Voice alternations in diachrony

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Abstract: This article provides a survey of the most common grammaticalization paths that give rise to active-passive and active-antipassive voice alternations and to syncretic ("middle") voice systems, discussing both the morphology and the syntax of these constructions from a diachronic perspective. We provide definitions and examples of these voice phenomena and discuss the core grammaticalization paths for passives (INCHOATIVE > PASSIVE, RESULTATIVE > PASSIVE, LEXICAL VERB > PASSIVE AUX), antipassives (AGENT/ACTION NOMINALIZATION, REFLEXIVE/RECIPROCAL, GENERIC OBJECT > ANTIPASSIVE) and middles (REFLEXIVE, VERBALIZER/AKTIONSART > MIDDLE), as well as some less common paths. Each section moreover discusses the further development of these three alternations, specifically the loss and addition of functions over time (e.g., MIDDLE > PASSIVE and PASSIVE > POTENTIAL). The chapter concludes with an outlook on the causes and directions of morphosyntactic change in voice alternations: Voice markers tend to diachronically develop out of valency-reducing or Aktionsart-related ("*v*-related") morphology and, more broadly, intransitive constructions. Diachronically, they can then acquire or lose (additional) voice-related functions or develop further into TAM markers as part of a broader "Voice cycle".

Keywords: Voice alternations, diachrony, diathesis, Voice cycle, passive, middle, antipassive, syncretic voice, reflexive, deponents, demoted agents

1. Introduction: Forms and functions of voice alternations

1.1. Background

Grammatical voice (also called diathesis in some approaches) is defined as a morphosyntactic mapping relationship between semantic arguments (thematic

roles such as agent and patient) and syntactic functions such as subject and object (Shibatani 1988a, 1988b; Siewierska 2013; Zúñiga and Kittilä 2019). Crucially, this mapping is envisaged as part of an alternation in which different semantic roles are mapped to one and the same grammatical function (or in which one and the same role occupies different grammatical functions in the course of the alternation), e.g., the agent and the patient to subject position in the active–passive alternation. In practice, the identification of voice alternations often rests on the morphological properties of particular "constructions", both synchronically and diachronically, and some approaches explicitly advocate for a strict distinction between the syntactic functions of voice alternations and the morphological marking or expression thereof, e.g., Inglese (2021) and Zúñiga and Kittilä (2019), who distinguish between *diathesis* (a mapping between semantic roles and syntactic function) and *voice*, a particular formal marking of this mapping on the predicate (see also Mel'čuk 1993; Kulikov 2011). We follow this literature in treating the syntactic constructions involved in voice alternations separately from the morphological means used to mark them in the rest of this section, in order to set the stage for the discussion of their interaction in the diachronic development of different types of voice alternations. The definitions of the syntactico-semantic contexts and properties of these alternations (section 1.2) are thus intended to hold cross-linguistically, while their morphological marking (section 1.3) is subject to cross-linguistic variation.

In order to establish a meaningful cut-off point that separates voice alternations from argument structure alternations (see chapter WBCDL101) and changes in argument alignment (see chapter WBCDL098), we define voice alternations as those alternations that involve different feature values (±D, or ±ext.arg.) of the functional head Voice, the head that introduces the external argument ("agent") in generative approaches following Kratzer 1996 (e.g., Alexiadou and Doron 2012; Kallulli 2013; Alexiadou et al. 2015; Kastner 2020 on middles and passives; Coon 2016, 2019 on antipassives). This head is distinct from the verbalizing/Aktionsart-associated projection v (e.g., Harley 2013; Alexiadou et al. 2015; Alexiadou and Lohndal 2017; Wood and Tyler 2023). Although Voice interacts compositionally with argument structure-changing morphology (causatives, applicatives, etc.), we can thus essentially reduce our survey to three main voice alternation contexts: passive (section 2), antipassive (section 3, and middle (section 4), defined in section 1.2.3 as syncretic voice. Section 5 treats additional voice constructions that are less well studied from a diachronic perspective. In each section, we first discuss the sources of the respective voice alternation, followed by its further diachronic development.

The overall broad generalization that emerges is that voice constructions and their related morphology diachronically develop out of argument structure- and Aktionsart-/"v"-related constructions/markers, and that they further de-

velop into constructions/markers of Tense, Aspect, and Mood (TAM) as part of a directional cycle of reanalysis ("Voice cycle"). This generalization and its theoretical implications are discussed in the conclusion, Section 6.

1.2. Voice alternations: syntax

1.2.1. Passive

The definition of canonical passives depends in part on the theoretical framework and in part on whether the emphasis is placed on syntactic, semantic, or morphological criteria (cf., e.g., Abraham and Leisiö 2006, Alexiadou 2013, Shibatani 1988b, Fox and Hopper 1994, Abraham and Leisiö 2006, Alexiadou and Schäfer 2013, Kiparsky 2013). The following three properties are generally agreed to be constitutive of a canonical passive: 1) an internal argument (IA; patient, theme) is promoted to the subject position (S) of the clause and is marked with subject case, 2) the usual (structural) object case (e.g., accusative) is "absorbed" or otherwise unavailable, that is, passives are *intransitive constructions*, and 3) there is an implicit external argument (EA; agent) that can but does not have to be expressed through some form of adjunct phrase (e.g., a "*by*-phrase") and, if unexpressed, can be detected through the availability of control into an adjoined purpose clause (e.g., *the ship was sunk (by the owner$_i$) [PRO$_i$ to collect the insurance money]*). An example of the active-passive alternation is given in (1).

(1) a. Keren$_{\text{S}}$ washed [the dog]$_{\text{IA}}$ (English, active)
b. [The dog]$_{\text{S}}$ was washed (**by** Keren$_{\text{EA}}$) (English, passive)

Other passive-like constructions that do not fulfill all of these criteria by the tests that are standardly used to diagnose these properties (e.g., compatibility with a demoted agent in a *by*-phrase and control into purpose clauses) would then need to be classified as "non-canonical passives" (cf. Alexiadou 2012 and the papers in Alexiadou and Schäfer 2013). However, non-canonical passives can develop into canonical passives diachronically, cf. section 2.1.2 on the English *get*-passive and section 4.2.2.

1.2.2. Antipassive

Passive and antipassive are, as the terms suggest, the mirror images of each other: Both constructions target transitive verbs, but while the passive demotes the external argument and promotes the internal argument to subject, the antipassive demotes the internal argument: "the antipassive is defined as an intransitive construction meeting the following conditions: (i) the same verb with the same lexical meaning (i.e. implying the same number of participants

and the same participant roles) can be also found in a transitive construction; (ii) the agent-like (A) argument in the transitive construction is encoded as the sole argument (S) of the intransitive construction in the corresponding antipassive construction; (iii) the patient-like (P) argument in the transitive construction is either encoded as an oblique or left unexpressed in the corresponding antipassive construction." (Janic and Witzlack-Makarevich 2021: 2; cf. also Zúñiga and Kittilä 2019: 103; Seržant et al. 2021: 970). An example of an antipassive alternation that fulfills these criteria is given in (2).

(2) a. Naʔət qʷəs-t-əs tᶿə ɬ‘eɬəm‘ sce:ɬtən.
AUX go.in.water-CTRL-3.A DET salted salmon
‘She put the salted fish in water.’

b. Naʔət qʷəs-**els** **ʔə** tᶿə ɬ‘eɬəm‘ sce:ɬtən.
AUX go.in.water-**ANTIP2** **OBL** DET salted salmon
‘She soaked the salted fish.’
(Halkomelem; Gerdts and Hukari 2005: 52, cit. after Zúñiga and Kittilä 2019: 104)

Antipassives are found both in languages with nominative-accusative and with ergative-absolutive alignment (Polinsky 2013); the demoted patient argument tends to be non-specific, indefinite, or generic or is not expressed at all (e.g., Cooreman 1994; Polinsky 2013, 2017; Zúñiga and Kittilä 2019: 112; Janic and Witzlack-Makarevich 2021: 16; Seržant et al. 2021: 990).

1.2.3. Middle

Unlike the passive and the antipassive, the middle is primarily defined via its morphology here rather than via its syntactic properties, namely as marking a particular type of *voice syncretism*, (3).

(3) 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 (e.g., Haspelmath 1990; Kemmer 1993; Alexiadou and Doron 2012; Zúñiga and Kittilä 2019; Inglese 2021; Oikonomou and Alexiadou 2022). Oikonomou and Alexiadou (2022) distinguish between three types of cross-linguistically attested syncretisms for synthetic Voice morphology, (4).

(4) Three types of synthetic voice syncretisms (Oikonomou and Alexiadou 2022: 1)

Type A: The middle syncretism in which the same morpheme appears at least in reflexive, (reciprocal), anticausative and passive constructions.

Type B: The antipassive, reflexive, (reciprocal), anticausative, passive syncretism.

Type C: The causative/anticausative/passive syncretism (attested mostly in Korean and Tungusic languages).

They treat these syncretisms as contextual allosemy of the functional, external argument-introducing head Voice. Type A, the "middle syncretism", is the one that has received most of the attention in the literature and is also the focus of this survey. Inglese (2021), emphasizing the polyfunctionality of "middle constructions", provides the following definition of middle marker (MM): "i) it occurs with bivalent (or more) verbs to encode one or more of the following valency changing operations: passive, anticausative, reflexive, reciprocal, antipassive; (ii) the same construction is also obligatory with some (at least monovalent) verbs that cannot occur without MM; (iii) the semantics of (at least some of) the verbs in (i) does not match that of those in (ii) or vice versa." (Inglese 2021: 6). Middle-marked verbs are thus not necessarily alternating verbs (Grestenberger 2019, 2023a), unlike canonical passive and antipassive verbs. Examples of alternating and non-alternating middle-marked verbs and their functions in Ancient Greek are given in Table 1.

Table 1: Alternating and non-alternating middle-marked/"nonactive" verbs in Ancient Greek

a. alternating	nonactive		active (tr.)	
anticaus./ COS	*trépho-mai*	'am nourished, grow'	*tréph-ō*	'nourish'
reflexive	*loúo-mai*	'wash myself, bathe'	*loú-ō*	'wash'
self-benefactive	*phéro-mai*	'carry for myself; win'	*pher-ō*	'carry'
passive	*bállo-mai*	'am/get struck'	*báll-ō*	'throw'

b. non-alternating	nonactive	
verbs of speech	*eúkho-mai*	'praise, declare'
verbs of emotion	*házo-mai*	'be in awe of'
verbs of cognition	*bouleúo-mai*	'plan, resolve'
verbs of motion	*érkho-mai*	'come, go (to)'

According to Grestenberger (2014: 47 & fn. 14; 196–203) and Oikonomou and Alexiadou (2022: 33), a final criterion that sets the synthetic voice syncretism systems in (4) apart from other types of voice syncretism (such as the

Romance SE-clitics) and from analytic voice constructions is the availability of idiosyncratic or idiomatic interpretations (cf. Inglese 2021's definition above). Thus while the non-alternating forms in Table 1 can be subsumed under the canonical functions of nonactive voice that are usually discussed in the literature (cf. Table 1), this is not possible for cases of deponency as defined in (5), in which nonactive-marked verbs appear in canonically active, transitive contexts, cf. Table 2.

(5) Narrow deponency (Grestenberger 2018: 502)
In an active—nonactive voice system, a deponent is a verb with an agent subject that appears in a syntactically active context and is morphologically nonactive.

Table 2: Ancient Greek (Homeric) deponents and semantically similar active transitive verbs

a. Deponent		b. Non-deponent alternating	
daío-mai	'distribute, share'	*ném-ō*	'deal out, distribute'
dēléo-mai	'hurt, spoil'	*iápt-ō*	'hurt, spoil'
dízē-mai	'seek'	*ereuná-ō*	'seek, track'
erúo-mai, *érū-mai*	'watch out for, protect'	*phulátt-ō*	'guard, protect'
eúkho-mai	'praise, pray'	*litaneú-ō*	'pray'

The diachrony of these different kinds of syncretic voice systems is discussed in section 4. We do not treat the diachrony of non-alternating middle-marked verbs in detail here, but see section 5 for literature.

1.3. Voice alternations: morphology

As Oikonomou and Alexiadou (2022) note, synthetic voice morphology tends to be syncretic (or polysemous). A number of languages use designated agreement markers/inflectional morphology to mark voice alternations, among them the older Indo-European languages, which use active vs. nonactive ("middle") verbal endings in different contexts, cf. the Ancient Greek examples in Table 1 and the Latin examples in Table 3. Like Ancient Greek, Latin also has non-alternating nonactive ("media tantum") verbs (cf. Flobert 1975; Xu et al. 2007; Grestenberger 2023a).

Table 3: Latin alternating active and nonactive-marked presents

active (tr.)	nonactive	function
*ama-**t*** 'loves'	*ama-**tur*** 'is loved'	(passive)
love-3SG.ACT	love-3SG.NACT	
*rumpi-**t*** 'breaks'	*rumpi-**tur*** 'breaks (intr.)'	(change of state)
break-3SG.ACT	break-3SG.NACT	
*canta-**t*** 'sings'	*canta-**tur*** 'there is singing'	(impersonal)
sing-3SG.ACT	sing-3SG.NACT	
*verti-**t*** 'turns'	*verti-**tur*** 'turns' (intr.)	(unacc. motion verb)
turn-3SG.ACT	turn-3SG.NACT	
*lava-**t*** 'washes'	*lava-**tur*** 'washes oneself, bathes'	(inherent reflexive)
wash-3SG.ACT	wash-3SG.NONACT	

Voice may also be marked derivationally or through stem modification. In Semitic languages, verbs, nouns, and adjectives are formed through the combination of (usually triradical) roots (e.g. $\sqrt{}$KTB 'write', $\sqrt{}$MXC 'strike, beat', $\sqrt{}$ZKR 'mention, remember', etc.) combining with so-called templates, themselves made up of several morphemes encoding word-class, agency, voice, and φ-features (Doron 2003, Kastner 2020). These templates can be morphologically differentiated through different vocalic patterns (e.g. in terms of quality and length) or consonantal patterns (e.g. geminations, reduplications, affix-insertion). As far as *agency* is concerned, Semitic differentiates three template-patterns, namely the SIMPLE, INTENSIVE, and CAUSATIVE. Onto these template-patterns, the Semitic languages can then map ACTIVE, and depending on language and template, PASSIVE, and MIDDLE voice. Thereby, multiple de-transitivising strategies may be differentiated across Semitic, predominantly the following three:

(6) Three de-transitivisation strategies in Semitic

a. *t*-morpheme
b. N-stems
c. Internal passives

While (6a-b) conform to the Type A syncretism proposed by Oikonomou and Alexiadou (2022), (6c) does, to the present knowledge, not show any sign of syncretism at all: it is exclusively used as a passive.

Morphologically, (6a) is characterised by the insertion of the morpheme *-t-* either before the root consonants (e.g. in Ethiosemitic), or between the first and second (e.g. in Hebrew, Akkadian), as demonstrated in Table 4 below:

Table 4: The *t*-morpheme in Akkadian and Amharic

	ACTIVE	*t*-morpheme
Akkadian	*gummuru*	*gu<**ta**>mmuru*
	'assemble completely'	'be completely assembled'
Amharic	*məttə*	***tə**-məttə*
	'hit'	'be hit'

(6b) is marked by a *n(V)-* prefixed before the root consonants (e.g., Akk. *na-XYuZu*: $\sqrt{mdd}$ 'measure' *na-mdudu* 'be measured'). While these morphemes usually affect the vocalic patterning of the templates, the resulting vocalic changes do not necessarily serve as the *defining* characteristic of the template. In the case of (6c), however, precisely that is the case: Through the alternation of the vocalic sequence between the root consonants, forms may be passivized. An example is given in Table 5 below, for the INTENSIVE and CAUSATIVE templates in Modern Hebrew. The ACTIVE templates *XiYeZ* and *he(X)YiZ* turn to PASSIVE when the interconsonantal vowels turn to *u-a* in *XuYaZ* and *hu(X)YaZ*, respectively.

Table 5: Modern Hebrew 3SG past-tense active- vs. (internal) passive marked verbs

	ACTIVE	PASSIVE
Intensive	*piter* 'fired (sb.)'	*p**u**t**a**r* 'was fired'
Causative	*he-ʃiv* 'sat (sb.) down'	*h**u**-ʃ**a**v* 'was sat down (by sb.)'

This strategy, as opposed to the other two (namely *t-* and N-stems) is restricted to Central Semitic (i.e. Arabic, Aramaic, and Canaanite), and even there is not fully productive, tending to be replaced by the affix-based alternatives (Peters 2021: 226f.). The diachrony of the Semitic voice templates is discussed in sections 4.1.1 and 4.2.2.

In addition to synthetic voice morphology, voice can also be expressed through analytic constructions involving clitics (or or other phonologically free elements) periphrasis. Clitics are used to mark voice alternations in, e.g., the Romance and the Slavic languages, which use a clitic element SE to mark a syncretic voice alternation (reflexive, anticausative, autobenefactive; in some languages also passive and/or antipassive; etc.), cf. sections 4.1.2 and 4.2.2.

Passivization via a periphrastic construction (an auxiliary plus a non-finite verb form), as in ex. (1) and (7), is the second most common passivization strategy in the sample of Haspelmath (1990), though restricted to Indo-European languages in that sample. It is found in the Romance, Germanic, and Slavic branches, among others.

(7) uirgis **caesi** tribuni ab legato **sunt**
rods.ABL beaten.ABL tribunes.ABL by lieutenant.ABL are
'the tribunes were beaten with rods by the legate' (Lat., Liv. 29.18.13; ex. from Ledgeway 2012: 316)

However, in the Grambank sample (Skirgård et al. 2023), 169 out 2,129 entries display a "phonologically free passive marker" (Feature GB302; Lesage 2023), and though this also includes passive "particles" it is clear that periphrastic passives as defined above are not restricted to Indo-European languages. We discuss some examples of periphrastic passives that arose from resultative participles in section 2.1.3.

There are also many voice systems with a mix of morphological strategies, differentiated either by voice function (e.g., clitics for the syncretic "middle" functions, participles for the passive, as in most Romance and Germanic languages), or by morphosyntactic context (for example, Tense or Aspect). Thus Albanian uses syncretic inflectional "middle" (nonactive) morphology to mark reflexive/reciprocal, anticausative, and passive verbs in the present and imperfect indicative, future, and subjunctive, (8a), a clitic (or affix, Schumacher and Matzinger 2014: 110) *u* in the aorist and non-perfect optative and admirative which goes back to the reflexive clitic **sue-* that also gave rise to the Romance and Slavic syncretic SE-clitics discussed in sections 4.1.2 and 4.2.2, (8b), and a participle + a designated nonactive auxiliary in the perfect tenses, (8c) (Rivero 1990; Kallulli and Trommer 2011; Manzini et al. 2016).

(8) a. La-**he**-sh-a.
wash-NACT-PAST-1SG
'I was washed.'
b. **U** la-fsh-a.
NACT wash-OPT.PRES-1SG
'May I be washed.'
c. Do të **ja-m** lar-ë.
FUT BE.PRS.PERF.NACT-1SG wash-PTCP
'I will have been washed.'

Other combinations include inflectional morphology vs. stem-modifying suffix/derivational morpheme (Ancient Greek imperfective vs. perfective tenses) and inflectional morphology vs. periphrastic construction (Latin non-perfect vs. perfect nonactive tenses). Synchronically, these are usually treated as functionally equivalent (i.e., contextually conditioned allomorphs of one and the same abstract feature or underlying structure) in formal approaches (cf. Embick 2000; Manzini et al. 2016), though their properties may differ at historically earlier stages before the innovative construction in each case was co-opted into

the voice system (cf. García Ramón 2014; Grestenberger 2021 for the Ancient Greek case).

In the following sections, we discuss each of the three alternations (passive, antipassive, middle) in more detail.

2. Passive

2.1. Sources of passive constructions

2.1.1. Reflexive > passive

Reflexives are considered a common cross-linguistic source of passives (Haspelmath 1990; Kuteva et al. 2019: 365–6). However, there seems to be an implicational relationship in that this type of marker must also be used in anticausative contexts; that is, it cannot mark reflexive and passive constructions to the exclusion of anticausative ones (Haspelmath 1987: 30–1; Geniušienė 1987: 348–51). All of the examples for this grammaticalization path cited by Kuteva et al. (2019: 365–6) are from languages in which the relevant marker is actually a syncretic (middle) marker, which suggests that the grammaticalization pathway is more accurately described as REFLEXIVE > ANTICAUSATIVE/MIDDLE > PASSIVE. Since the older functions tend to be preserved at each stage, the result of this grammaticalization path is typically Type A or Type B voice syncretism. We therefore discuss this path in Section 4.

2.1.2. Inchoative/anticausative > passive

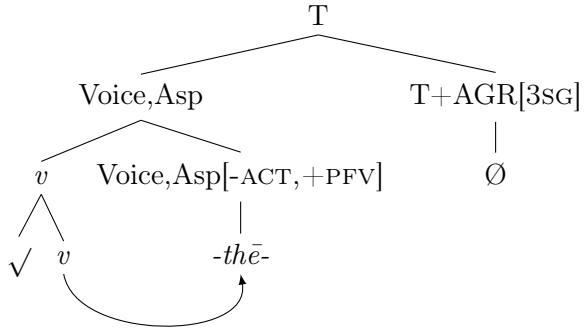
While reflexive constructions can become passives via an intermediate anticausative/inchoative stage, there are also passives that come from inchoatives/anticausatives that were never reflexive in the first place, and these tend to be initially more resistant to developing a reflexive reading. A pertinent example is the diachronic development of the Ancient Greek perfective ("aorist") suffix -*th*$\breve{\text{e}}$-, which first developed into a perfective passive marker and subsequently into a syncretic nonactive voice marker in Modern Greek (MG). The comparative evidence suggests that the older allomorph of this suffix, -$\breve{\text{e}}$-, was originally a valency-modifying verbalizing or verbal stem-forming suffix (Jasanoff 1978 2004; Harðarson 1998; García Ramón 2014), and this is still evident at the oldest stage of Greek (Tronci 2005; García Ramón 2014; Grestenberger 2021) where both -$\breve{\text{e}}$- and -*th*$\breve{\text{e}}$- are often found with non-passive stative or inchoative readings, cf. the examples in Table 6.

Table 6: Homeric non-passive *ē*-aorists

a.	*e-rrú-**ē**-Ø*	'flowed, streamed'
	A-flow-**V.PFV**-3SG.PAST.ACT	
b.	*e-pág-**ē**-Ø*	'became fixed, coagulated'
	A-become.fixed-**V.PFV**-3SG.PAST.ACT	
c.	*e-lú-**thē**-Ø*	'became undone'
	A-undo-**V.PFV**-3SG.PAST.ACT	

Based on these and other distributional facts (such as the fact that *-(th)ē-* competes for the same position in the word as other verbalizers/stem forming-suffixes, rather than voice morphology), Grestenberger (2021, 2023b) argues that this morpheme is actually a primary verbalizer that realizes inchoative *v* (BECOME). However, its Modern Greek reflex *-thi-* is generally analyzed as a nonactive Voice marker, either conditioned by perfective aspect (Rivero 1990; Manzini et al. 2016) or realizing both nonactive Voice and perfective aspect (Joseph and Smirniotopoulos 1993; Christopoulos and Petrosino 2018). This suggests that this erstwhile inchoative suffix was reanalyzed as a Voice suffix, as illustrated in (9).

(9) Reanalysis of AG *-thē-* (3sg.aor.)



Crucially, the MG perfective passive in *-thi-* is found in the same contexts as the nonactive endings in the non-perfective tenses (anticausative, reflexive/reciprocal, passive), suggesting that it has become an allomorph of (syncretic) Voice. It is instructive to contrast this case with that of the Vedic Sanskrit suffix *-ya-*, historically from an all-purpose verbalizer (PIE *-i̯e/o-* that was used to form primary change-of-state verbs/inchoatives in Indo-Iranian (among other functions), e.g., *kṣúdh-**ya**-ti* 'becomes hungry', *gṛ́dh-**ya**-ti* 'becomes greedy', *jū́r-**ya**-ti* 'grows old, ages'. The accented version of this suffix turned into a passive marker of the imperfective stem (Kulikov 2012; Kulikov and Lavidas 2013; Grestenberger 2021; Hock 2022), a function in which it obligatorily takes

the nonactive set of endings (note that the Greek passive aorist obligatorily takes the *active* set of endings). Moreover, passive *-yá-* is in complementary distribution with (competes for the same structural position as) other verbal stem-forming suffixes and is crucially *not* compatible with a reflexive reading. This suggests that it was reanalyzed as a type of passive verbalizer rather than as a syncretic Voice marker (Grestenberger 2021; cf. Alexiadou 2012 for an analysis of English passive *get* as realization of *v*). In terms of syntactic properties, there is no difference between the *yá*-passive and the syncretic "middle" passive (that is, passives formed with the syncretic nonactive endings): Both are compatible with demoted agent phrases in the instrumental case, (10).

(10) a. evá+**agnír** gótamebhir (...)
thus+Agni.NOM Gotamas.INSTR
a-sto-ṣ-ṭa jātávedāḥ
A-praise-V.PFV-3SG.PAST.NACT Jātavedas.NOM
"Thus has Agni, the Jātavedas, been praised by the Gotamas (...)."
(RV 1.77.5a–b; transl. Jamison and Brereton 2014)

b. su-āyudháḥ sotṛ́bhiḥ
good.weapons.NOM.SG pressers.INSTR
pū-ya-te vṛ́ṣā
purify-V.PASS-3SG.PRES.NACT bull.NOM
"The bull of good weapons is purified by the pressers." (RV 9.86.12d; transl. Jamison and Brereton 2014)

Thus, while Greek is an example of inchoative/anticausative > passive > syncretic (middle) Voice; Sanskrit only shows inchoative/anticausative > passive. The inchoative/anticausative > passive reanalysis is also amply attested in analytic constructions, in which a lexical verb becomes a light verb or passive auxiliary, cf. Section 2.1.4.

2.1.3. Stative/resultative > passive

Periphrastic passives consisting of a copula-like verb and a passive participle are widespread among the Indo-European languages of Europe such as the Romance, Germanic and Slavic languages, but also beyond. Haspelmath (1994) discusses the different patterns and origins of passive participles, among which resultative participles, or more generally root-derived adjectives ("verbal adjectives") expressing a state are very common. Passive participles "characterise their head by expressing a state that results from a previous event" (Haspelmath 1994: 159), owing their state-describing property to the fact that they are adjectives morphosyntactically, which themselves are more time-stable than verbs (Givón 1979: 320ff.) and therefore "more likely to refer to (more time-stable)

states [rather] than to (less time-stable) events" (Haspelmath 1994: 159). Depending on the root meaning, these states could be interpreted as arising from a prior event, hence a result(ant) state (or resultative), and this resultant state could then in turn become reanalyzed as perfect(ive) participle (because of the prior event meaning) and as passive participle (because the state is usually predicated on the *object* of the underlying verb/root, though root-derived adjectives can also grammaticalize into *active* participles, cf. Lowe 2014 [2016], 2015; Grestenberger 2020 on the diachrony of the Indo-European active participial suffix *-*nt*-). The fact that the passive and the perfect participles are identical in the "Standard Average European" (Haspelmath 2001) area has been the subject of much debate (see, e.g., Wegner 2019a, 2019b; Borik and Gehrke 2019; Hallman 2021 for recent discussions and Hristov 2023 on the interaction of the loss of participial agreement and the grammaticalization of the periphrastic passive and perfect in Old English). Concerning the development of the passive use, there is evidence for verbal/eventive use of these participles already in Old English and Old High German, though this seems to be aspectually restricted to certain verb classes, namely telic ones (Abraham 1992; cf. also Zadorožny 1974a, 1974b; Mailhammer and Smirnova 2013; Katz 2021: 187–293 on the syntax and semantics of resultative/passive participles in Germanic; on Old English see, e.g., Toyota 2008; Petré 2014; Jones and Macleod 2018). This development may have been facilitated by the fact that certain roots in fact *always* contain an entailment of change, namely roots of the *crack*-type (Levin 1993; *crack*, *cook*, *kill*, *boil*, etc.), and that adjectives/participial forms derived from these roots therefore *always* have a resultant state meaning, as argued by Beaver and Koontz-Garboden (2012), Koontz-Garboden and Beavers 2017 (contra Embick 2004); see also Kratzer 2001; Anagnostopoulou 2003; Alexiadou and Anagnostopoulou 2008; Anagnostopoulou and Samioti 2013, 2014; Alexiadou et al. 2015 on target state vs. resultant state participles.

For example, although the use of the preposition *by* to express the passive agent in English only established itself in the early modern period, earlier uses of *from*, *of*, and *through* to express the agent (Peitsara 1992; Toyota 2008: 21–3; Petré 2014: 120) suggest that these forms were canonical eventive passives already at that stage, cf. (11) (though such uses appear to be rare before 1500, Petré 2014: 123). Old English examples such as (12) with a secondary predicate are additional evidence that the verbal passive use of these forms was at least possible already at that stage, since adjectival passives do not allow such modification (Lieber 1979; Hallman 2021).

(11) Sum man wæs asend fram Gode sylfum
certain man was sent from God self
"A certain man was sent by God himself" (ÆCHom 1.37; from Toyota 2008: 22)

(12) Rod wæs ic aræred
cross was I raised
"I was raised [up] a cross." (Hallman 2021: 78)

Old English uses the auxiliaries *beon/wesan* 'be' and *weorðan* 'become', the latter primarily in change-of-state contexts like (13) (see Jones and Macleod 2018 for a more detailed discussion of the semantic contexts).

(13) Hi urnon on æfnunge ut of ðissere byrig, mid ðam ðe ða
they ran in evening out of this city with that that the
burhgata **belocene** **wurdon**.
gates closed-PAST.PTCP.NOM.FEM.PL became
"In the evening, they ran out of this city, at the time when the city gates were closed." (Josh: 2.5; cit. after Los 2015: 82–3)

While English eventually generalized the *be*-auxiliary in passives, German generalized the BECOME-auxiliary cognate with OE *weorðan*, OHG *uuerdan* in eventive passives, (14b), and restricted the BE-auxiliary to adjectival passives, (14a), which are not compatible with demoted agents.

(14) a. Die Jacke **ist** (*von der Livia) gewaschen
The jacket is (*by the Livia) washed
'The jacket is washed' (adjectival passive)
b. Die Jacke **wird/wurde** (von der Livia) gewaschen
The jacket becomes/became (by the Livia) washed
"The jacket is being/was washed (by Livia)" (verbal passive)

In OHG, like in OE, the *uuerdan*-construction still had a distinctly change-of-state/inchoative flavor and was incompatible with non-terminative verbs (see, e.g., Abraham 1992; Kotin 1998, 2000; Wegner 2019b: 124–5 on *uuerdan* 'become' vs. *uuesan/sîn* 'be').

(15) arslagan uuirdit Christ
slaughter.PTCP become Christ
"Christ will become (a) slaughtered (one)." (from Wegner 2019b: 124)

The development of structures like (15) with a BECOME-auxiliary into eventive passives is thus reminiscent of the INCHOATIVE > PASSIVE reanalysis discussed in Section 2.1.2, but it is still a matter of debate to what extent the semantic make-up of the participle, the auxiliary, or both changed in the course of this reanalysis, as is the extension of this construction from perfective to imperfective/progressive contexts, both in Germanic and in Romance.

In the case of the Romance languages, the verbal-eventive use of participles in periphrastic passive constructions goes back to Latin, where the periphrastic construction functionally suppletes the synthetic nonactive forms ("*r*-forms") in the perfective stem. The diachrony of the periphrastic passive in the Romance languages is discussed in, e.g., Cennamo 2003, 2005, 2020; Danckaert 2016, 2017. For a discussion of the diachrony of "passive auxiliaries" see the next section (2.1.4).

2.1.4. Lexical verb > passive auxiliary

Kuteva et al. (2019) list the following verb meanings as possible input to grammaticalization as a passive marker/auxiliary: COME, GO (cf. also Cennamo 2005, 2019; Vinther 2005; Sansò and Giacalone Ramat 2016), EAT, FALL, SUFFER, GET, GIVE, and SEE; see also Haspelmath (1990: 40ff.) on passives from UNDERGO and OBTAIN. Formally, these constructions consist of a finite light verb + non-finite predicate, e.g., a participle or nominalization expressing a state (cf. Section 2.1.3).

One such case is the development of Old Chinese *bei*, which originally meant 'cover', (16a), from which the meanings 'receive, undergo, suffer' developed, (16b), which then developed into a passive marker by the 1st century CE, (16c); cf. Peyraube 1989; Xing 2015; Kuteva et al. 2019: 187.

(16) a. fūzǐ **bèi** zhī yí
master **cover** oneself PART
"The master covered himself." (4th century BCE, *Guoyu*; cit. after Xing 2015: 614)

b. nǎi zhě mín **bèi** shuǐ zāi
so this mass **receive/suffer** water disaster
"Therefore, the masses suffered from a flooding disaster." (2nd century CE, *Hanshu*; cit. after Xing 2015: 614)

c. Liàngzǐ **bèi** Sūjùn hái
L. **PASS** S. murder
"Liangzi was murdered by Sujun." (4th century CE, *Shishuo Xinyu*; cit. after Xing 2015: 614)

(16c) shows that the *bei*-passive is compatible with overt demoted agents at this stage, as it is in Modern Mandarin, (17) (ex. from Huang et al. 2009: 112).

(17) a. Lisi da-le Zhangsan
Lisi hit-LE Zhangsan
'Lisi hit Zhangsan' (Mandarin, active)

b. Zhangsan bei (Lisi) da-le.
Zhangsan PASS Lisi hit-LE
'Zhangsan was hit by Lisi.' (Mandarin, passive)

However, there is some debate in the literature as to the synchronic status of *bei*, which is variously analyzed as an agent-marking preposition or as passive auxiliary (see Huang et al. 2009: 113–9 and Bisang 2016: 366 for an overview). Moreover, *bei* is also used in adversative constructions in which the subject is negatively/adversely affected by the event, cf. (18).

(18) Lisi you **bei** Wangwu jichu-le yi-zhi quanleida.
Lisi again BEI Wangwu hit-LE one-CL home-run
"Lisi again had Wangwu hit a home run [on him]."

While this adversative passive type is similar to affected experiencer constructions or recipient passives (e.g., in German, cf. Lenz 2012, 2013; Bader and Häussler 2013 with refs.), Huang et al. (2009: 120–51) argue that it is nevertheless possible to analyze the different types of synchronic *bei*-passives in a uniform manner, namely essentially as a biclausal construction. In their analysis, *bei* selects an NP subject and a clausal or VP complement, from which movement of a covert operator or (in adversative passives) of the "outermost object" (the subject of the embedded clause) into the main clause takes place. In terms of the diachrony of the *bei*-passive, this means that its source were biclausal constructions consisting of *bei* + a verb or verbal noun rather than intransitive monoclausal constructions such as (17a–b) (cf. also Peyraube 1989).

A second pertinent example is that of the English *get*-passive, which beginning in the late 17th century grammaticalized from a lexical verb meaning 'obtain' into a passive (Givón and Yang 1994; Fleisher 2006: 227). The intermediate step was a construction in which *get* is a causativizer and the complement can contain either an active non-finite verb, as in (19a), or a participial passive as in (19b). The latter is what then gave rise to the *get*-passive, (20), via an intermediate causative-reflexive stage (*got herself released*).

(19) a. Our youth **got** [me **to play** the woman's part] (Shakespeare, *Two Gentlemen of Verona* 4.4.160)
b. Or by what means **got** [thou **to be released**]? (Shakespeare, *Henry VI*, pt. I, 1.4.25)

(20) ... and before he had well **got announced**, begg'd I would do him the honour to present him to the lady ... (Laurence Sterne, *A sentimental journey*, p. 37; cit. after Givón and Yang 1994: 131)

The English *get*-passive is ambiguous between an anticausative and a passive reading in examples like *Samantha got hurt*, in which the agent is unexpressed (Alexiadou 2005, 2012). While this ambiguity between an anticausative/inchoative and a passive interpretation is also observable in the synthetic passives that grammaticalized from older inchoative/change-of-state contexts (cf. Section 2.1.2), Givón and Yang (1994) argue that the inchoative/anticausative use of the *get*-passive is actually younger than the passive use and developed parallel to it, starting from detransitivized versions of causative *get*-constructions with adjectival complements such as (21).

(21) ... whilst she called a lad out of the back shop to **get ready** a parcel of gloves ... (Laurence Sterne, *A sentimental journey*, p. 72; cit. after Givón and Yang 1994: 145)

The reflexive version of (21) (*got herself ready*) would then have turned into the inchoative-"middle" *get*-construction (*got mad*). However, it is not clear whether these were really two separate types of reanalysis, since Givón and Yang (1994: 145) themselves say that "many of the adjectives in this construction are de-verbal perfect-participle forms" already at the earliest stage of this construction (that is, the inchoative one, which in their corpus is first attested in Mark Twain's work) and cite *got entangled*, *got scared*, and *got stuck up* as examples. This suggests that both the passive and the inchoative reading arose from the same BECOME + adj./verbal "passive" (= resultant state) participle construction, in which the predicated participle or adjective either did (participle) or did not (adjective) have its own event implications, which in turn means that the inchoative reading is not "younger" than the passive one in any meaningful sense (Fleisher 2006). This is also suggested by the fact that the *get*-passive seems to only recently have acquired the possibility of occurring with an overt demoted agent in a *by*-phrase: Givón and Yang (1994: 141) claim that "[t]he GET-passive in colloquial English thus remains more emphatically agentless in comparison to the BE-passive", whereas more recent studies agree that the *get*-passive is compatible both with implict agent arguments in control clauses, (22a), and with agent *by*-phrases, (22b).

(22) a. Then it got painted to prevent rusting (from Wanner 2013: 58)
b. I got dressed by a personal stylist from the ShareStyle app and she turned me into an adult (https://metro.co.uk/2017/02/27/i-got-dressed-by-a-personal-stylist-from-the-sharestyle-app-and-she-turned-me-into-an-adult-6468638/, accessed May 2, 2023)

Fleisher (2006) provides additional arguments in favor of *get* as an instance of the inchoative-to-passive reanalysis.

As far as the synchronic analysis is concerned, Alexiadou 2012 argues that English *get* realizes a syncretic nonactive/"middle" Voice head, in part building on previous work that has shown that *get* does not pattern with other auxiliaries such as HAVE or BE, but behaves almost like a lexical verb in certain contexts (Haegeman 1985, Wanner 2013), whereas Fleisher (2006) argues that inchoative/passive *get* is a raising verb. The latter analysis is similar to Huang et al. (2009)'s analysis of Chinese passive *bei*, and in fact the two constructions share other similarities, namely the availability of causative-passive variants (*got himself killed*) and adversative readings.

2.1.5. Other

A less common grammaticalization path is that of a third person plural marker into a passive marker via an intermediate impersonal construction, a path found mostly in the Nilotic and Bantu languages (e.g., Greenberg 1959; Haspelmath 1990: 49–50; Siewierska 2010; Wiemer 2011; Kuteva et al. 2019: 326–7). In some languages, the passive marker is synchronically homophonous to the third plural marker, (23), and there is some variation as to whether these passives are compatible with *by*-phrases, e.g., (23b).

(23) Kimbundu (Bantu, Givón 1976: 180; cit. after Siewierska 2010: 76)

a. **a**-mu-mono
   3PL-3SG-saw
   'They saw him'

b. Nzua **a**-mu-mono kwa meme
   Nzua PASS-3SG-saw by me
   'Nzua was seen by me'

Based on a careful survey of the evidence, Siewierska (2010) argues that only a few of the constructions discussed in the literature actually pattern as a canonical passive with a patient subject and an implicit agent argument. She proposes that the path is relatively rare because it depends on the availability of an episodic reading with specific agents for the impersonal source construction, whereas impersonals with a generic interpretation are unlikely starting points.

Another less common grammaticalization path by which nominalizers develop into passive markers via deverbal nominalizations is discussed by Sansò (2016) and Kuteva et al. (2019: 296); deverbal nominalizations are also a source of antipassive constructions (see Section 3.1.3) and of both ergative and accusative alignment (Aldridge and Yanagida 2021).

2.2. The agent in passives

Because the compatibility of a given passive construction with an overt demoted agent is usually interpreted as evidence that the construction has developed into a canonical passive, the diachrony of passive agents is briefly discussed in this section. In corpus languages, it is important to distinguish between the grammaticality of an agent *by*-phrase and the frequency of its use, since "short passives" without overt demoted agent phrases are obviously perfectly grammatical in languages with canonical passives and since passives structures in general occur less frequently than active ones in spoken discourse (e.g., for English cf. Roland et al. 2007). The absence or rarity of overt agent *by*-phrases in a given text corpus can therefore not necessarily be taken as indication that a given construction is a non-canonical passive, whereas the possibility of overt demoted agents, however 'rare', is a *qualitative* argument in favor of a canonical passive interpretation.

The most common diachronic sources of markers of demoted agents are ablative, comitative, instrumental, locative and perlative case markers and adpositons (Luraghi 2001, 2003b: 30–3; Palancar 2002; Kuteva et al. 2019: 34–6, 107, 240, 264–6, 321–2), including ones that originally contained a body part ("at the hands of", Kuteva et al. 2019: 220–1) and path markers (Kuteva et al. 2019: 315). Another possible source are reanalyzed dative/recipient phrases (Kuteva et al. 2019: 358–9; cf. George 2005; Goldstein 2021 on the Ancient Greek dative of agent). In some Bantu languages, the agent in passives is introduced by a copula (Kuteva et al. 2019: 123).

Animate arguments introduced by these adpositions/cases may then become reanalyzed as agents of the event they modify. Once the source of the agent marker has acquired an association with the agent θ-role in the passive, functional syncretism arises. Thus in Vedic Sanskrit the instrumental case is used for instrument and manner adjuncts and to mark the passive agent (see Jamison 1979 for arguments that this was an inherited function of the Indo-European instrumental case), (24).

(24) a. śumbhá-mān-a **ṛtāyúbhir**
adorn.PRS-PTCP.NONACT-NOM.SG truth.seeking.INSTR.PL
"Being beautified **by those who seek truth**" (RV 9.36.4a:Jamison and Brereton 2014)

b. **híraṇyena maṇínā** śúmbha-mān-āḥ
golden.INSTR amulet.INSTR adorn.PRS-PTCP.NONACT-NOM.PL
"adorning themselves **with a golden amulet**" (RV 1.33.8b, Jamison and Brereton 2014)

While animacy often disambiguates between the agent and the manner/instrument reading, as in (24), this is not always the case. Thus the passive aorist

form in (25) can have an anticausative and a passive reading, and the instrumental phrase can be interpreted as a manner adjunct, instrument or cause of the event. Since the instrument or "inanimate agent" reading is only compatible with a passive construction (**the ship sank with/by a torpedo* vs. *the ship was sunk with/by a torpedo*), the choice of the instrument reading entails a passive interpretation of the verb (cf. the translation by Jamison and Brereton 2014), but as can be seen in the translations the translators in general vacillate between the manner, instrument, and cause interpretation (see Hock 2022 for further discussion of the passive/anticausative disambiguation).

(25) indhé rā́jā sám ar¡yó
kindle.3SG.PRS.NONACT king.NOM PRVB comrade.NOM
námobhir (RV 7.8.1a)
homage.INSTR.PL
"**With reverence**, the compatriot king (= the fire) is igniting/is kindled" (Kulikov 2006; anticaus./pass.)
"Our compatriot king is kindled **by our homage**" (Jamison and Brereton 2014; pass.)
"Der König und Herr wird **unter Verneigung** entzündet" (Geldner 1951; pass.)
"Le roi, le noble (maître), est enflammé **avec des hommages**" (Renou 1955–67: vol. XIII; pass.)

At a later stage, this ambiguity may be resolved by the introduction of a designated agent marker, e.g., *apo* on the way to Modern Greek from an earlier stage in which several different agent-marking strategies were used (Luraghi 2001, 2003a, 2003b; George 2005), or *by* in English from an earlier stage which also used *from*, *of*, and *through* (Peitsara 1992).

2.3. Diachrony of passive constructions

Passive constructions have been considered a diachronic source of ergative alignment systems ever since von der Gabelentz (1861). Since this development is extensively discussed in chapter WBCDL098 on alignment change in this volume, we forgo a discussion here.

The generic reading of passives (of the type Engl. *Butter is best kept in the fridge*) can moreover give rise to impersonal and potential constructions and deontic modals (Narrog 2010, 2012: 260–8; Kuteva et al. 2019: 314–5, 365; Giacalone Ramat and Sansò 2011). Impersonal constructions are (broadly) defined as constructions that lack a referential subject (Malchukov and Siewierska 2011; D'Alessandro 2007; Siewierska 2008), as in the Italian *si*-impersonals illustrated in (26).

(26) Italian transitive and intransitive impersonals (Giacalone Ramat and Sansò 2011: 190)

a. In Italia si mangia spaghetti
in Italy REFL eat.PRS.3SG spaghetti.M.PL
'In Italy, people eat spaghetti (it is usual to eat spaghetti)'

b. Qui si lavora troppo!
here REFL work.PRS.3SG too much
'Here people work too much!'

Giacalone Ramat and Sansò (2011) argue that impersonal constructions develop from the use of passive markers with intransitive verbs as in (26b), which is then analogically extended to transitive verbs as in (26a) (note that the transitive version can also occur with agreement between the object and the verb, unlike in (26a); cf. D'Alessandro 2007). However, in cases in which one and the same marker is found in different types of "middle" contexts, it is difficult to ascertain which use (if any) is older, especially since habitual/generic/dispositional readings are usually cited as among the core canonical functions of syncretic morphology (Lekakou 2002, 2005; Steinbach 2002; Alexiadou and Doron 2012). Thus, both passive and impersonal uses of *si* (with unergative and unaccusative intransitive verbs) are found already in Old Italian (Giacalone Ramat and Sansò 2011), and Parry concludes in her study of Piedmontese *se* that "from the morphosyntactic point of view both (personal) passive and impersonal (passive) *se* structures exist in the earliest texts" (Parry 1998: 111; see also Cennamo 2014 for a survey of the older Italian dialects). It is therefore likely that in these cases a syncretic ("middle") marker develops both passive and impersonal readings (see section 4.2; on possible cases of IMPERSONAL > PASSIVE cf. section 2.1.5). This may also be the case for the modal/potential constructions that have been claimed to develop out of passives, where Kuteva et al. (2019: 314) moreover caution that "the resulting meaning of a potential (...) is not always fully grammaticalized but constitutes one of the conventional readings of the construction." An example of this development is the potential reading of Gulf Arabic passives such as (27).

(27) hal-xaTT ma yingara.
this-the.handwriting NEG 3SGM.PASS.read
'This handwriting cannot be read.' (Gulf Arabic potential, Holes 1990: 183; cited after Narrog 2012: 261)

Finally, passives that develop from inchoatives (or from lexical verbs via an inchoative/anticausative stage) can acquire further functions (such as reflexive, autobenefactive, generic/dispositional) and develop into syncretic (middle) voice markers (cf. the discussion of Ancient Greek -*thē*-/Modern Greek -*thi*- in

section 2.1.2). This path, too, is somewhat understudied (but see Inglese 2023).

3. Antipassive

3.1. Sources of antipassive constructions

3.1.1. General

Sansò (2017) identifies four main diachronic sources of antipassive constructions:

- agent nominalizations
- generic/indefinite elements in object position
- action/result nominalizations (± light verb DO)
- reflexive/reciprocal constructions

Kuteva et al. (2019: 364) focus on reflexive, reciprocal and middle markers, which seem to be the most common source of antipassive markers "in case marking languages with accusative alignment". In Sansò (2017)'s survey, reflexive/ reciprocal constructions can be identified as the source of antipassive constructions in 19.2% of cases in his sample, followed by action nominalizations (8.3%), generic object constructions (7.5%) and agent nominalizations (3.3%). For 66 languages (55% of the sample), no diachronic source could be identified. However, the majority of examples for the development reflexive/reciprocal > antipassive discussed in Janic (2016), Sansò (2017) and Kuteva et al. (2019) are cases in which the marker in question is "polysemous", that is, displays syncretism between reflexive and/or reciprocal, "middle", anticausative, and antipassive meaning, i.e., a version of Type B syncretism. Sansò attempts to tease apart whether it is reciprocal rather than reflexive that is the source of the antipassive interpretation based on evidence from languages that mark reciprocal constructions differently from reflexive ones, but admits that the evidence is inconclusive. He argues that semantically, reciprocals provide a better "bridgehead" towards antipassives because of their associated semantic feature of "co-participation" (Creissels and Voisin-Nouguier 2008) in events in which the same action is repeated and the participants are alternately agents and patients (cf. also Janic 2013: 253–7). This would account both for the low transitivity/object demotion property of antipassives and for the fact that they are often associated with iterativity or repeated actions. However, it is difficult to reconcile with some of the better-studied cases of new antipassive constructions from syncretic "middle" markers, especially in Russian and Polish. Janic (2013, 2016) on the other hand argues that is the reflexive context that provides the starting point for the reanalysis because "reflexive events are syntactically coded by the zero-coded object and the reflexive marker on the verb" (Janic 2016: 169; cf. also Terrill 1997) and can hence become reanalyzed as non-reflexive

de-transitivized constructions. Again, this type of grammaticalization seems to be restricted to languages in which the reflexive patterns as a syncretic marker (affix or clitic) on the verb, rather than a full-blown (DP) pronoun.

3.1.2. Reflexive/reciprocal > antipassive

The Slavic languages use a reflexive clitic SE as a syncretic voice marker which developed into both a passive and an antipassive marker, the latter in, e.g., Polish, Bulgarian, and Russian, cf. (28).

(28) Polish antipassive (Janic 2013: 133; cit. after Sansò 2017: 193)

a. wasz syn bije dzieci
your.NOM.SG.M son hit.PRS.3SG child.PL.ACC
"Your son is beating children." (transitive)

b. wasz syn bije **się**
your.NOM.SG.M son hit.PRS.3SG REFL
"Your son habitually fights/beats up people." (antipassive)

Janic (2013) distinguishes two different types of antipassives in *sjȩ*, the "absolutive antipassive" formed to transitive verbs of aggression with an indeterminate object and a habitual interpretation, as in (28b), and an absolutive antipassive with an understood object (usually -animate and often inalienable), e.g., (29b).

(29) Polish antipassive with understood object (Janic 2013: 151)

a. Kura niesie jajka.
hen.NOM lay.3SG.PRS egg.ACC.PL.N
'The hen lays eggs'

b. Kura niesie **się**.
hen.NOM lay.3SG.PRS REFL
'The hen lays [eggs]', lit. 'the hen lays-REFL'

This construction then further develops into one in which the demoted object is specific (in Russian and to a lesser extent in Polish). Both types thus demote the object, but (29) is difficult to derive from a reciprocal interpretation, whereas (28) would in principle be compatible with either a reflexive or a reciprocal source construction (see section 3.1.1 for a discussion of reflexive vs. reciprocal "bridge contexts"). In the case of Polish, Janic argues that the immediate origin of the antipassive use of *sjȩ* lay in the habitual/generic contexts in (28), parallel to other cases in which habitual/generic elements or contexts gained specificity (e.g., the French pronoun *on*). This use was then extended to include antipassives with more specific objects, such as inalienably possessed objects (primarily body parts, but also "lexicalized" objects as in (29b)), and

finally also other types of concrete objects in episodic contexts, as in (30).

(30) Idę **się** uregulować.
go.1SG.PRS REFL settle.INF
'I will go settle [the bill].' (in a restaurant; Janic 2013: 158)

Finally, the object can also be overtly demoted, as in (31), in which the antipassive marker triggers instrumental (instead of accusative) case on the object.

(31) Polish antipassive with overt demoted object (Janic 2013: 161)

a. Chłopiec rzucał kamienie.
boy.NOM throw.3SG.M.PST stone.ACC.PL.M
'The boy was throwing stones.'

b. Chłopiec rzucał **się** kamieniami.
boy.NOM throw.3SG.M.PST REFL stone.INSTR.PL.M
'The boy was throwing stones.'

Janic argues that this construction is intransitive and that the object is "backgrounded" compared to its transitive counterpart in (31a), but the exact semantic differences between (31a) and (31b) require further study.

3.1.3. Action nominalization > antipassive

Antipassives can develop from action nominalizations or constructions consisting of a light verb (usually DO) + an action nominal. Jacques (2014) (see also Jacques 2021) proposes a version of this type of reanalysis for Japhug Rgyalrong, an ergative-absolutive Sino-Tibetan language, which consists of two steps: 1) the nominalization of a transitive verb into an action nominal followed by 2) the derivation of an intransitive denominal verb from the action nominal. The derived intransitive verbs were then reanalyzed as antipassives relative to the corresponding transitive verbs that formed the basis of the action nominal. Jacques argues that this grammaticalization path gave rise to the *rɤ*-prefix that forms non-human antipassives (in which the "deleted" object is a non-human patient) and the *sɤ*-prefix (in which the "deleted" object is a human patient). Examples are given in Table 7 (some verbs can occur with both prefixes).

Table 7: Antipassives in *rɤ-* and *sɤ-* in Japhug Rgyalrong (Jacques 2014: 11)

Prefix	Transitive base		Derived intransitive/ antipassive	
rɤ-	*roʁ*	to carve	*rɤ-roʁ*	to carve things
	tɕɤβ	to burn	*rɤ-tɕɤβ*	to burn land
	ɕar	to search	*rɤ–ɕar*	to search for things
sɤ-	*ɣɤmɯ*	to praise	*sɤ-ɣɤmɯ*, *sɤz-ɣɤmɯ*	to praise people
	mtsɯɣ	to bite	*sɤ-mtsɯɣ*	to bite people
	ɕar	to search	*sɤ–ɕar*	to search for people

Subjects of antipassives lack the ergative marking that is usually used to mark the subject of transitive verbs. Instead, the subject takes a possessive prefix, (32).

(32) tɤ-rʑaβ nɯ pjɤ-**rɤ**-ɕp^{h}ɤt
INDEF.POSS-wife TOP EVD.IPF-ANTIPASS:NON.HUMAN-mend
"The wife was mending (clothes)." (Jacques 2014: 11)

Jacques argues that the antipassive prefixes are historically related to the denominal verb-forming prefixes *rɤ-*/*rɯ-* and *sɤ-*/*sɯ-* illustrated in Table 8 (the prefix *tɤ-* marks inalienable possession).

Table 8: Denominal verbs in *rɤ-*/*rɯ-* and *sɤ-*/*sɯ-* in Japhug Rgyalrong (Jacques 2014: 15–6)

Prefix	Derived verb		Nominal base	
rɤ-/*rɯ-*	*rɤ-rɟit*	to have a child	(*tɤ*)*-rɟit*	child
	rɯ-tɕɤmɯ	to become a nun	*tɕɤmɯ*	nun
	rɯ-qartsɤβ	to harvest	*qartsɤβ*	harvest
sɤ-/*sɯ-*	*sɤ-ndɤɣ*	to be poisonous	(*tɤ*)*-ndɤɣ*	poison
	sɯ-ʁejlu	be left-handed	*ʁejlu*	left hand
	sɤ-k^{h}ɯ	to smoke	(*tɤ*)*-k^{h}ɯ*	smoke

Japhug has several ways of forming action nouns from verbs, mostly by using derivational prefixes but also by zero derivation ("conversion"). Jacques argues that the reanalysis of *rɤ-* and *sɤ-* as verbal antipassive markers took place in intransitive verbs that were derived from zero-derived inalienably possessed action nouns to transitive verbs as sketched out in (33).

(33) Reanalysis of the non-human antipassive marker (*rɤ-*), Jacques 2014: 18

1. Transitive verb → bare action nominal, e.g., *ɕpʰɤt* 'to patch' (tr.)) → (-)*ɕpʰɤt* 'a patch'
2. bare action nominal → intransitive denominal verb, e.g., *rɤ-ɕpʰɤt* 'to patch (clothes)' (intr.)

When the intransitive verb created in step 2 was reanalyzed as derived from the transitive base verb rather than from its derived action noun, the non-human antipassive marker was born. The same reanalysis, *mutatis mutandis*, gave rise to the antipassive marker (*sɤ-*), with an additional step by which a denominal stative verb derived from a verbal noun was reanalyzed as an intransitive activity verb (*sɤ-sat* *'to have a propensity to kill' → 'to habitually kill (people)' (intr./antipass.). This reanalysis is thus an example of reanalysis of a nominalizer as verbalizer/Voice marker in the context of cross-categorial derivation (see Grestenberger 2022, 2023b).

3.1.4. Generic element > antipassive

Generic or indefinite objects can become reanalyzed as antipassive markers, as illustrated in (34) with examples from Teribe (a Talamancan Chibchan language spoken in Costa Rica and Panama). (34a) shows a detransitivized verb marked with the antipassive marker *llë* (traditionally called a 'mass pronoun' and glossed MASS), which is related to the noun *llëbo* 'thing' in (34b). Note that the antipassive marker occurs postverbally while *llëbo* stands before the verb.

(34) Teribe antipassive (Quesada 2000: 145; cited after Sansò 2017: 183)

a. tawa yo-no llë
1PL.EXCL eat-PRF MASS
'We ate.'

b. tawa llëbo yo-no
1PL.EXCL things eat-PRF
'We ate things.'

For further discussion and examples of this grammaticalization path see Mithun 1993, Adamou 2014, and Sansò 2017.

3.1.5. Agent nominalization > antipassive

Sansò (2017) provides several examples for the reanalyis of an agent nominalizer to an antipassive marker, e.g., in the Totonacan languages. Thus, in Misantla

Totonac, the antipassive marker *-nan* on the verb indicates an unspecified object in transitive and ditransitive verbs, (35a) vs. (35b), and adds a habitual interpretation to intransitive verbs, (35c). This suffix is etymologically cognate with the agent noun-forming suffix /-nV^{ʔ}/, (35d).

(35) Misantla Totonac antipassives & agent nominalizations (MacKay 1999: 321–1; 382; cit. after Sansò 2017: 180)

a. [^{ʔ}ṵ́t šqáa]
/ut šqaa/
3SG harvest
"S/he harvests (obj.)." (transitive)

b. [^{ʔ}ṵ́t šqáa-nán]
/ut šqaa-nan/
3SG harvest-INDF.OBJ
"S/he harvests/does the harvesting." (intransitive)

c. [^{ʔ}ṵ́t qa̰wa̰nán]
/ut qa̰wa̰-nan/
3SG talk-INDF.OBJ
"She always talks." (habitual)

d. [hɔ́nqa̰wa̰ná̰^{ʔ}]
/hun-qa̰wa̰-nV^{ʔ}/
DET-talk-A.NMLZ
"speaker" (agent nominalization)

Since agent nouns by definition do not assign structural object case to their internal arguments (if they have overt ones, that is), the reanalysis of agent nouns as predicates automatically results in object demotion and/or intransitivization.

3.2. Diachrony of antipassive constructions

The diachronic development of antipassive constructions is somewhat understudied. Auderset (2021) presents a typological survey of 56 antipassive markers in 45 languages and argues that there is evidence for a path ANTIPASSIVE > PERSON AGREEMENT MARKER via a generic interpretation (compare the development of the French impersonal pronoun *on* into a first person plural pronoun). For examples, in the Kiranti (Sino-Tibetan) language Puma, clauses marked with the antipassive prefix *kha-* (< Proto-Kiranti **khəl* 'all') are ambiguous between an antipassive reading and a reading in which *kha-* marks a first person inclusive plural object. If there is an overt pronoun or noun phrase in the clause, these two readings can be disambiguated: In the antipassive, the subject is marked with absolutive/nominative case, (36a), whereas when *kha-*

is treated as a first person plural object marker, the subject is marked with ergative case, (36b).

(36) Puma antipassive/1pl. marker *kha-* (Bickel and Gaenszle 2015: 69; cited after Auderset 2021: 397)

a. (kho-ci) som-**kha**-mʌ-tuk.
3-NSG[.NOM] love-ANTIP-3PL.S-love.NPST
'They love people.'

b. (kho-ci-a) som-**kha**-mʌ-tuk.
3-NSG-ERG love-1NSG.INCL-3PL.S-love.NPST
'They love us.'

That the use of the antipassive marker as a person agreement marker is an innovation of Puma is moreover confirmed by the comparison with related Kiranti languages, in which *kha-* is completely absent from the verbal agreement paradigm (Auderset 2021: 398). In total, Auderset identifies 13 antipassive markers which are related to either first or third person object markers (mostly plural). Whether the absence of second person markers from her sample is a coincidence or due to some pragmatic aspect of the use of antipassive construction remains an open question.

Antipassive-marked verbs can moreover become lexicalized, that is, their meaning is no longer transparently recoverable from a (synchronic) transitive base verb. Jacques (2021: 437–8) mentions some examples from the Kiranti branch of the Sino-Tibetan languages, e.g., Limbu *khɛt-chiŋ-* 'run', originally an antipassive to transitive *khɛtt-* 'chase', but synchronically no longer derivationally associated with it, or Khaling *mim-si* 'think' from *mimt* 'think about'. Lexicalization through loss of the synchronic alternant is also a common development for non-alternating middles, cf. Section 4.2.1.

4. Middle

4.1. Sources of middles

4.1.1. General

(Syncretic) middle markers are often claimed to go back to reflexive and/or reciprocal markers (Geniušienė 1987: 343–52; Kemmer 1993: 151–200; Schladt 2000; Kuteva et al. 2019: 364–5), or to body part terms via an intermediate reflexive stage (Kuteva et al. 2019: 77–8, 223). However, Kuteva et al. (2019: 365) caution against the broad uses of the term "middle" and point out the semantic relatedness to anticausatives and antipassives. Inglese (2023) presents a detailed typological survey of the origin of middle markers (see also Inglese 2022) and identifies the following main sources:

- reflexives
- valency-changing markers
- lexical verbs and spatial elements
- "other":
  - Markers of uncontrolled events
  - Markers of plurality
  - Nominalizers and verbalizers
  - aspectual-like markers
  - multiple sources

Inglese's "valency-changing markers" class includes PASSIVE > MIDDLE and ANTIPASSIVE > MIDDLE, hence categories that are treated as instances of Voice here. Inglese moreover emphasizes that the oppositional (i.e., alternating) uses of middle markers need to be treated separately from the non-oppositional ("media tantum") uses and often follow distinct diachronic trajectories (see also Grestenberger 2016, 2019, 2023a; Inglese 2021). Taken together, the majority of middle markers that he discusses and for which the diachronic source is known *cannot* be traced back to a non-syncretic reflexive marker.

The putative reflexive origin is moreover difficult to confirm for the two language families in which Type A syncretism is robustly attested already at the earliest stages and reconstructable for the respective proto-languages, namely Indo-European and Semitic.

Both the active and the nonactive/middle inflectional endings can be reconstructed for Proto-Indo-European, cf. (37).

(37) PIE nonpast active & nonactive endings (Fortson 2010: 92–4; dual excluded)

	Active		Nonactive/middle	
	Sg.	Pl.	Sg.	Pl.
1	*-*m-i*, *-*h₂(e)*	*-*me-*	*-*h₂e-r*	*-*med^{h}h₂* (?)
2	*-*s-i*	*-*te(-)*	*-*th₂e-r*	*-*d^{h}u̯e-* (?)
3	*-*t-i*	*-*(é)nt-i*	*-o-r*, (*-*to-r*)	*-*ro(-r)*, (*-*nto-r*)

There is some debate as to the original function and distribution of the nonactive set of endings. However, most scholars and handbooks agree that the naturally reflexive and indirect reflexive uses of the middle endings were already possible in PIE (e.g., Rix 1988, Fortson 2010: 89, Weiss 2020: 403, Cotticelli Kurras and Rizza 2013, Lavidas 2012; cf. Inglese 2020: 250–267 for a recent survey) and are hence inherited. There is also widespread agreement that the middle endings were found in anticausative/change-of-state verbs and certain

motion verb classes (especially nontranslational motion) already in PIE. Inglese (2020: 231–41) in fact argues that these contexts were the starting point for the development of both the (inherent) reflexive and the passive uses of the middle endings, pointing out that the reflexive uses of the middle are restricted to verbs of grooming/body action verbs (see also Luraghi 2012, Inglese 2022). For marking co-argument reflexives, the older Indo-European languages invariably used other strategies (the personal pronouns or designated reflexive pronouns). Since inchoatives are a common source of passives (cf. section 2.1.2), this would also explain the (medio)passive functions of the nonactive endings, which are also usually reconstructed for the (late?) PIE nonactive endings (see Kulikov and Lavidas 2013; Luraghi et al. 2021; Grestenberger and Fellner 2023 for recent overviews). Another possible grammaticalization path is proposed by Jasanoff (2003: 145 & fn. 2), who draws attention to the processual-iterative reading of some reconstructed PIE middle forms and speculates that "object-demoting conatives" (*grind away at*, etc.) may be at the origin of at least some middles (cf. Thompson 1996 on the origin of the Na-Dene middle prefix from an "argument-suppressing" marker). However, it must be emphasized again that the reconstructable PIE voice system did undoubtedly already have Type A ("middle") syncretism, the prehistory of which is open to debate.

This is also the case for Proto-Semitic, for which at least two syncretic voice morphemes, *-t-* and *n-* (encountered in (6) above), can be reconstructed. Both morphemes can also be reconstructed for Afro-Asiatic. The following functions are usually reconstructed for them (Huehnergard 2019, Weninger 2011):

(38) Functions reconstructed for the *t-* and *n*-morphemes in Proto-Semitic:
   a. reflexive
   b. passive
   c. anticausative (de-transitivizer)

While the *t*-morpheme was likely insertable in all templates (at least, however, into the INTENSIVE and CAUSATIVE; Retsö 1989: 153f.), the *n*-morpheme is restricted to the SIMPLE templates. This is owing perhaps to their respective diachronic developments. The *t*-morpheme (found in Amazigh, Egyptian, and Cushitic, too; Retsö 1989: 153) is generally agreed to have evolved from a de-transitivizing morpheme, its Afro-Asiatic function perhaps being a marker of absent objects in the typically transitive INTENSIVE stems. Retsö suggests that from there, it would have developed either into a middle or to a passive in the individual languages. Given that both middle and passive functions are represented in most if not all Semitic languages, however, it can be presumed that by the Proto-Semitic stage the morpheme fulfilled the functions listed in (38) above. The origin of the N-stems on the other hand is not as clear but one suggestion is given by Peters (2021: 229ff.) where the *n*-stems originally denoted

the formation of fientives from verbal adjectives, but evolved to express subject-affectedness in the Proto-Semitic stage, which according to him would explain why some quadriradical roots in the *n*-stems in Akkadian, Ethiosemitic, and Modern South Arabian do not show signs of de-transitivization. As (Kouwenberg 2010: 322) notes, languages that feature a higher usage of *n*-forms show a diachronic decline of *t*-forms, indicating a degree of competition between the two strategies.

Table 10: Overview over the voice-marking strategies in Proto-Semitic following Huehnergard (2019: 64f.)

	SIMPLE	INTENSIVE	CAUSATIVE
Active	**ji-XYaZ*	**ju-XaYYiZ*	**ju-sa-XYiZ*
t-morpheme	**jV-t-XaYVZ*	**jV-t-XaYYVZ*	**jV-s-t-aXYiZ*
N-Stem	**jV-n-XaYiZ*		

The distribution and development of the competing functions of *middle* vs. *passive* of the *t*- and *n*-morphemes in Semitic cannot be attributed to genetic subgrouping within the family (Weninger 2011, Retsö 1989). In fact, even within language-families and languages, their usage still tends to be idiosyncratic. While some languages like Amharic (South-Semitic) show clearer distributional patterns, other languages like Akkadian (East-Semitic) do not. Thus the function of the *t-morpheme* in Akkadian is mostly dependent on the template-pattern (i.e. SIMPLE, INTENSIVE or CAUSATIVE) it is inserted into. In the SIMPLE templates, it is mostly only *n*-forms that may denote passives, though they may also denote anticausatives. The *t*-forms on the other hand denote (mostly reciprocal) middles (Kouwenberg 2010: 360f.). The following functions are attested for them:

(39) Functions of the SIMPLE *t*-forms (following Kouwenberg (2010: 360f.)

a. de-transitivization
b. reciprocity
c. reflexivity
d. lexicalised, unclear forms

The *t*-morpheme is inserted after the first root radical in the SIMPLE and INTENSIVE templates. A reciprocal (40b) and reflexive (40d) example are given below.

(40) Akkadian SIMPLE *t*-middle

a. i-rgum-∅
3-$\sqrt{}$rgm.PFCT-SG.M
"he raised a claim"

b. i-r<ta>gam-ū
3-$\sqrt{}$r<MID>gm.PFCT-PL.M
"they raised a claim against one another"

c. ī-lul-∅
3.$\sqrt{}$ʔll.PFCT-SG.M
"he hung up"

d. i-t<ta>ll-∅-u
3-$\sqrt{}$ʔ<MID>ll.PFCT-SG.M-SUBJ
"(he who) girded himself"

The lack of a passive function for the SIMPLE *t*-forms may be due to the productivity of the N-stems, which function as the passive to the SIMPLE. In the INTENSIVE and CAUSATIVE templates, where no (productive) N-stem is attested, *t*-forms unsurprisingly do take on passive meanings, parallel to the sporadically attested middle meanings (Kouwenberg 2010: 383). Thereby, rarely any verb shows a full paradigm of all templates (SIMPLE, INTENSIVE, CAUSATIVE) with all voice morphemes (*t*- and *n*-forms). As such, one may only reconstruct partial overviews such as the one in Table 11 (Note that the active *t*-form is attested only in the Stative as *pitrusu*). No study has to the present knowledge attempted to categorize which roots/verbs derive which templates and the respective combinations.

Table 11: Paradigm of $\sqrt{prs}$ 'separate, cut off'

	SIMPLE	INTENSIVE	CAUSATIVE
Active	*iprus*	*uparris*	*ušapris*
	'separate, cut off'	'chop off, dismember'	'block, bar'
t-form	**iptaras*	*uptarris*	*uštapris*
	'is cut off, split'	'was chopped off' (?)	'distinguish'
n-form	*ipparas*		
	'was cut off, separated'	–	–

The third passivizer known in Semitic, the "internal passive", expressed only passives and is attested only in Central Semitic, and can thus not be reconstructed for Proto-Semitic with certainty (Peters 2021: 237, Weninger 2011). A system in which it existed alongside the *t*- and *n*-forms can be reconstructed for Northwest-Semitic, as suggested by Suchard 2016: 62 in Table 12.

Table 12: Northwest-Semitic voice-marking strategies, adapted from Suchard (2016: 62)

		SIMPLE	INTENSIVE	CAUSATIVE
Active	perfect	**XaYaZa*	**XaYYiZa*	**ha-XYiZa*
	imperfect	**ja-XYuZu*	**jV-XaYYiZu*	**jV-sa-XYiZu*
t-Morpheme	perfect	**X-ta-YVZa*	**ta-XaYYVZa*	**s-ta-XYVZa*
	imperfect	**ji-X-ta-YVZu*	**jV-t-XaYYVZu*	**jV-s-ta-XYVZu*
N-Stem	perfect	**na-XYaZa*	–	–
	imperfect	**ji-n-Xa-YiZu*	–	–
Internal passive	perfect	**XuYVZa*	**XuYYVZa*	**hu-XYVZa*
	imperfect	**ju-XYaZu*	**ju-XVYYaZu*	**ju-sV-XYaZu*

It cannot be said with certainty how the existence of an internal passive influenced the functional distribution of both *t*- and *n*-forms in the proto-languages and their descendants, but it is clear that at least the syncretic voice markers are reconstructable for Proto-Semitic.

Taken together, the (cautious) generalization seems to be that middle markers arise from valency-changing/verbalizing morphology through reanalysis as voice morphology or through the extension of existing voice morphology to new contexts (PASSIVE > MIDDLE, ANTIPASSIVE > MIDDLE. In both cases, the source construction/context remains available (to a greater or lesser extent depending on the language), hence the appearance of voice syncretism—though this syncretism can encompass different contexts depending on the language and marker (cf. Dom et al. 2016 for a case study on middle markers in Bantu). In the following sections we briefly discuss some case studies that illustrate these reanalyses in more detail.

4.1.2. Reflexive > middle

Reflexives are claimed to be a common source of middle markers (Geniušienė 1987; Kemmer 1993) via an intermediate step in which they mark particular classes of inchoative/anticausative verbs, as in the case of one of the better-studied instances of this change, the development of the Latin inherited anaphoric reflexive marker *sē* (3rd person; the first and second persons use the inherited person- and number marked pronouns in reflexive contexts). Already at the earliest stage of Latin, this marker was also used to mark alternating anticausatives besides the inherited synthetic (and voice-syncretic) nonactive *r*-endings of Latin; this use was subsequently extended in Late Latin and the early Romance languages and proceeded along different verb classes (Kemmer 1993: 151–62; Cennamo 1993, 1998, 2001, 2020; Miller 2010: 179–86; Cennamo et al. 2015). The starting point was a group of alternating anticausative verbs

in which the anticausative variant could be construed as [+volitional] or [-volitional] depending on the context (Miller 2010: 174–5), cf. Table 13.

Table 13: Latin alternating anticausative/COS-verbs (Miller 2010: 174)

active		non-active		
active endings		*r*-endings	refl. marker *sē*	
scindi-t	'splits' (tr.)	*scindi-tur*	*sē scindi-t*	'splits' (intr.)
rumpi-t	'breaks' (tr.)	*rumpi-tur*	*sē rumpi-t*	'breaks' (intr.)
verti-t	'turns' (tr.)	*verti-tur*	*sē verti-t*	'turns' (intr.)
mergi-t	'sinks' (tr.)	*mergi-tur*	*sē mergi-t*	'sinks' (intr.)

At this stage, there was some overlap in the distribution of inherited synthetic *r*-forms and innovative *sē*-forms in this class, sometimes in the same text, as in (41).

(41) cum male sibi senserint **ustulant** **se**
when ill REFL.DAT feel.PRF.SBJV.3PL burn.PRS.IND.3PL REFL
foco in stomacho quomodo caballi furiosi
fire.ABL in stomach.ABL like horse.NOM.PL mad.NOM.PL
ustulantur
burn.PRS.IND.3PL.NACT
'When they fall ill, they burn with fire in their stomach like mad horses burn.' (Anthim. 3, 6–8; cit. after Cennamo 2020: 113)

The reanalysis of the [+volitional] feature of the *sē*-construction led to its extension to [-volitional] anticausative verbs, as well as to (some) verbs of motion, speech act verbs, inherent (or "natural") reflexives, e.g., body action verbs, with some semantic overlap between the *r*-forms and the *sē*-forms in late Latin (cf. (41)). In change-of-state and motion verbs in particular, the *sē*-forms came to mark telicity once the *r*-forms had disappeared. Cennamo (1998, 2001) and Cennamo et al. (2015: 686–9) in fact argue that the spread of the *sē*-forms proceeded along Aktionsart and telicity of different verbal classes, starting from telic change-of-state/achievement verbs and accomplishment verbs as in Table 13 and only later spreading to verbs of gradual or reduced telicity such as *minuere* 'decrease', *coquere* 'cook', *provocare* 'cause' and to activity verbs such as *vexare* 'oppress, injure' and *servare* 'keep', where the *sē*-forms are sometimes ambiguous between an anticausative and a passive reading in Late Latin (though see section 4.2.2 on the passive readings). The construction then also acquired indirect reflexive and generic/dispositional middle readings, e.g., (42).

(42) mela ... toto anno **servare se** possunt
apple.NOM.PL.N whole year keep.INF REFL can.PRS.3SG
'Apples can keep a whole year' (Palladius, *Agr.* 3.25.18; cit. after Miller 2010: 184)

At this stage, the SE-marker had thus already become a syncretic middle marker. The use of this marker in impersonal and passive constructions is further discussed in Section 4.2.2.

4.1.3. Verbalizer (v) > middle

Halm (2020) discusses an instance of the "Voice cycle" in Hungarian by which several frequentative suffixes became reanalyzed as realizations of a syncretic/middle Voice head in Modern Hungarian, where they form dispositional middles, reflexives, antipassives, and anticausatives (effectively a Type B syncretism). Examples are given in (43).

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

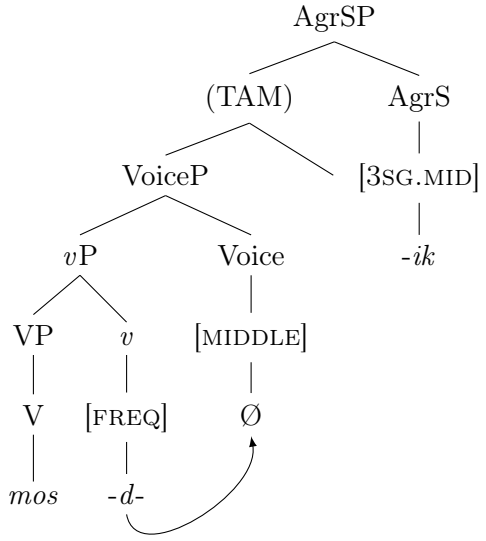
Form	Meaning	Function
*lát-**sz**-ik*	'it seems'	dispositional middle
see-MID-3SGMID		
*mos-**d**-ik*	'she washes herself'	reflexive
wash-MID-3SGMID		
*imád-**koz**-ik*	'she prays'	antipassive
worship-MID-3SGMID		
*ver-**eked**-ik*	'she fights'	antipassive
beat-MID-3SGMID		
*kever-**ed**-ik*	'it gets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

These middle suffixes co-occur with the inherited syncretic middle inflectional endings, which can also be used in some middle contexts by themselves, notably to form anticausatives, (44) (from Halm 2020: 2).

(44) a. tör-Ø
break-3SGINDEF
"somebody breaks something" (active)
b. tör-**ik**
break-3SGMID
"something gets broken" (anticausative)

Halm argues that the middle suffixes in (43) go back to Old Hungarian frequentative stem-forming suffixes, which he analyzes as verbalizers (v) based on evidence from Modern Hungarian frequentatives that select category-neutral roots as well as nouns and adjectives and turn them into frequentative verbs. Halm further proposes that the Old Hungarian frequentative suffixes were reanalyzed as spelling out the middle Voice head in contexts in which the inflectional subject agreement markers were also present due to agreement with this (originally convert) middle voice head, as illustrated in (45) (cf. ex. (9)).

(45) Reanalysis of Hungarian frequentatives as middles (based on Halm 2020: 25–26); ex. *mos-d-ik* 'somebody washes herself frequently'



In the course of the attested history of Hungarian, the co-occurrence of these frequentative suffixes and the middle endings became more frequent as these suffixes were increasingly being analyzed as the overt realization of the head that the endings were agreeing with.

4.2. Diachrony of middles

4.2.1. Changes in the functions of middles

Although syncretic voice markers tend to be relatively stable, their functional distribution may change over time so that they either come to lose certain functions or gain new ones. The proportion of alternating to non-alternating middles may also change over time, so that new (lexicalized) non-alternating or alternating middle-marked verbs may arise ("deponentization", e.g., Flobert 1975, Gianollo 2014, Grestenberger 2016), or by reducing the number of non-alternating

middle-marked verbs and transferring them to the active conjugation, as happened on the way from Old Hittite to New Hittite (Inglese 2020: 218–222), or even by transferring some non-alternating (deponent, or rather, *media tantum*) classes to the active conjugation, but creating new non-alternating middles in different semantic verb classes, as happened in the history of Greek (Lavidas and Papangeli 2007) and Latin (Flobert 1975; Gianollo 2014). The history of nonactive/middle-marked verbs in Greek also proves instructive in the alternating contexts: In Ancient Greek, the middle endings were found in the following syntactic contexts in which they alternated with active-marked verbs (Allan 2003; Grestenberger Forthcoming):

(46) a. Anticausatives/inchoatives
b. (inherent/natural) reflexives and reciprocals
c. Self-benefactives/autobenefactives/'indirect reflexives'
d. Dispositional/generic constructions
e. Passives ('mediopassives')

In addition, middle endings were found on a variety of non-alternating verbs (*media tantum*), especially verbs of speech and emotion, psychological states, experiencer verbs, and certain verbs of motion. While their Modern Greek counterpart is still a syncretic middle marker (see Manney 2000, Alexiadou 2012, Alexiadou and Doron 2012, Zombolou and Alexiadou 2014, Alexiadou et al. 2015 for overviews of its functions), its functional domain has shifted: While it is still found in the alternating contexts (46a) and (46d-e), the autobenefactive function, (46c), exemplified in (47), has been lost and the occurrence of middle morphology on transitive verbs in general has been greatly reduced (Lavidas 2009: 58–9).

(47) autoì pollèn phorbèn **pheró-men-oi**
self.NOM.PL much.ACC.SG food.ACC.SG bring.PRS-PTCP.MID-NOM.PL
poreuómetha
march.PRS.1PL.MID
'We (will) bring a lot of food with us on our march' (Hdt. 7.50.4)

On the other hand, the domain of middle morphology has increased in intransitive verbs, in particular inchoative/anticausative verbs and reflexives. Thus, while in Ancient Greek only naturally reflexive verbs and body action verbs (*wash*, *comb*, *shave*, etc.) could reflexivize using the middle endings alone, in Modern Greek *all* reflexives formed from transitives via the prefix *afto-* obligatorily take the middle/nonactive endings (e.g., *afto-katastrefome* 'destroy myself, self-destruct'; see Spathas et al. 2015 on these reflexives). Thus the reflexive domain, (46b), has also expanded on the way to Modern Greek.

4.2.2. Middle > passive

Another common functional redistribution is the development and subsequent extension of a passive function of middle markers, which took place from Proto-Indo-European to Latin, where the passive use of the "*r*-forms" is the predominant one for alternating verbs (Baldi 1977; Weiss 2020: 404), from Old Hittite to New Hittite (Inglese 2020: 221), from Old Korean to Modern Korean (Ahn and Yap 2017), from Proto-Semitic to Amharic, and from Late Latin to the early Romance languages. The latter two cases are discussed in more detail in this section.

We have encountered the Semitic *t*-morpheme in Section 4.1.1, whose functions are generally reconstructed as detransitivizing, reflexive, and reciprocal for Proto-Semitic. However, this affix developed into a passivizer in some Semitic languages, for example in Amharic, where its usual function is to passivize transitive verbs, cf. Table 15, although it can also denote an antipassive or reflexive of intransitive verbs (Amberber 2000: 313ff.).

Table 15: *t*-stems in Amharic (adapted from Edzard 2019: 215 and Amberber 2000: 314)

səbbərəa	'he broke'	*tə-səbbərə*	'he/it was broken'
marrəkkə	'he captured'	*tə-marrəkə*	'he/it was captured'
k'orrə	'he cut'	*tə-k'orrət'ə*	'he/it was cut'
mətta	'he hit'	*təmə-tta*	'he/it was hit'
gənəbba	'he built'	*tə-gəbba*	'it was built'
hedə	'he went'	**tə-hedə*	
təññə	'he slept'	**tə-təññə*	

Thereby, *tə*-forms that form reflexives are usually body-altering/grooming verbs (e.g., *shave*, *wash*) (Edzard 2019, Amberber 2000: 314), as can be seen in (48a-b) below. The preferred strategy for reflexive middles and the one necessary for transitive verbs is, however, the employment of reflexive pronouns (48c-d). In that sense, the functions of the *t*-morpheme as a "middle marker" have been reduced in Amharic in favor of the newer and more productive passive use.

(48) Reflexive middles in Amharic, adapted from Amberber (2000: 325f.)

a. aster t-at'ːəbə-čč
   Aster REFLwash.PERF-3.F
   "Aster washed herself"

b. ləmma tə-lač'ːə
   Lemma REFL-shave.PERF.3.M
   "Lemma shaved himself"

c. *ləmma tə-mətta
Lemma REFL-hit.PERF.3.M
"Lemma hit himself" (but OK as "Lemma was hit")
d. ləmma ras-u-n mətta
Lemma self-POSS.3.M-ACC hit.PERF.3.M
"Lemma hit himself"

Another example for MIDDLE > PASSIVE comes from the early Romance languages. We already encountered the Romance SE-marker (< Lat. reflexive anaphor *sē*) as an instance of the REFLEXIVE > MIDDLE path in Section 4.1.2. In most Romance languages, the reflex of SE was moreover extended to impersonal and passive contexts, e.g., in French, Italian, Spanish, and Romanian (cf. Mendikoetxea 2008; Miller 2010: 185–6; MacDonald 2017; Hofherr 2017; Schäfer 2017). Miller (2010: 185) categorically denies that Latin (and early Romance) *sē*-constructions were compatible with a passive agent at any stage of the language (*pace* Cennamo 1993) and argues that this was due to the existence of the periphrastic passive, which provided independent "microcues" for passive formation, whereas the impersonal readings of the SE-constructions in Romance are found very early on, e.g., (49).

(49) or se cante
now REFL sing.3SG
"now (it) is sung; now one sings" (Old French impersonal *se*-construction, *Aucassin et Nicolette*; cit. after Miller 2010: 186)

However, Sansò (2011) and Giacalone Ramat and Sansò (2011) argue that Old Italian examples like (50), with a specific agent in a *by*-phrase, show that the Romance SE-construction was in fact compatible an with episodic passive interpretation and competed with the periphrastic passive at that stage. While this suggests that the grammaticalization MIDDLE > PASSIVE had already taken place by this stage, the directionality of the development (PASSIVE > IMPERSONAL vs. IMPERSONAL > PASSIVE) still remains an open issue (see also section 2.3).

(50) Anche fue ordinato (...) che **si dovesse bandire** la nostra
also was ordered that SE should announce the our
processione la primaia domenica di ciascheuno mese **per**
procession the first Sunday of each month by
Angnello banditore
A. town-crier
'And it was also ordered (...) that our procession **should be announced** publicly **by Agnello, the town-crier**, the first Sunday of

each month' (*Carmine*, §26; 1280–1298; cit. after Giacalone Ramat and Sansò 2011: 197)

This use is no longer possible in Modern Italian: although the Romance SE-passives have an implicit external argument, as diagnosed by their compatibility with agent-oriented adverbs and purpose clauses, illustrated in (51a) for French, they are incompatible with an overt demoted agent phrase ("*by*-phrase"), (51b) and could therefore be classified as a non-canonical passives.

(51) French SE-passives (ex. from Schäfer 2017: 142–3)

a. L'interview s'est interrompue après cinq minutes délibérément / the.meeting SE.is stopped after five minutes deliberately pour manger un morceau.
for eat.INF a piece.
"The meeting was stopped after five minutes deliberately/in order to eat something."

b. Trois maisons se sont louées (*par des touristes) hier.
three houses SE are rented by some tourists yesterday
"Three houses were rented (by some tourists) yesterday."

Schäfer (2017: 143–7) analyzes SE in French se-passives as argument expletive merged in the specifier of Voice (cf. MacDonald 2017 for Spanish), parallel to his analysis of SE-anticausatives, but with a semantic difference in that the Voice head in *se*-passives is not expletive (it introduces an agent θ-role) whereas in anticausatives it is. The agent θ-role is existentially bound (hence no *by*-phrase, though this, too, can change over time), but the syntactic D-feature of Voice requires Spell-Out by a non-thematic form, hence *se* surfaces. The development of *se* from reflexive to anticausative to passive can hence be understood as reanalysis of its semantic features (loss of the +volition feature in the sense of Miller or loss of argument status as a patient) and concomitantly, reanalysis from its base position in the *v*P to being merged in VoiceP, sketched out in (52).

(52) $[_{vP}\ \bar{se}_{[D,arg]}\ ] \rightarrow [_{Voice_{[expl]}P}\ se_{[D]}\ ] \rightarrow [_{Voice_{agent}P}\ se_{[D]}\ ]$

4.2.3. Middle > Aspect

Middle markers can become reanalyzed as (perfective/imperfective) aspectual or Aktionsart markers under certain circumstances. Examples for these developments come from the diachronic development of the *t*-morpheme in Akkadian. One the one hand, it has become reanalyzed as denoting a perfect, and on the other hand, it has developed to denote a pluractional. For opposing views

proposing the emergence of the *t*-perfect in Afroasiatic, see Zaborski 2004, Voigt 1987: 93–97 and Loprieno 1986: 123–141.

Morphologically, a perfect *t*- cannot be differentiated from a middle *t*-. The morphemes are inserted at the same position and look overtly the same. Only in some conjugations can a perfective *t*- be differentiated from a middle one. Inserted into the perfective template, which is marked among other things by the last vowel of the core template being realised as /i/ in the INTENSIVE and CAUSATIVE, the perfect *t*- showcases the same vowel at the same position. The imperfective on the other hand is marked by the vowel /a/ at the same position. A *t*-morpheme occurring with a final /a/ can thus, for instance, only be interpreted as a middle.

A pluractional *t*- is indifferentiable in most verbal conjugations, apart from the durative/imperfective, where the morpheme is supplemented by the addition of an *-n* to yield *-tan-*. Pluractional and perfect *-t* do not co-occur apart from a handful of examples. Equally, the *-n* of *-tan-* assimilating to the next consonant is relatively rare. As such, pluractional *t*- is usually morphologically indifferentiable from perfect and middle *-t*. Finally, "pluractional" *-t* can denote iterative, frequentative, habitual, continuous, and distributive meanings, often depending on the predicate it is inserted into (Kouwenberg 2010: 415). An overview over the active, *t*-form, and pluractional *tan*-forms in the perfective, imperfective, and perfect conjugations is given in Table 16.

Table 16: Overview over the *t*-forms in Akkadian

		SIMPLE	INTENSIVE	CAUSATIVE
Active	pfv.	*i-XYVZ*	*u-XaYYiZ*	*u-š-XYiZ*
	perf.	*i-X-ta-YaZ*	*u-X-ta-YYiZ*	*u-š-ta-XYiZ*
	ipfv.	*i-XaYYVZ*	*u-XaYYaZ*	*u-ša-XYaZ*
t-form	pfv.	*i-X-ta-YaZ*	*u-X-ta-YYiZ*	*u-š-ta-XYiZ*
	perf.	*i-X-ta-(ta-)YVZ*	*u-X-ta-(ta-)YYiZ*	*u-š-ta-(ta-)XYiZ*
	ipfv.	*i-X-ta-YYVZ*	*u-X-ta-YYaZ*	*u-š-ta-XYaZ*
tan-form	pfv.	*i-X-ta(Y)-YVZ*	*u-X-ta-YYiZ*	*u-š-ta-XYiZ*
	perf.	*i-X-ta-(taY-)YVZ*	*u-X-ta-(ta-)YYiZ*	*u-š-ta-(ta-)XYiZ*
	ipfv.	*i-X-tan-aYYVZ*	*u-X-tan-aYYaZ*	*u-š-tan-aXYaZ*

It is generally agreed that both the perfect and the pluractional *t*- developed from the middle *t*- (Kouwenberg 2010: 157ff.). Opinions diverge, however, on how this development came to be, or in other words: which 'sub-function' of said morpheme it was derived from. Some argue that the *t*-perfect derives from a resultative *t*- (Kuryłowicz 1962, 1972, 1975; Stempel and Smoczyński 1995; Voigt 1987), arguing that the middle was connoted with change-of-state semantics (Kuryłowicz 1962: 65). Others argue it derives from an indirect reflexive where the subject and indirect object are co-referential (Loesov 2004,

Anderson 1982: 256f.).

A similar perfect/middle syncretism is found in the older Indo-European languages. The similarity can be most clearly seen when comparing the reconstructed past nonactive/middle endings with the reconstructed (nonpast) perfect active endings, as in Table 17. The endings of the third person (sg. *-*o*, *-*e*; pl. *-*ro*, *-*ēr*/*-r̥s*), though differing on the surface, have been argued to be historically related (Jasanoff 2003: 32–4, 57–8).

Table 17: PIE past nonactive vs. perfect active endings (Fortson 2010: 103; dual excluded)

	Nonactive/middle		Perfect active	
	Sg.	Pl.	Sg.	Pl.
1	*-*h₂e*	*-*medʰh₂* (?)	*-*h₂e*	*-*me-*
2	*-*th₂e*	*-*dʰu̯u̯e-* (?)	*-*th₂e*	*-*e*
3	-*o*, (*-*to*)	*-*ro*, (*-*nto*)	*-*e*	*-*ēr*/-*r̥s*

It is generally agreed that the perfect active endings that can be reconstructed for Proto-Indo-European are related to the reconstructable middle endings in some way (Fortson 2010: 103; Fritz and Meier-Brügger 2021: 187), though the details are still somewhat contested. While some of the older literature has argued that the perfect continues a separate voice category "stative", whose endings were partially integrated into the middle paradigm and are also continued (as an archaism) in the perfect (e.g., Rix 1988; cf. Fritz and Meier-Brügger 2021, loc. cit.), other scholars have argued that the perfect, which is also marked by reduplication of the initial root consonant(s), developed out of a specific kind of reduplicated middle, either a type of present (Jasanoff 2003, Oettinger 2006) or an aorist (Jasanoff 2018). In either case, the perfect endings would thus have arisen as a subtype of the reanalysis of the inherited middle endings as (active) conjugational class markers discussed in section 4.2.4 (see Jasanoff 2003: 30–63, 168–73 and Jasanoff 2018 for a detailed discussion).

4.2.4. Middle > conjugational class marker

The resemblance between the reconstructed Proto-Indo-European middle(/perfect active) endings (Table 17) and the active endings of the PIE thematic conjugation is now generally interpreted as pointing to a common origin (an idea that goes back to Kurylowicz 1927), though the details again remain contested. One possibility is that the theme vowel -*e*-(/-*o*-) found before the inflectional endings in the thematic conjugation is ultimately related to the 3sg. "proto-middle" (= later perfect active) ending *-*e* (Watkins 1969; Jasanoff 1998; 2003; 2017), hence a reanalysis of syncretic inflectional voice marker as a verbal theme vowel/conjugational class marker. This scenario is especially attractive in light of

the Anatolian evidence: While Anatolian does not share the simple thematic conjugation of, e.g., Latin, Greek, and Sanskrit, it has two sets of active conjugational classes, called the *mi*- and the *ḫi*-conjugation, illustrated in Table 18 for Hittite (for the singular; the two conjugations are identical in the plural). While the morphology of the *mi*-conjugation corresponds to that of the athematic active conjugation in the other ancient Indo-European languages, the *ḫi*-conjugation resembles both the reconstructed thematic active and the active perfect endings.

Table 18: The Hittite *mi*- and *ḫi*-conjugations (present active singular); ex. *ēp/app* 'take, seize', *ăr/er* 'arrive, reach'

	mi-conj. sg.			*ḫi*-conj. sg.		
1	*ēp-mi*	<	*-*mi*	*ār-ḫi*, *-ḫe*	«	*-*h₂e-i*
2	*ēp-ši*	<	*-*si*	*ār-ti*	«	*-*th₂e-i*
3	*ēp-zi*	<	*-*ti*	*ār-i*	«	*-*e-i*

There is no systematic semantic or syntactic distinction between these two conjugations, either in terms of verb classes/Aktionsart or transitivity, so these really behave as purely inflectional classes. Moreover, both *mi*- and *ḫi*-conjugation verbs can alternate between active and nonactive/middle endings synchronically, as Anatolian has preserved the inherited distinction between active/non-active voice (see Inglese 2020: 118–64 for a detailed survey of the functions of Hittite alternating and non-alternating middles). This suggests that the *ḫi*-conjugation endings were at some point no longer considered to mark "middle" functions, and were hence replaced by newer, semantically transparent middle endings (see Jasanoff 2003, 2017, 2019 for a discussion of this replacement process). As in the perfect active, the original middle endings thus ended up as active (or non-voice marked, "Elsewhere") inflectional endings.

5. Other

For reasons of space, we must forgo a discussion of other types of voice alternations and their diachrony. The diachronic development of **deponents** as defined in (5) or non-alternating middles more generally, was briefly addressed in section 4.2.1; for further discussion see, e.g., Flobert 1975; Lavidas and Papangeli 2007; Grestenberger 2016, 2019, 2023b; Inglese 2020: 118–31, 2023.

We also cannot discuss the diachrony of so-called "**Austronesian-type voice systems**" here, in which different arguments can be promoted to "pivot" with concurrent changes in case marking of the arguments and with verbal morphology agreeing with the pivot. These are not restricted to Austronesian

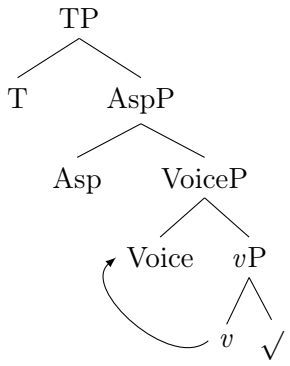
languages (nor to ergative languages), as shown by Erlewine et al. (2017), who moreover propose that Austronesian "voice" alternations should be understood as a type of argument extraction marking; though Nie (2020) argues that it is indeed voice marking in the sense used here (i.e., marking of Voice[±D]). Other analyses treat these voice systems as a type of case marking or applicativization, cf. Kaufman 2017 for a survey. For the diachrony of Austronesian voice systems see, e.g., Kaufman 2017, Kikusawa 2017, Beguš et al. (2023).

Finally, we have only hinted at the **CAUSATIVE > PASSIVE** grammaticalization path that gives rise to Type C syncretism in section 2.1.2 in connection with the *get*-passive. In this path, a causative marker turns into a passive marker via an intermediate reflexivized causative and/or anticausative/"middle" stage. This development has been primarily described for Korean and for Turkic and Tungusic languages (see, e.g., Nedjalkov 1993; Yap and Iwasaki 2003; Rhee and Koo 2014; Yap and Ahn 2019), but it is also found in various other language families, e.g., the Engl. *let*-, German *lassen*-middle (cf. Pitteroff and Alexiadou 2012 on the latter). Depending on the exact circumstances and the language(s) in question, this path may therefore be a special case of INCHOATIVE/ANTICAUSATIVE > PASSIVE (section 2.1.2) or REFLEXIVE > MIDDLE (section 4.1.2).

6. Conclusion: Causes and directions of change in voice systems

Changes in argument structure and voice alternations are understudied compared to other areas of morphosyntactic change, for which there is a rich research tradition that treats change as essentially unidirectional and "cyclic" (cf., e.g., Hopper and Traugott 2003; van Gelderen 2011a; van Gelderen 2013). In formal approaches, the cyclic nature of morphosyntactic change is generally considered to be grounded in *economy principles* of the language faculty (e.g., van Gelderen 2004, 2011a, 2013; Biberauer 2017, 2019; Biberauer and Roberts 2017; Breitbarth 2017). From a diachronic perspective, the changes described by these principles appear to unidirectionally move (functional) material "upwards" along the structural tree ("Upwards Reanalysis", UR; Roberts and Roussou 2003; Cournane 2014, 2015; Grestenberger 2023a). With respect to argument structure changes, such developments have been discussed by van Gelderen (2011b, 2018, 2019). Most (though not all) of the changes in voice systems described in this chapter fit into this typology, in that a lexical element base-generated in the vP or a v-head itself becomes reanalyzed as expressing a feature of the Voice domain, schematically illustrated in (53).

(53) Upwards Reanalysis and Voice



This approach predicts that morphological markers that express Voice will be diachronically related to verbalizing/argument structure-changing morphology or elements that go through a "light verb" stage, and we have seen that this is very often the case, especially in the inchoative-to-passive reanalysis (section 2.1.2). Assuming that reflexive elements such as the Romance and Slavic SE-clitics start out as arguments of the verb (from which they receive their θ-role), this also explains why passive, antipassive, and nonactive morphology in general is so often related to reflexivizing or "argument-suppressing" morphology (cf. section 4.1.2); namely via reanalysis of the reflexivizer as part of the Voice projection (head or specifier).

Moreover, this approach also predicts the "future" of Voice morphology, namely further Upwards Reanalysis from Voice to Aspect, Mood, and/or Tense. One such case may be observed in the history of Greek, in which the suffix (MG) -*thi*- was reanalyzed from a stative/inchoative verbalizer to a perfective passive suffix (section 2.1.2), and we have also seen instances in which voice markers are reanalyzed as modal or inflectional agreement markers (sections 2.3, 3.2 and 4.2.4). Needless to say, further study of these developments is needed, but this survey suggests that the diachrony of voice markers and voice alternations is systematic and directional once it is broken down into discrete intermediate steps. Since these developments parallel the directionality that has been observed in other cycles, we may therefore speak (at least descriptively) of a "Voice cycle".

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