How did *that* get in there? The puzzle of "empty" morphs*

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Morphology in Montreal-Ottawa-Toronto 7 (MoMOT7)
October 27–29 2023

1 Setting the stage: "empty" morphs

Morphemes are systematic pairings of **form** and **meaning/function**.

Two types of departures from this:

- Meaning without corresponding form: **zero morphs**
- Form without a corresponding meaning: **empty morphs**

Some empty morphs seem to be there to meet **morphological** well-formedness requirements:

(1) Bantu "Final Vowels", e.g. in Kinande (simplified)
   a. *-ịre* = perfect
   b. *-e* = subjunctive, imperative
   c. *-a* = all other contexts

In other cases, empty morphs seem to fulfil **phonological** well-formedness requirements:

↑ today's focus

(2) CVCV word-minimality effects in Ndebele (Sibanda, 2004, : 113)

*dl-a	yi-dl-a	dl-an-a	'eat'
*ph-a	yi-ph-a	ph-an-a	'give'
*m-a	yi-m-a	m-an-a	'stand/wait'
*lw-a	yi-lw-a	lw-an-a	'fight'

A morphological solution to a syntactic problem?

- It would be nice if contentless "morphs" could all be reanalyzed as epenthesis:
  - E.g. Ndebele *yi* = epenthesis of least marked vowel, with glide onset
- But this isn't always possible: sometimes it looks like an actual morpheme gets somehow repurposed to meet a phonological requirement.
  - E.g. Ndebele *an* = looks like the reciprocal suffix, but is showing up without any reciprocal meaning

*Thanks to Donca Steriade and Adam Albright, who taught a seminar in Spring 2022 that inspired this talk. Any errors in data or analysis are my own.!

- Phonologically-motivated empty morphs present an architectural challenge for theories like Distributed Morphology (DM: Halle 1997; Harley and Noyer 1999), because it hypothesizes that morphology and phonology are modularly separated and in a one-way derivational relationship.

Goal today: Explore the analytical space available to deal with phonologically motivated empty morphs within DM

→ Empirical domain: prosodic repurposing of Romanian plurals morph

Plan:

- A brief overview of the facts in Romanian
- The theoretical debate re: empty morphs
- Theory applied to Romanian
- Discussion

2 Romanian: empty "plural" morphs

2.1 Background

Romanian is a Romance language spoken primarily in Romania and Moldova; it is one of the languages in the Balkan language area.

Relevant grammatical properties:

- 3 grammatical genders: M, F, and N (N= M in SG, F in PL)
- 4 ways of forming plurals:
  - *-i*: all M nouns + some F, N
  - *-uri*: F mass nouns, many N nouns
  - *-e*: F, N
  - *-(e)le*: F
- Stress pattern (Chitoran, 2002)
  - Primary stress: Evidence of preference for penultimate (rightmost nonfinal); final closed syllables are stressed.[1]
  - Secondary stress: initial + every second syllable, avoiding clash with primary stress
  - Some noun stresses lexically determined: penultimate syllable of the root
  - Stress does **not** shift in plural (=inflection), but typically does shift in derived forms

[1] Chitoran (2002) argues that the surface coda of final closed syllables is actually the onset of a syllable with [u], which does not surface, and that the system is thus in fact weight-insensitive. The details of this analysis do not concern us here, only the descriptive generalization.

2.2 A contentless morph in derived words

Morph *-ur*—which looks like part of one of the plural markers—sometimes appears in derived forms (all data here from Steriade 2022; numbers in parentheses indicate primary and secondary stresses, hyphens mark stressless syllables):

(3)
a.	vînt	'wind'
b.	vînt-ur-i (1--)	'wind-PL'
c.	vînt-ur-a (2-1)	'shake in the wind'
d.	vînt-ur-el (2-1)	'wind-DIM'

(4)
a.	val	'wave'
b.	val-ur-i (1--)	'wave-PL'
c.	văl-ur-el (2-1)	'wave-DIM'

(5)
a.	frig	'cold'
b.	frig-ur-i (1--)	'cold-PL'
c.	frig-ur-a (2-1)	'make cold'
d.	frig-ur-el	'cold-DIM'

Two claims:

1. *-ur* occurs to permit an initial secondary stress to surface without inducing stress clash
2. the *-ur* that shows up in derived forms is the same morph that shows up in the plural

Aside: I am assuming that the morph is *ur*, but it could be the whole suffix *uri* + hiatus resolution

Evidence for 1: If the stem (or the suffix) is disyllabic or longer, *-ur* does not appear in derived forms, even if it is present in the plural

(6)
a.	vârtej (-1)	'swirl'
b.	vârtej-ur-i (-1-)	'swirl-PL'
c.	vârtej-el (2-1) (*vîrtej-ur-el)'	'swirl-DIM

(7)
a.	postav (-1)	'felt'
b.	postav-ur-i (-1--)	'felt-PL'
c.	postăv-el (2-1)	'felt-DIM'

Evidence for 2: If the plural doesn't have *-ur*, no *-ur* in derivatives.

(8)
a.	drac	'devil
b.	drac-i (1-)	'devil-PL
c.	drăc-el (-1) (*drăc-ur-el)	'devil-DIM

(9)
a.	alb	'white'
b.	alb-i (1-)	'white-PL'
c.	alb-i (-1) (*alb-ur-i)	'make white'
d.	alb-el (-1) (*alb-ur-el)	'white-DIM'

Moreover, this isn't just about *-ur*! Suppletive roots with a bisyllabic form in the plural use the bisyllabic allomorph in the same contexts where *-ur* shows up with non-suppletive roots.

And evidence that this is about the overall position of stress, not the straight up size of the stem: when a suffix is disyllabic you get the regular one-syllable allomorph of these roots.

(10)

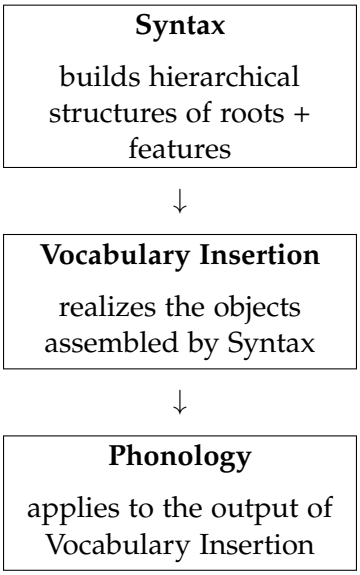
a.	om	'man'
b.	oamen-i (1--)	'men'
c.	omen-os (2-1)	'humane'[2]
d.	omen-i (2-1)	'treat kindly'
e.	omen-esc (2-1)	'human'
f.	om-uleț (2-1) (*òmen-uléț)	'man-DIM'

How does a "plural" morph (*-ur* or a root allomorph) end up in non-plural derivatives?

3 Theoretical Approaches

The problem: If morphology is derivationally prior to phonology, there's no way for phonological factors to influence morphological exponence.

Distributed Morphology (Harley and Noyer, 1999; McGinnis-Archibald, 2016; Siddiqi, 2010):



- Even if Vocabulary Insertion can be phonologically sensitive (inside-out), and even if Phonology applies cyclicly to its output, this type of model doesn't have space for morphology to be motivated by phonological concerns like "have a better stress pattern"

The same issue arises in other morphological frameworks:

- In models with Rules of Referral (Aronoff 1994) it is straightforward to say: "in these morphological environments, use the plural stem instead." But crucially this would only be describing the morphological environments—the appearance of a plural stem isn't **motivated** by phonological factors.

[2]Initial [oa] reduces to [o] due to not bearing primary stress.

Three types of solutions:

- Allow phonology to directly manipulate morphological operations / elements
- Change the output of morphology
- Deny that the relevant effects are directly phonologically optimizing

(all developed to deal with apparently phonologically optimizing **allomorphy**)

3.1 Phonology directly manipulating morphology

Wolf (2008): Optimal Interleaving

- DM-style realization occurs in the phonological grammar, which is a version of OT
- Built-in mechanism for realization to be phonologically optimizing

Steriade (2022): insertion of *-ur* governed by EXPONENCE (Wolf 2008: DEP-MORPH)

Exponence: "don't insert a morph unless its associated syntactic feature structure matches the syntactic context of insertion"

StressL: enforces initial secondary stress

Dep-BD: violated by segments in a derived form that do not appear in the base

frig, fríguri [COLD-DIM]	DEP-BD	STRESSL	EXPONENCE
☞ a. frig-ur-el (201)			*
b. frig-el (01)		*!	
c. frig-ot-el (201)	*!*		

drac, draci [DEVIL-DIM]	DEP-BD	STRESSL	EXPONENCE
a. drac-ur-el (201)	*!*		
☞ b. drac-el (01)		*	
c. drac-j-el (01)		*	*!

vârtéj, vârtéj-uri [SWIRL-DIM]	DEP-BD	STRESSL	EXPONENCE
a. vârtej-ur-el (2001)			*!
☞ b. vârtej-el (201)			

Drawbacks:

- Requires transderivational comparison between bases and derivatives
- GEN can insert morphs that don't realize any input element

3.2 Phonology selecting among allomorphs

A slightly less powerful option: Phonology doesn't control exponence, but it gets to select among allomorphs (Mascaró, 2007; Bonet et al., 2007)

Key for this type of approach (and the next one): *-ur* can't be plural—must be an allomorph of something else

- *-ur* is outside the stress domain in inflected plurals, but not in derived forms
- Stress domain: first phase—highest category-defining head. Proposal: *-ur* = n

→ Idea: For nouns with *-ur-i* plurals, the realization of n is a **set** {∅, *-ur* }

(Aside: How would we get *-ur* to **always** show up in the plural?)

Once *-ur* is available as an allomorph of n, it will always be available if its presence improves the phonology.

frig-{∅,ur}-el	*Clash	StressL	*Structure
☞ a. frig-ur-el (201)			∗
b. frig-el (01)		∗!	
c. frig-el (21)	∗!		

drac-{∅}-el	*Clash	StressL
☞ a. drac-el (01)		∗
b. drac-el (21)	∗!	

vârtéj-{∅,ur}-el	*Clash	StressL	*Structure
a. vârtej-ur-el (2001)			∗!
☞ b. vârtej-el (201)			

3.3 Phonological Optimization as Illusory

A problem for the above approaches: the existence of phonologically **non-**optimizing allomorphy

(11) Example: Kreyòl (Hatian Creole) definite determiner allomorphy

a.	panie	'basket'	paniea	'the basket'
b.	trou	'hole'	troua	'the hole'
c.	chẽ	'dog'	chẽã	'the dog'
d.	pitit	'child'	pititla	'the child'
e.	ãj	'angel'	ãjla	'the angel'
f.	madãm	'lady'	madãmla	'the lady'

The existence of phonologically non-optimizing allomorphy argues against letting phonology control exponence.

(Paster 2009, 2006; Kalin 2020; Stanton 2021; Rolle 2021)

Everything that looks like phonological optimization is actually inwards sensitive phonologically sensitive allomorphy—phonological optimization is an accidental byproduct.

Drawbacks:

- Requires either **disjunctive** contexts of insertion to that *-ur* is **not** the same morph in plurals as in derivatives:
  - For plurals: Lexically-conditioned distribution, sensitive to number (still assuming *-ur* = n)
  - For derivatives: Phonologically-conditioned distribution (< σσ) that happens to be restricted to the same lexical set as in plurals
  - Suppletive stems = something else entirely?

4 Conclusions / Discussion

- Substantial drawbacks for all existing approaches
- Other cases of "empty" morphs?
- Another case in Romanian: *-uléț* diminutives

Thank you!

References

Aronoff, Mark. 1994. *Morphology by itself: Stems and inflectional classes*. 22. MIT press.

Bonet, Eulàlia, Maria-Rosa Lloret, and Joan Mascaró. 2007. Allomorph selection and lexical preferences: Two case studies. *Lingua* 117:903–927. URL `https://api.semanticscholar.org/CorpusID:170208912`.

Chitoran, Ioana. 2002. *The phonology of Romanian: A constraint-based approach*. Number 56 in Studies in Generative Grammar. Mouton de Gruyter.

Halle, Morris. 1997. Distributed Morphology: Impoverishment and Fission. *MIT Working Papers in Linguistics* 30:425–449.

Harley, Heidi, and Rolf Noyer. 1999. Distributed morphology. *Glot International* 4:3–9.

Kalin, Laura. 2020. Morphology before phonology: A case study of turoyo (neo-aramaic). *Morphology* 30:135 – 184. URL `https://api.semanticscholar.org/CorpusID:225358071`.

Mascaró, Joan. 2007. External allomorphy and lexical representation. *Linguistic Inquiry* 38:715–735. URL `https://api.semanticscholar.org/CorpusID:122816199`.

McGinnis-Archibald, Martha. 2016. Distributed morphology. In *The cambridge handbook of morphology*, ed. Andrew Hippisley and Gregory Stump, Cambridge Handbooks in Language and Linguistics, 390–423. Cambridge: Cambridge University Press.

Paster, Mary. 2006. Phonological conditions on affixation. Doctoral Dissertation, UC Berkeley.

Paster, Mary. 2009. Explaining phonological conditions on affixation: Evidence from suppletive allomorphy and affix ordering. *Word Structure* 2:18–37.

Rolle, Nicholas. 2021. Against phonologically-optimizing suppletive allomorphy (posa) in irish, tiene, katu, and konni. *Acta Linguistica Academica* 68:103–138.

Sibanda, Galen. 2004. Verbal phonology and morphology of ndebele. Doctoral Dissertation, University of California, Berkeley.

Siddiqi, Daniel. 2010. Distributed Morphology. *Language and Linguistics Compass* 4:524–542.

Stanton, Juliet. 2021. Allomorph selection precedes phonology: Evidence from Yindjibarndi. *Natural Language & Linguistic Theory* .

Steriade, Donca. 2022. Topics in phonology: Class 9 romanian stress. Class Handout.

Wolf, Matthew A. 2008. Optimal interleaving: Serial phonology-morphology interaction in a constraint-based model. Doctoral Dissertation, University of Massachusetts at Amherst.