

## BOOK REVIEW

Zampaulo, André. *Palatal Sound Changes in the Romance Languages. Diachronic and Synchronic Perspectives*, Oxford Studies in Diachronic and Historical Linguistics, Oxford University Press, 2019.

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The book *Palatal Sound Changes in the Romance Languages* by André Zampaulo is about the inception of (alveolo)palatal consonants in Early Romance and the later development of these consonants in the Romance languages. It is a valuable contribution to the topic of sound change in so far as it deals with the phonetic motivation of palatalization processes and proposes a formal account of these phonetic changes within the Optimality Theory (OT) framework. The book is divided into a short introduction, five central chapters, and a brief recapitulation. Chapter 2 ('Theoretical considerations') makes several considerations about the origin and spread of sound change, and about the operational principles of OT. Chapter 3 ('The phonetics of palatals') deals with the articulatory characteristics of (alveolo)palatal consonants based mostly on articulatory data reported in experimental studies during the last thirty years or so. Chapter 4 ('Palatals in the history of the Romance languages') formulates several hypotheses about the articulatory and acoustic motivation of the palatalization and assibilation processes which operated essentially on Latin dentoalveolars and velars before [j], in clusters such as [kt] and in strengthening conditions, and gave rise to series of new (alveolo)palatal consonants such as [j], [ʎ] and [ɲ] (and also to palatoalveolar affricates and fricatives) in Early Romance. Chapter 5 ('Palatals in the Romance languages today') is about palatalization and depalatalization changes that have occurred modernly, mostly in Spanish dialectal varieties spoken in Spain and Latin America. Somewhat surprisingly the book offers very little data on the diachrony and synchrony of palatal consonants in French, Italian and other Romance languages such as Rhaetoromance, where consonant palatalization has been very productive. Finally, chapter 6 ('Palatals in the Romance languages: A unified account') presents an OT analysis of the sound changes described in the preceding chapters. The book is written very clearly and is thus a pleasurable read.

The information provided in chapter 3 is accurate though I cannot fully agree with the unification of [c]/[ç], [ʎ], [ɲ] and [j] with the term

‘palatal’ since phonetic detail is crucial for interpreting the inception of sound change. Articulatory data gathered with electropalatography and ultrasound show, for example, that [ɲ] is generally not palatal but alveolopalatal in the Romance languages, and that, due to manner of articulation requirements, [ʎ] cannot be articulated exclusively at the palatal zone but is either alveolar or alveolopalatal. Several other remarks need to be made. The difference between the spectra for [i] and [j] could be explained more clearly on pages 33-34: all positional and contextual conditions being equal, one would expect [j] to have a lower F1 and a higher F2 than [i] since F1 should lower and F2 should rise with a reduction in dorsopalatal constriction width. On the other hand, there is no “palatal articulation embedded” in [ɲ] (p. 39); thus, the [j]-like segment that one may hear at the offset of [ɲ] is the auditory impression associated with the [j]-like articulatory release of the alveolopalatal nasal, which proceeds from front to back and thus takes place at the alveolar zone before it does at the palatal zone.

In chapter 4, a convenient difference is made between [ʎ]<sub>1</sub> and [ʎ]<sub>2</sub>, the former variant being the general outcome of Latin word-medial [lj] and [kl gl] (Tuscan Italian [ˈpaʎ:a] PALEA ‘straw’, Catalan [uʎ] OC’LU < OCULU ‘eye’), and the latter that of Latin word-initial [pl fl kl] and [l] as well as of word-medial [l:] in a more restricted linguistic domain (Spanish [ˈʎaβe] CLAVE ‘key’, [ˈbaʎe] VALLE ‘valley’, Catalan [ʎas] LAQUEU ‘tie’). Following the view advocated by Repetti & Tuttle (1987), it remains unclear however whether a chronological difference should be made between word-medial [kl gl] and word-initial [pl fl kl] at least in the case of those Romance languages and dialects where these clusters have yielded essentially the same outcome irrespective of position, e.g. [Cj] in Tuscan and Romanian (Tuscan Italian *occhio*, *chiave*), and [Cʎ] word initially and [ʎ] word medially in dialects of French and Francoprovençal and in Ribagorçan Catalan. In agreement with Zampaulo (see also Malmberg 1965), there is need for rule ordering in Spanish: the simplification of word-initial [Cʎ] and the change from [l:] into [ʎ] ([ˈʎaβe], [ˈbaʎe]) may certainly have occurred after [ʎ] derived from Latin [lj] was delateralized into [ʒ], from which [ʃ] and [x] – in this order – arose at a later date ([ˈaxo] ALIU); otherwise, the two sounds would have merged. Likewise in Catalan, [l:] and word-initial [l] have yielded [ʎ] perhaps after word-medial [lj kl gl] did since only the latter sequences have changed into [j] or stayed as [ʎ] depending on dialect ([ʎas] LAQUEU, [baʎ] VALLE but [uj] OC’LU < OCULU, [ˈpaʎə] PALEA in Balearic Catalan). In principle, this chronological explanation sounds more feasible (though it cannot be proven with certainty) than the possibility that merging did not occur because [ʎ] was articulated

differently depending on etymological origin, as contended by Lapesa (1981) for Spanish and by Coromines (1976) for Catalan. Judging from the Mozarabic outcomes [ɲ] of Latin [ɲj] and [ɲ] of Latin [ɲ:], the same chronological ordering may have operated in the case of the (alveolo)palatal nasal, which is the palatalization outcome of the two Latin sequences in Spanish ([mon'taɲa] \*MONTANEA, ['aɲo] ANNU) (Michele Loporcaro, personal communication).

Regarding the sound change pathway for the velar + /l/ sequences of interest, Zampaulo assumes that the outcome [ʎ] of word-medial [kl gl] was generated through progressive palatalization after the velar vocalized into [j] syllable finally, i.e. [kl] > ([ɣl]) > [çl] > [jl] > [ʎ]. He dismisses other proposals such as Wireback's (Wireback 2005, 2010) according to which C1 and C2 in words like OC'LU < OCULU 'eye' became tautosyllabic after the fall of the unstressed vowel, syllable-initial [kl] palatalized into [kʎ] through blending between the tongue dorsum gesture for [k] and the tongue front gesture for [l], and finally the velar stop lenited and dropped ([kl] > [kʎ] > [ɣʎ] > [ʎ]). A similar interpretation has been proposed for other velar + front lingual consonant sequences such as /kt/ (European Portuguese ['lajt̪i], Spanish ['let̪e] LACTE 'milk'), i.e. syllable-final vocalization followed by progressive assimilation (Zampaulo) *vis-à-vis* blending of the lingual gestures for the two successive consonants into a single, more or less intermediate articulatory realization (Wireback). In our view Wireback's explanatory hypothesis is to be preferred to Zampaulo's. Indeed, derivations such as [kl] > ([ɣl]) > [çl] > [jl] are not convincing for several reasons. Tongue contact data reported by ourselves (Recasens & Pallarès 2001) show that a lenited realization of the velar stop should stay velar and even become uvular before [l] (mostly whenever the alveolar lateral is dark) and a rhotic, and therefore cannot develop into [ç] and later on into [j] in these contextual conditions. Therefore there is no need to assume that the velar was syllable final for palatalization to occur. Articulatory data for a subset of those consonantal sequences from several languages (see, for example, Byrd 1994 for English and the above-cited study for Catalan) reveal instead that gestural blending is the regular production mechanism at work. The advantage of Wireback's approach is that it allows generating several outcomes such as [t̪:], [jt̪] and [ç] for /kt/ to be found, respectively, in Tuscan Italian (['lat̪:e]), Portuguese (['lajt̪i]) and Romansh ([lac]), by assuming that different degrees of blending may have taken place depending on factors such as speaker and speech rate. Another relevant consideration is that derivations such as [kl] > [çl] > [jl] > [ʎ] assume that a segment ([ç] in this case) should be present for the glide [j] to be heard. We feel that this

segment-based view of several sound changes needs to be abandoned. In order to interpret in a more realistic fashion how sound changes such as the present one may have occurred, one should think less in terms of separate phonetic segments as in the production and perception mechanisms used by speakers and listeners. Thus, for listeners to hear a glide at the onset or offset of an (alveolo)palatal consonant there is no need for a specific phonetic segment trigger to be present before or after it: provided that they are prominent enough, the VC or CV acoustic transitions may give the impression that an independent segment [j] has been produced by the speaker when in fact this has not been the case. It also needs to be mentioned that in some instances the preconsonantal glide [j] may be generated from the (alveolo)palatal consonant itself rather than being associated with the etymological velar, a possibility which could justify its presence before [ʃ] in Western Catalan vs Eastern Catalan independently of etymological origin (Western [ejʃ], [bajʃ], Eastern [eʃ], [baʃ] for AXE ‘axis’, \*BASSIU ‘low, masculine singular’).

The same criticism raised for [kl] and [kt] above may be applied to the development of Latin [gn], which has yielded essentially [n:], [jn] or [jɲ(:)] in Romance (Spanish ['puɲo] PUGNU ‘fist’, Southern Italy ['ajnu] AGNU ‘lamb’, Sardinian ['lin:a] LIGNA ‘wood’). For the two latter outcomes, Zampaulo’s opinion is that [gn] vocalized into [jn] after which [jɲ] was generated through progressive palatalization. Along Wireback’s proposal, we may assume instead that blending involving the dorsal gesture for a nasalized velar stop realization of C1 or even [ŋ], and the front lingual gesture for C2, corresponding to [n], gave rise to all three outcomes: [n:] (little C1 reduction, much gestural overlap between C1 and C2); [jn] (moderate C1 reduction, categorization of the VC transitions as a glide); [jɲ(:)] (maximal blending degree between the lingual gestures for C1 and C2). In addition to supporting a development [ɲn] > [jɲ(:)], Baglioni (2014) argues convincingly that [ɲn] may have yielded outcomes such as [n:] in Sardinian and [mn] in Romanian. As to the change of [gn] into [jn] to be found in central and southern Italy in forms such as ['ajno]/['ajnu]/['ajnə] of AGNU, it is worth mentioning Merlo’s alternative interpretation involving vowel epenthesis followed by vocalization of an (alveolo)palatal or palatalized realization of the front velar stop consonant (\**aginu* > *a[j]ino* > *a[j]eno* > *a[j]no*; Merlo 1908).

Regarding other sequences which have undergone the palatalization process, there is in principle no need to attribute to syllable division the lack of voicing and possible lengthening of the stop and the strengthening of [j] into an affricate in the case of the Latin sequence [pj] (i.e. *sap. ja* > Old Occitan *sapcha*, French *sache*; p. 79). Indeed, even if both the

stop and the following glide occur as a cluster in syllable-initial position, these events may be attributed to a rise in intraoral pressure during the stop closure and an increase in dorsopalatal constriction narrowing during the glide whenever the consonantal sequence occurs immediately after stress. Analogous phenomena, i.e. stop lengthening instead of lenition, may take place in voiced stop + [l] sequences (Central Catalan ['pɔb:lə] POPULU, ['reg:lə] REGULA, as opposed to Valencian Catalan ['pɔβle], ['reɣla]). As to the change from Latin [ki ke kj] to [ts] in Western Romance and to [tʃ] in Eastern Romance (Old Catalan [tsen], Tuscan Italian ['tʃento], both derived from Latin ['kentu] CENTU 'one hundred'), it is unclear whether the alveolar affricate was generated from the palatoalveolar affricate as believed by Zampaulo and other scholars ([ki ke kj] > [c] > [tʃ] > [ts]) or else the two affricates were generated independently from a common (alveolo)palatal stop source ([ki ke kj] > [c] > [tʃ], [ts]). As argued by Ringenson (1922, 1930) and Duraffour (1932), the pathway [c] > [ts] appears to be needed for the phonetic outcomes of Latin /ka/ at least in order to account for the Francoprovençal and northern Occitan scenarios where the outcome [tʃ] is absent ([<sup>h</sup>tsivra], [<sup>h</sup>tsabro] CAPRA 'goat' as opposed to [ʃevʁ] in French). Shifting back to etymological front velars and (alveolo)palatals, the reconstructed pathway \*[ki], \*[ci] > [tsi] > [si] has been proposed for the Bantu languages (Janson 2007, Hyman 2003), and there is no clear reason for advocating an intermediate palatoalveolar affricate in order to explain why velar or palatal stop softening has yielded front lingual outcomes such as [ts]/[s] in Indo-Aryan, Slavic and Athabaskan languages, Old Albanian, Old Armenian, Old Frisian, Latvian and dialects of Greek, Vietnamese, Arabic, Korean and Chinese (Recasens *in press*).

Other phonetic developments which have operated on (alveolo)palatal consonants deserve some comments. A relevant assumption to be found in the book is that the change [ʎ] > [ʒ] (> [ʃ] > [x]) in Old Spanish in words like *paja* PALEA must have occurred through the intermediate palatal approximant [j], i.e. [ʎ] > [j] > [ʒ] (> [ʃ] > [x]). The reason for this assumption is that a direct change [ʎ] > [ʒ], which has been advocated by other scholars (Malmberg 1965), does not occur in Romance and lacks an obvious articulatory motivation. While it may be hypothesized that the change of [ʎ] into [ʒ] has taken place at the same time as etymological [j] in Argentinian Spanish and thus after [ʎ] shifted to [j] ([<sup>h</sup>ʒaβe] CLAVE 'key', [<sup>h</sup>maʒo] MAIU 'May'), it seems to us that a direct change [ʎ] > [ʒ] cannot be discarded at least for other dialectal scenarios; indeed an increase in airflow through the lateral passages (which Malmberg identifies as a sign of strengthening) may cause

friction to occur during [ʎ] in a similar, but by no means identical, way to the assibilation of rhotics. This sound change mechanism could very well account for the situation in dialects such as those spoken in zones of Ecuador and the Estero region of Argentina where [ʎ] but not [j] has yielded [ʒ] ([ˈʒaβe], [ˈmajo]/[ˈmajɔ]).

Another interesting case is the development in Old Spanish of [j] derived from Latin [j] into [ʒ] and from here into [x] only before a back rounded vowel, as in [ˈxweɣo] IOCU ‘game’, [xweθ] IUDICE ‘judge’ *vis-à-vis* [ˈjaθe] IACET ‘(s)he lies’. According to Zampaulo, the acquisition of sibilance before a back rounded vowel occurred since [j] fronted its articulation toward the prepalatal region in this vowel context due to a dissimilation process between the articulatorily close tongue body gestures for the consonant and the vowel. Experimental data show however very little vowel-dependent coarticulation in constriction fronting during [j] and no [j] fronting in the context of [u] (see for example Recasens & Pallarès 2001), which suggests another interpretation for the Old Spanish case: [j] may have yielded [ʒ] at least before high [u] through an increase in dorsopalatal constriction size involving some concomitant raising of the tongue predorsum and perhaps the tongue blade as well.

The most innovative aspect of the book is undoubtedly the OT analysis presented in chapter 5 where the author incorporates several notions about sound change: speakers impose phonetically-based constraint hierarchies, and innovative listeners may hypercorrect the signal thus giving rise to sound changes through a reranking of those constraints. The incorporation of more phonetic knowledge to the OT analysis is certainly relevant, and should be paid attention to for building up realistic constraint hierarchies in future OT studies together with other aspects such as the frequency of occurrence and probabilistic distribution of phonetic categories. A set of phonetically motivated constraints could be refined by taking into account subtle differences in degree of coarticulatory resistance and aggressiveness for consonants and vowels. Much remains to be known about the strategies that listeners use when replacing one sound by another. It also deserves to be seen whether OT can handle cases of gestural blending such as the ones proposed for some of the sound changes of interest by Wireback and other scholars.

Another positive aspect about the book is that it helps to refine the way we think about the causes of some change. We have already mentioned the need for explanations about the causes of sound change to be less dependent on segment-based approaches as on the production and perception strategies used by speakers. We should also be prepared to assume that a given sound change outcome may be achieved through more than one phonetic derivation, and conversely that a given

articulatory realization may yield several phonetic outcomes whenever listeners use different strategies to decode it. A final remark about the relationship between the inception and the diffusion of sound change is in order. Traditional historical grammars include separate phonetic derivations for each etymological sequence and thus assume, for example, that palatalization operated independently on /kt/, /ks/, /kl/ and /gn/. It may very well be instead that once one of these consonantal sequences achieved a certain pronunciation, other similar sequences just accommodated to it through some sort of analogical process. This is where notions such as predictability shaped by mainly, though not only, frequency of occurrence of those clusters in the lexicon may have played a relevant role (Hall *et al.* 2018).

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