Spirantization as a templatic process in Icelandic

Ali Tifrit, Laurence Voeltzel. Lling EA 3827 (Université de Nantes)

Spirantization of stops is a characteristic synchronic phenomenon of the phonology of Icelandic (Thráinsson 2002, Árnason 2012). When preceding /t/ or /s/, Icelandic voiceless stops /p, t, k/ surface as [f, s, x]. This is illustrated in (1):

(1)	(a)	/skɪp/ [scɪ**p**] *ship* NOM.		(a')	/skɪp+s/ [scɪ**f**s] *ship* GEN.
		/baʊ̯t+ʏr/ [baʊ̯**t**ʏr] *boat* NOM.			/baʊ̯t+s/ [baʊ̯**s**ː] *boat* GEN.
		/θak/ [θa**k**] *roof* NOM.			/θak+s/ [θa**x**s] *roof* GEN.
	(b)	/taɪ̯p+ʏr/ [taɪ̯**p**ʏr] *risky* MASC.		(b')	/taɪ̯p+t/ [taɪ̯**f**t] *risky* NEUT.
		/rik+ʏr/ [ri**k**ʏr] *rich* MASC.			/rik+t/ [ri**x**t] *rich* NEUT.
		/veɪ̯k+ʏr/ [veɪ̯**k**ʏr] *weak* MASC.			/veɪ̯k+t/ [veɪ̯**x**t] *weak* NEUT.
	(c)	/ak+a/ [aː**k**a] *drive* INF.		(c')	/ak+tʏ/ [a**x**tʏ] *drive* IMP. 2PS
		/ajp+a/ [ajː**p**a] *scream* INF.			/ajp+tɪ/ [aj**f**tɪ] *scream* PRET. 3PS
		/l̥œjp+a/ [l̥œjː**p**a] *run* INF.			/l̥œjp+tʏ/ [l̥œj**f**tʏ] *run* PRET. 2PS

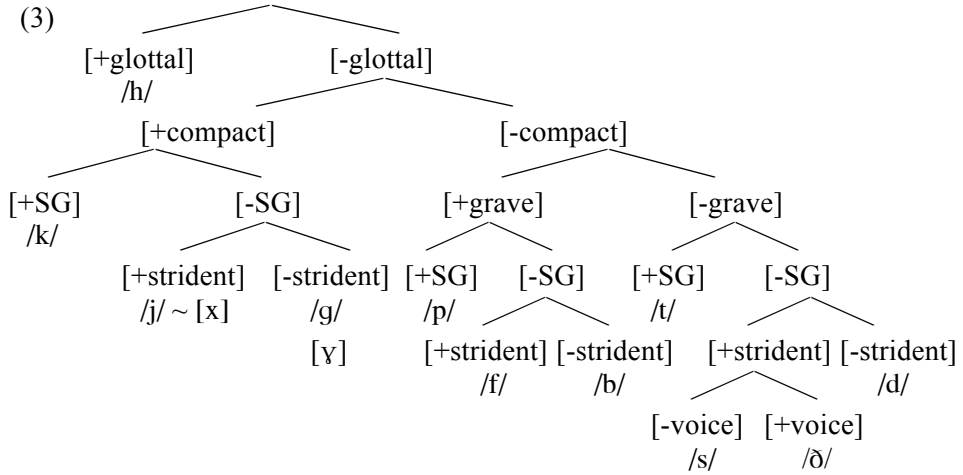
Generally, spirantization is given as a lenition process altering the complexity of stops in coda (*weak position:* Scheer & Ségéral 2001). If being in coda suffices to trigger spirantization, we expect no voiceless stops in a weak position. However, this is not the case in Icelandic, as shown in (2):

(2)	/vœkv+a/ *water*$_{\text{inf.}}$	[vœː**k**va]	*[vœː**x**va]
	/reikvisk+ʏr/ *from Reykjavik*$_{\text{masc.}}$	[reiː**k**viskʏr̥]	*[reiː**x**viskʏr̥]
	/steinn/ *stone*$_{\text{nom.}}$	[stei**t**n]	*[stei**s**n]
	/nefn+a/ *name*$_{\text{inf.}}$	[ne**p**na]	*[ne**f**na]
	/vagn/ *wagon*$_{\text{nom.}}$	[va**k**n]	*[va**x**n]

Looking back at the data in (1), we are facing two problems: first, how to represent the segmental change? Second, what triggers this process?

Segments. The following hierarchy, in (3), was built using the *Contrastivist Hypothesis* (Hall 2007, Dresher 2008). The same behavior is expected for each group of segments under the same node. In the case of spirantization, stops acquire stridency, hence becoming [-SG] (see Iverson & Salmons 1995, Basbøll 2005, Árnason 2012).

(3)



This fact seems counter-intuitive for most of the time scholars consider that fricatives are weaker than stops and should result from *content loss* (Lass 1984). The representation that we get from the hierarchy ([+SG → -SG, +strident]) does not reflect this loss: on the contrary, segments end up more complex than before undergoing spirantization.

This lack of *naturalness* in the representation is not the result of the hierarchical organization *per se*, but rather of the use of binary features. Indeed, even if a feature swaps a

positive value for a negative one, the feature still counts in the segmental content, making lenition impossible to reflect. However, *Element Theory* (KLV 1985, Scheer 1996, Backley 2011) allows us to fully assess content gain or loss: e.g. spirantization of /p/ into /f/ is rendered by the loss of the occlusion element {U **ʔ** H h} → {U H h} – this fits into the lenition scenario.

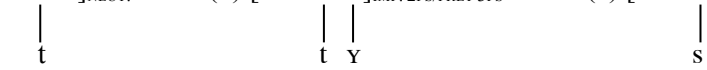
We will show that the contrastive hierarchy, as it stands in (3), should be amended using privative elements, in order to reflect the segmental structure of Icelandic and the processes affecting them.

Trigger. (1b', c') show that we cannot consider that spirantization is caused by the presence of a fricative at the right of the target. Now, if we posit that it is morphologically driven, we can identify five morphemes triggering the process:

(4) $s_{[\text{gen.}]}$, $-t_{[\text{neut.}]}$, $-tY_{[\text{imp. 2ps}]}$, $-tY_{[\text{pret. 2ps}]}$, $-tI_{[\text{pret. 3ps}]}$

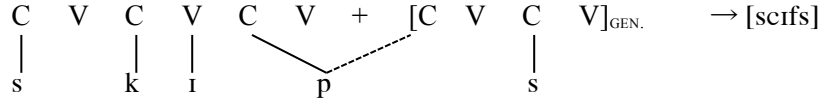
The hypothesis is that these morphemes are structurally richer than what can be seen at first. In the line of Bendjaballah (1998, 2012), we claim that their template consists of two governing domains adding extra space allowing processes to occur:

(5) (a) [C V C V]$_{\text{NEUT.}}$ (b) [C V C V]$_{\text{IMP. 2PS/PRET 3PS}}$ (c) [C V C V]$_{\text{GEN.}}$



This allows us to represent, as in (6), the segments undergoing spirantization as branching in the free C-slot at the right of the root. This particular structure, and only this one, repels the {ʔ} element.

(6)



Icelandic is subject to a constraint on complex codas which systematically simplifies clusters preceding a consonant, see (7).

(7)

/spirn+a/ [spirna] *hit* $_{\text{INF.}}$	/spi**r**n+ti/ [spi**n**ti] *hit* $_{\text{PRET.}}$
/javn+ur/ [jawnur] *equal* $_{\text{MASC.}}$	/ja**v**n+t/ [ja**m**t] *equal* $_{\text{NEUT.}}$
/barn/ [badn] *child* $_{\text{NOM.}}$	/bar**n**+**s**/ [ba**n**s] *child* $_{\text{GEN.}}$
/fill+a/ [fidla] *fill* $_{\text{INF.}}$	/fi**ll**+ti/ [fi**l**ti] *fill* $_{\text{PRET.}}$
/sigl+a/ [sigla] *sail* $_{\text{INF.}}$	/si**gl**+di/ [si**l**di] *sail* $_{\text{PRET.}}$

This reduction phenomena has consequences on the internal make-up of segments and spirantization in (1) and (6) is the strategy to satisfy this constraint. Notice that in the case of preaspirated segments, considered as underlying geminates (Thráinsson cited in Árnason 2012) (8), cluster reduction always leads to a fricative – a kind of spirantization.

(8) /kɛppti/ [cɛftɪ] *compete with* $_{\text{PRET.}}$ /hnɛkktɪ/ [n̥ɛxtɪ] *break* $_{\text{PRET.}}$

ÁRNASON K. (2011). *The Phonology of Icelandic and Faroese.* Oxford University Press, New york. BACKLEY P. (2011). *An Introduction to Element Theory*. Edinburgh University Press. BASBØLL H. (2005). *Phonology of Danish*. Oxford University Press, New York. BENDJABALLAH S. (1998). "La palatalisation en somali", in *Linguistique Africaine* 21. Ms. BENDJABALLAH S. (2012). *La grammaire des gabarits. Sur la segmentation et la linéarisation des marqueurs non concaténatifs*. Habilitation à diriger des recherches. Ms. DRESHER E B. (2009). *The Contrastive Hierarchy in Phonology*. Ms. HALL D C. (2007). *The role and representation of contrast in phonological theory*. Thèse de doctorat, Université de Toronto. Ms. IVERSON G K. & SALMONS J C. (1995). "Aspiration and laryngal representation in Germanic", in *Phonology* 12(3): 369 – 396. KAYE J. LOWENSTAMM J. & VERGNAUD J R. (1985). "The Internal Structure of Phonological Elements. A Theory of Charm and Government", in *Phonology Yearbook* 2: 305–328. THRAINSSON H. (2002). "Icelandic", in EKKEHARD K. & VAN DER AUWERA J., *The Germanic Languages*. Routledge, Londres - New York : 142-189.