Stratal OT and underspecification. Evidence from Tundra Nenets

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The process of final debuccalization in Tundra Nenets presents both a famous descriptive problem (Tereshchenko 1956; Janhunen 1986; Salminen 1997; Nikolaeva 2014) and a serious theoretical challenge, because the opaque interactions of this process seem to not match its domain of application (Kavitskaya & Staroverov 2010). This paper proposes a new autosegmental account of Tundra Nenets glottal stop, framed within Stratal OT and building in particular on the proposals in Bermúdez-Otero (2001, 2012) and Ramsammy (2012). Our account relies on the assumption that both nasals and obstruents lose their place finally at the word level, but nasals may regain place specification due to postlexical assimilation. Our account thus solves a problem for Stratal OT by postulating an underspecified output at an intermediate step.

Problem. The Tundra Nenets data in this paper come from the authors' original fieldwork. In Nenets, phrase-final /t d s n ŋ/ change to a glottal stop. While obstruent debuccalization is fully compatible with our proposal, the problem is best illustrated with debuccalization of nasals in (1a). Phrase and word-medially, nasals undergo place assimilation, with concomitant voicing of a following obstruent (1b,c).

(1) Alternations of Tundra Nenets underlying nasals
   a. Debuccalization phrase-finally (in isolation): /sʲin#/ → [sʲiʔ] 'lid'
   b. Assimilation word-medially: /sʲin-ta/ → [sʲinda] 'his lid'
   c. Assimilation across word boundary:
      /nʲe-n xʌnʌ/ 'woman-GEN.SG sledge' → [nʲeŋ gʌn] 'a woman's sledge'

Phrase-finally, the vowel /ʌ/ is deleted, and final /ʌ/-deletion counterfeeds debuccalization (1c, 2b). Interestingly, a final-syllable /ʌ/ is also deleted before [ʔ], thus debuccalization triggers (or feeds) pre-final vowel loss.

(2) Vowel deletion in Tundra Nenets: phrase-finally or before a phrase-final [ʔ]
   a. /xʌnʌ#/ → [xʌn] 'sledge'; b. /nʲenʲetsʲʌn#/ → [nʲenʲetsʲʔ] 'man'

These data present several problems for Stratal OT and in fact for any OT framework. Debuccalization must be post-lexical since it only applies phrase-finally (1), but at the same time debuccalization must precede final /ʌ/-deletion (2). Attributing debuccalization to a stratum earlier than that of apocope would predict that there is a cyclic phrasal domain where debuccalization applies but apocope does not. Yet, such a phrasing is not possible. For example /nʲenʲetsʲʌn sawa/ 'the man is good' can be pronounced [nʲenʲetsʲʌn zawa] (alternating as in 1b-c) or [nʲenʲetsʲʔ sawa] (alternating as in 2b) but not *[nʲenʲetsʲʌʔ sawa].

Analysis. On our analysis, final /ʌ/-deletion only applies post-lexically, while place loss is only active lexically. We analyze nasal debuccalization as a two-step process. At the lexical level final /n ŋ/ lose their place features (*C-PLACE]$_{Wd}$ >> MAX-[place], *ʌ]$_{Phr}$) but retain their nasality, thus /n ŋ/ → [N] (see also McCarthy 2008; Ramsammy 2012).

Post-lexically a previously created placeless nasal /N/ may either lose its nasality (phrase-finally: [sʲiʔ#] 'lid') or assimilate to a first consonant of a following word (phrase-medially: [nʲeŋ gʌn] 'woman's sledge'), since surface [N] is disallowed (*N >> IDENT-[nas]). Post-lexical /ʌ/-deletion exposes new place-bearing consonants to phrase-final position: [xʌn#] 'sledge', (3a). On the other hand, the final nasal which lost its place at the word level may now change to [ʔ] and trigger deletion of a preceding /ʌ/: [nʲenʲetsʲʔ#] 'man', (3b).

(3) Feeding and counterfeeding in TN post-lexical phonology

a. Post-lexical counterfeeding: /xʌnʌ/ → [xʌn] (phrase-final)

	xʌnʌ	*ʌ]$_{Phr}$	MAX-[place]	MAX-seg	*C-PLACE]$_{Wd}$
☞ a.	xʌn			1	1
b.	xʌnʌ	W1		L	L
c.	xʌʔ		W1	1	L

b. Post-lexical feeding: /nʲenʲetsʲʌN/ → [nʲenʲetsʲʔ] (phrase-final)

	nʲenʲetsʲʌN	*ʌ]$_{Phr}$	*N	MAX-seg	IDENT-[nas]	*C-PLACE]$_{Wd}$
☞ a.	nʲenʲetsʲʔ			1	1	
b.	nʲenʲetsʲʌN	W1	W1	L	L	
c.	nʲenʲetsʲ			W2	L	W1
d.	nʲenʲetsʲʌʔ	W1		L	1	

On this analysis, only the output of lexical level shows place loss but no apocope (intermediate |nʲenʲetsʲʌN sawa| 'the man is good'). The subsequent post-lexical alternations ensure that the final syllable vowel only gets deleted if the intermediate /N/ loses its nasality.

Alternatives. Any treatment of the Nenets data, including the autosegmental approach sketched above, is not directly compatible with Harmonic Serialism or OT-CC (McCarthy 2007; Kavitskaya & Staroverov 2010; Jarosz 2014). Place loss (/nʲenʲetsʲʌn/ → [nʲenʲetsʲʌN]) and apocope (/xʌnʌ/ → [xʌn]) require the opposite rankings of *C-PLACE]$_{Wd}$ and *ʌ]$_{Phr}$, and hence no single constraint hierarchy can derive both processes. The paper will also show that previous-step constraints, which could solve this problem (Kavitskaya & Staroverov 2010), encounter a difficulty in accounting for the typology of coda place loss.

Conclusion. Our account solves the descriptive problem of dual behavior of Tundra Nenets glottal stop, and assumes only one [ʔ] on the surface. We reconcile Tundra Nenets data with Stratal OT at the cost of assuming an intermediate output nasal unspecified for place /N/. Thus Stratal OT has to rely on underspecified representations (Keating 1988; Cohn 1990, 1993; Bermúdez-Otero 2001), and in particular our account relies on nasals unspecified for place (see also Ramsammy 2012).