

Regularizing effects of indexation to complex constituents

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The puzzle

- Affixes trigger **non-local** phonological alternations in a root.

Dutch: Roots borrowed recently from English can contain [ɹ], which is replaced by the native [r] in suffixed words.

Op[ɹ]ah	'Oprah'	Op[r]ah-tje	*Op[ɹ]ah-tje	'DIMIN'
Ba[ɹ]ack	'Barack'	Ba[r]ack-se	*Ba[ɹ]ack-se	'ADJ'
[ɹ]eading	'Reading'	[r]eading-je	*[ɹ]eading-je	'DIMIN'
Flo[ɹ]ida	'Florida'	Flo[r]ida-tje	*Flo[ɹ]ida-tje	'DIMIN'

- These **morphological derived environment effects (MDEEs)** challenge existing views of morphology-phonology interaction since ...
 - the alternating sound can be at **any distance** from the affix
 - the phonological content of the affix segments **does not matter**

Challenge: How to account for non-local MDEEs without allowing non-local interactions across the board?

Proposal: Indexation to complex constituents

Central idea:

Indexed constraints can apply not only to individual morphemes, but also to potentially complex constituents (*stems, words*).

- Constraint indexation** is one Optimality Theory (OT) account that captures sensitivity to morphological and lexical properties. Examples include:
 - ▶ **roots** (McCarthy and Prince 1993)
 - ▶ **nouns** (Smith 2001, 2006)
 - ▶ **loanwords** (Itô and Mester 1995, 2001)
 - ▶ **specific lexical items** (Pater 2000; Becker et al. 2011)
 - ▶ **exceptional suffixes** (Pater 2007, 2009)
- Locality of indexation:** the presence of an exceptional affix in a word does not cause all other affixes to behave as though they were also exceptional.
 - *X_L (Pater 2007, 2009)
 - Assign a violation mark to any instance of X that contains a phonological exponent of a morpheme specified as L.

A modest extension of local evaluation:

Indexed constraints are specified not only for a property, but also for a **domain** (e.g. *morpheme, stem, word*).

- *X_{L,M}
 - Assign a violation mark for every instance of X that is part of the phonological exponent of an M specified as L. (A constituent M counts as having property L iff all morphemes within M are specified as L. Phonology lacks access to morphosyntactic headedness.)
- Prediction:** marked structures can be preserved in stems or words that contain a single indexed morpheme (i.e. a bare root or underived stem), but lost in stems or words that are complex.

Case study 1: Tagalog f-nativization

- Tagalog allows [f] in bare loanword roots, but not in prefixed or suffixed words, in which case [p] surfaces.

filipino	'Filipino'	mag-pilipino	'language'	pilipino-ŋ	'DEF'
fiesta	'feast'	pam-pista	'INSTR'	pista-han	'festival'

- IDENT must be specific to a class of roots, but must also be able to distinguish between simple and complex **words**:
- IDENT_{L,Word}
 - No change in any segment that is part of the phonological exponent of a Word specified as L (*loanword*). (A Word is specified as L iff all morphemes within that Word are L.)

Root = Word: IDENT_{L,Word} applies.

/filipino _L /	IDENT _{L,Word}	*f	IDENT _L
i. ☞ filipino _L		*	
ii. pilipino _L	*!		*

Root ≠ Word: IDENT_{L,Word} does not apply.

/filipino _L -ŋ/	IDENT _{L,Word}	*f	IDENT _L
a. filipino _L -ŋ	d.n.a.	*!	
b. ☞ pilipino _L -ŋ	d.n.a.		*

Case study 2: Slovenian r-nativization and schwa fronting

- English [ɹ] is possible in bare loans, but is replaced by [r] when suffixed.

ɹɔk	'rock'	ɹɔk-oma	*ɹɔk-oma	'INSTR.DU'
ɹɛɡən	'Reagan'	ɹɛɡən-i	*ɹɛɡən-i	'NOM.PL'
fɔɹt	'Ford'	fɔɹd-itʃ	*fɔɹd-itʃ	'DIM'
mɑɹk	'Marc'	mɑɹk-ts-a	*mɑɹk-ts-a	'DIM-GEN.SG'

- The mapping ɹ → r applies to **any** affix, including prefixes and derivational or inflectional suffixes. (Also w → v and y → i)
- In contrast:** [ə] is possible in bare roots and in **inflected** words, but is fronted to [e] with any **derivational** affix.

dəʃ	'rain'	dəʃ-jəm	'INSTR.SG'	dəʃ-nik	'umbrella'
bət	'stem'	bət-a	'GEN.SG'	bət-its	'head'
mənɪx	'monk'	mənɪx-a	'GEN.SG'	mənɪx-ar	'PEJOR'
kəs	'regret'	kəs-a	'GEN.SG'	kəs-a	's/he regrets'

- These processes apply in **different domains**:
 - də'tɹɔjt 'Detroit' də'tɹɔjt-u 'DAT.SG' de'tɹɔjt-əts '(demonym)'
 - 'wɪskɒnsən 'Wisconsin' 'wɪskɒnsən-a 'GEN.SG' 'wɪskɒnsən-tʃən '(demonym)'

IDENT_{L,Word} vs. IDENT(front)_{P,Stem}

With **inflection**: complex **word**, but simplex **stem**.

[də'tɹɔjt _{P,L}] _{Stem-u}	IDENT _{L,Wd}	IDENT(front) _{P,Stem}	*ə	*ɹ	IDENT
i. [də'tɹɔjt _{P,L}] _{Stem-u}	d.n.a.		*	*!	
ii. ☞ [də'tɹɔjt _{P,L}] _{Stem-u}	d.n.a.		*		*
iii. [de'tɹɔjt _{P,L}] _{Stem-u}	d.n.a.	*!			**

With **derivation**: both **word** and **stem** are complex.

[də'tɹɔjt _{P,L-əts}] _{Stem}	IDENT _{L,Wd}	IDENT(front) _{P,Stem}	*ə	*ɹ	IDENT
a. [də'tɹɔjt _{P,L-əts}] _{Stem}	d.n.a.	d.n.a.	*!	*	
b. [də'tɹɔjt _{P,L-əts}] _{Stem}	d.n.a.	d.n.a.	*!		*
c. ☞ [de'tɹɔjt _{P,L-əts}] _{Stem}	d.n.a.	d.n.a.			**

Case study 3: Turkish word minimality

- Beyond loanwords:** Turkish allows monosyllabic bare roots.

ham _(σ)	'unripe'	gøk _(σ)	'sky'
dil _(σ)	'tongue'	ev _(σ)	'house'

- Yet **derived** words must be at least disyllabic, leading to **ineffability**.

*fa-m _(σ)	'fa (note)-1SG.POSS'	fa-dan _(σσ)	'fa (note)-ABLATIVE'
*be-n _(σ)	'b (note)-2SG.POSS'	ne-ler _(σσ)	'b (note)-PL'
*de-n _(σ)	'say-PASS'	de-miſ _(σσ)	'say-EVID'

- The indexed constraint requires morphological parsing:
- MPARSE_{Root,Word}
 - The input has a non-zero realization; this constraint is violated by the null parse ("⊙").

Bare roots can be monosyllabic.

/fa/	MPARSE _{Root,Word}	LEX≈Pr,FtForm	MPARSE
i. ☞ fa		*	
ii. ⊙	*!		*

Affixed words cannot be monosyllabic.

/fa-n/	MPARSE _{Root,Word}	LEX≈Pr,FtForm	MPARSE
a. fa-n	d.n.a.	*!	
b. ☞ ⊙	d.n.a.		*