Palatalization in sC clusters in Latvian

Olga Urek
UiT The Arctic University of Norway

Representation of sC clusters has been a matter of much debate in the phonological literature over the years. The reason for the continuing focus on sequences of this type is their strong cross-linguistic tendency to pattern differently from other clusters when it comes to phonotactics, phonological acquisition and phonological processes. One of the central issues in the theoretical debate surrounding sC clusters is whether all clusters of this type should be represented in the uniform way, regardless of whether they violate the sonority sequencing principle (s + obstruent clusters) or satisfy it (s + sonorant clusters). In this paper, I use the application of palatalization as a diagnostic to argue that word-medial sC clusters in Latvian are syllabified differently depending on their sonority profile and segmental context. Namely, I show that s+sonorant sequences are tautosyllabic, intervocalic and post-sonorant s+obstruent sequences are heterosyllabic, and the representation of stop+s+stop sequences requires a word-internal appendix. I also provide a substance-free representational analysis couched within Optimality Theory (Prince & Smolensky 1993/2004).

In Latvian, all nominal stems have a theme vowel immediately following the root. When followed by back vowel-initial suffixes, theme vowels /i, e/ undergo strengthening to [j] and trigger palatalization of the root-final alveolar consonants (Halle 1992, see also *Author* 2016). The process affects plosives, sibilants and sonorants alike, as illustrated in (1a). While the trigger itself deletes in palatalization contexts, it gets to surface as a palatal fricative after labial-final roots (1b).

(1) *Yod-palatalization of root-final singletons*

			Gen. pl.		Dat. sg.	
a.	/zut-i-u/	→	[zuʃ-u]	cf.	[zut-i-m]	‘eel’
	/ez-i-u/	→	[eʒ-u]	cf.	[ez-i-m]	‘hedgehog’
	/la:t͡s-i-u/	→	[la:t͡ʃ-u]	cf.	[la:t͡s-i-m]	‘bear’
	/pel-e-u/	→	[peʎ-u]	cf.	[pel-e-j]	‘mouse’
b.	/skap-i-u/	→	[skap-ʝu]	cf.	[skap-i-m]	‘closet’
	/zi:m-e-u/	→	[zi:m-ʝu]	cf.	[zi:m-e-j]	‘sign’

Notice that yod-palatalization only applies in cases where the underlying front vocoid would be syllabified in the onset position. For this reason, elsewhere I argue that Latvian yod-palatalization is driven by syllable wellformedness considerations, and namely the interaction between onset phonotactics, onset maximization and SSP (see *Author* 2016). Under this analysis, restructuring by coalescence emerges as an optimal outcome in cases where the coronal features of the front vocoid can be preserved on the root-final consonant (i.e. with alveolars), and restructuring by re-syllabification is chosen as optimal where the root-final consonant is incompatible with coronal features (i.e. when there is a labial).

Consonant clusters occurring in the palatalizing context do not behave in a uniform way. In tauto- and heterosyllabic non-sC clusters, only the rightmost member undergoes palatalization (2a). The situation with sC sequences is more complex: in s + sonorant clusters, both segments palatalize (2b); in post-sonorant and intervocalic s +

plosive clusters, palatalization is consistently blocked (2c); in post-obstruent s + plosive clusters, palatalization is optional (2d).

(2) *Yod-palatalization in root-final clusters*

a.	/na:tr-e-u/	→	[na:tr^j-u]	'nettle, Gen.pl.'
	/skaitl-i-u/	→	[skaitʎ-u]	'number, Gen. pl.'
	/vals-i-u/	→	[valʃ-u]	'waltz, Gen. pl.'
b.	/kusn-i-u/	→	[kuʃɲ-u]	'flux, Gen. pl.'
	/zizl-i-u/	→	[ziʒʎ-u]	'stick, Gen. pl.'
c.	/ast-e-u/	→	[ast-u] *[aʃʃ-u]	'tail, Gen.pl.'
	/kast-e-u/	→	[kast-u] *[kaʃʃ-u]	'box, Gen. pl.'
d.	/klukst-e-u/	→	[klukʃ-u] ~ [klukst-u]	'brood hen, Gen. pl.'
	/plekst-e-u/	→	[plekʃ-u] ~ [plekst-u]	'flounder, Gen. pl.'

While the behavior of non-sC clusters lends itself to the same analysis as the palatalization of singletons, the motivation for the behavior of sC sequences is less straightforward. I show that palatalization patterns in different types of sC clusters can be captured if we allow them to differ in their syllabification profile.

I analyze /s, z/→[ʃ, ʒ] assimilation in (2b) as a spreading of V-place-[coronal] from the palatal sonorant, and argue that it applies as a way to repair the OCP violation on the feature [coronal]. I also show that in Latvian this process also applies progressively in sonorant + s clusters, and – crucially - that it never applies across syllable boundaries. Therefore, the application of palatal assimilation in s + sonorant sequences indicates that these are tautosyllabic in Latvian. Further, I show that sequences of non-homorganic sibilants – also violating OCP - are repaired via fusion at the level of C-place nodes. The failure of /kast-e-u/ → |kast-ʝ-u| → |kasʃ-u| → [kaʃʃ-u] derivation (2c) is taken as evidence of the heterosyllabicity of intervocalic and post-sonorant s + plosive sequences. In the OT analysis, palatalization blocking in (2c) is formalized as being due to the high-ranking constraint CRISP-EDGE(σ) militating against feature linking across syllable boundaries. Instead, in this case the OCP violation is avoided by blocking yod-palatalization and deleting the underlying vocoid trigger. In (2d), where palatalization applies optionally, /s/ occurring between the plosives is equally ill-formed in the coda of the first syllable and in the onset of the second one, which forces it into the appendix position. Optionality of palatalization in these cases is modeled as a case of crucial nonranking (Anttila 1997) between the UNIFORMITY constraint militating against segmental fusion and σ-CONTIGUITY constraint militating against word-internal appendices.

In sum, this paper contributes to the debate about representation of sC clusters by analyzing the novel data from the under-investigated language. It also provides an explanatory analysis of assimilatory palatalization as a repair for a range of *structural* violations (i.e. syllable well-formedness and OCP violations) instead of stipulating it with constraints like AGREE or SHARE.

References: Halle, M. 1992. The Latvian declension. In G. Booj and J. van Marle, *Yearbook of Morphology 1992* ☸ Prince, A & P. Smolensky. 1993/2004. Optimality Theory: *Constraint interaction in generative grammar*. Malden, Mass and Oxford: Blackwell. ☸ Anttila, A. 1997. Deriving variation from grammar. In F. Hinskens, R. van Hout and L. Wetzels (eds.)*Variation, Change and Phonological Theory*.