Nasal-lateral interactions: typology and structure

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Processes of assimilatory nasalization and lateralization across heterosyllabic nasal-lateral (NL) and lateral-nasal (LN) clusters may be present in a language along with other sonorant-related assimilatory phenomena: non-exhaustively, see cases in Korean (Iverson & Kim 1987, Iverson & Sohn 1994, Davis & Shin 1999), Toba Batak (Hayes 1986; Rice & Avery 1991), Ponapean (Davis 2000, Blevins and Garrett 1993), and Klamath. In this paper, I argue that these phenomena display some coherent typological properties which are particularly problematic when considered alongside 'syllable contact' discussions. I also suggest that nasal-lateral interactions in Korean and Sakha/Yakut are demonstrably distinct in operation from other assimilatory phenomena in these languages, despite the fact that syllable contact has previously been argued to underlie both cases (Davis & Shin 1999, Baertsch 2002). Broadly, then, we may desire a formalism in which nasal- and lateral- assimilations might be derived as an independent class, and subsequently be permitted to interact with other, more general constraints on shared structure or sonority contour.

What is the typological range of the co-occurrence of LN and NL repairs, and of the possible rescue mechanisms involved? A partial review follows:

	Nasalize LN	Lateralize LN	'Ignore' LN
Nasalize NL			Korean non-coronals, Meitei non-coronals (Chelliah 1997), Syrian Arabic non-coronals (Cowell 1964), ...
Lateralize NL	Moroccan Arabic coronals (Harrell 1962, Seo 2003)	Korean coronals, Leti coronals (van Engelenhoven 1995), Toba Batak coronals	Klamath coronals (Barker 1964), Meitei coronals, Syrian Arabic coronals, Ponapean coronals (Goodman 1995), Selayarese (Blevins 1994), Uyghur ...
Ignore NL			

Sonority considerations would predict that NL is more likely to be targeted for repair than LN; in fact, we do find that every language that appears to repair LN also repairs NL. However, a comparison with stop-lateral (TL) sequences is instructive: in languages like Korean or Leti, NL and TL are both repaired, but in the patterns in Klamath, Selayarese, or Moroccan Arabic, NL is repaired while TL is ignored; and I am unaware of cases in which TL repairs arise in the absence of NL repairs. This is precisely the inverse of the typological prediction made by 'syllable contact' formalizations, in which the sonority drop across an NL sequence is expected to be less poor than that across a TL sequence. Nasalization is the preferred repair in non-coronal (in these cases equivalently: non-homorganic) sequences, and lateralization is the preferred repair in coronal sequences. The existence of LN repairs (always coronal) implies repair of *coronal* NL, and the existence of *non-coronal* NL repairs implies the repair of *coronal* NL, but it is possible for languages to display either pair without the third type of repair.

In Korean, the well-known patterns of sonorant-sonorant assimilation and obstruent sonorization given in (1) have previously been analyzed in terms of syllable contact: indeed, avoidance of rising sonority across the syllable boundary predicts the repairs in (1a). The data in (1b) and in (2) are, however, problematic in an account predicated solely on sonority:

(1) Korean obstruent sonorization and nasal-lateral assimilation (Iverson & Sohn 1994)

a. /han-kuk+mal/	[haŋ.gu̱ŋ.mal]	'Korean lg.'	/sam-lju/	[sam̲.nju]	'third-rate'
/patʰ+noŋsa/	[pan̲.noŋ.sa]		/jəŋ-lak/	[jəŋ̲.nak]	
/pəp-ljul/	[pəm̲.njul]		/han+ljaŋ/	[hal̲.ljaŋ]	
b. /səl-nal/	[səl̲.lal]				
/pul+niŋ/	[pul̲.liŋ]				

(2) Stop-fricative non-assimilation in Korean

/guk+su/	[guk̲.su]	'noodle'
/sam+gjəp+sal/	[sam.gjəp̲.sal]	'pork belly'

A syllable contact account of Korean assimilation, in requiring that rising sonority be repaired, suggests correctly that stop-nasal/stop-liquid and nasal-liquid clusters must undergo some repair, and predicts that liquid-stop and nasal-stop should be acceptable. As (1b), NL and LN are repaired *symmetrically* in Korean, which cannot be predicted by syllable contact: there is no prima facie reason that constraints forcing falling sonority should disprefer LN without also rendering the flat sonority in NN and LL problematic, and some additional account is needed. In (2), although outside the strict ambit of assimilation involving nasality or laterality, the non-alteration of stop-fricative clusters (despite rising sonority) poses additional difficulties for 'straightforward' syllable contact in Korean. In a model of syllable contact phenomena in which markedness constraints explicitly reference sonority distance (*DIST-X, Gouskova 2004), we might suggest a partial model of Korean in which *mild* rising sonority is tolerated (*DIST+2 > FAITH > *DIST+1): this would allow [p.s], and would also leave both NL and LN unrepaired – forcing the alternation in nasal/lateral contexts to derive from some other operation. In Sakha (also Yakut; Turkic), affix onsets are always desonorized after glides, rhotics and obstruents, as in (3a). If preceded by a lateral, coronals are lateralized while non-coronals undergo no effect, as in (3b); if preceded by a nasal, any consonantal onset is nasalized, as (3c).

(3) Sakha affix onsets (Krueger 1962; Odden 2013)

a. /ubaj-lar/	[ubaj̲.dar]	'elder brothers'
/køtør-lar/	[køtør̲.dør]	'birds'
/at-lar/	[at̲.tar]	'horses'
b. /kuul-lar/	[kuul̲.lar]	'sacks'
/uol-taɣar/	[uol̲.laɣar]	'son-comparative'
/uol-ka/	[uol̲.ga]	'son-dative'
c. /olom-ta/	[olom̲.no]	'ford-partitive'
/oron-lar/	[oron̲.nor]	'beds'
/aan-ka/	[aaŋ̲.ŋa]	'door-dative'

The data given in (3a) broadly suggest – analogous to the Kyrgyz pattern described in Davis 1998 and Gouskova 2004 – a 'syllable contact'/sonority-motivated alternation in which a simple sonority drop is insufficient in itself, and repair must be made to force the largest possible sonority drop across the syllable boundary (*DIST–3 > FAITH > *DIST–4) – hence desonorization after high-sonority codas. This is, however, inconsistent with (3b) and (3c): in (3b), lateralization creates flat sonority, *and* destroys the steep sonority drop in /l.t/ in favor of [l.l], and in (3c) nasalization outranks sonority considerations. In both Korean and Sakha, then, the genesis of NL and LN patterns is under question; what may ultimately be required is, at least in part, a constraint specifically banning NL sequences, possibly motivated by attested positional restrictions on /l/ in both languages.