

Categorizing morphology: the view from diachrony

Laura Grestenberger

Austrian Academy of Sciences

laura.grestenberger@oeaw.ac.at

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What are categorizers?

First pass:

- ▶ Elements that formally mark (inflectional) *stems*
- ▶ Mediate between root/lexical meaning and higher functional/inflectional categories (Voice, Aspect, Mood, Tense; Definiteness, Number, Case ...)
- ▶ Provide specific morphosemantic function(s) (?)
 - ▶ Verbal domain: Argument structure/ Aktionsart/Voice (*genus verbi*)?
 - ▶ Nominal domain: Gender, animacy, mass/count?

Why categorizers?

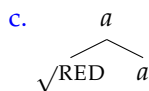
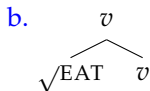
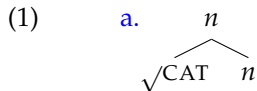
- ▶ Across frameworks, there is agreement that morphosyntactic categorization corresponds *to some extent* to ontological category (\approx “notional” definitions)
 - ▶ Reference/“thing” = N
 - ▶ Predication/event = V
- ▶ But there are many exceptions; no 1:1 correspondence
- ▶ Moreover, categorization is not a requirement imposed by the meaning/interpretative component of grammar:

“In a language where the grammatical properties and behaviour of morphosyntactic words is completely predictable on the basis of the ontological category of their denotata, there is no need for an additional (grammatical) level of lexical categories.”

(Himmelman 2005: 86)

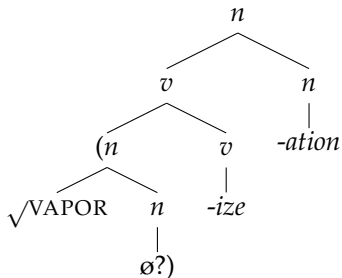
Categorizers in DM

- ▶ In generative approaches, it's been argued that categorization is not strictly a *syntactic* requirement, either, but some sort of “interface condition” (e.g., Embick & Marantz 2008, Chung 2012)
- ▶ In **Distributed Morphology (DM)** (Halle & Marantz 1993 etc.), categorially unspecified **roots** combine with (overt/covert) categorizing heads “in the syntax” /via Merge:



Categorizers in DM

(2) Categorizers vs. derivational morphemes



Summary: categorizers in DM

In DM, categorizers

- ▶ select roots or stems and turn them into a categorially specified element that can be manipulated by the syntax
- ▶ can be phonologically null/“zero”
- ▶ have different features or “flavors”; e.g., “flavors” of the verbalizer v (Folli & Harley 2004, 2007; Harley 2005, 2009, 2013; Alexiadou & Lohndal 2017; Panagiotidis et al. 2017, etc.):
 - ▶ v_{CAUSE} : causatives
 - ▶ v_{BECOME} : anticausatives/inchoatives
 - ▶ $v_{\text{BE/STATE}}$: states
 - ▶ v_{DO} or v_{ACT} : unergative activity verbs
- ▶ morphosemantically mediate between the root and higher functional projections (e.g., Voice, temporal/spatial anchoring, agreement, etc.)

Categorizers vs. derivational morphemes

In DM:

- ▶ “inner” suffixes: attach to the root (or before the first categorizing head)
- ▶ “outer” suffixes attach to already categorized stems
 - ▶ e.g., Marantz 1997, 2007, Alexiadou et al. 2015, Alexiadou & Lohndal 2017)
 - ▶ In the Exoskeletal Model (XSM): Borer 2005a, 2005b, 2013; de Belder 2011 ...
 - ▶ In comparative IE linguistics/typology: “primary” vs. “secondary” derivation
- ▶ Categorizers that select the root have a different status than word class-changing derivational morphemes:
 - ▶ Root-conditioned allomorphy (and allosemy, Marantz 2013)
 - ▶ Lexically specified/idiosyncratic meaning “fixed” at first phase/categorial affix (Marantz 1997, 2013; Panagiotidis et al. 2017)

Categorizers vs. derivational morphemes

- ▶ As we will see, inner suffixes can become outer suffixes diachronically (and vice versa), so this is a purely synchronic, structurally motivated distinction - not a “deep” property of particular affixes
- ▶ I use a broad definition of categorizers that includes both inner (root-selecting) and outer (category-changing or category-modifying) morphology

Categorization & meaning

- ▶ How much/what kind of formal “meaning” is associated with “inner”/stem-forming categorizers such as declension/conjugation classes?
 - ▶ Purely ornamental/“morphomic” (Aronoff 1994; Stump 2001; Maiden 2005, 2009)
 - ▶ Morphological interface/well-formedness condition (Ultra-Massuet 1999; Ultra-Massuet & Arregi 2005a; Embick 2010, etc.)
 - ▶ Association with argument structure/Aktionsart (to some extent)? Ultra-Massuet 1999 (?); O’Neill 2013; Panagiotidis et al. 2017; Bertocci 2017, Bertocci & Pinzin 2020; Kastner & Martin 2021; Grestenberger 2022; Simonović & Mišmaš 2023; Kovačević et al. 2024, etc.
- ▶ Diachrony of inflectional classes/“theme vowels”, etc.?

Categorization & form

Oltra-Massuet (1999); Oltra-Massuet & Arregi (2005b); Calabrese (2023): the vocalic “themes” of, e.g., Spanish conjugational classes do not spell out functional heads such as *v* but *adjoin* to them postsyntactically, (3).

(3) Morphological well-formedness condition on Spanish nouns & verbs (Oltra-Massuet & Arregi 2005b: 46)

a. At MS, all syntactic functional heads require a theme position.

b. $F \rightarrow F$



(4) Spanish complex verbalizers (Fábregas 2017: 7)

a. *-iz-a-* (*autor-iz-a-r* ‘to authorize’)

b. *-ific-a-* (*clas-ific-a-r* ‘to classify’)

c. *-e-a-* (*tont-e-a-r* ‘to act silly’)

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→ categorizers can be heads or adjuncts

Interim summary

Recurring questions & issues across frameworks:

- ▶ Is categorization a “morpho-lexical” primitive or are there morphosyntactic/morphosemantic correlations that determine the choice of (sub)categorizer?
- ▶ How many “primary” categorizers are there? Just n , v , or also a , prep (more?) Universal or language-specific?
- ▶ Can they be decomposed, e.g., into (bundles of) formal features?
 - ▶ E.g., Mitrović & Panagiotidis (2020); Fábregas (2020) on a
- ▶ Are there different “flavors” of v , n ...? And how many? (Folli & Harley 2004; Acquaviva 2009, 2019)
- ▶ Do root-categorizing v 's, n 's etc. systematically differ from “higher” (derivational) v 's, n 's, and if yes, how?
- ▶ Are there zero categorizers, and what are the constraints on their meaning/distribution?

Today's goals

Today's goal is to address these issues from a *diachronic* perspective — where do categorizers come from and how do they develop?

- ▶ Core claim: new categorizers arise through unidirectional reanalysis of root-adjacent material
- ▶ This reanalysis leads to predictable morphosemantic functions of categorizing morphology
- ▶ which in turn can be formalized as a constrained typology of possible categorizer changes

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Basically, the idea is that if we understand what these elements were “five minutes ago”, then maybe that will help us understand what they are now.

Where does categorizing morphology come from?

- ▶ Empirical problem: much more work on the diachrony of analytic/periphrastic argument structure and voice constructions (e.g., English *get*-passive, Romance SE-“reflexives”, German(ic) participial passive ...) than on categorizing/synthetic ones
 - ▶ Some recent exceptions: Bertocci 2017; Bertocci & Pinzin 2019; Grestenberger 2022, 2023; Calabrese & Petrosino 2023
- ▶ Conceptual/theoretical problem: are changes in word-forming/category-defining morphology
 - ▶ regular? (in the Neogrammarian sense) and
 - ▶ directional? (in the “directional syntactic cycles” sense)

Disclaimer

Haspelmath (1995): Two main diachronic sources of “affixes”:

1. Grammaticalization/**agglutination** (Hopper & Traugott 2003, Haspelmath 1995): formerly independent words are “fused” into a single word, (5).
 2. (Morphological) **reanalysis**: “a new way in which speakers understand the structure of a word by relating it to other words in a different, novel way.” (Haspelmath 1995: 1)
- (5) Lat. *clarā mente* ‘with a clear mind’ > Fr. *clairement*, It. *chiaramente*, etc.; new adverbial suffix: *-ment / -mente*
- ▶ Today’s talk focuses on the second type, **reanalysis** in synthetic word forms.
 - ▶ See Diertani (2011) for a more detailed typology of affix reanalysis.
 - ▶ Disclaimer II: no discussion of root vs. head status of the morphemes affected by affix reanalysis (today — though some implications will arise)
 - ▶ cf. de Belder 2011; Lowenstamm 2014; Cavirani-Pots 2020

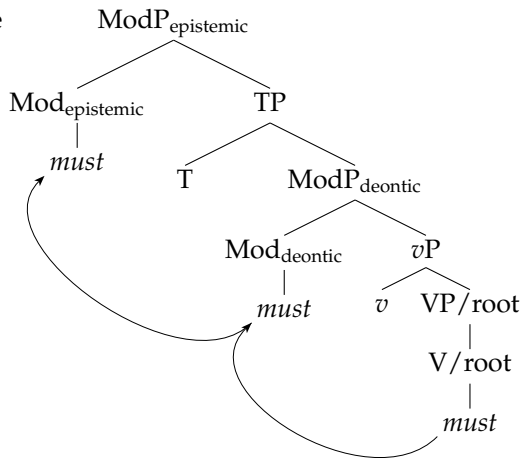
Where do categorizers come from?

Core claim:

- ▶ New categorizers arise through **reanalysis** of root-adjacent morphological material
 - ▶ Reanalysis as “(...) a process whereby the hearer assigns a parse to the input that does not match the structure assigned by the speaker.” (Walkden 2014: 39; cf. Hale 1998; Walkden 2021; Bar-Asher Siegal 2024)
- ▶ **Directionality**: Reanalysis is *directional* - structurally upwards, linearly rightwards
- ▶ **Upwards Reanalysis (UR)** (Roberts & Roussou 2003, Cournane 2014, Alexiadou 2021, Grestenberger 2023): “lower” functional material → “higher” functional material — cf. syntactic “cycles”, (6).
- ▶ “semantic bleaching” — loss of formal features — can seemingly counteract this directionality

Example: the modal cycle

(6) UR in the modal cycle



What causes directionality of reanalysis?

Cause: a combination of

- ▶ **L1 acquisition:** children don't know in advance what kind of grammar they will acquire → “input-divergent analyses” (Cournane 2017)
- ▶ **Computational economy/“Third Factor”** (Chomsky 2005) principles:
 - ▶ Late Merge Principle (LMP) & Head Preference Principle (van Gelderen 2004, 2009, 2013...)
 - ▶ “Maximise Minimal Means”, Biberauer 2017, 2019, Biberauer & Roberts 2017
 - ▶ “Minimize Structure” (Cardinaletti & Starke 1999, Breitbarth 2017)

UR & morphology

Upwards Reanalysis (UR) in complex word forms: (a) phonological/morphosyntactic feature(s) associated with a terminal node x are reanalyzed as belonging to a structurally higher (linearly adjacent) head y (cf. Grestenberger 2023)

→ FWF V 850-G “Verbal categories and categorizers in diachrony”
(<https://lauragrestenberger.com/categorizers-in-diachrony>)

UR & morphology

Core hypotheses:

- ▶ Changes in categorizing/derivational morphology are unidirectional, parallel to syntactic changes.
- ▶ This directionality follows from the same underlying principles as in syntactic change
 - ▶ Morphology mirrors syntax, e.g., DM, Nanosyntax...
- ▶ Morphosemantic/“syn-sem” change should systematically correlate with changes in/reanalysis of categorizing/derivational morphology
- ▶ These changes should follow specific patterns and directions, parallel to “cycles” in syntactic change

UR & semantics

- ▶ Does morphosemantic change correlate with morphological reanalysis in complex word forms? Should we expect it to?

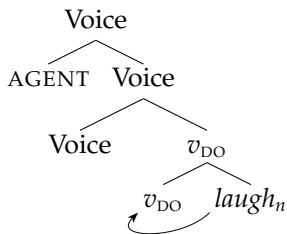
UR & semantics

- ▶ Does morphosemantic change correlate with morphological reanalysis in complex word forms? Should we expect it to?
- ▶ Grestenberger 2023 (for the verbal domain): yes, argument structure change is linked to morphological reanalysis in the v -domain & this follows from UR + the Hale & Keyser-style analysis of unergative & unaccusative verbs
- ▶ Hale & Keyser 1998, 2002, Harley 2005, 2011:
 - ▶ Unergative verbs are denominal verbs: a noun incorporates into (“conflates with”) a selecting verbal projection, v_{DO}
 - ▶ Unaccusatives/Change of State (CoS) verbs (of the causative alternation) are deadjectival verbs: an adjective incorporates into (“conflates with”) v_{BECOME}

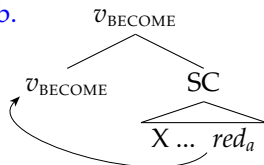
“Denominal” unergatives vs. “deadjectival” unaccusatives in H&K + Harley

(7) Unergative verbs & unaccusative CoS verbs

a.



b.



Conflation: predictions

- (8) Conflation (Hale & Keyser 2002: 12):
“the process according to which the phonological matrix of the head of a complement C is introduced into the empty phonological matrix of the head that selects (and is accordingly sister to) C.”

(Hale & Keyser 2005: 17: “a head X^0 may enter into the Conflation relation with the head of its complement C if X^0 selects C.”)

Diachronic predictions:

- ▶ synthetic unergatives should be formed *with verbalizers that are historically related to nominal (derivational) morphology*
- ▶ synthetic (unaccusative) CoS verbs should be formed *with verbalizers that are historically related to adjectival (derivational) morphology*

Predictions: reanalysis of categorizing morphology

Further predictions concern the relationship between verbalizing morphology and argument structure:

- ▶ Abstract properties of the reanalyzed *n* or *a* should be systematically reflected in the abstract properties of the resulting verbalizer
- ▶ Harley 1999, 2005: features such as [\pm BOUNDED] of the selected element and its ability to take a complement determine the Aktionsart of the derived verb.

(9) Unergative accomplishments (Harley 2005)

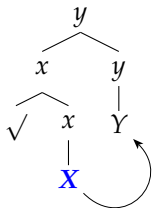
- The mare foaled in two hours/#for two hours.
(+bounded, telic, no complement)
- The baby drooled for two hours/#in two hours.
(-bounded, atelic, no complement)

UR & semantics

- ▶ If the event/argument structure properties of derived verbs follow from the properties of their derivational base (*n* or *a*), then that should be reflected in event/argument structure properties of reanalyzed *v*'s that diachronically go back to such *n*'s or *a*'s.
 - ▶ Grestenberger 2022, 2023, Marescotti & Grestenberger 2024
- ▶ Crucially, at the initial stage of the reanalysis, the semantic change is minimal and does not affect the truth-conditions of the proposition (Early Semantic Stability Hypothesis, Bar-Asher Siegal 2024)

Types of UR in complex word forms

1) Category change, no loss of meaning (meaning = formal features/functional heads)



1) category change ($n \rightarrow v$), no loss of meaning

Ancient Greek (AG) verbs in $-éu-\bar{o}$ were originally derived from (animate “agentive”) nouns in $-éu-$ with the verbalizer $*(j)e/o-$, (10).

(10) AG verbs in $-éu-\bar{o}$

<i>basil-éú-\bar{o}</i>	‘am king; rule’	<i>basil-éú-s</i>	‘king’
<i>khalk-éú-\bar{o}</i>	‘am a coppersmith’	<i>khalk-éú-s</i>	‘coppersmith’

Nominal $-eu-$ was reanalyzed as a productive verbalizer on the way to Modern Greek (MG).

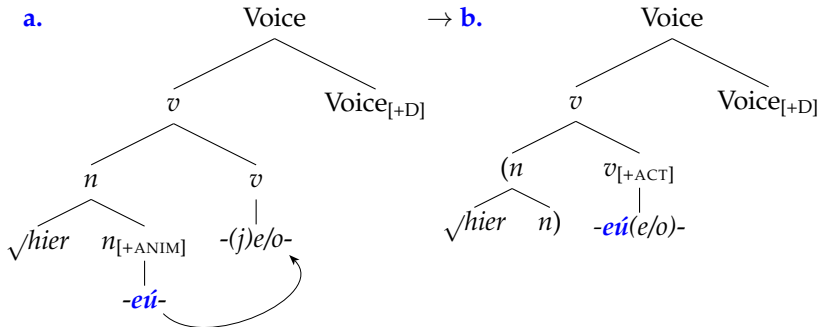
- ▶ Ralli 2005; Efthymiou 2011; Efthymiou et al. 2012; Holton et al. 2012; Spyropoulos et al. 2015; Panagiotidis et al. 2017; Koutsoukos 2021, etc.

(11) Modern Greek verbs in $-ev-$ (ex. from Panagiotidis et al. 2017)

MG $-ev-o$		base	
<i>stox-év-o</i>	‘I aim at’	<i>stóx-os</i>	‘target’
<i>kont-év-o</i>	‘I approach’	<i>kontá</i>	‘near’
<i>xak-év-o</i>	‘I hack’	Engl. <i>hack</i>	

1) category change ($n \rightarrow v$), no loss of meaning

- (12) Reanalysis of AG nominal *-eú-* in Davidsonian/SL verbs (Marescotti & Grestenberger 2024)

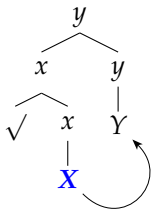


- ▶ “Conglutination” (Haspelmath 1995); the inner suffix becomes semantically vacuous (“the creation of a complex suffix requires semantic deletion”, Matushansky 2024)

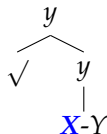
Types of UR in complex word forms

2) Category change + loss of meaning (= loss of functional projections/formal features)

a.



→ b.



2) category change ($v \rightarrow n$) + loss of meaning

UR + change of base: historical development of the MG action noun-forming suffix *-ismos* from earlier *-is-* (aorist verb stem) + noun-forming *-mós* (Schwyzer 1939: 493; Manolesou & Ralli 2015).

(13) Ancient Greek deverbal nouns in *-mós*

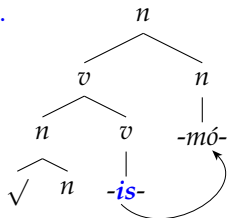
Present	Aorist	Deverbal noun
<i>oik-íz-ō</i>	<i>oik-is-a</i>	<i>oik-is-mó-s</i> 'foundation of a colony'
house-PRES-1SG	house-AOR-1SG	house-AOR-NMLZ-NOM
<i>dane-íz-ō</i>	<i>dane-is-a</i>	<i>dane-is-mó-s</i> 'money-lending'
loan-PRES-1SG	loan-AOR-1SG	loan-AOR-NMLZ-NOM

Hellenistic to MG: *-ismos* = productive denominal suffix (*dogmat-ismos*, *ergat-ismos* 'workerism', *varoufak-ismos* 'Varoufakism', ...)

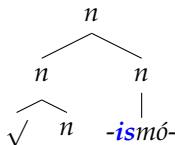
2) category change ($v \rightarrow n$) + loss of meaning

(14) UR of AG *-is(-)mós*

a.



→ b.

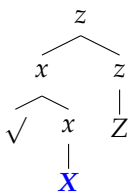


► “Affix telescoping” (Haspelmath 1995)

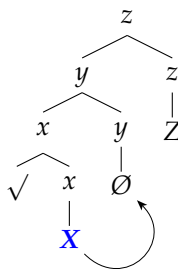
Types of UR in complex word forms

3) Category change + addition of meaning (= FP)

a.



→ b.

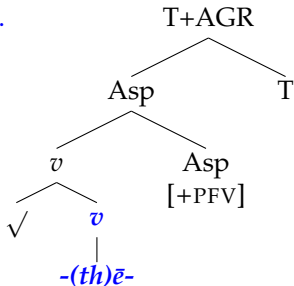


3) category change + addition of meaning/FP

- ▶ The AG inchoative/“passive” suffix $-(th)\bar{e}-$ turned from a root-selecting suffix to a v -selecting one, realizing a fused Voice/Asp head in MG
 - ▶ Christopoulos & Petrosino 2018, Alexiadou 2021, Grestenberger 2021b
- ▶ these verbs originally lacked VoiceP, (15a) (Grestenberger 2021b)
- ▶ This means that Voice must have been added at some point in order for $-(th)\bar{e}-$ to become reanalyzed as realizing [Voice,Asp], (15b).

(15)

a.

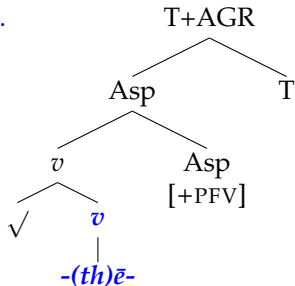


3) category change + addition of meaning/FP

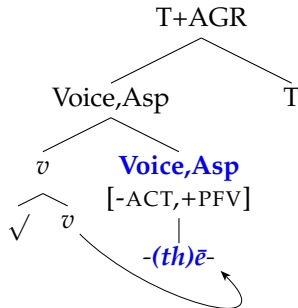
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(15)

a.



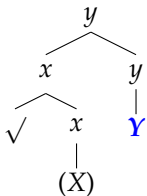
→ b.



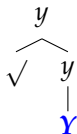
Types of UR in complex word forms

4) No category change, loss of meaning (= of functional projections)

a.



→ b.

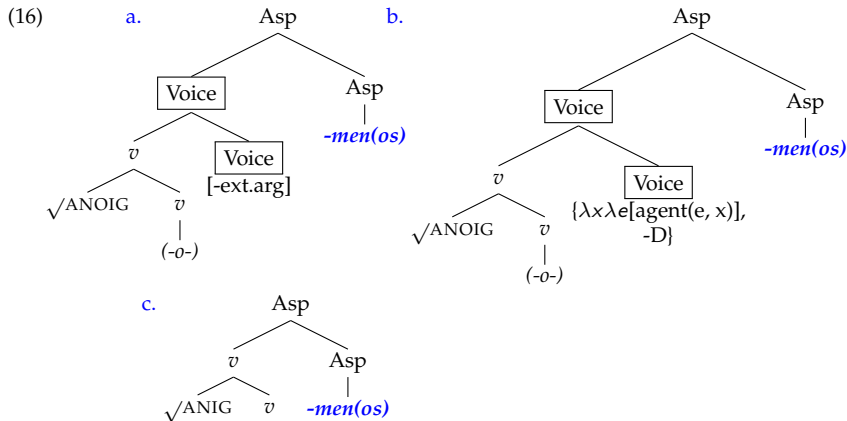


4) No category change; loss of meaning/FP

Ancient Greek middle participle suffix *-menos* vs. Modern Greek passive *-menos* (Grestenberger 2020):

- ▶ AG *-menos*
 - ▶ can be formed to any verb that inflects as nonactive in the finite forms, independent of its argument structure/valency → “**middle**” participle.
 - ▶ AG *-menos* can be *transitive*
- ▶ MG *-menos*
 - ▶ only combines with the perfective stem ≈ “perfect passive participle’.
 - ▶ forms exclusively *passive* participles.
 - ▶ combines with morphologically active or nonactive verb stems (valency relevant, not voice morphology):

4) No category change; loss of meaning / FP

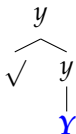


a. AG “middle” *menos*-ptcp (selects Voice); **b.** AG/postclassical perfect passive ptcp/MG resultant state ptcp (selects Voice{agent,-D}); **c.** MG target state ptcp (selects *v*).

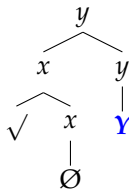
Types of UR in complex word forms

5) No category change, addition of meaning (= of functional projections)

a.



→ b.



5) no category change; addition of meaning/FP

Vedic Sanskrit (VS) *-ín-*:

- ▶ denominal possessive adjective-forming suffix, (17a), →
- ▶ adjectives that are ambiguous between a denominal and a deverbal (state-denoting) interpretation, (17b), →
- ▶ (de)verbal (participial) suffix to morphologically characterized verbal stems (including preverbs, DO, etc.), (17c).

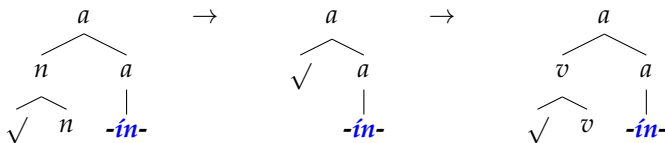
(17) Vedic denominal/deverbal adjectives in *-ín-*

- | | | |
|----|--|---------------------------------------|
| a. | <i>dhána-</i> ‘prize’ | <i>dhan-ín-</i> ‘possessing prizes’ |
| | <i>parṇá-</i> ‘wing, feather’ | <i>parṇ-ín-</i> ‘winged, feathered’ |
| b. | <i>kārá-</i> ‘praise song’ / <i>kar</i> ‘praise’ | <i>kār-ín-</i> ‘praising’ |
| | <i>vi-rapśá-</i> ‘abundance’ / <i>vi rapś</i> ‘abound’ | <i>vi-rapś-ín-</i> ‘having abundance’ |
| c. | <i>ví_{PRVB} car</i> ‘wander off’ | <i>vi-cār-ín-</i> ‘wandering off’ |
| | <i>prá_{PRVB} sak-ṣ</i> ‘conquer’ | <i>pra-sak-ṣ-ín-</i> ‘conquering’ |

(Lowe 2017; Grestenberger 2021a)

5) no category change; addition of meaning/FP

(18) UR of Vedic adjectives in *-ín-*



- ▶ “semantic enrichment”, addition of event-introducing projection based on root-derived structures from inherently eventive roots (“*break-type*”, e.g., Beavers & Koontz-Garboden 2020; Beavers et al. 2021 — Ora Matushansky, p.c.)

Summary

	no change in selection	FP lost	FP added
category change of reanalyzed affix	1) AG <i>-euō</i> → MG <i>-evo</i> ; “conglutination”, “secretion” ^a ; Gmc. <i>*-ar-</i> (a) → PDG <i>-er-</i> (v)	2) AG deverb. <i>-is-mos</i> → MG denom. <i>-ismos</i> ; “telescoping” ^b	3) AG <i>v</i> <i>-(th)ē-</i> → MG [Voice, Asp] <i>-thi-</i> ^c ; Proto-Algonquian independent order ^d ; Old Hungarian frequ. <i>v</i> → middle voice ^e
no category change of reanalyzed affix	(= no change)	4) AG mid. ptcp. <i>-menos</i> → MG pass. <i>-menos</i> ^f ; PIIr. dim. <i>*-ka-</i> → Middle Ir. nmlz. <i>-k(a)-</i> ^g	5) Ved. denom. adj. <i>-ín-</i> → verb. adj./ptcp. ^h ; PIE denom./poss. adj. <i>*-nt-</i> → act. ptcp. ⁱ ; Gmc. verb. adj. (<i>*-to-/*-no-</i>) → pass. ptcp. ^j

^{a,b}Haspelmath 1995; ^cGarcía Ramón 2014, Christopoulos & Petrosino 2018, Alexiadou 2021; ^dGoddard 1974, Proulx 1982, Oxford 2014; ^eHalm 2020;

^fGrestenberger 2020; ^gEdgerton 1911, Jamison 2009; ^hGrestenberger 2021a; ⁱLowe 2015, Grestenberger 2020; ^jWegner 2019, Hallman 2021.

Summary

- ▶ Reanalysis of stem-forming/word class-changing morphology can be grouped into specific subclasses depending on whether 1) the formal features/function(s) of the categorizer change and 2) its selectional properties change
- ▶ Specifically, **cross-categorial derivation** seems to be a crucial context that diachronically gives rise to new (reanalyzed) categorizers
- ▶ These should then systematically inherit specific abstract properties/features from their diachronic sources (except in cases of bleaching/loss of features)

Categorizers in diachrony

Expected origins of categorizing morphology in the context of cross-categorial derivation:

▶ *v*

< *n*

< *v*

< *a*

▶ *n*

< *n*

< *v*

< *a*

▶ *a*

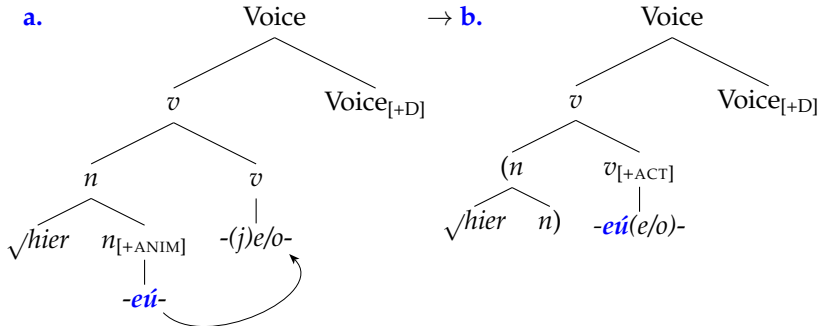
< *n*

< *v*

< *a*

$v < n$

- (19) AG nominal *-eú-* AG/MG verbal *-eú-*/*ev-*
(Marescotti & Grestenberger 2024)



$v < n$

Further examples of $v < n$:

- ▶ Other MG verbalizers such as *-en-*, *-iz-*, *-ar-*, *-on-*, *-(i)az-*
- ▶ The Latin 1st conjugation (e.g., Bertocci 2017; Calabrese 2023; Calabrese & Petrosino 2023)
- ▶ The Akkadian stative (Kamil 2023)
- ▶ Reanalysis of Pre-Proto-Algonquian verbal nouns as stative verbs in predicative position/“verbless copular sentences” (Oxford 2014: 14–15; Goddard 1974, Proulx 1982)
- ▶ Reanalysis of deverbal action nouns from transitive verbs as intransitive verbs/antipassives to transitives in Japhug Rgyalrong (Jacques 2014, 2021)

The $n \rightarrow v$ reanalysis is extremely common cross-linguistically, often connected to alignment changes via nominal possession: pronominal/possessive morphology is reanalyzed as verbal agreement morphology.

$\emptyset < \emptyset$

- ▶ Reanalysis of verbal stem-forming iterative/habitual **-ské/ó-* as “iterative preterit” (Asp or T) marker *-ske/o-* in Ancient Greek (Ionic):
 - ▶ Ittzés 2008; Ringe & Eska 2013; Kimball 2014; Grestenberger 2022

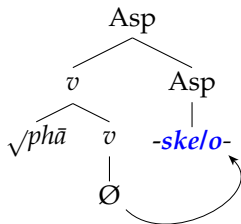
(20) Ionic iterative preterits (Kimball 2014: 163), root = **bold**, primary stem = underlined, iterative suffix = *italics*

	Iterative		Base
a.	<u>hi-stá-Ø</u> - <i>ske/o-</i>	‘continually placed sth.’	<u>hí-sta-Ø-</u> (pres.)
b.	<u>rhēg-nú</u> - <i>ske/o-</i>	‘continually broke’	<u>rhég-nu-</u> (pres.)
c.	<u>pheug-é</u> - <i>ske/o-</i>	‘kept fleeing’	<u>pheúg-o-</u> (pres.)
d.	<u>phug-é</u> - <i>ske/o-</i>	‘kept escaping’	e- <u>phúg-o-</u> (aor.)

$v < v$

- ▶ Ringe & Eska (2013): Reanalysis in forms with a synchronic zero-derived “root present” (or aorist), e.g.:

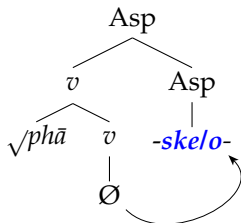
(21)



$v < v$

- ▶ Ringe & Eska (2013): Reanalysis in forms with a synchronic zero-derived “root present” (or aorist), e.g.:

(21)



Further examples of $v < v$:

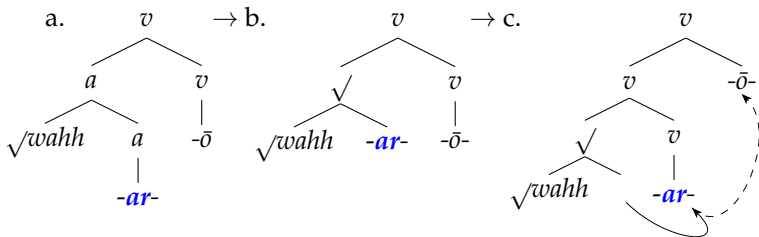
- ▶ UR of stem-forming inchoative/CoS *-thē-* as “passive aorist” [Voice, Asp] marker (see above).
- ▶ reanalysis of stem-forming v (or Asp?) heads as “ornamental” conjugation class markers in Latin (adjuncts to v), Calabrese (2023); Calabrese & Petrosino (2023)

v < a

- Proto-Gmc. adjectival **-r(a)-* → Proto-NW-Gmc. “iterative” verbalizer **(a)r-* (Grestenberger et al. 2024)

(22) OHG “deverbal” iteratives (base a;v)

r-iterative		r-adj.		primary (strong) verb	
<i>wahh-ar-ōn</i>	‘be alert’	<i>wahh-ar</i> ,	‘alert,	<i>wach-ēn</i>	‘be awake,
		<i>wach-ar</i>	awake’		vigilant’
<i>weig-ar-ōn</i>	‘be obstinate,	<i>weig-ar</i>	‘obstinate’	<i>wīg-an</i>	‘oppose,
	refuse’				fight’
<i>flog-ar-ōn</i> ,	‘flutter,	<i>*flak-ra-</i> ,	‘flickering’	<i>*flakk/g-ōn</i> ,	‘flutter,
<i>flag-ar-ōn</i>	flicker’	OE <i>flacor</i>		ME <i>flakk-en</i>	flicker’
<i>-lung-ar-ōn</i>	‘wander	<i>lung-ar</i>	‘capable’	<i>gi-lingan</i>	‘succeed’
	around’				

$v < a$ (23) Reanalysis of $-(a)r-$ as a $\sqrt{\text{ }}$ -modifier $> v$ head

v < a

Additional examples:

- ▶ AG “deadjectival” factitive/inchoative verbalizer *-ūne/o-* (Koch 1978; Tucker 1981, 1990; Villanueva Svensson 2024) & Anatolian factitive verbalizer *-nu-* from reanalyzed *u-*adjectives (Koch 1973, Koch 1980; Sasseville Forthcoming)
- ▶ Latin repetitives/frequentatives in *-t-ā-*, *(t-)itā* (*ac-t-ā-re*; *ag-it-ā-re*; *ac-t-it-ā-re*) from the participial “third stem” and/or agentive adjectives in **-et-* > *-it-* (Weiss 2020: 424–5)

n < n

- ▶ Proto-Indo-Iranian nominal diminutive **-ka-* > East Iranian/Middle Iranian nominalizer/nominal stem formant *-(V)k*

(24) Young Avestan (Old East Iranian) substantives in *-ka-* from animate concrete substantives (m./f.)

Derivative	Meaning	Base	Meaning
<i>kaini-kā-</i> f.	'girl'	<i>kainiiā-, kainī-</i> f.	'young girl'
<i>jahi-kā-</i> f.	'bad woman'	<i>jahī-</i> f.	'bad woman'
<i>mašiiiā-ka-</i> m.	'human'	<i>mašiiā-</i> m.	'mortal; human'
<i>zəma-ka-</i> m.	'winter storm'	<i>ziiam-</i> m.	'winter'

(25) Ex./reflexes of "pleonastic" *-ka-* in Middle East Iranian

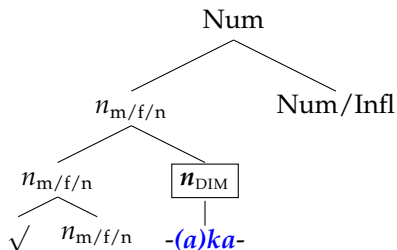
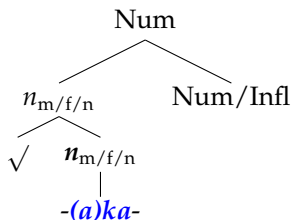
- Sogdian: *pāδ* 'foot' & *pāδ-ē* 'foot' < **pāda-ka-*
(Gershevitch 1954: 144–52; Sims-Williams 1989b)
- Bactrian: *αγγαρϣο* 'possessions' < **ham-kāra-ka-*, *βαρϣο*
'riding animal' < **bāra-ka-*

(Sims-Williams 1989a, Gholami 2009)

$n < n$

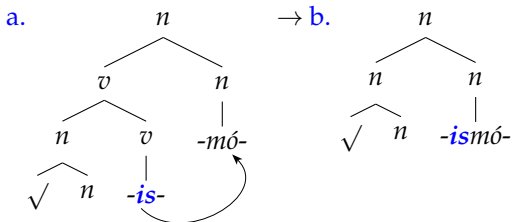
- ▶ Modifier of/adjunct to functional head \rightarrow functional head
 - ▶ (DIM)-affixes as heads vs. modifiers: Wiltschko & Steriopolo 2007; Fábregas 2013; Gouskova & Bobaljik 2022

a.

 \rightarrow b.

$n < v$

- Reanalysis of AG pfv *-is-* as nominalizer/complex suffix *-ismos*

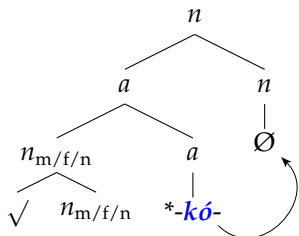
(26) UR of AG *-is(-)mós*

n < a

- Reanalysis of relational adjective-forming suffix **-ka-* as relational noun-forming suffix in Indo-Iranian

(27) Possessive/relational adjectives (& their substantivizations) in Avestan & Old Persian

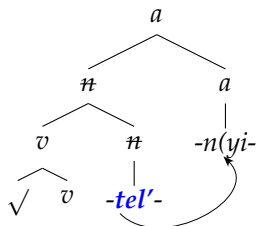
Derivative	Meaning	Base	
OAv. <i>pasu-ka-</i> m.	'domesticated animal'	<i>pasu-</i> m.	'livestock' (coll.); 'domesticated animal'
YAv. <i>pūiti-ka-</i> a.	'purifying'	* <i>pūiti-</i> f.	'purification'
YAv. <i>spa-ka-</i> a./m.	'dog-like (one)'	<i>spa(n)-</i> m.	'dog'
OP <i>vazar-ka-</i> a.	'great, big'	* <i>vazar-</i> n.	'greatness'
OP <i>aršti-ka-</i> m.	'spearman'	<i>aršti-</i> f.	'spear'

$n < a$ (28) Reanalysis of denominal adj. $*-ko-/-ka-$ as nominalizer

$a < n$

- ▶ Russian agent noun-forming *-tel'* → “agentive” deverbal adjective-forming *-tel'n(yj)* (Haspelmath 1995; Matushansky 2024)
 - ▶ *gubi(t')* ‘to ruin’ → *gubi-tel'* ‘ruiner’ → *gubi-tel'-n(yj)* ‘ruinous’ ... vs.
 - ▶ *stara(t'sja)* ‘do one’s best’ → *stara-tel'n(yj)* ‘assiduous’

(29) “affix telescoping” of nominal *-tel'*

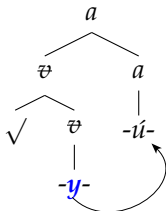


- ▶ NB “agentive” semantics of the resulting adjectival suffix

a < v

► Vedic “agentive” -yú ← √-y_v-u_a-

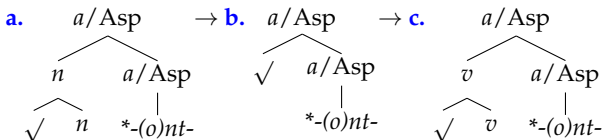
- (30) a. *vīra-ya-* ‘act like a man’ → *vīra-y-ú-* ‘acting like a man’
 b. *iṣ-ayá-* ‘propel, send’ → *iṣ-ay-ú-* ‘propelling’
- (31) a. *bhuj-yú-* ‘enjoying’ (**bhuj-yá-*)
 b. *sah-yú-* ‘victorious’ (**sah-yá-*)
- (32) “affix telescoping” of adjectival -yú-



$a < a$

- ▶ (Relational/“secondary”) adjectival morphology is a common diachronic source of participial morphology (Haspelmath 1994)
- ▶ E.g., PIE **(o)nt-* (denominal possessive adj.) → (late) IE active participle suffix (Lowe 2014, 2015; Grestenberger 2020), via intermediate stage in which it was ambiguous between root- and (nominal) stem-derived adjective (“verbal adjective”).

(33) Reanalysis of **(o)nt-*



a < a

Further examples of *a/ptcp < a*:

- ▶ Vedic Sanskrit denominal *-ín-* → verbal adjective/“quasi-participial” *-ín-* (see above)
- ▶ possessive denominal **-to-* (Lat. *barbā-tus* ‘bearded’, etc.) → verbal adjective/PPP *-to-* (Greek), *-ta-* (Indo-Iranian), *-tus* (Latin), e.g., Skt. *kr̥-tá-* ‘done’, Lat. *fac-tus* ‘done’, etc. (Grestenberger 2022 with refs.)
- ▶ possessive denominal **-nt-* → active participle suffix in Greek, Latin, Sanskrit ... (e.g., Lowe 2015; Grestenberger 2020)

Participial morphology can also be reanalyzed as adjectival morphology (= verbal functional projections/features are lost):

- ▶ E.g., some Old Church Slavonic (OCS) adjectives in *<-enъ>* and *<-тъ>* are historically participles but synchronically behave as primary adjectives and can become the input to deadjectival verb formation (Reiter 2023):
 - ▶ OCS *zelenъ* ‘green’ → Russ. *zelenét’* ‘become green’, *zelenít’* ‘make green’
 - ▶ OCS *čistъ* ‘clean, pure’ → OCS *čistiti* ‘clean, purify’

Summary

base	resulting category		
	<i>v</i>	<i>n</i>	<i>a</i>
<i>v</i>	Gk. iterative -ske/o- _v > -ske/o- _{Asp}	Gk. -is(-)mos	Ved. -y(-)u-
<i>n</i>	AG -eú- > MG -ev-	Old Ir. dim. -ka- > Mid. Ir. -(V)k(a)-	Russian -tel'n(yj)
<i>a</i>	Gmc. -r(a)- > OHG -ar-	PIE/PIIr. denom. *-ko-/-ka-	denom./poss. *-(o)nt- > VA/pctp. -(V)nt- (Gk., Skt. ...)

Discussion

Diachronic generalizations:

- ▶ The source usually incorporates into/conflates with the target category both phonologically and semantically
 - ▶ Though both phonological and semantic content can also be lost (sound change/semantic bleaching) — **zero categorizers**
- ▶ The target category usually incorporates/reflects properties of the source category (at least at the initial stage) → reanalysis is local & directional (cf. Bar-Asher Siegal's Early Semantic Stability Hypothesis)
 - ▶ E.g., “agentive” *-eu*-verbs from animate nouns of profession/“agentive” nouns
- ▶ New categorizers are never “across the board” (“just *n*” or “just *v*”), but associated with particular types of *n*, *v* — constraints on “subclass formation”/“flavors” of *n*, *v*?

Implications

- ▶ The “diachronic flexibility” of root- vs. stem-selecting categorizers suggests that interpretational and syntactic differences between them (e.g., category-determining vs. -changing) are really only due to their respective structural positions — they’re not different at a “deeper”/ontological level
- ▶ In terms of functional “spines”, the diachronic flexibility between different *n*’s, *v*’s etc., suggests that approaches that assume category-neutral spines (e.g., Wiltschko 2014; Panagiotidis 2024) are on the right track
- ▶ Specifically, it suggests that functional categories — including those spelled out with “categorizing morphology” — can be reduced to formal features (Panagiotidis 2022 with refs.)

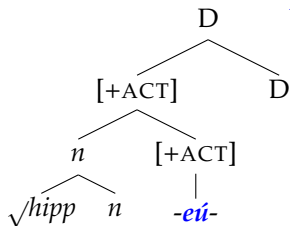
Implications

(34) AG

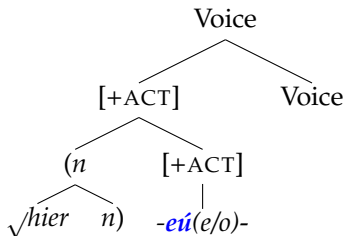
a. *híp̄po-s* 'horse' : *hipp-eú-s* 'horserider'

b. *hier-eú-ō* 'I sacrifice'

a.



b.



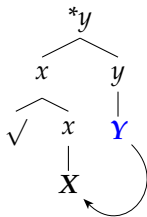
Open questions

1. Are there counterexamples to the (uni)directionality of reanalysis hypothesis? Is your typology in principle falsifiable?
2. What about the synchronic status/diachronic development of “zero categorizers”?
3. Do these generalizations hold cross-linguistically, or did you just cherry-pick examples from your favorite older Indo-European languages?
4. To what extent does the target category reflect the properties of the source category? That is, what is it exactly that gets reanalyzed?
 - ▶ E.g., change in categorizing morphology ↔ argument structure change?

Counterexamples

- ▶ Ad 1.: (35) is excluded and so far I haven't found any examples of it — if you can think of one, let me know!
 - ▶ One possible case is discussed by Dali & Mathieu (2021), but there may be an alternative explanation.

(35) An example of counterdirectionality (excluded)



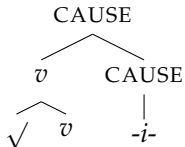
Zero categorizers

- ▶ Ad 2.: in DM, categorizers can be covert/“zero” (\emptyset), but this notion has been criticized (esp. Borer 2013, 2014; cf. also the surveys in Dahl & Fábregas 2018; Iordăchioaia & Melloni 2023a)
- ▶ But conceptual and empirical arguments in favor of zero categorizers have been adduced by, e.g., Pesetsky 1995; Dahl & Fábregas 2018; Calabrese 2019; Iordăchioaia 2020; Iordăchioaia & Melloni 2023b; Grestenberger & Kastner 2022
 - ▶ “Making zero morphemes unavailable within a theory is remarkably difficult: if a theory adopts some form of the arbitrariness of the sign, it is conceivable that a morpheme has content but a null phonological representation.” (Dahl & Fábregas 2018: 23)
- ▶ Moreover, there is a diachronic pathway to zero affixation, i.e., loss of category-defining morphology via sound change
 - ▶ E.g., rise of the $n \leftrightarrow v$ conversion pattern(s) in English; labile verbs of the causative alternation through loss of causativizing morpheme, etc.

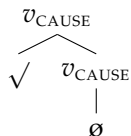
Zero categorizers

- (36) Diachronic pathway of labile verbs in English
(van Gelderen 2018; cf. Grestenberger & Kastner 2022: 49)

a.



→ **b.**



- (37) Old English causative alternation verbs

anticausative

sittan 'sit'

licgan 'lie'

meltan 'melt, burn up'

nesan 'escape from/be saved'

causative

settan 'set'

lecgan 'lay'

mieltan 'melt/purge'

nerian 'save/protect'

Future work

- ▶ Ad 3.: Initial case studies suggest that directionality of reanalysis in complex word forms really is a diachronic universal (cf. the examples from Algonquian, Semitic, Sino-Tibetan above), but more work is needed - preferably on languages with a historical record of at least a couple of hundred years
 - ▶ Though of course you can also do a lot with (internal) reconstruction
- ▶ Ad 4.: The case studies from the verbal system certainly suggest regular correspondences between morphological reanalysis in the *v*-domain and argument structure change, but here too large-scale data collection is needed.

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→ “The evolution of morphosyntactic categorization:
Formal typology, diachrony, and comparative reconstruction of the
mental lexicon”
(EVOCAT; ERC CoG 2025–2030)

Conclusion

- ▶ Once we adopt a framework in which morphology mirrors syntax, directionality of morpheme reanalysis in complex word forms falls out from general assumptions about UG, L1 acquisition, and third factor principles
 - ▶ “generalize as much as possible”, “merge later rather than sooner”, etc.
- ▶ We can leverage this to build a typology of categorizer change in complex word forms, which in turn can give us an idea of what kinds of formal features get reanalyzed and how that affects the compositional meaning of complex words — synchronically and diachronically
- ▶ If we adapt the Neogrammarian hypothesis to morphological change, we can use these generalizations to predict possible and impossible types of categorizer change
- ▶ which in turn allows us to systematically integrate morphosyntactic reanalysis into comparative reconstruction as well (Grestenberger & Fellner 2024)

Thank you!



FWF V850-G “The diachrony of verbal categories and categorizers”
(<https://lauragrestenberger.com/categorizers-in-diachrony>)

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