

Morpheme structure rules are otiose in Logical Phonology

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1 Introduction

- Blackfoot breaking is an instance of “mutability plus catalysis equals non-vacuous unification”.
- English velar softening is (basically) Blackfoot breaking.
- So is Finnish assibilation.
- Morpheme structure rules recently proposed for Finnish’ by Rasin (2025) are otiose.

2 Blackfoot breaking

- In Blackfoot, *k* “breaks”—is realized as the affricate *ks*—when followed by *i*, as in *kitáak̚sipii* ‘you will enter’ (Frantz 2017). However:
 - Not all *k*’s undergo breaking (e.g., the second person prefix *k-* is “always impervious to breaking”).
 - Not all *i*’s trigger breaking (e.g., the initial vowel of *itsiniki* ‘tell a story’ never does).

Frantz proposes, à la Kisseberth (1970), that each morpheme is specified both for whether it is a breaking target and whether it triggers breaking.

(1) Kisseberth (1970) exceptionality conventions:

- For each rule *R*, every morpheme is specified as $\pm R$ TARGET and $\pm R$ TRIGGER.
- A rule *R* applies just in the case that all of following obtain:
 - * *R*’s structural description is met,
 - * the target morpheme is $+R$ TARGET, and
 - * the trigger morpheme is $+R$ TRIGGER.
- I instead propose that mutable *k*’s, which undergo breaking, are underspecified /K/, and catalytic *i*’s, which trigger breaking, are the fully-specified /i/.
 - Mutable /K/ \subset inalterable /k/.
 - Catalytic /i/ \supset quiescent /I/.

- For concreteness, I assume that /I/ is underspecified for BACK, and that /k̄s/ is monophonemic and specified +DELREL (“delayed release”).

	/I/	/i/	/K/	/k/	[k̄s]
SYLLABIC	+	+	-	-	-
(2) DELREL	-	-		-	+
HIGH	+	+	-	-	-
BACK		-	-	-	-
DORSAL	-	-	+	+	+

- The following ordered rules suffice to generate the breaking pattern.

(3) [+DORSAL] ⊆ {+DELREL} / — [-BACK]

(4) [+DORSAL] ⊆ {-DELREL}

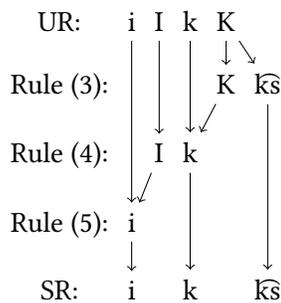
(5) [+SYLLABIC] ⊆ {-BACK}

(6) Critical ordering: (3) ≪ (4-5)

- Then, breaking applies non-vacuously only to /...K-i.../.

UR:	k-i	k-I	K-i	K-I
Rule (3):			k̄si	
(7) Rule (4):			kI	kI
Rule (5):		ki		ki
SR:	ki	ki	k̄si	ki

(8) Segment mapping diagram:



3 English velar softening

- In English, stem-final *k* alternates with *s* when followed by a front non-low vowel.¹

¹For simplicity I put aside “softening” of *g* as in *analo*[g]–*analo*[dʒ]y.

	electri[k]	electri[k]al	electri[s]ity	
(9)	criti[k]	criti[k]al	criti[s]ize	criti[s]ism
	Tur[k]		Tur[k]ic	
	medi[k]	medi[k]al	medi[k]ate	medi[s]ine

- *SPE* (§8.7) accounts for the absence of softening in *Tur[k]ic* by requiring the target morpheme to bear a +LATINATE diacritic (which, presumably $\sqrt{\text{TURK}}$ lacks).
- Similarly *SPE* (§1.8) accounts for the absence of softening in *medi[k]ate* by positing *-ate* is underlyingly +Low (e.g., /-æ̃t/) and raising it after velar softening has applied.
- While it is unclear to me if English velar softening is truly productive, it can be translated into an LP analysis similar to Blackfoot breaking. I propose:
 - Mutable *k*'s are underlyingly /K/; inalterable *k*'s are /k/.
 - Catalytic front non-low vowels are underlyingly –Low and –BACK; quiescent vowels are not.

4 Finnish assibilation

- Some phonological processes are claimed to apply only when the context for application is “derived”.

(10) DERIVEDNESS: A phonological context is *derived* if:

- it arises from some other (non-vacuous) phonological process (i.e., *feeding*), or
- it arises from the concatenation of two or more morphemes.

Such processes are said to exhibit *non-derived environment blocking* (NDEB).

- NDEB has long been considered fraught (e.g., Kiparsky 1993, Inkelas 2000, 2009, 2014). DERIVEDNESS is itself conceptually odd: it is disjunctive (or complementative), morphological, and global.
- Kiparsky (1993), henceforth K, claims that many apparent cases of NDEB can be derived via under-specification. Below, I translate his approach into LP.²
- In Finnish, *t* assibilates when followed by *i*, but only under certain specific conditions.

(11) Finnish derived-environment assibilation (K:283f):

- | | | | | |
|----|------------------|--------------------|------------------|-------------|
| a. | ve <u>t</u> e-næ | ‘water’ (ess. sg.) | ve <u>s</u> i | (nom. sg.) |
| b. | halu <u>t</u> -a | ‘want’ (inf.) | halu <u>s</u> -i | (3sg. pst.) |

- Assibilation is fed by a phonological rule (/l/ \rightsquigarrow [i] word-finally) in [vesi].
- Assibilation is “fed” by morpheme concatenation in [halusi].

- However, *t* does not assibilate in [tila] ‘room’ or [ætii] ‘mother’, where target and trigger are tautomorphemic and present underlyingly. This is a canonical example of NDEB.

²Reiss (2025) gives an earlier LP analysis of Finnish assibilation. I depart from it to incorporate some additional insights.

- K posits that (mutable) *t*'s which undergo assibilation are underlyingly /T/, a segment unspecified for CONTINUANT, whereas those which do not assibilate are fully-specified /t/.

	/l/	/i/	/T/	/t/	/s/
CONTINUANT	+	+		-	+
SONORANT	+	+	-	-	-
(12) SYLLABIC	+	+	-	-	-
BACK	-	-			
HIGH		+			
CORONAL			+	+	+

- The following unification rules, applied in order, account for assibilation before /i/, mapping /T/ \rightsquigarrow [t] in other contexts.

(13) Assibilation: $\left[\textcircled{\text{T}} \right] \sqcup \{ +\text{CONTINUANT} \} \text{ --- } \left[\textcircled{\text{i}} \right]$

(14) $\left[\textcircled{\text{T}} \right] \sqcup \{ -\text{CONTINUANT} \}$

(15) Critical ordering: (13) \ll (14)

	‘want’ (inf.)	‘want’ (3sg. pst.)	‘room’
UR:	haluT-a	haluT-i	tila
(16) Rule (13):		halusi	
Rule (14):	haluta		tila
SR:	haluta	halusi	tila

- Rasin (2025), henceforth R, claims K’s analysis also requires morpheme structure rules (MSRs) to account for gaps in the distribution of underspecified segments in URs.

...Kiparsky’s analysis of NDEB misses a crucial component, as it leaves the underlying distribution of underspecified /T/ and fully specified /t/ as an accident of the lexicon. Nothing in the analysis prevents fully specified /t/ from occurring stem-finally and blocking assibilation before a suffix-initial /i/. The grammar thus freely generates ungrammatical forms such as *[rat-i] in which assibilation has not applied across a morpheme boundary... (R:715)

- Below, I reformulate R’s MSRs as distributional statements.

(17) Finnish morpheme structure constraints:

/t/ / ___ i
/T/ / elsewhere

- In forthcoming work, I lay out some conceptual arguments against this claim. As a thought experiment, consider how a Finnish grammar would differ from R’s if it lacked (17):

- It would permit tautomorphemic /...Ti.../. However, since this would surface as [...si...], a child acquiring Finnish would have no reason to take this sequence to be /...Ti.../ underlyingly in the first place (e.g., Dell 1973:205f., Stampe 1973:28f., Prince and Smolensky 1993:§9.3).
 - It would permit morpheme-final fully-specified /t/. However, since this would produce the incorrect result (e.g., */halut-i/ \rightsquigarrow *[halut-i] ‘want’), a child acquiring Finnish would once again have no reason to adopt this analysis in the first place.
- Indeed, there are some roots where assibilation fails to occur even when its context is derived by low vowel deletion (see Anttila 2006:896).

(18) Inalterable verb roots (Anttila 2006:901):

3sg. pres.	3sg. pst.	
hoita	hoit-i	‘care for’
vetæ:	vet-i	‘pull’

(19) Inalterable noun roots (Anttila 2003:16, Anttila 2006:912):

nom. sg.	ess. pl.	
mætæ	mæt-i-næ	‘pus’
sota	sot-i-na	‘war’
suunta	suunt-i-na	‘direction’
vuota	vuot-i-na	‘skin’

- Similarly, the root underlying [sota] ‘war’ is resists assibilation; e.g., [sot-ina] ess. pl., [sot-i-a] ‘to wage war’ (Kiparsky 1973).
- I propose these roots contain underlying /t/, inalterable w.r.t. (13). Such forms contravene Rasin’s MSR’s and thus I propose the MSR’s should therefore be rejected.
- There are also several *i*-initial derivational suffixes which fail to trigger derived assibilation.

(20) Quiescent suffixes (Anttila 2006:901):

lentæ:	‘fly’ (3sg. pres.)	lent-i	(3sg. pst.)	lent-ime-n	‘wing’ (gen. sg.)
tuntæ:	‘feel’ (3sg. pres.)	tunt-i	(3sg. pst.)	tunt-isi	‘feel’ (3sg. cond.)
vesi	‘water’ (nom. sg.)	vete-en	(ill. sg.)	vet-inen ^a	‘watery’

^aAnttila writes that this suffix triggers assibilation “optionally” and gives [ves-inen] as an alternative pronunciation.

- I propose the lack of assibilation in these forms derives from underlying initial /I/, quiescent w.r.t. (13). A late redundancy rule accounts for /I/ \rightsquigarrow [i].

(21) $[\text{I}] \sqcup \{+\text{HIGH}\}$

(22) Critical ordering: (13) \ll (14, 21)

	‘want’ (inf.)	‘want’ (3sg. pst.)	‘pull’ (3sg. pst.)	‘feel’ (3sg. cond.)
UR:	haluT-a	haluT-i	vet-i	tunTe:-Isi
Vowel deletion:				tunTIsi
(23) Rule (13):		halusi		
Rule (14):	haluta			tuntIsi
Rule (21):	haluta			tuntisi
SR:	haluta	halusi	veti	tuntisi

- Assibilation, then, is another example of the “Mutability plus catalysis...” pattern.
- It of course remains to be seen whether all known NDEB effects can be reanalyzed using underspecification (cf. Kiparsky 1993, Inkelas 2000, 2009, 2014, Gorman and Reiss 2025).

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