-formed in the output system. We are thus facing the same mechanism in Provençal that we have already come across in French (cf. above: BL, PL > **v*, hence > b), except that this time vr is just as ill-formed as vl: neither cluster occurs in Provençal dialects. In fact, there is reason to believe that the state of affairs in Provençal represents the primitive stage of all Occitan systems: following this scenario, the asymmetry -B- > -v- vs. -BR- > -br- was in place everywhere before so-called betacism (béticisme) "restored" the -v- to -b-. Provençal is then peculiar insofar as it did not implement betacism.6

Whatever the correct diachronic scenario (ill-formedness of **v/br only in Provence or Provence taking exception to betacism), the result confirms our initial analysis where the grammar "tries" to produce the output predicted, but cannot proceed for independent reasons.

Let us now turn to P. The method is the same as before, and our lexical basis is as follows: P0 CREPANT (>crêvent), NEPOTE (>neveu), *ARRIPARE (>arriver), TROPARE

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6 Betacism is discussed for example in Ronjat (1932:§225) and Boc (1973:65); see also Saultz (2006). These sources, however, are not explicit on the question that is of interest here, i.e. whether betacism has applied to a Common Occitan where spirantization was complete. We are indebted to Patric Saultz who shared his expertise on the matter with us.
In this context, an independent phenomenon that is characteristic for Poitvin deserves to be mentioned: so-called parasitic -k (Pignon 1960:471f), which appears "spontaneously" and without etymological grounds in word-final position. Parasitic -k can thus be found in place of the word-final consonant that is expected given the Latin input. For example, nük, nuk, luk represent NIDU, NODU, LIPU (but the etymological consonant of louve 'she-wolf' is preserved: loube/louue). This instability of word-final consonants, or their concurrence with parasitic -k, may have played a role at least for one of the ill-behaved words, LOPA.

In sum, then, we are facing a deviance that is lexical, rather than systematic or phonological. There is no reason to call into question the basic regularity, which also rules in Poitvin.

6. Conclusion

In the preceding we have tried to show that phonological theory and dialectology may cohabit in good intelligence: in our case, a purely theoretical concern modifies the model which up to this point had nothing to say regarding the lenition of branching onsets. As a consequence, the theory (which remains unchanged otherwise) makes a precise prediction that is borne out by the echo from the diachronic development of French as well as from ALF dialects. In both cases, a generalization is unearthed that seems to have gone unnoticed. The heuristic value of this generalization is especially empowered by the diatopic witness that mobilizes a great many individual grammatical systems and hence multiplies the sources of variation: the superposition of the two relevant isoglosses that nothing predestinates to coincide is almost complete, in any case much too close in order to entertain a non-systematic or fortuitous perspective on their relationship.

Unfortunately, the behaviour of branching onsets in regard of lenition is not well documented across languages. However, the two other cases that we are aware of, Celtic and gorgia toscana, follow the pattern that is witnessed by French and ALF dialects. This is encouraging and allows us to envision a convergence that makes the generalization discussed a candidate for a more general regularity. If this is true, we will also have learned something about the structure of branching onsets, and about how their members interact.

References


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