Syntax or the lexicon? Pinpointing the locus of morphosyntactic change in voice and argument structure alternations

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1 Introduction

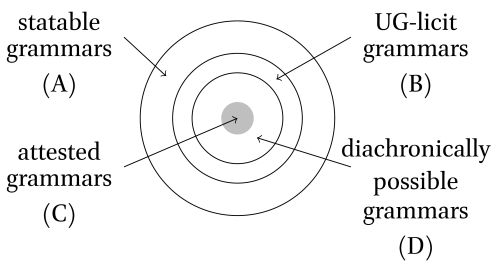
1.1 What's in it for us?

Why combine historical linguistics with linguistic theory? What's in it for us?

- **Historical linguists**:
  - (Formal) linguistic theory provides a constrained framework for the synchronic analysis of "dead" languages from which testable predictions follow
  - **Uniformitarianism**: past grammars are not expected to be fundamentally different from presently attested grammars
  - No dedicated "theory of change" necessary: Language change can be reduced to "input-divergent analyses" (Cournane 2017; ≈ "misacquisition", "misanalysis", "reanalysis") during L1 acquisition
  - Additional plus: all your favorite functionalist/cross-linguistic generalizations concerning language change can easily be "translated" into formal frameworks!
- **Theoretical linguists**:
  - Just as synchronic grammars/UG constrain possible analyses of past language stages, diachrony constrains synchronic grammars - given a specific initial state, only some grammars can arise → the **diachronic filter** (Hale 2019)
  - Understanding what *can* change means we also gain a better understanding of what *can't* change → "hardwired" UG principles
  - Understanding *how* different grammatical building blocks change could give us insights into what {phonological, semantic, morphosyntactic} features are universally available when new grammars are built from the input
  - Please don't use historical linguistics just as a data mine

> "The diachronic filter—which says simply that **there are systems which, given initial conditions and possible paths of change, cannot come into existence**—thus keeps us from mistakenly attributing to the computational mind (and thus to our theory of that mind) restrictions which arise from other domains (...). Understanding historical linguistics— in particular, what types of change are trivially attested, what types rare but attested, and what types completely unattested—allows us to build a model of the 'diachronic filter'. **Understanding this filter is absolutely central to developing a proper characterization of UG** (i.e., the human mind, with respect to linguistic computation), **because it prevents us from mis-attributing to UG observed cross-linguistic regularities which find their explanation in the extra-linguistic factors which feed into linguistic diachrony**."
>
> (Hale 2019: 13; emph. mine, LG)

(1) Statable, UG-licit, diachronically possible, and attested grammars (Hale 2019: 11)



1.2 Today's goals

→ Approach these issues from the perspective of morphosyntactic change in the verbal system, specifically with respect to changes in voice and argument structure alternations, to address the following questions:

- **What** changes?
- **How** does it change?
- (maybe: **Why** does it change?)
- How **regular** are these changes?

The last question is crucial - without regularity we can't formalize generalizations and state testable predictions.

- Recall the importance of the regularity principle for the discovery of **sound laws** → the Neogrammarian Hypothesis.

1.3 Outline

- Theoretical preliminaries
  - Change and directionality: morphosyntactic cycles
  - Verb formation in Distributed Morphology
  - Voice and argument structure change in synthetic and periphrastic verbs
  - A typology of morphosyntactic reanalysis
- Case studies
  - How do we get new verbalizers?
  - Where do periphrastic constructions come from?
  - Mysteries of the anticausative/passive syncretism
- Wrap up & conclusion

2 Theoretical preliminaries

2.1 Change & directionality

2.1.1 Introduction

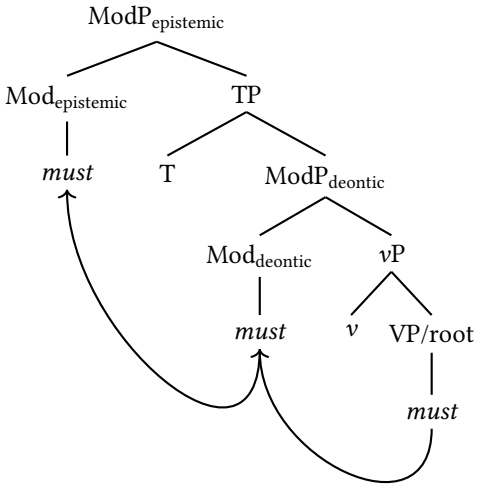
Two observations have been crucial in formalizing general principles of language change:

- Change is **regular** — phonological change, Comparative Method
  - e.g., *a* > *b* / _ *c*
- Change is **directional** — syntactic change, syntactic "cycles"
  - e.g., lexical verb > AUX; AUX $\not>$ lexical verb
  - but also in phonology, e.g., θ > f but f $\not>$ θ (Honeybone 2016)

Do these principles also hold for changes in **synthetic word forms**, a domain that is not usually discussed from the perspective of syntactic change?

- This will be crucial if we want to find generalizations concerning voice and argument structure changes!

(2) Example: directionality ("Upwards Reanalysis") in the Modal Cycle



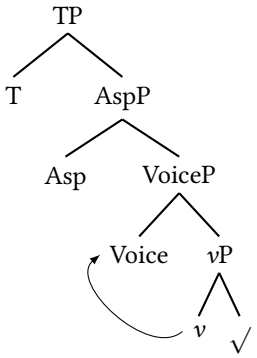
2.1.2 Voice and argument structure cycles

Cycles have also been posited for the Voice and argument structure domain, e.g., unergatives > transitives; unaccusatives > labile causative alternation verbs (van Gelderen 2018), the "Perfective Cycle":

(3) The Perfective Cycle (Bybee et al. 1994; van Gelderen 2018)
Resultative > Anterior > Perfective/Past

In the domain of Voice, it's been observed that *v*-elements diachronically often develop into Voice markers (the "Voice Cycle", cf. Halm 2020; Grestenberger & Kamil 2023).

(4) Upwards Reanalysis and the "Voice cycle"



→ Result: **Voice syncretism**

(5) Voice Syncretisms: Situations in which distinct syntactic alternations (e.g. passive and reflexive) are realized with identical morphology (Embick 1998)

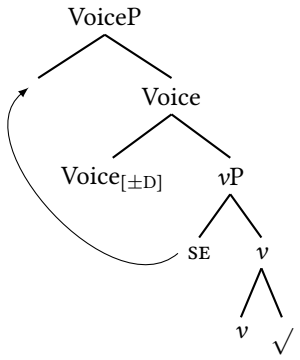
- Voice syncretism is widespread among the world's languages
  - Haspelmath 1990; Kemmer 1993; Alexiadou & Doron 2012; Zúñiga & Kittilä 2019; Bahrt 2021; Inglese 2021; Oikonomou & Alexiadou 2022; Wood & Tyler 2023; Grestenberger & Kamil 2023 ...
- Voice syncretism arises diachronically when the innovative construction keeps the older function
  - E.g., Engl. *get* 'obtain' > CAUSE > (CAUS-REFL >) BECOME > PASS (e.g., Fleisher 2006).

(6) a. Sally **got** drunk
b. Sally **got** hit (by a car/by a stranger)

Ex.: Reanalysis of Lat. *sē* > Romance SE; reflexive pronoun/theme > "argument expletive" (Schäfer 2017)

(7) $[_{vP}\ sē_{[D,arg]}\ ] \rightarrow [_{Voice_{[expl]}P}\ se_{[D]}\ ] \rightarrow [_{Voice_{agent}P}\ se_{[D]}\ ]$
reflexive anticaus "SE-passive"

(8) Reanalysis of Lat. *sē*



So there's some evidence that suggests that voice-, (lexical/syntactic) aspect-, and argument structure-related changes are directional ("cyclical"). BUT

- How general are these cycles?
  - As so often, a lot of the evidence is based on the diachrony of English.
- Are they unidirectional?
- How is syntactico-semantic change tied to morphological change in these cycles? Specifically, in languages that use mostly *synthetic* verbal constructions?

Basically, the question is whether there is directional change in synthetic word forms.

2.2 Directionality in derivational morphology?

Cause of directional syntactic cycles: 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"** principles (Chomsky 2005):
  - Late Merge Principle & Head Preference Principle (van Gelderen 2004, 2009, 2013, etc.)
  - "Maximise Minimal Means", Biberauer 2017, 2019, Biberauer & Roberts 2017
  - "Minimize Structure" (Cardinaletti & Starke 1999, Breitbarth 2017)
- This framework has successfully been applied to many of the phenomena traditionally described as "**grammaticalization**" (second compound member > suffix, clitic > affix, lexical verb > functional verb ...), e.g.:

(9) Lat. *clarā mente* 'with a clear mind' > Fr. *clairement*, It. *chiaramente*, etc.; new adverbial suffix: *-ment/-mente*

- But can it also be applied to changes in *synthetic* word forms, e.g., the development of nominal suffixes into verbalizers, or denominal adjectives into deverbal adjectives ("participles")?
- These aren't usually treated as "grammaticalization"
- 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 synthetic ones
  - Some recent exceptions: Bertocci 2017; Bertocci & Pinzin 2019; Grestenberger 2022b, 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)

2.3 Background: Distributed Morphology

2.3.1 Distributed Morphology and morphological change

Why would morphological change be directional?

- In lexicalist approaches to morphology, word formation happens in the lexicon and there is no *a priori* reason why word formation changes should mirror syntactic changes.
- But in non-lexicalist, realizational approaches like Distributed Morphology (DM) or Nanosyntax, UR (directional change) should in principle apply to "morphological" and "syntactic" changes equally.
- "Syntax" and "morphology" are not separate domains; morphology spells out or **realizes** functional heads ("terminal nodes") built by the syntax.

... and if this is the case, directional "syntactic" changes should also be observable in the diachrony of complex word forms, specifically, in the diachrony of **derivational morphemes** and **categorizers**.

2.3.2 Core claims

- Changes in categorizing morphology are directional, just like changes that are usually discussed under the label "syntactic change"
- The directionality follows from the same principles that have been argued to drive syntactic cycles of change
- But this only *follows* if we adopt a framework in which morphology mirrors/is mapped to ("realizes") syntactic structure
  - here: **Distributed Morphology (DM)** (Halle & Marantz 1993; Harley & Noyer 1999; Embick 2010, 2015; Bobaljik 2017, etc.)
- These mappings can change over time → "morphological change" takes places when acquirers end up with a different morpheme-to-node mapping than speakers of the input grammar (Calabrese & Grestenberger 2024)
- This approach moreover predicts correlations between argument structure changes and changes in derivational morphology

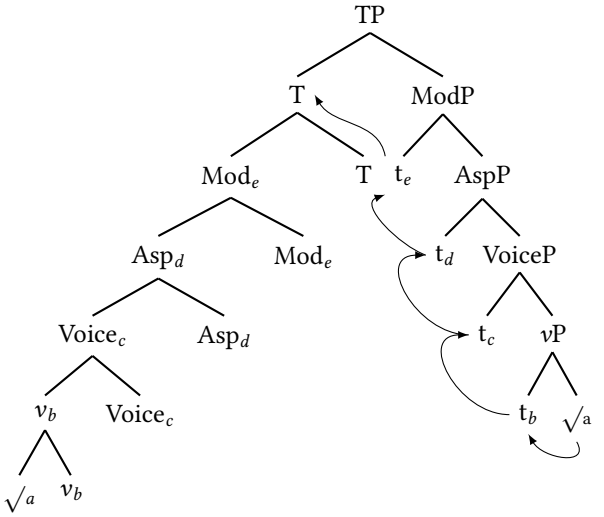
2.3.3 Verb formation in DM

Word formation (here: verb formation) in DM (e.g., Harley 2013; Bjorkman To appear; Calabrese & Grestenberger 2024):

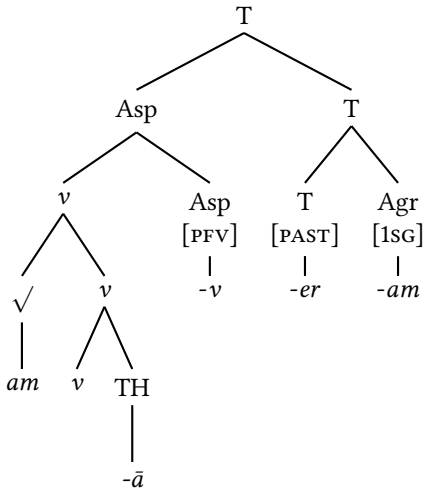
- **Full decomposition**: Complex word forms are built by the syntax, not stored in the lexicon (even irregular ones).
- Morphemes **spell out**/"realize" terminal nodes (= functional heads such as *v*, Voice, Asp, Tns ...)
- **Mirror principle**: The sequence of morphemes in a complex form (e.g., a finite verb) *mirrors* the sequence of syntactic (verbal) functional projections.
  - For example, aspectual morphemes are cross-linguistically closer to the root than morphemes expressing tense and mood.

Synthetic verb forms are complex heads built by cyclic head movement and left adjunction.

(10) Head movement and synthetic verb formation

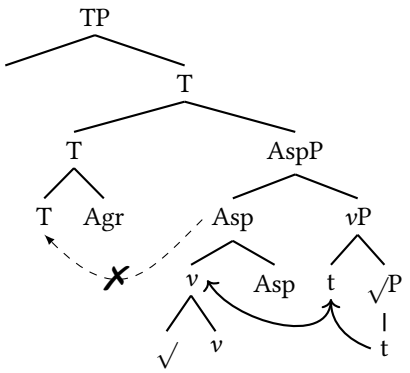


(11) Ex.: Lat. pluperf. 1sg. act. *amāveram* 'I had loved' (Embick 2000: 196–7):



In analytic forms, the movement is interrupted: E.g., in the Latin perfect passive, root-to-v-to-Asp movement takes place like in synthetic forms, but the resulting complex head cannot move to T.

(12) Lat. perf. 1sg. pass. *amat-us/-a sum* 'I was loved' (cf. Embick 2000: 214)



Variations:

- Marked features block movement (Embick 2000)
- Marked features block agreement (Bjorkman 2011)

- Phase heads can stop head movement; head movement can take place before and after Spell Out (Fenger 2020)
- Head movement as syntactic vs. post-syntactic operation.

Ingredients:

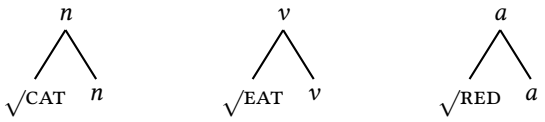
- **Mod**: Modality/Mood (indicative, subjunctive, optative...), e.g., ±IRR
- **T**: Tense, e.g., ±PST.
  - Agreement/ϕ features (**AGR**; e.g., person, number) postsyntactically adjoin to T (or: to the highest functional head in an m-word), cf. Oltra-Massuet & Arregi 2005a, Oltra-Massuet & Arregi 2005b, Calabrese & Grestenberger 2024
- **Asp**: viewpoint/syntactic aspect (imperfective/perfective), ±PFV
- **Voice**: ≈ active—nonactive/passive, but more precisely ±D (= ± external argument)
- ***v***: verbalizer, "lexical" aspect/Aktionsart, ±CAUS, ±ACT, ±RES ....?
  - E.g., Folli & Harley 2004, 2007; Harley 2005, 2013 — but many alternatives exist, e.g., Ramchand 2008, 2018.
- Today, we'll focus on where the elements that realize these nodes come from diachronically, how their meaning (= abstract feature content) changes, and how they interact with each other compositionally as those changes unfold.
- Specifically, I'll focus on the "***v*/Voice/Asp**" complex, which is often realized with **fused** morphology (at least in IE) and which gives rise to various voice and argument structure alternations.
- ≈ first (± second?) phase in the verbal system

2.4 Categorizers in DM

2.4.1 Background

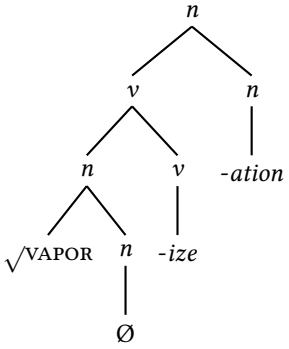
In **Distributed Morphology (DM)**, **word-formation is syntactic**: categorially unspecified **roots** combine with (overt/covert) categorizing heads "in the syntax"/via Merge:

(13) a. b. c.



- Categorizers can be covert/"zero"
- How many/what types are there? Diachrony?

(14) Root-adjacent 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)

→ I use a broad definition of categorizers that includes both inner (root-selecting) and outer (category-changing or category-modifying) morphology

2.4.2 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
  - Categorization as an "interface condition" (e.g., Embick & Marantz 2008, Chung 2012)
- 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 (**FP**s, e.g., voice, temporal/spatial anchoring, agreement, etc.)

2.5 Where do categorizers come from?

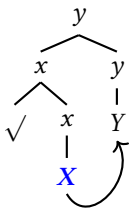
Core claim:

- 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)**, cf. (15):
  lexical → "lower" functional material → "higher" functional material
  - e.g., Roberts & Roussou 2003, Cournane 2014, Alexiadou 2021, Grestenberger 2023
  - "semantic bleaching" (= loss of formal features) can seemingly counteract this directionality, leading to new "primary" (root-selecting) categorizers

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

2.6 A typology of morphosyntactic reanalysis

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



Example: Ancient Greek (AG) verbs in *-éu-ō* were originally derived from (animate "agentive") nouns in *-éu-* with the verbalizer **-(j)e/o-*, (16).

(16) AG verbs in *-éu-ō*

*basil-**eú**-ō*	'am king; rule'	*basil-**eú**-s*	'king'
*khalk-**eú**-ō*	'am a coppersmith'	*khalk-**eú**-s*	'coppersmith'

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

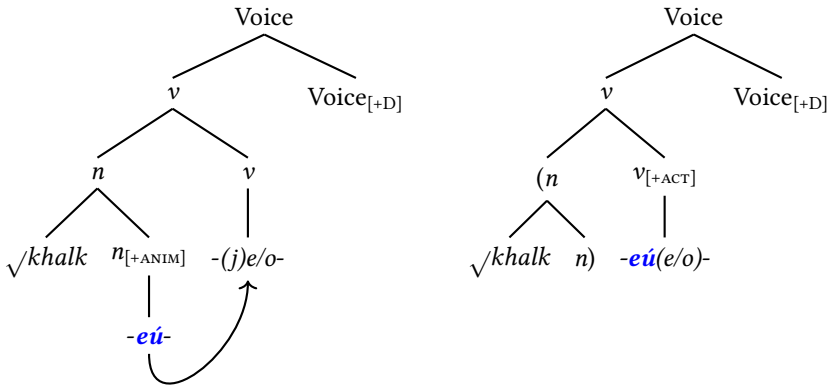
- Ralli 2005; Efthymiou 2011; Efthymiou et al. 2012; Holton et al. 2012; Spyropoulos et al. 2015; Panagiotidis et al. 2017; Koutsoukos 2021, etc.

(17) Modern Greek verbs in *-ev-* (ex. from Panagiotidis et al. 2017)

MG *-ev-o*		base	
*stox-**év**-o*	'I aim at'	*stóx-os*	'target'
*kont-**év**-o*	'I approach'	*kontá*	'near'
*xak-**év**-o*	'I hack'	Engl. *hack*	

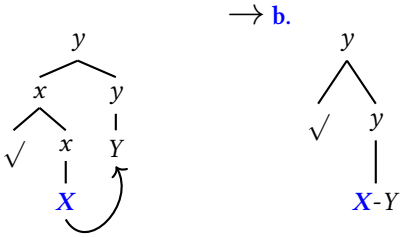
(18) Reanalysis of Ancient Greek nominal *-eú-* in Davidsonian/Stage Level verbs (Marescotti & Grestenberger 2024)

a. → **b.**



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

a. → **b.**

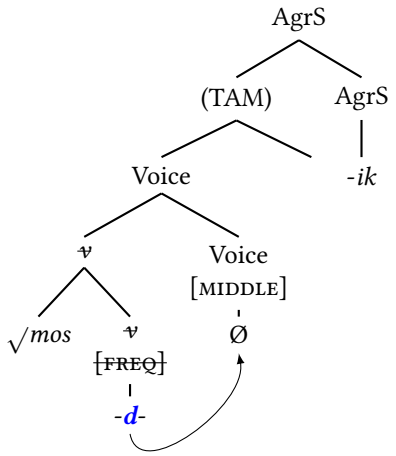


Example: Old Hungarian frequentative (*v*) suffixes → Modern Hungarian "middle" Voice head (voice syncretism, e.g., anticausative, reflexive, antipassive); Halm (2020).

(19) Modern Hungarian middle suffixes (Halm 2020: 21)

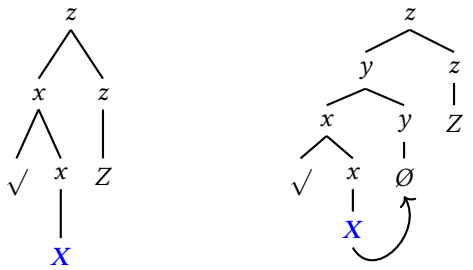
Form	Meaning	Function
*lát-**sz**-ik*	'it seems'	dispositional middle
see-MID-3SGMID		
*mos-**d**-ik*	'she washes herself'	reflexive
wash-MID-3SGMID		
*ver-**eked**-ik*	'she fights'	antipassive
beat-MID-3SGMID		
*kever-**ed**-ik*	'it gets mixed'	anticausative
mix-MID-3SGMID		

(20) Reanalysis of Hungarian frequentatives as middles, ex. *mos-d-ik* 'somebody washes herself frequently' (after Halm 2020: 25)



3) Category change + addition of meaning (= functional head(s)/syn-sem features)

a. → **b.**

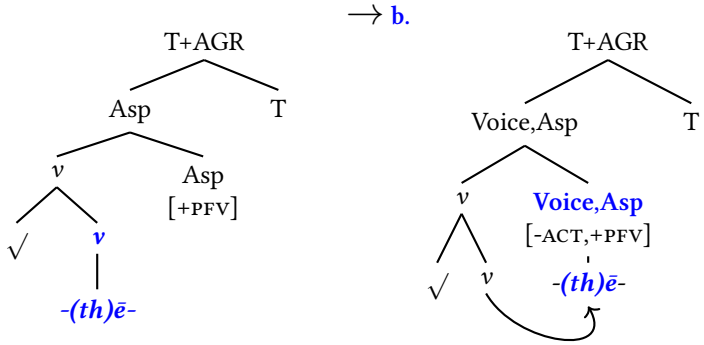


Example: The AG inchoative/"passive" suffix *-(th)ē-* turned from a root-selecting suffix, (21a), to a *v*-selecting one, realizing a fused [Voice,Asp] head in MG, (21b).

- Christopoulos & Petrosino 2018, Alexiadou 2021, Grestenberger 2021b

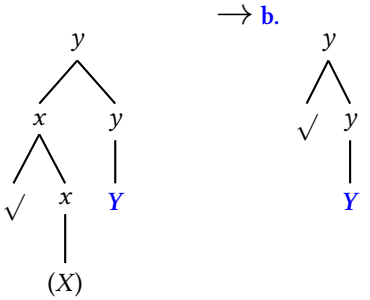
(21) UR of Ancient Greek *-thē-*

a. → **b.**



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

a. → **b.**



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

- Ancient Greek *-menos*
  - can be formed to any verb stem that inflects as nonactive/"middle" in the finite forms, independent of its argument structure/valency → "**middle**" participle.
  - can be *transitive*

(22) AG *-menos* and finite verbs

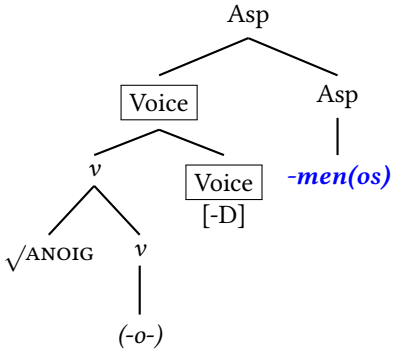
	active	middle	***-menos***
alternating	*phér-ō*	*phéro-mai*	***pheró-menos***
	'carry'	'carry for myself'	'carrying for myself'
middle only	—	*keĩ-mai*	***keí-menos***
		'lie'	'lying'
active only	*ei-mí*	—	—
	'am'		

- Modern Greek *-menos*
  - only combines with the perfective stem ≈ "perfect passive participle'.
  - forms exclusively *passive* participles from *transitive*/resultative verbs, independent of whether they are active or nonactive-marked

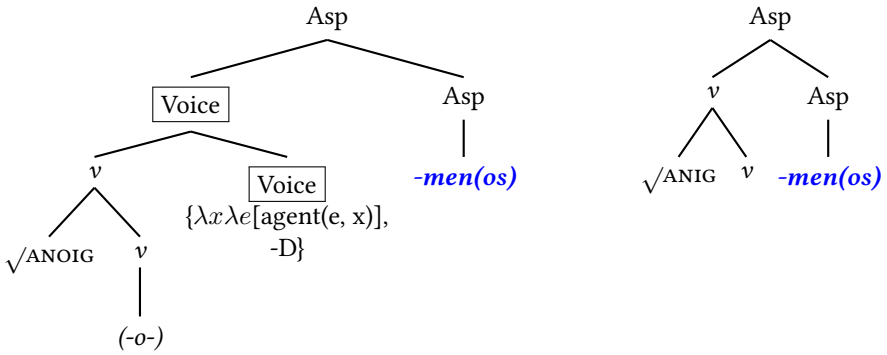
(23) MG *-menos* and its base verbs (present stem)

	verb	meaning	participle	meaning
active	*agapo*	'love'	*agapi-**ménos***	'loved'
	deno	'tie'	*de-**ménos***	'tied'
nonactive	*metahirizome*	'use'	*metahiris-**ménos***	'used'
	varieme	'am bored'	*variesti-**ménos***	'bored'

(24) **a.**



b. → **c.**

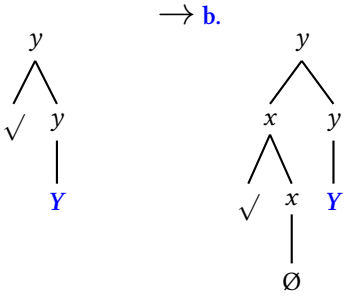


a. AG "middle" *menos*-ptcp. (selects Voice)
b. AG/postclassical perf. pass. ptcp./ MG resultant state ptcp. (selects Voice)
c. MG target state ptcp. (selects *v*)

cf. Anagnostopoulou 2003, Alexiadou & Anagnostopoulou 2008, Alexiadou et al. 2015

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

a. → **b.**



Example: Vedic Sanskrit (VS) *-ín-*:

- denominal possessive adjective-forming suffix, (25a), →
- adj. that are ambiguous between a denominal and a deverbal (state-denoting) interpretation, (25b), →
- (de)verbal (participial) suffix to morphologically characterized verbal stems (including preverbs, DO, etc.), (25c).

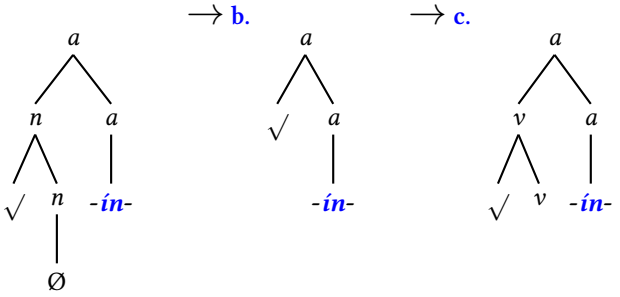
(25) Vedic denominal/deverbal adjectives in *-ín-*

a.	*dhána-* 'prize'	*dhan-**ín-*** 'possessing prizes'
	parṇá- 'wing, feather'	*parṇ-**ín-*** 'winged, feathered'
b.	*kārá-* 'praise song'/*kar* 'praise'	*kār-**ín-*** 'praising'
	vi-rapśá- 'abundance'/ *vi rapś* 'abound'	*vi-rapś-**ín-*** 'having abundance'
c.	*ví*$_{\text{PRVB}}$ *car* 'wander off'	*vi-cār-**ín-*** 'wandering off'
	prá$_{\text{PRVB}}$ *sak-ṣ* 'conquer'	*pra-sak-ṣ-**ín-*** 'conquering'

(Lowe 2017; Grestenberger 2021a)

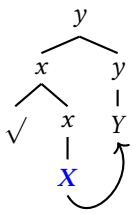
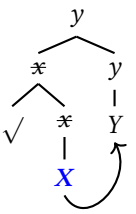
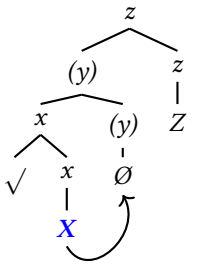
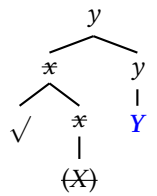
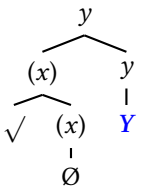
(26) Reanalysis of Vedic adjectives in *-ín-*

a. → **b.** → **c.**



- "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.)

2.7 Summary

	no change in selection	FP lost	FP added
category change of reanalyzed affix	1) 	2) 	3) 
no category change of reanalyzed affix	(= no change)	4) 	5) 

Summary of examples:

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

[a]Marescotti & Grestenberger 2024; [b]Grestenberger et al. 2025; [c,d,e]Haspelmath 1995; [f]Halm 2020; [g]García Ramón 2014, Christopoulos & Petrosino 2018, Alexiadou 2021; [h]Goddard 1974, Proulx 1982, Oxford 2014; [i]Grestenberger 2020; [j]Edgerton 1911, Jamison 2009; [k]Grestenberger 2021a; [l]Lowe 2015, Grestenberger 2020; [m]Wegner 2019, Hallman 2021.

- Reanalysis of categorizing 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
  (cf. Grestenberger & Kastner 2022)
- These should then systematically inherit specific abstract properties/ features from their diachronic sources (except in cases of bleaching/loss of features)
  - In the verbal system: Grestenberger 2023, Marescotti & Grestenberger 2024

2.8 Discussion

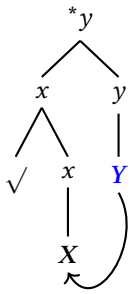
2.8.1 Generalizations

- The source usually "conflates with" (Hale & Keyser 2002, 2005) 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 reflects the morphosemantic properties of the source category (at least at the initial stage) → **reanalysis is local & directional** (Early Semantic Stability Hypothesis, Bar-Asher Siegal 2024)
  - 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 ("flavors") of *n*, *v*

2.8.2 Counterdirectionality?

- Q: Are there counterexamples to the (uni)directionality of reanalysis hypothesis? Is the typology in principle falsifiable?
- A: (27) 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.

(27) An example of counterdirectionality (excluded)



2.8.3 Zero categorizers

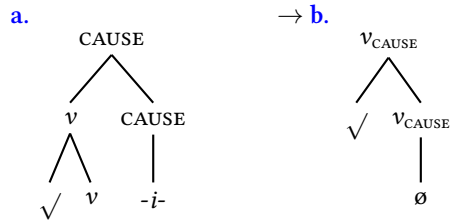
- in DM, categorizers can be covert/"zero" (Ø)
  - conceptual & empirical arguments in favor of zero categorizers: E.g., Pesetsky 1995; Dahl & Fábregas 2018; Calabrese 2019; Iordăchioaia 2020; Iordăchioaia & Melloni 2023b; Grestenberger & Kastner 2022
  - Criticism: Borer 2013, 2014; cf. also the surveys in Dahl & Fábregas 2018; Iordăchioaia & Melloni 2023a)

> "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)

Importantly, there is an obvious diachronic pathway to zero affixation: **loss of overt 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.

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



(29) Old English causative alternation verbs

anticausative		causative	
sittan	'sit'	*settan*	'set'
liċġan	'lie'	*leċġan*	'lay'
meltan	'melt, burn up'	*mieltan*	'melt/purge'
nesan	'escape from/be saved'	*nerian*	'save/protect'

2.9 DM & the lexicon

2.9.1 Syntax vs. lexicon

- The evidence we've just discussed suggests that changes in the argument structure/voice domain are **directional** (in the "syntactic cycles" sense of directional, i.e., "upwards"), and that this holds both for the morphology (independent of whether it's periphrastic or synthetic) and the syntactico-semantic features of the reanalyzed elements.

What changes, exactly?

- Basic computational component (e.g., Merge) cannot change

→ Change takes place in the lexicon

(30) **The Borer-Chomsky Conjecture** (Baker 2008: 353, s. Walkden 2014: 19):
All parameters of variation are attributable to the features of particular items (e.g., the functional heads) in the lexicon.

- In DM, word-fomation is "syntactico-centric": terminal nodes are linearized (concatenated) post-syntactically and morphophonologically realized through **Vocabulary Insertion**.
- Vocabulary Insertion matches exponents to terminal nodes in accordance with the Subset Principle and contextual locality conditions → **Vocabulary Items**

(31) Vocabulary Items for T[+past] in English (Embick 2015: 169)
a. T[+past] ↔ *-t* / {$\sqrt{}$BEND, $\sqrt{}$LEAVE,...}⌒_
b. T[+past] ↔ *-Ø* / {$\sqrt{}$HIT, $\sqrt{}$QUIT,...}⌒_
c. T[+past] ↔ *-ed*

(32) **M(eaning) ↔ F(orm) / C(ontext)**

- All three variables (M, F, C) can change over time
- (32) holds for "inflectional" and "derivational" material alike.

2.10 A typology of morphosyntactic cognacy

Grestenberger & Fellner 2025 (cf. Meelen et al. 2022 for phono-lexical cognacy):

- **Strong morphosyntactic cognacy** (symbol: =): F, M, and C correspond
- **Moderate morphosyntactic cognacy** (symbol: ≙)
  - **Moderate form-meaning cognates**: F and M correspond, C differs
  - **Moderate form-context cognates**: F and C correspond, M differs

  - **Moderate meaning-context cognates**: M and C corresponds, F differs (not by regular sound change)

- **Medium morphosyntactic cognacy** (symbol: ≈)
  - **Medium meaning cognates**: M corresponds, but F and C have changed (F not by regular sound change)
  - **Medium context cognates**: C corresponds, but F and M have changed (F not by regular sound change)
- **Weak morphosyntactic cognacy** (symbol: ∼)
  - **Weak formal cognates**: F corresponds, but M and C have changed.
  - **Weak non-formal cognates**: F has undergone some non-regular (analogical, etc.) changes, M and C have also changed
- **Feeble morphosyntactic cognacy** (symbol: ≅): no correspondence of F, but M and C correspond.

Typology of morphosyntactic cognacy

(33) Summary: Typology of morphosyntactic cognacy

	F	M	C	Ex.
strong	✔	✔	✔	Hitt. *-zi* = Ved. *-ti* = Gk. *-si/ti*, etc.
moderate (f-m)	✔	✔	✗	Toch., Hitt. 3sg.pret. *-s* ≙ inner IE *s*-aor.
moderate (f-c)	✔	✗	✔	Ved. loc.sg. *-i* ≙ Gk. dat.sg. *-i*
moderate (m-c)	•	✔	✔	Ved. aor. *-iṣ* ≙ inner IE aor. *-s-*
medium (m)	•	✔	✗	Ved. 3sg.mid. *-e* ≈ Gk. 3sg.mid. *-toi*, *-tai*
medium (c)	•	✗	✔	Ved. loc.pl. *-su* ≈ Gk. dat.sg. *si*
weak (f)	✔	✗	✗	Lat. gen.sg. *-ī* ∼ Skt. *vṛkī*-infl.
weak (f')	•	✗	✗	Ved. instr.sg. *-ā* ∼ Gk. pass. aor. *-thē-*
feeble (m-c)	✗	✔	✔	IE mid. endings ≅ Old Nordic mid. *-sk*

2.10.1 Example: Moderate form-meaning cognates

(34) Singular active forms of the *s*-aorist/preterit in Greek, Latin, Vedic, Tocharian, and Hittite

	Gk.	Lat.	Ved.	Toch. B	Hitt.
1	*(é-)deik-**s**-a*	*vē**x**-ī* /-k-**s**-/	*á-vāk-**ṣ**-am* /-k-**s**-/	*prek-wa*	*dā-ḫḫun*
2	*(é-)deik-**s**-as*	*vē**x**-istī* /-k-**s**-/	*á-vāṭ* /-k-**s**-/	*prek-asta*	*dā-tta*
3	*(é-)deik-**s**-e*	*vē**x**-it* /-k-**s**-/	*á-vāṭ* /-k-**s**-/	*prek-**sa***	*dā-**š***

- Marker *-s-* throughout the paradigm in Indo-Iranian, Greek and Latin, but only in the 3sg.act. in Tocharian and Hittite
- Form & meaning correspond, context has changed.

(35) *s*-aorist

a. *v*/Asp[+PFV] ↔ *-s-* /_⁀T/Agr[3,−PL] ≙ (PIE; Hitt.; Toch.)

b. *v*/Asp[+PFV] ↔ *-s-* (Greek, Indo-Iranian, Latin)

2.10.2 Example: Moderate form-context cognates

- Greek inherited both the original PIE athematic dative singular ending **-eḭ* (Myc. <-e>) and the original athematic locative singular ending **-i* (Myc. <-i>)
- Towards the end of the 2nd millenium BCE, the distinction between the inherited dative, instrumental, and locative cases collapsed and the original locative marker became a (syncretic) dative case marker

(36) Dative & locative singular in Vedic and Greek

a. Vedic:

(i) [+DAT,−PL] ↔ *-e* /ai/ (< **-eḭ*)

(ii) [+LOC,−PL] ↔ *-i* ≙

b. Greek: [+DAT,−PL] ↔ *-i*

Form (*-i*) and context (athematic/underspecified) correspond, but meaning differs (dat. vs. loc).

2.10.3 Example: Medium context cognacy

- Unlike the Vedic athematic loc.sg., the Vedic locative *plural* only stands in a medium cognacy relationship to the *dative plural* in Greek because this ending has undergone an analogical change, (37), namely the adoption of the vowel of the locative singular (**-su* → **-si*).

(37) Dative & locative plural in Vedic and Greek

a. Vedic

(i) [+DAT, +PL] ↔ *-bhyas*

(ii) [+LOC, +PL] ↔ *-su* ≈

b. Greek [+DAT, +PL] ↔ *-si*

Meaning has changed, form has undergone non-phonological change, context (athematic/underspecified) corresponds.

2.10.4 Example: Weak "non-formal" cognacy

- The Greek passive aorist suffix *-ē-* is considered to be diachronically related to the athematic instrumental singular ending **-eh₁* (e.g., Grestenberger 2023 with refs.), continued in, e.g., Ved. instr.sg. *-ā*
- But Greek has also innovated an allomorph *-thē-*; the origin of the dental in this variant is disputed but it must have been added through some form of resegmentation and reanalysis rather than through sound change.

(38) Weak partial cognacy of the **-ē-*morpheme

a. *v*/Asp[+PFV,+PASS] ↔ *-thē-* ∼ (Greek passive aor.)

b. [+INSTR,−PL] ↔ *-ā* / $n^{a,b,c}\frown$Infl$_{[-]}$ (Vedic instr.sg.)

Partial formal correspondence, but meaning and context have changed.

2.11 Summary

- Voice and argument structure changes can be shown to be directional, independent of whether the relevant forms are synthetic or analytic
- Directional change in synthetic word forms follows from the same principles as in syntactic change → realizational models of morphology, DM
- Directional reanalysis/UR maps morphosyntactic & phonological features to "higher" nodes in the structure
  - Both can also be lost during reanalysis
- The mapping changes, not the structure: universal principles, Merge, etc., are presumably not subject to change → the new mappings are encoded as **Vocabulary Items** in the lexicon.

3 Case studies

3.1 Case study I: New verbalizers

- We've already seen an example of *n* > *v* reanalysis (AG *-eú-* > MG *-ev-*)
- More examples of new verbalizers from other categorizers in the context of cross-categorial derivation:

v < *n*: MG *-ev-* (*-en-*, *-iz-*, *-ar-*, etc.)[a]; Lat. 1st conj.[b];
Pre-Proto-Algonquian verbal nouns → stative verbs[c];
deverbal nouns → itr./antipassive verbs, Japhug Rgyalrong[d];
Akkadian Stative[e]

- < *v*: AG CoS *-thē-* → pass.aor. [Voice,Asp][f]; AG iterative *-ske/o-*$_{v}$ → *-ske/o-*$_{\text{Asp}}$[g];
- < *a*: Gmc. adj. (*)*-r(a)-* → OHG iter.-int. verbalizer *-(a)r-*[h];
  Gk. factitive/inchoative *-ūne/o-* & Anat. factitive *-nu-*[i]

[a]Marescotti & Grestenberger 2024; [b]Bertocci 2017, Calabrese 2023, Calabrese & Petrosino 2023; [c]Goddard 1974, Proulx 1982; [d]Jacques 2014, 2021; [e]Kamil 2023; [f]Christopoulos & Petrosino 2018, Alexiadou 2021; Grestenberger 2021b; [g]Ringe & Eska 2013, Grestenberger 2022b; [h]Grestenberger et al. 2025; [i]Koch 1978, 1980, Tucker 1981, 1990, Villanueva Svensson 2024

Case study: diachrony of "iterative" verbalizer (*)*-r-* in Germanic (joint work with Martina Werner, Paige Anderson & Dorothea Sichrovsky).

3.1.1 Background: *-(e)r-* in PDG

Verbalizing *-(e)r-* appears in three major subclasses of verbs in PDG (present-day German):

(39)
a. Deverbal/root-based: *flatt**er**-n* 'to flutter', *flack**er**-n* 'flicker'; *folg-**er**-n* 'to infer, deduce (*folg-en* 'to follow'), *steig-**er**-n* 'to increase' (*steig-en* 'to rise, increase')
b. Denominal to substantives with (old or synchronic) plurals in *-er*: *ver-gött-**er**-n* 'to treat as a god' (*Gott*, pl. *Gött-er*), *blätt-**er**-n* 'to leaf through' (*Blatt* 'leaf, page', pl. *Blätt-er*)
c. Deadjectival to comparatives and positives in *-er*: *mild-**er**-n* 'to make mild' (*mild*, comp. *mild-er*), *ver-größ-**er**-n* 'to enlargen' (*groß*, comp. *größ-er* 'large, big'), *säub**er**-n* 'to clean' (*sauber* 'clean')

- Focus of this study = class I, where *-(e)r-* seems to act as an iterative verbal stem-forming suffix
  - E.g., Wilmanns 1895: 93; Henzen 1957: 224; Meid 1967: 264; Birkhan 1985: 184
- While the *-(e)r-* of classes II and III is arguably contained in the derivational base
- Cognates for this class can be found at least for North-West Germanic (e.g., OHG *flog**ar**ōn*, ON *flǫg**r**a* 'fly around, flutter')
- Diachrony & origin: The handbooks generally propose that positive adjectives in Gmc. **-ar-* (+ some comparative forms) were resegmented in the context of verbal derivation
  - e.g., OHG *wachar* 'awake':
    [[*wach**ar***]$_{\text{A}}$-ōn]$_{\text{V}}$ 'to be(come) awake, vigilant' → [[*wach*]$_{\surd}$-***ar***ōn]$_{\text{V}}$

Problems & research questions:

- Deadjectival verbs are usually/cross-linguistically associated with CoS ("causative alternation") verbs/degree achievements, not with (deverbal?) iteratives (e.g., Hale & Keyser 1998, 2002; Harley 2005; Koontz-Garboden 2005; Kennedy & Levin 2008; Bobaljik 2012; Beavers & Koontz-Garboden 2020 ...)
  - PDG *sauber* 'clean' →: *säuber-n* 'to clean'
  - Engl. *flat*: *to flatt-en*
- Unclear what (if any) role positive *r*-adjectives and/or comparatives played in the development of this class
- Why would the reanalysis of adjectival morphology give rise to *iterative* Aktionsart?
- Can we track the development of this Aktionsart in the transmitted history of the older Germanic languages?

3.1.2 Data & Methods

- Collection of derived verbs containing *-r-* in Gothic, Old High German (OHG), Old English (OE), Old Norse (ON)
  - + preliminary work on Old Saxon (OS) & Old Frisian (OFr)
- Exclusion of *primary verbs* with roots ending in *-r*, e.g., Go., OHG, OE *faran*, ON *fara* 'move, drive' < 1. **per* 'cross' (LIV^2: 472)
- All other verbs containing an *-r-* before the ending, whether from a base in *-r* or as part of the suffix, were collected in the database, e.g.:

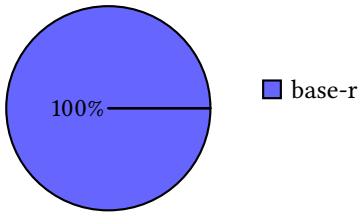
  - OE *beterian* 'improve' < *betre* 'better' (base-r)
  - OE *scimrian* 'to glitter' < *scīma* 'beam, gleam' (base no-r)

- Corpora/sources: (Etymological) dictionaries and text archives with complex search functions and/or annotated corpora
  - Kroonen 2013 (Gmc.); ANEW (ON); EWA, Bergmann 1991, Pfeifer 1993 (OHG); Bosworth–Toller, DOE (OE); Wulfila project (Go.), etc.
  - For OHG: cross-checked through compilation of OHG *r*-adjectives and associated verbs based on Heidermanns (1993) & EWA

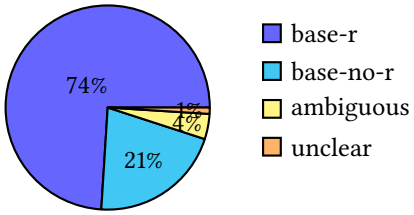
- Categories/entry: Meaning, base, base-r (y/n), base-meaning, base-cat; if base-cat = n: base-gender
  - Preliminary classification: Aktionsart (state, activity, achievement, accomplishment), transitivity, cognates, (earliest) attestation & place of attestation, existence of parallel *(e)l*-verb (e.g., OE *stamrian* 'to stammer' vs. NHG *stammeln*)

3.1.3 Results

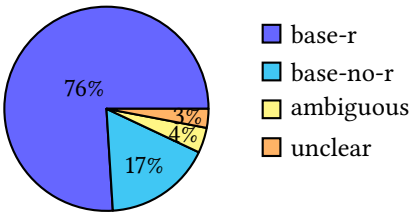
Results: base-r (y/n):



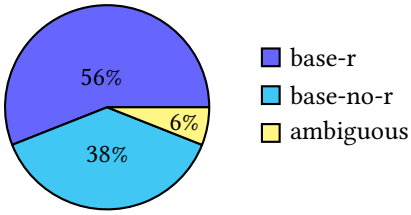
(a) Gothic *r*-verbs (n = 15)



(b) OHG *r*-verbs (n = 99)

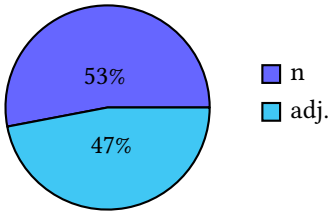


(c) OE *r*-verbs (n = 80)

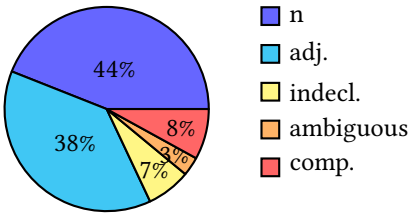


(d) ON *r*-verbs (n = 79)

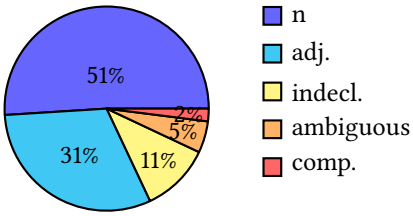
Results: a closer look at base-r (y):



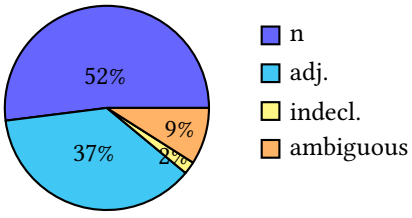
(a) Gothic: base-r (n = 15)



(b) OHG: base-r (n = 73)



(c) OE: base-r (n = 61)

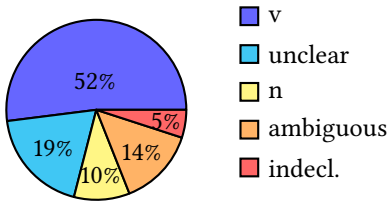


(d) ON: base-r (n = 44)

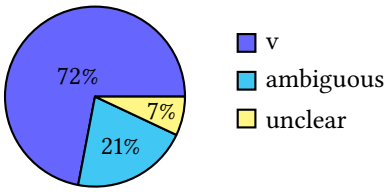
- Base-*r* verbs are predominantly denominal & deadjectival - exclusively so in Gothic.

- Very few comparatives (none in ON)
  - n/a in Gothic because the comparative morpheme did not undergo rhotacism: *-iz-*/*-oz-*, e.g., *minniza* 'smaller, lesser' → *minznan* 'to diminish' (cf. OHG *minnira* → *minnerōn*)

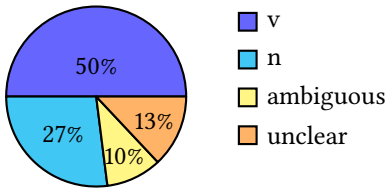
Results: a closer look at base-r (n):



(a) OHG: base-no-r (n = 21)



(b) OE: base-no-r (n = 14)



(c) ON: base-no-r (n = 30)

Basically, if *r* = part of the base, the derived verb is denominal or deadjectival, if *r* ≠ part of the base, the derived verb is deverbal.

- (Preliminary) generalizations w.r.t. Aktionsart:
  - Base = adj.: states ('be x'), adj./comp.: degree achievements/COS verbs ('become x', 'make x')
  - Base = n: activities ('do x', e.g., OHG *last(a)r-ōn* 'to slander, talk smack' : *lastar* 'offense'), accomplishments (e.g., OHG *zimb(e)r-en* 'to build' : *zimbar* 'building material'), cf. Harley (1999, 2005)
    - Some denominal activity verbs are close to iteratives in terms of Aktionsart
  - Base = v: activities/iteratives (e.g., OHG *flogarōn* 'fly around, flutter', *gangarōn* 'wander around', *swebarōn* 'float, swim')

Summary of results:

- Denominal *r*-verbs are mostly accomplishments, deadjectival ones are degree achievements & states
- ... and therefore a subclass of denominal & deadjectival verb formation more generally – these just happen to be from stems that end in *-r*
- Deverbal *r*-verbs are mostly activities, the *-r* is not part of the base → activity-forming verbalizer with iterative Aktionsart?
- Gothic has no deverbal *r*-verbs → verbalizing function as NW-Germanic innovation
- Caveat: small numbers; this was never a hugely productive class

3.1.4 Analysis: getting adjectival morphology into the *v*-domain

- Starting point: *-(e)r-* is not an inherited verbalizer, it must have become reanalyzed as one in the history of (proto-)NW Germanic
  - No such verbalizer reconstructed for PIE/PGmc.
  - Gothic doesn't have it
- Reasonable to assume that this happened in the context of cross-categorial derivation → denominal/deadjectival verbs (Grestenberger 2022b, 2023)
- Deadjectival verbs are the better candidates than denominal ones because:
  - Gmc. **-ra-*/**-ri-*; **-rja-* are adjectival rather than nominal stem-forming suffixes

  - No uniform function associated with nominal (*)-*(a)r*
  - NB *agent*-noun forming *-*(a)ri* (borrowed from Lat. *-ārius* became productive only later and was crucially only *denominal* at this stage (Wilmanns 1895: 284–5)

Types of *r*-adjectives in Germanic:

- Gmc. *-*ra*- (< *-*ro*-; & variants): inherited primary adjective-forming suffix

1. From PC roots
   - **dap-ra-* 'heavy'
   - **haid-ra-* 'clear'
   - **hai-ra-* 'grey'
   - **mag-ra-* 'meager'
   - etc.
2. "verbal adjectives" from eventive/non-PC roots
   - **bit-ra-* 'biting; bitter' : **beit-a-* 'bite'
   - **klib-ra-* 'sticky : **kleib-a-* 'stick'
   - **slip-ra-* 'slippery' : **sleip-a-* 'slip'
   - **wak-ra-* 'awake, aware' : **wak(na)-* 'wake up'
   - **wit-ri-* 'knowing, knowledgeable' : **wait-* 'know'
   - **skei-ri-* 'shining' : **skei-* 'shine'
   - etc.

Verbs derived from type 1. = degree achievements & statives, e.g.:

(40) Deadjectival *r*-verbs in OHG

Statives & fientives			
(h)lūttar-ēn	be bright, clear	*lūt(t)ar*, *hlūt(t)ar*	bright, clear
finst(a)r-ēn	become dark	*finstar*, *finstir*, *finster*	dark
timber-ēn	become murky	*timber*	somber, murky
Factitives			
bittar-en	make bitter	*bittar*	bitter
(gi)lūttir-en, *liut(e)r-en*	clear, make bright	*lūt(t)ar*, *hlūt(t)ar*	bright, clear
heitar-en	be/make cheerful	*heitar*	clear, cheerful
magar-en	make thin	*magar*	meager, thin
(ir-)munt(a)r-en	make alert	*muntar*	awake, alert
sūbir-en, *sūb(e)r-en*, *sūbar-ōn*	make clean	*sūber*, *sūb(i)ri*	clean

- Morphosemantics = as expected, since verbs derived from gradable adjectives (property concepts, PCs) are generally degree achievement verbs cross-linguistically (causative alternation/"factitive-fientive alternation"; statives)
  - Hay et al. 1999; Kearns 2007; Kennedy & Levin 2008; Bobaljik 2012; Beavers & Koontz-Garboden 2020; Fábregas 2023, a.m.o.
- The patient undergoes a change of state (CoS) between the degree to which a property P (e.g., *wide*) holds at the beginning of the event and the degree to which it holds at the end
- Different scale types for different adj.

(41) a. They widen-ed the road
b. The road widen-ed

- Degree achievements vary w.r.t. telicity: those derived from adjectives that lack a "salient reference value" (Kearns 2007; Fábregas 2023) are atelic

- Beavers & Koontz-Garboden (2020): events are atelic if their denotation contains non-final subevents, as in (42).

(42) Sandy lengthened his pants for/?in an hour (Beavers & Koontz-Garboden 2020: 37)

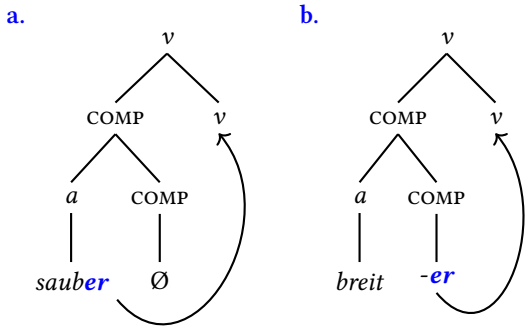
- Because degree achievements contain subevents (traversion of a scale in the telic reading, iteration of a transition in the atelic reading), the transition between subevents can give rise to an atelic activity/"iterative" reading (Kearns 2007; Bobaljik 2012; Fábregas 2023)

Morphosyntax:

- Bobaljik (2012) deadjectival degree achievements are based on the comparative, not the positive
- Evidence: verbs from suppletive adjectives always select the allomorph of the comparative
  - Engl. *to worsen*, *to better*
  - PGD *gut* 'good' - *besser* 'better' → *ver-besser-n* 'to better'
  - Lat. *bonus* 'good' - *melior* 'better' → *melior-āre* 'to better'
- But the comparative morpheme isn't always overt
  - Engl. *to cool*, *to dark-en*
  - PDG *säuber-n* 'to clean' (*sauber* 'clean' – *sauber-er* 'cleaner'), *ver-dunkel-n* 'to darken' (*dunkel* 'dark' – *dünkl-er* 'darker')
- Bobaljik speculates that this is because the verbalizer itself takes over the role of the comparative in deadjectival degree achievements

If so, a straightforward reanalysis of adjectival *-(e)r* would give us verbal *-(e)r* in deadjectival degree achievement verbs

(43) Reanalysis of positive/comparative *-(a/e)r* as verbalizer



- But we would still expect the resultant verbalizer to derive (factitive/fientive) CoS verbs, cf. the reanalysis of adj. *-ig* → factitive *-ig-* in the history of German:
  - MHG *rein-**ec*** 'clean' : *rein-**eg**-en* 'to clean'
    OHG, MHG *(h)reini*, *rein(e)* : *(h)rein-en* 'to clean'
  - OHG, MHG sat 'sated, full' : x, x = MHG *set(t)-**ig**-en* 'make full, sated' (older *set(t)-en*, *sat(t)-en*))
- If adj. *-(e)r-* had undergone the same reanalysis, we would expect degree achievement verbs, not atelic iteratives
  - Cf. *ver-breit-**er**-n* 'make broad(er)' but *aus-breit-en* 'spread out', *ver-breit-en* 'spread' (*breit* 'broad'); OHG factitives from non-suppletive comparatives, e.g., *līhter-ōn*, *liehter-ōn* 'enlighten, make lighter'

The iterative class is thus markedly different from the deadjectival degree achievement class in terms of its 1) syntax (telicity), 2) semantics (degree/scale vs. iteration of event) and 3) derivational base (adj./"adjectival root" vs. verb/eventive root).

(44) OHG iteratives/"pluractionals" in *-r-*

Iterative		**Base**	
*bliuw-**ar**-ōn*	beat	*bliuw-an*	make blue, beat
*fled-**ir**-ōn*	fall, hang loosely	*fled-en/ - ēn*	fall, hang loosely
*flog-**ar**-ōn*	fly around, flutter	*fliog-an*	fly, float, glide
*gang-**ar**-ōn*	walk around, wander	*gang-an*	go, walk
*irscab-**ar**-ōn*	scrape together, snatch	*(ir)scab-an*	scrape, scratch
*sweb-**ar**-ōn*	float, drift	*sweb-ōn*	float, drift
*uob-**er**-ōn*	practise, peruse	*uob-en*	practice, do
*wimm-**er**-en*	swarm, teem with	*wi(u)m(m)-en*	swarm, teem with

- Iteratives = event-internal pluractionals; event consists of a plurality of subevents
  - E.g., *flutter*, *nibble*, *hop*, *waver*, *knock*, *jump* ...
- Caveat: iterative/pluractional reading epiphenomenal/dependent on the interpretation of the base? (Oltra-Massuet & Castroviejo 2014; Kastner 2020)
- Iteratives/pluractionals are (atelic) activity verbs, not (telic) achievements/CoS verbs
  - Dressler 1968; Cusic 1981; Wood 2007; Tovena & Kihm 2008; Tovena 2010; Greenberg 2010; Grestenberger & Kallulli 2019, etc.
- Morphosyntax: iterative as event modifier, e.g., $\sqrt{\text{ACTION}}$ that adjoins to *v*P (Kastner 2020)

r-adjectives & iterativity:

- If deadjectival verbs from gradable/type 1) adjectives gave rise to degree achievements, then maybe type 2) adjectives ("verbal adjectives") were the basis for this class of *r*-iteratives?
- Cf. inflectional difference in OHG: weak cl. I (*-jan*) factitives vs. weak cl. II (*-ōn*) iteratives

→ Starting point for the reanalysis would be *r*-verbs classified as ambiguous between base-r & base no-r in our sample

(45) Verbs derived from type 2/deverbal iteratives (base a;v)

OHG					
***r*-iterative**		***r*-adj.**		**primary (strong) verb**	
*wahh**ar**-ōn*	be alert	*wahh**ar**, wach**ar***	alert, vigilant	*wach-ēn*	be awake, vigilant
*weig**ar**-ōn*	be obstinate, refuse	*weig**ar***	obstinate, combative	*wīg-an*	oppose, fight
*flog**ar**-ōn*, *flag**ar**-ōn*	flutter, flicker	**flak**ra**-*, OE *flac**or***	flickering	**flakk/g-ōn*, ME *flakken*	flutter, flicker
*ir-lung**ar**-ōn*	wander around	*lung**ar***	capable	*gi-lingan*	suceed
OE					
***r*-iterative**		***r*-adj.**		**primary (strong) verb**	
*stam**(e)r**-ian*	stammer	*stam**or***	stammering	**stimm-an*, MHG *stamen*	stop, falter
*slid**r**-ian*	slip, slither	*slid**or***	slippery	*slidan*	slide
*sic**er**-ian*	trickle, sink down	**sig**ra**-*, MHG *seig**er***	trickling; shale	*seon*, OHG *sīhan*	ooze, trickle; filter

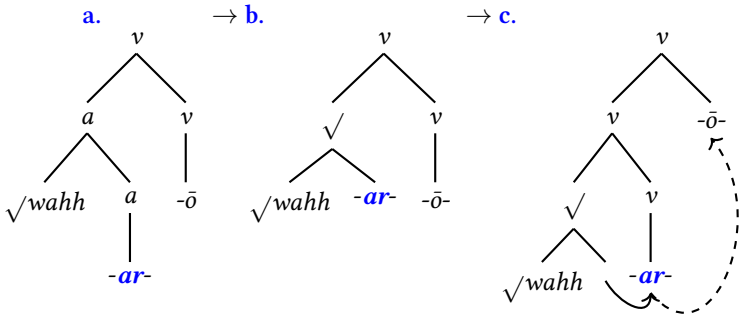
Proposal:

- In deadjectival verbs from type 2) adjectives, *-(a)r-* was reanalyzed as root modifier and then as verbalizer
- Assuming that it is a head and not a *v*P-modifier, since it determines inflectional class
  - E.g., Gouskova & Bobaljik (2022)

Morphosemantics:

- Some type 2) adjectives have a dispositional reading: *wahhar* 'vigilant'; *lungar* 'prone to succeed', *weigar* 'prone to fight, combative'
- ≈ P['tendency-to']/"agentive quale" (Fábregas 2020) → reanalyzed as agentive/activity *v*?

(46) Reanalysis of *-(a)r-* as a √-modifier > *v* head



3.1.5 Summary

- Deverbal/iterative *r*-verbs are a (proto-)NW-Gmc. innovation
- Proposal: iterative verbal *-r* came from "type 2" adjectives from eventive (non-PC) roots and was reanalyzed as a verbalizer in a subclass of deadjectival verbs
- their pluractional/activity reading could be related to the dispositional/modal use of these adjectives
- This class is crucially distinct from (factitive) degree achievement verbs, which saw a limited intrusion of positive/comparative *-r* (type *ver-breit-**er**-n*)
- Details of the semantic analysis remain to be worked out; additional data from MHG, OS, OFr., etc. needed

3.2 Case study II: Where do periphrastic constructions come from?

... and why do they so often involve (features of) voice and aspect?

- Case study II: development of the AG periphrastic perfect
- Periphrasis = a marked feature in the derivation blocks the formation of a synthetic word form
- Diachronically, this situation arises when deverbal adjectives (participles) or (de)verbal nouns (e.g., abstract/result nominalizations) are reanalyzed as spelling out "chunks" of finite verbal structure → tends to be Asp because of the size of the reanalyzed nominal/adjectival form, but can also be higher (→ new finite verbal construction) or lower (e.g., Sanskrit periphrastic passive, Grestenberger 2022a)

3.2.1 The Ancient Greek verbal system: agreement features

- PERSON: 1, 2, 3. (infl. endings)
- NUMBER: Sg., Dual, Pl. (infl. endings)
- VOICE: active/nonactive ("middle"; infl. endings)
  - In the aorist/perfective stem: also passive, marked by a suffix *-th(ē/e)-*. Originally not Voice but (inchoative) *v* (Grestenberger 2021b).
- ASP: imperfective/perfective; perfect (?), marked on the stem via affixation and/or ablaut.
- TENSE: past/nonpast (past/present), marked on the infl. endings (+ past tense prefix, "augment")
  - Future is treated as Mod.
- MOD: indicative, future, subjunctive, optative, imperative: suffixes (except ipv.: endings)

3.2.2 Ancient Greek participles

(47) Overview: Ancient Greek participles, *lū-ō* 'release'

		Active	Nonactive
a.	Present	lū-o-**nt**- $\sqrt{}$-*v*-PTCP.ACT-	lū-ó-**men**- $\sqrt{}$-*v*-PTCP.NACT-
b.	Aorist	lū-sa-**nt**- $\sqrt{}$-*v*-PTCP.ACT-	lū-sá-**men**- $\sqrt{}$-*v*-PTCP.NACT-
c.	Perfect	le-lu-k-**ot**- v_{RED}-$\sqrt{}$-*v*/Voice$_{ACT}$-PTCP.ACT-	le-lu-**mén**- v_{RED}-$\sqrt{}$-PTCP.NACT-
d.	Future	lū-so-**nt**- $\sqrt{}$-*v*-PTCP.ACT-	lū-só-**men**- $\sqrt{}$-*v*-PTCP.NACT-
e.	(Fut. perf.		le-lū-só-**men**-) v_{RED}-$\sqrt{}$-FUT-PTCP.NACT-
f.	Aor. pass.	lu-thé-**nt**- $\sqrt{}$-*v*-PTCP.ACT-	
g.	Pfv. fut. pass.		lu-thē-só-**men**- $\sqrt{}$-*v*-FUT-PTCP.NACT-

- AG perfect reduplication doesn't actually spell out Asp, but ***v*** (Grestenberger 2022b):
  - E.g., it is in complementary distribution with present- and aorist-stem forming morphology ("primary stems"), including in denominal verbs, (48).
  - For stem-forming morphology = Asp see Calabrese (2019), Schreiner (2021)

(48) AG present, aorist, and perfect stems of denominal *phulátt*ō/*phulássō* 'to guard'(1pl.act./nonact.); nominal stem = **bold**, *v* = underlined

Pres.	Aor.	Perf.	Base	
phulátt-o-men (< *ak-j(-)o-)	**phulák**-sa-men	pe$_{RED}$-**phúlag**-Ø-mai	**phúlak**-	'a guard'

- This also explains why the periphrastic perfect *includes* the morphology (= reduplication) of the synthetic perfect
  - If the synthetic and the periphrastic perfect were in some kind of structural competition we would expect their realizations *not* to co-occur, like in Latin perf.act. *amā-**v**-ī* vs. perf.pass. *amā-**t**-us sum*

3.2.3 The Greek periphrastic perfect

(49) Periphrastic perfect forms of *lū-ō* 'release'; AUX = *eīnai* (1sg. *eimí*) 'be'

	Participle		Auxiliary		
	act.	nonact.	act.	nonact.	
a. Perf.act.	le-lu-k-**ós**		ei-**mi**		'have released'
b. Perf.pass.		le-lu-**mén**-os	ei-**mi**		'have been released'
c. Pluperf.act.	le-lu-k-**ós**		ẽ-**n**		'had released'
d. Pluperf.pass.		le-lu-**mén**-os	ẽ-**n**		'had been released'
e. Perf.subj.act.	le-lu-k-**ós**		ṍ		'shall release'
f. Perf.subj.pass.		le-lu-**mén**-os	ṍ		'shall be released'
g. Perf.opt.act.	le-lu-k-**ós**		e-**íē**-**n**		'might release'
h. Perf.opt.pass.		le-lu-**mén**-os	e-**íē**-**n**		'might be released'
i. Fut.perf.act.	le-lu-k-**ós**			é-**so**-**mai**	'will have released'
j. Fut.perf.pass.		le-lu-**mén**-os		é-**so**-**mai**	'will have been released'

$\sqrt{}$-***v*-Voice/Asp** on the participle; (Mod)-**T-Agr** on the auxiliary

3.2.4 Feature analysis of the periphrastic perfect constructions

Voice:

- Ancient Greek has **Voice syncretism**: nonactive/NONACT ("middle") vs. active inflectional endings
- Greek-style voice syncretism follows from a particular condition on the realization of Voice in a specific syntactic context, (50).
  - Cf. Kratzer 1996; Alexiadou 2013, Alexiadou & Doron 2012; Alexiadou et al. 2015, Schäfer 2017; Grestenberger 2018, 2020, 2021b, 2022b; Kastner 2020, etc.

(50) Voice → Voice[NonAct]/_ No DP specifier (Alexiadou et al. 2015: 102, after Embick 2004: 150)

More formally: a condition on the exponence of T/Agr:

(51) Spell-Out condition on nonactive morphology
T/Agr[ϕ,±past,*Q*] ↔ T/Agr[ϕ,±past,NONACT]/Voice$_{[-D]}$(...)⌒_

- i.e., Voice[-D] (Kastner 2020; privative: Alexiadou et al. 2015; Schäfer 2017)
- ACT = elsewhere.

[NONACT] = VoiceP without an external argument.

Asp:

- In Latin, the marked feature on Asp is [PFV] (Bjorkman 2011), but this won't work for AG: the perfective/aorist stem is consistently *synthetic*.
- We need a feature that uniquely distinguishes the perfect stem from the aorist and present stem.
- Since the (Homeric/pre-Classical) synthetic perfect, and especially the perfect participle, are usually characterized as *resultative* (Schwyzer 1939: 768, Haspelmath 1992, Bentein 2012a, 2012b, 2013, Napoli 2017), I assume that the feature that distinguishes the pre-Classical synthetic perfect from the aorist is **[±RES]**.
- This feature became grammaticalized in the PPC, while the *synthetic* perfect became perfective and merged with the aorist (= Modern Greek)
  - Differently Reed (2014): perfect: [-aor,+perf]; Schreiner (2021): [+perf]

3.2.5 Analysis: The periphrastic perfect indicative

- Synthetic forms in AG arise through Agreement + head movement
- Head movement takes place before Spell-Out (as in MG, Fenger 2020)
- Asp[+RES] triggers Spell-Out; no post-syntactic Lowering of T+Agr possible → Asp[RES] is realized as act. or nonact. perf. participial suffix.

(52) Vocabulary Items for AG Asp:

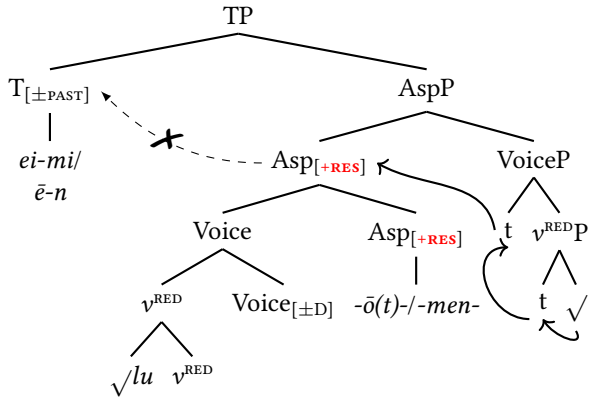
a. Asp[+RES]	↔	*-ot-/-os-*	/*v*/Voice[+D]⌒_
b. Asp	↔	Ø	/⌒_⌒T
c. Asp	↔	*-men-*	/Voice[-D]⌒_
d. Asp	↔	*-nt-*	

- The perfect active ptcp., (52a) is the most highly specified allomorph of Asp.
- Asp in synthetic forms is specified for concatenation (⌒) with T, (52b).
- (52c) is the condition on the realization of *men(os)*, cf. (51)
- (52d) is the elsewhere form ("active" *-nt-*).

→ Participial morphology in AG spells out Asp that has not moved to T.

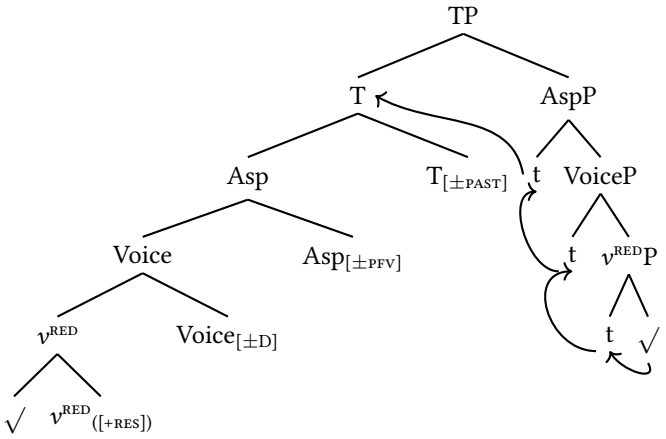
(53) Derivation of the AG perfect/pluperfect active/nonactive indicative:

le-lu-k-ō(t)-/-men- *ei-mi/ē-n*
PF-release-PF-PTCP.ACT/PTCP.NONACT BE-1SG.PRES.ACT/BE-1SG.PAST.ACT



- Like in the Latin periphrastic perfect passive, the copula BE then picks up the stranded T/Agr features
- No marked feature → nothing blocks head movement → synthetic forms

(54) Inherited synthetic perfect: no marked feature



3.2.6 Summary

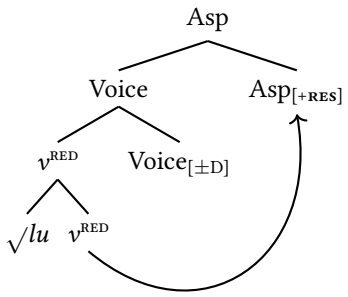
- Assuming that [+RES] on Asp triggers Spell-Out and there is no postsyntactic movement/Lowering operation available, the periphrastic perfect can be derived assuming that
  - The participles realize Asp (contextually conditioned by Voice([±D])
  - The BE-auxiliary picks up stranded features on (Mod+)T, using default active inflection.
- Timing of operations:
  1. Agree
  2. Head movement
  3. Spell-Out triggered by Asp[+RES] → Linearization & VI of $\sqrt{}$-*v*-Asp (= participle)
  4. BE-insertion (+ HM) to pick up stranded (Mod and) T/Agr features

3.2.7 Periphrastic constructions and reanalysis

Diachrony: UR of [+RES] feature from "perfect"/resultative *v* to Asp in copula constructions with participles, where the participle predicates a resultative state on the subj. of a small clause

- Cf. the Perfective Cycle above

(55)



- Synchronically reinterpreted as "Asp[+RES] is a phase head"

3.3 Case study III: Mysteries of the anticausative/passive syncretism

3.3.1 The anticausative/passive syncretism

- **Passive morphology is almost always syncretic**: only 2 out of the 222 languages in the sample of Bahrt (2021) have a non-syncretic passive

(56) Passive syncretism (Haspelmath 1990; cit. after Bahrt 2021: 57)

	Marking	REFL	RECP	ANTC	PASS	ANTP
Udmurt	*-śk*	+	+	+	+	+
Greek	*	+	+	+	+	
'O'odham	*	+	+	+	+	
Tigre	*tə-*	+	(+)	+	+	
Motu	*he-*	(+)	(+)	+	+	
Kanuri	*tə-, -tə*	+		+	+	
Latin	*	+		+	+	
Slave	*d-*	+			+	
Rukai	*ki-*	+			+	
Worrorra	*-ieŋu*	+	+		+	
Tuareg	*mə-*		+		+	
Danish	*-s*			+	+	
Uyghur	*-il*			+	+	
Nimboran	*-da*			+	+	

- ANTICAUS/INCHOATIVE > PASS is a common "grammaticalization path" for new, syncretic passive constructions (Kuteva et al. 2019; Grestenberger & Kamil 2023)
- Examples: Engl. *get*-passive, Gm. *werden* passive auxiliary, Gk. "passive aorist" suffix *-thē-*, Indo-Ir./Vedic Skt. *-yá-*passive (→ case study III)
- Again, this holds independently of whether the construction is synthetic or periphrastic

3.3.2 Background: Anticausatives

- spontaneous event/change of state without an external cause(r) (≈ agent)
- **marked** vs. **unmarked** anticausatives (Alexiadou & Anagnostopoulou 2004; Schäfer 2008, 2009; Alexiadou et al. 2015) – (57), ex. from Schäfer (2008)

(57) Marked vs. unmarked anticausatives

	marked		unmarked	
French	***s'**agrandir*	'become bigger'	*cuire*	'cook'
	***s'**améliorer*	'improve'	*fondre*	'melt'
	***se** couvrir*	'become covered'	*grandir*	'grow'
German	***sich** vergrößern*	'enlarge'	*schmelzen*	'melt'
	***sich** ausdehnen*	'extend'	*kochen*	'cook'
	***sich** verändern*	'change'	*austrocknen*	'dry out'
Modern Greek	*kommatiazo-**me***	'tear'	*asprizo*	'whiten'
	*miono-**me***	'decrease'	*kokinizo*	'redden'
	*veltiono-**me***	'improve'	*klino*	'close'

3.3.3 ANTICAUS vs. PASS: Vedic Sanskrit *-ya*-verbs

Vedic Sanskrit: The language of the oldest preserved Sanskrit texts, especially the Rigveda (composed ca. 1400–1200 BCE, metrical): stylized poetic language, but also vernacular elements — undoubtedly a spoken language at time of composition.

- The Vedic verbal system:
  - PERSON: 1, 2, 3. (infl. endings)
  - NUMBER: Sg., Dual, Pl. (infl. endings)
  - VOICE: active/nonactive ("middle"; infl. endings) + other strategies (discussed below)
  - ASP: imperfective ("present stem"), perfective ("aorist stem"), perfect; marked on the stem via affixation and/or ablaut.
  - TENSE: past/nonpast (past/present), marked on the infl. endings (+ past tense prefix, "augment" *a-*)
  - MOD: indicative, future, subjunctive, optative, imperative: suffixes (except ipv.: endings)

= mostly synthetic, "fusional" verb forms, like in AG.

- In addition to expressing passive syncretically through the nonactive endings (which is the inherited strategy), Vedic (more accurately, Proto-Indo-Iranian) innovated a specifically passive imperfective *suffix*, *-yá-*.

(58) Vedic *-yá*-passive (ipfv/present stem only)

a. active	*bhár-a-**ti***	*yu<ná>k-**ti***
	carry-V.IPFV-3SG.**ACT**	yoke<V.IPFV>-3SG.**ACT**
	'carries sth.'	'yokes'
b. "middle"	*bhár-a-**te***	*yu<ṅ>k-**té***
	carry-V.IPFV-3SG.**NACT**	yoke<V.IPFV>-3SG.**NACT**
	'carries (for) oneself'	'yokes for oneself'
	(*'is being carried')	(*'is being yoked')
c. passive	*bhri-yá-**te***	*yuj-yá-**te***
	carry-**PASS.IPFV**-3SG.**NACT**	yoke-**PASS.IPFV**-3SG.**NACT**
	'is being carried'	'is being yoked'

- Designated "passive" stem formant *-yá-* + *obligatory nonactive endings*

(59) Two types of passive in Vedic (Grestenberger 2021b):

a. "inflectional" (e.g., aorist)
*á-sto-ṣ-**ṭa***
PST-praise-PFV-3SG.PST.NACT
'was praised'

b. "derivational" (present)
*bhri-**yá-te***
carry-PASS.IPFV-3SG.PRS.NACT
'is being carried'

Some *-ya*-verbs have both an anticausative and a passive reading:

(60) anticausative/passive *ya*-verbs

*múc-**ya**-te*	'gets free'	*muc-**yá**-te*	'is released'
*pác-**ya**-te*	'becomes ripe'	*pac-**yá**-te*	'is cooked'
*chíd-**ya**-te*	'tears' (itr.)	*chid-**yá**-te*	'is cut off'
*kṣī-**ya**-te*	'diminish, perish'	*kṣī-**yá**-te*	'is vanquished'
*jī-**ya**-te*	'suffers loss'	*jī-**yá**-te*	'is defeated
*pūr-**ya**-te*	'become full'	*pūr-**ýa**-te*	'be filled (by)'

- anticausative reading tends to have root accent, passive reading suffix accent (thus, e.g., Gonda 1951) — but Kulikov (2012) argues that accentuation varies according to manuscript tradition/school rather than meaning (cf. Hock 2022)
- This ambiguity is only found with causative alternation/achievement verbs, *not with* agentive accomplishment verbs

3.3.4 Disambiguating the two readings

A general problem in Vedic/corpus languages in general: the anticausative and the passive reading of syncretic voice constructions (again, independent of the construction used, i.e., periphrastic/synthetic) are often difficult to disambiguate.

(61) Vedisch, RV 7.8.1d:

ā *agnír* *ágra* *uṣásām* ***aśoci***
PRVB Agni.NOM beginning.LOC dawn.GEN.PL ignite.3SG.PASS.AOR

- Jamison & Brereton 2014: "Here, at the head of the dawns, Agni **has been set ablaze**." (pass.)
- Geldner 1951: "Agni **ist** noch vor den Morgenröten **entflammt**." (anticaus.)
- Renou 1955–67: vol. XIII: "Agni **a flambé** à la pointe des aurores." (anticaus.)

Crucial diagnostic: is there an agent/external causer in the representation? If so → passive.

Vedic: ca. 25 overt agent phrases with *yá*-passives (Jamison 1979a)

(62) RV 3.1.21a-b:

(...) *jātávedā* *viśvāmitrebhir* ***idh-ya-te*** *á-jasraḥ*
Jātavedas.NOM.SG Viśvāmitra.INSTR.PL kindle-IPFV.PASS-3SG.NACT NEG-exhaustible.NOM.SG

"Jātavedas, the inexhaustible, **is kindled** by the Viśvāmitras"

(63) RV 9.81.12d:

su-āyudháḥ *sotṛ́bhiḥ* ***pū-ya-te*** *vṛ́ṣā*
of.good.weapons.NOM pressers.INSTR purify-PASS-3SG.MID bull.NOM

"The bull of good weapons **is purified** by the pressers."

(transl. Jamison & Brereton 2014)

3.3.5 Instrument adjuncts with *-yá*-passives

- Vedic marks the agent in passives with the same case as instrument, means, and cause phrases: **instrumental case**
- Instrument/means phrases generally considered a diagnostic for passive rather than anticausative reading
  - Engl. *The ship was sunk with/by a torpedo* vs. **The ship sank with/by a torpedo*

(64) Vedic, RV 9.85.5a

kánikradat *kaláśe* *góbhir* ***aj-ya-se***
roar.INT.PTCP.ACT.NOM.SG.M pot.LOC cow.INSTR.PL anoint-PASS-2SG.MID

"Ever roaring, you **are anointed** [/driven] with cows (= milk, LG) in(to) the tub" (Jamison & Brereton 2014)

3.3.6 Other diagnostics

- (Implicit) passive agents control the (null) subject of nonfinite adjunct clauses (= absolutives, converbs) in Vedic prose, (65) (Delbrück 1888: 405; Hock 1982: 131, 1986: 22; Tikkanen 1987: 147f.)
- whereas in anticausatives the controller is the surface subject (Hock 2019, 2022)

(65) *na vā* [PRO$_i$ *a-hiṅ-kṛt-ya*] *sāma* ***gī-ya-te***
NEG PTCL NEG-hiṅ-make-CVB sāman.NOM.SG.N chant-PASS-3SG.MID
"For the sāman is not chanted (by a person$_i$) [PRO$_i$ not having made (the sound) *hiṅ*]." (ŚB 1.4.1.1; cit. after Hock 2019)

→ *yá*-passives are canonical passives.

3.3.7 Discussion

Good reasons to assume that the passive use of *-ya-* developed from the anticausative use of *-ya-*:

- Typologically well-established "grammaticalization path" (Kuteva et al. 2019; Bahrt 2021; Inglese 2022, 2023; Grestenberger & Kamil 2023)
- Follows from the expected directionality of the voice cycle (*v*/argument alternating morphology → voice morphology)
- suggested by internal reconstruction: passive use of *-ya-* only in Indo-Iranian, intransitive CoS verbs in *-ya-* (< **-i̯e/o-*) reconstructable for PIE.

What specifically changed in these constructions?

- Proposal: anticausatives were reanalyzed as passives in contexts in which they could be construed as either spontaneous or externally caused
- ambiguity of **instrumental adjuncts** as crucial context for this reanalysis

Both the marked and the unmarked anticausatives were compatible with event-modifying instrumental cause/manner DPs:

(66) *śvātréṇa* *yát* *pitrór* ***múc-ya-se*** *pári*
swelling.INSTR when father.LOC.DU release-YA-3SG.MID on
"when you (Agni) **get free** through swelling on your parents (the kindling sticks)." (RV 1.31.4c; Hock 2022: 173)

- Jamison & Brereton (2014): "when through your swelling in your two parents [=the kindling sticks] you **are set free**"

(67) *yathā phena* *udak-ena* (...) ***ni-jas-ya-ti***
as foam.NOM.SG water-INSTR PRVB-disappear-V.IPFV-3SG.ACT
"Just as the foam (...) **disappears** by means of water" (AVP 4.16.6; Kulikov 2012: 537)

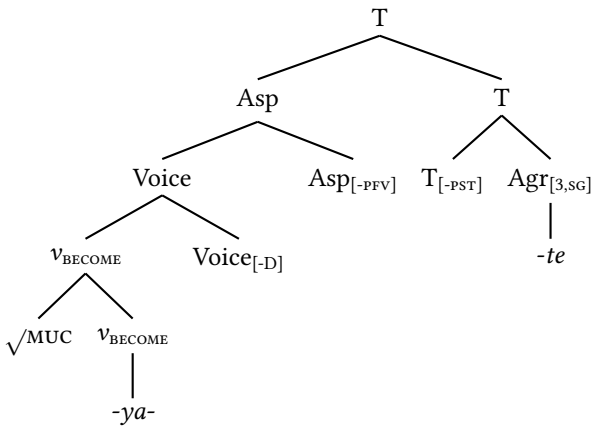
3.3.8 Reanalysis: instrumental DPs

- Proposal: the event-modifying instrumental DP was reanalyzed as adjunct to VoiceP → "inanimate agent"
- This resulted in the "*muc*-class" with ANTICAUS/PASS syncretism (cf. (60))

(68) *índo* *yád* *ádribhiḥ* ***su-tá-ḥ***
drop.VOC when stone.INSTR.PL press-PTCP.PASS-NOM.SG.M
(RV 9.24.5a)

- Jamison & Brereton 2014: “O drop, when **pressed** by the stones …” (inanim. agent)
- Geldner 1951: “O Saft, wenn du mit Steinen **ausgepresst**” (instrument)

(69) Marked anticausatives: e.g., *múc-ya-te* (NACT) ‘becomes free’ (act. *muñc-á-ti* ‘releases sbdy/sth’)



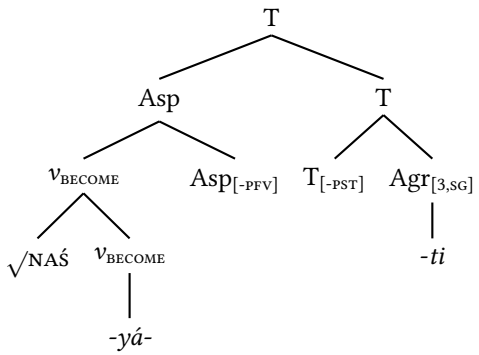
This class surfaces with nonactive morphology through the general Spell-Out condition that holds for the T/Agr endings in Vedic/Indo-Iranian (and Greek), cf. (70) (repeated from (50)).

(70) Voice → Voice[NonAct]/_ No DP specifier (Alexiadou et al. 2015: 102, after Embick 2004: 150)

- in nonactive anticausatives, Voice is semantically empty → “expletive Voice” (Schäfer 2008, 2009, 2017)

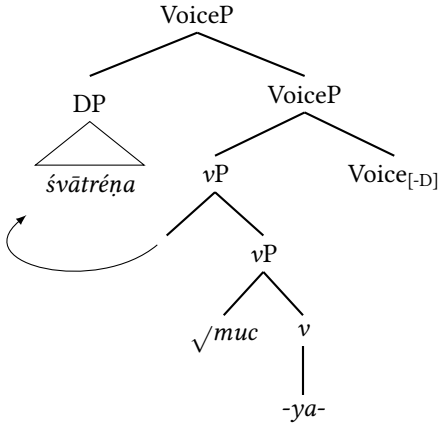
Unmarked anticausatives/CoS verbs have no Voice layer → active morphology by Elsewhere

(71) Unmarked anticausatives: e.g., *náś-ya-ti* (ACT) ‘disappears’



UR of instrumental DPs: *v*P adjunct → VoiceP adjunct → (demoted/passive) agent

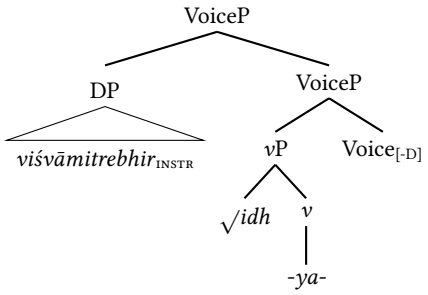
(72) *śvātréṇa* (…) *múc-ya-* ‘get free through swelling’/‘be released by swelling’



- A VoiceP adjunct implies that Voice$_{[-D]}$ is present in the structure, hence the obligatory middle endings of this type
- Further extension to agentive roots + animate agent instrumental DP → canonical *-yá-*passives

(73) a. *viśvāmitrebhir* ***idh-ya-te***
Viśvāmitra.INSTR.PL kindle-YA-3SG.MID
"he **is kindled** by the Viśvāmitras" (RV 3.1.21)

b.

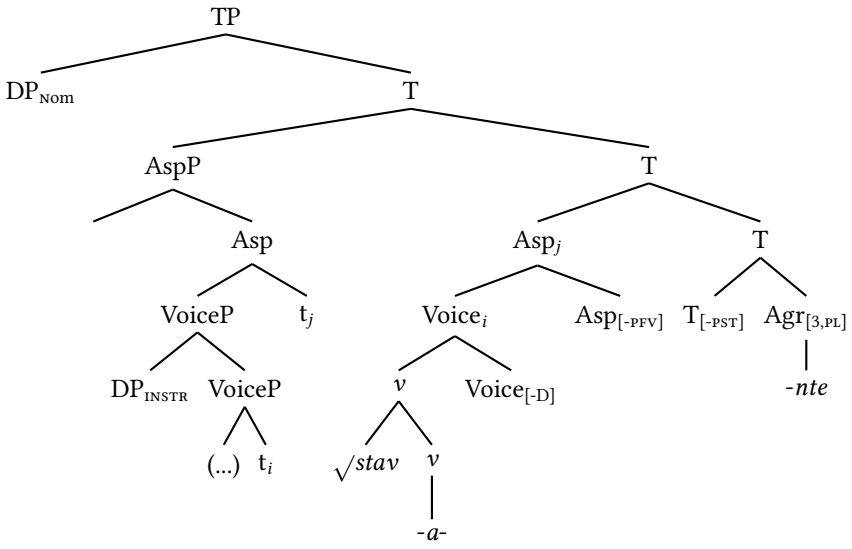


- A minor "extension", since instrumental agent DPs were already independently used in inflectional/middle-marked passives, where instr. marking of agents was the inherited strategy (Jamison 1979b)

(74) *evá agnír gótamebhir ṛtāvā víprebhir* ***astoṣ-ṭa*** *jātávedāḥ* (...)
thus Agni.NOM Gotama.INSTR.PL truthful.NOM inspired.INSTR.PL praise.PFV-3SG.NACT Jātavedas.NOM
"Thus **has** Agni, the truthful one, the Jātavedas, **been praised** by the Gotamas, inspired poets" (Vedic, RV 1.77.5a-b; transl. Jamison & Brereton 2014)

(75) Vedic "inflectional passive"

Y_{NOM} (X_{INSTR}) *stav-a-nte* "Y are praised (by X)"
praise-V.IPFV-3PL.PRS.NACT



4 Wrap up & conclusion

- Once we adopt a framework in which morphology mirrors syntax, directionality of morpheme reanalysis in complex word forms *and* in periphrastic constructions falls out from general assumptions about UG, L1 acquisition, and third factor principles
  - Case studies on various types of voice and argument structure "cycles"
  - UR affects different types of morphological material: affixes, complex heads, entire phrases ...

- We can use these generalizations to build a typology of morphosyntactic reanalysis 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
- This may also allow us to systematically integrate morphosyntactic reanalysis into comparative reconstruction → morphosyntactic cognacy typology (Grestenberger & Fellner 2025)
- Initial case studies suggest that directionality of reanalysis in complex word forms really is a diachronic universal
  - cf. the case studies from Algonquian, Semitic, Sino-Tibetan above
- but more empirical work is needed - preferably on languages with a historical record of at least a couple of hundred years
- The case studies from the verbal system moreover suggest regular correspondences between morphological reanalysis in the v-domain and argument structure change, but here too more data is needed.
- The implications for establishing phylogenetic relationships need to be formalized and tested.

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