The diachrony of case in Indo-European absolute constructions

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Abstract. This paper explores changes in the syntax of Absolute Constructions (AC) over time in several older Indo-European languages. Taking early AC structure to have involved inherent case assignment from a phonologically-null P head to its nominalised small clause complement, we identify two novel diachronic trajectories along which ACs were reanalysed due to the instability of this initial structure. The first, exhibited in Greek and Latin, involved the syntactic reduction and integration of the AC through loss of the (covert) PP layer, which gave rise to structural case-marking and new syntactic distributions. In the second, several Germanic languages retained the original AC structure but relexicalised the inherent case-assigning P head into an overt preposition. Drawing on a range of diagnostics to track changes in AC clause size across languages and time, we present an analysis of the shift from inherent to structural case on the basis of configurational approaches to case assignment.

Keywords. Absolute Constructions; Indo-European; case; reanalysis; participles

1. Introduction. Well-attested throughout Indo-European, absolute constructions (AC) refer to participial scene-setting adjuncts whose overt subject is not a main clause constituent. In many of the older IE languages, these constructions employed an oblique case such as the ablative, locative, or dative on these participles and their arguments as in (1).[1] While the exact properties of these ACs differ from language to language (and, as we will see, diachronically within a given language as well), they generally exhibit low(er) syntactic integration into the main clause, in line with their scene-setting semantics.

(1) **Latin** [Caesar *B. G.* 6.3; 1st C. BC]
[nōndum *hieme* *cōnfectā*]$_{AC}$, ... in fīnēs Nerviōrum contendit
not.yet winter.ABL.SG finish.PPP.ABL.SG in territory.ACC.PL Nervii.GEN.PL hasten.3SG
'*The winter not yet finished*, [he] hastened into the territories of the Nervii.'

This paper investigates the developmental trajectory of ACs in several older IE languages and identifies two distinct pathways of change. In the first pathway, ACs headed by inherent cases like that in (1) are gradually replaced by those headed by **structural** cases (e.g. NOM, ACC, GEN). In the second pathway, later ACs come to introduce an **overt preposition** capable of assigning oblique case to the participle, with no other change in underlying structure.

In exploring the synchrony and diachrony of these parallel shifts, we present a formal analysis of the syntactic changes involved in these developments. While earlier ACs initially involved a covert P head capable of assigning inherent case, these constructions were later subject to structural reanalysis whereby either i) the AC was reduced, or ii) the P became overt. Crucially, the former involved the increased integration of ACs into the main clause, where reduction in clause size resulted in novel syntactic distributions and case marking patterns.

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[1] Here and throughout the paper, we have endeavoured to translate ACs as closely as possible with an equivalent absolute participle construction in English.

Section 2 of the paper discusses the properties and structure of the earliest, most conservative type of AC, while Section 3 outlines the first developmental pathway of syntactic reduction and integration, drawing on the case studies of Ancient Greek and Latin (as compared to Modern Greek and Italian respectively). Section 4 investigates the development of ACs in Germanic, illustrating the second developmental pathway in which the covert preposition is made overt. Finally, Section 5 concludes and discusses directions for further research.

2. Preliminaries. Building on the description in Müller-Lancé (1994: 36), we define absolute constructions as follows. An AC is a scene-setting clausal adjunct that consists of: i) a non-optional predicate and ii) a subject that agrees with the predicate in case, number, and gender.

The predicate must be non-finite and cannot be an infinitive, meaning that it generally surfaces as a participle.[2] Contra the stricter definition assumed by scholars such as Ruppel (2012), we recognise that the subject of an AC may be co-referent with a constituent in a different morphological case in the main clause. In fact, it is precisely the availability or frequency of such co-reference that we suggest indexes change in the underlying structure of ACs over time, where higher rates of co-reference generally correlate with a higher degree of integration into the main clause. However, if both the subject and its co-referent are in the same case, they must occur overtly in both the AC and the main clause—in other words, a defining property of ACs remains the fact that the subject of the AC is not itself a constituent of the main clause, even if it overtly doubles or co-refers to one. Finally, the AC itself is optional and is not dependent on an overt preposition, a property that also comes to change over time in later stages.

2.1. OLDEST ACS. As illustrated in (2 - 4) for three early Indo-European languages, absolute constructions in older IE generally consist of a subject and participle in various non-structural cases which agree for gender and number. These cases include the GENITIVE in Ancient Greek (2), the ABLATIVE in Latin (3), and the DATIVE in Gothic (4).[3]

(2) **Ancient Greek** (GENITIVE) [Men. *Mon.* 123; 4th-3rd C. BC]
[*pesousēs* *dryos*]$_{AC}$ pās anēr ksyleuetai
fall.AOR.PPL.GEN.SG oak.GEN.SG every.NOM.SG man.NOM.SG cut.wood.PRS.MID.3SG
'*An oak having fallen*, anyone can cut wood'

(3) **Latin** (ABLATIVE) [Caesar *B. G.* 6.3; 1st C. BC]
[nōndum *hieme* *cōnfectā*]$_{AC}$, ... in fīnēs Nerviōrum contendit
not.yet winter.ABL.SG finish.PPP.ABL.SG in territory.ACC.PL Nervii.GEN.PL hasten.3SG
'*The winter not yet finished*, [he] hastened into the territories of the Nervii.'

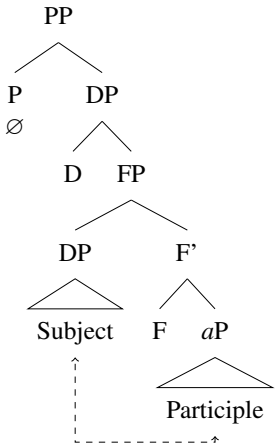
(4) **Gothic** (DATIVE) [Luke 19:36; 4th C. AD]
[*gaggandin* þan *imma*]$_{AC}$ ufstrawidedun wastjom seinaim ana
go.PRS.PPL.DAT.SG as 3MSG.DAT strew.PRT.3PL clothes.DAT.PL their.DAT in
wiga.
way.DAT.SG
'Then, *him going*, they spread their clothes in the way.'

[2] Although absolute constructions by and large require the predicate to be a participle, some languages like Latin may allow nouns and adjectives to serve as the predicate in so-called nominal ACs (cf. Ruppel 2012).

[3] While it is possible to conceive of both the genitive and dative as structural or at least configurationally-assigned cases (Baker 2015), the former at least is clearly non-structural when assigned to the complement of specific prepositions or verbs (cf. also quirky subjects in Germanic pointing to dative as an inherent case in certain configurations).

In the vein of Panagiotidis (2010) and Spyropoulos (2023), we posit that the structure of older ACs as in (2-4) involved covert P heads capable of assigning inherent case to both the subject and participle of the nominalised small clause contained within the PP, as in (5).

(5)



Here, the non-structural case is the result of inherent case being assigned from a null preposition in P to its DP complement. Distributional evidence for the presence of such DP-nominalisations within ACs is discussed in Keydana (1997); Nikitina & Haug (2016), and is supported by the fact that the [SUBJECT + PARTICIPLE] constituent was able to function as a nominal argument in these earlier IE languages, as exemplified in (6).

(6) a. **Ancient Greek** – [SBJ + PPL] subject [Thuc. *P.W.* 4.5.1; 5th C. BC]
autous [ho stratos eti en tais Athēnais ōn]$_{DP}$
3MPL.ACC the.NOM army.NOM yet in the Athens.DAT be.PRS.PPL.SG.NOM
epeskhen
back.PST.3SG
'[The army still being in Athens] held them back.' (Spyropoulos 2023: 67, ex. 36a)

b. **Latin** – [SBJ + PPL] object, coordinated with DP object [TaC. *Ann.* 14.11; 2nd C. AD]
quod cōnsortium imperiī [iūrātūrās =que in fēminae verba
that part.ACC power.GEN swear.FAP.ACC.PL =and in woman.GEN words.ACC
cohortīs]$_{DP}$ … spērāvisset
cohorts.ACC hope.PPF.SUBJ.3SG
'That she had hoped for a share of power and [that the cohorts would swear loyalty to a woman].' (Nikitina & Haug 2016: 37, ex. 18b)

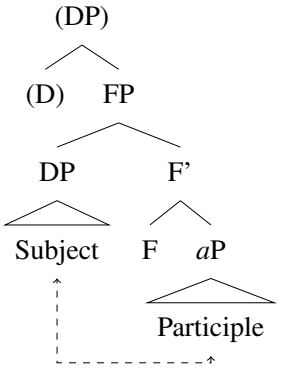
Following Belletti (1990); López (1994); Spyropoulos (2023); *a.o.*, this DP nominalises a small clause in FP, the exact identity of which crucially differs across languages and time. The presence of this FP not only structurally facilitates the agreement/concord between the participle and its subject for case, number, and gender (Nikitina & Haug 2016), but also allows the [SUBJECT + PARTICIPLE] constituent to function as a clausal complement (7) as well as a nominal one (6).[4] Finally, the predicate itself involves the participial morphology serving to adjectivise a verbal core, allowing the participle to retain its full verbal properties whilst also serving as an attributive modifier where necessary (Spyropoulos 2023: §3.1).

[4] Spyropoulos (2023: 65) further shows that the [SUBJECT + PARTICIPLE] constituent can serve as a clausal subject with raising verbs and participate in Exceptional Case Marking configurations.

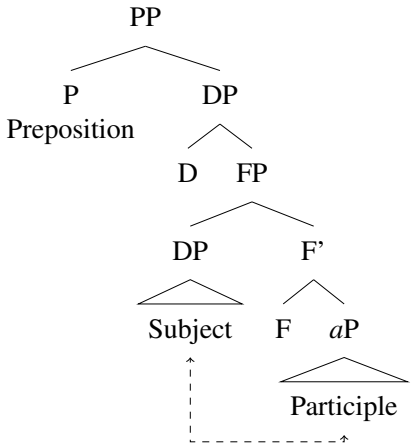
(7) **Ancient Greek** – [SBJ + PPL] raising to subject in passives [Hdt. *Hist* 2.121e.1; 5th C. BC]
hōs autōi apēggelthē [tou phōros ho nekys
when 3MSG.DAT announce.AOR.PASS.3SG the.GEN thief.GEN the.NOM corpse.NOM
ekkeklemmenos]$_{FP}$
steal.MID.PRF.PPL.SG.NOM (Spyropoulos 2023: 65, ex. 34)
'When [that the thief's corpse had been stolen] was announced to him ...'

While the most conservative type of AC constructions in (2 - 4) is relatively straightforward to model, we propose that the structure in (5) is not entirely diachronically stable due to the covertness of the inherent case assigning P. We posit that there may exist a functional preference for inherent/lexical case to be assigned by overt elements rather than a phonologically null $\varnothing \leftrightarrow P_{abl}$ head, especially in configurations where the complement being assigned case is not a "canonical" DP.[5] We suggest that this instability may be resolved in two ways, schematised in (8a-b).

(8) a. **Path 1**: Loss of structure



b. **Path 2:** Overt preposition



In the first pathway (8a), the null PP layer is lost altogether, with possible further reduction of the participle structure (e.g. loss of the nominalising DP layer, and further clausal truncation of F/CP → TP, vP etc.). This pathway is associated with several other subsidiary changes including: i) a switch from inherent to structural case marking, ii) greater integration into the clause as indicated by obligatory or increased co-reference and/or shared temporality, and iii) loss of the ability to serve as a nominal/clausal argument (6-7) or host functional material (e.g., in C, T). In the second pathway (8b), there is no simplification in syntactic structure, and the only change is that the null P head is instead exponed as an overt preposition which is independently known to assign the relevant oblique case. These paths are discussed in turn in Section 3 and 4 respectively.

Throughout this paper, we adopt a disjunctive and configurational approach to case assignment in the vein of Marantz (1991); Schütze (2001); Baker (2015) and others. The assumptions underlying this approach are best made explicit via the following case assignment algorithm (9).[6]

[5] Under decompositional approaches to case it is possible that bare nouns in e.g. the ablative in Latin receive inherent case via a null P head; however, it may be easier to retain such heads when the complement is a straightforward DP/NP as opposed to a structurally complex nominalised FP/small clause participle as in (5). Further, the general collapse of such cases over time (e.g. the loss of the instrumental case in English) can be conceived of as a similar loss or relexification (i.e., into overt prepositions) of null P heads as discussed here for ACs.

[6] Discussion of the difference between unmarked and default case can be found in works such as Marantz (1991); Schütze (2001); Norris (2018); Tan (2022: §5.2), and Section 3.1 below.

(9) **Case realization disjunctive hierarchy** (mod. from Marantz 1991: 24, ex. 29)

a. Lexically-governed/inherent case is first assigned by particular heads, e.g. P_{abl}, v_{dat} (ABL/LOC/DAT/GEN)

b. Dependent case is assigned to NP_2 if it is c-commanded by NP_1 within the same relevant domain, e.g. TP (ACC)

c. Unmarked case is assigned to any remaining caseless NP within the relevant domain, e.g. TP/DP (NOM/GEN)

d. Default case is assigned to any remaining caseless NP (NOM/ACC)

On this approach, another way to conceptualise some of the subsidiary developments involved in Pathway 1 (8a) is to state that ACs across IE show a change from being assigned case via (9a) → (9b-d) instead, depending on the amount of structure lost and domain which remains, whilst case assignment in (8b) remains as in (9a). With these empirical and theoretical preliminaries laid out, we turn now to a discussion of the first pathway, involving structural reduction and integration.

3. Trajectory I: Reduction and Integration.

3.1. GREEK. The first pathway is most clearly illustrated by the development of Greek. In Ancient Greek (up to 3rd C. BC), ACs were primarily formed using the genitive, as shown above in (2). Beginning in the 5th C. BC, however, other cases began to be used—albeit rarely. Most important of these alternatives is the nominative AC, seen in (10).

(10) **Ancient Greek** (NOMINATIVE) [Plato *Leg*. 686d; 4th C. BC]

[*apoblepsas*	*pros*	*touton*	*ton*	*stolon*]$_{AC}$	...	edokse	moi
look.AOR.PPL.NOM.SG	to	that.ACC	the.ACC	fleet.ACC		seem.PST.3SG	1.DAT
pankalos einai							
great.NOM be.INF							

'*Looking at that fleet*, [it] seemed great to me.'

Notable in this example is not only that the participle is in the nominative, but also that its implicit subject ('I') is co-referent with the dative experiencer of the matrix clause ('me'). After the Classical period, the comparative frequency of different types of absolute constructions underwent drastic changes. Most importantly, the nominative absolute became significantly more frequent in Koine Greek (2nd C. BC – 3rd C. AD; Manolessou 2005), and came to completely replace the genitive absolute by the early Byzantine period (~6th C. AD; Jannaris 1897).

We propose that the rise of nominative ACs like (11) as the dominant AC-type in Greek can be directly attributed to structural simplification, i.e., the **loss of the covert PP layer** in (5). Namely, Greek ACs were reduced to DPs, which we posit received default nominative case in the absence of an inherent case assigner (Baker 2015: 95, Alexiadou 1996, Spyropoulos 2023).[7]

[7] Evidence that medieval Greek [SUBJECT + PARTICIPLE] constituents continued to serve as nominal arguments (i.e., retained a DP layer) as in Ancient Greek (6a) comes from examples such as (i), contra Modern Greek gerunds (13).

(i) **Byzantine Greek** – [SBJ + PPL] object [Guillou, *Messina* 5, 1135 AD]

Fenome	[pipraskonta	ton	emon	ambelona]
appear.1SG.PRES	selling.ACC.SG.MASC.ACT	the	my	vineyard

'I declare [the selling of my vineyard].' (Manolessou 2005: 249)

(11) a. **Byzantine Greek** [Theo. *Chrono*. AM 5854; 8th C. AD]
[*kliθen to ðenðron*]$_{AC}$ prosekynisen afto
bend.MID.PPL.N.SG.NOM the tree.NOM worship.PST.3SG 3NSG.DAT
'*The tree$_i$ being bent*, [he] worshipped it$_i$' (Spyropoulos 2023: 78, ex. 63)

b. **Byzantine Greek** [*Acta Petri et Pauli* 179.6f; 5th C. AD]
[*symbulion poiẹsantes pantes oi iudæoi*]$_{AC}$
meeting.ACC make.AOR.PRTC.M.PL.NOM all.M.PL.NOM the Jews.NOM
edoksen aftois
seem.PST.3SG 3MPL.DAT
'*All the Jews$_i$ having had a meeting*, [it] seemed to them$_i$...' (*ibid.*: 78, ex. 62)

As exemplified in both (10) and (11), nominative ACs showed a strong preference for co-reference between the AC subject and a matrix constituent in a different case, unlike their genitive counterparts. Following Spyropoulos (2023: 56), these nominative ACs were essentially used in an "anacolouthon" schema: a hanging topic construction, independently known to use default nominative case in all stages of Greek (12).

(12) **Ancient Greek** [Xen. *Oec*. 1.14; 4th C. BC]
[*oi de philoi*]$_{DP}$, ... ti phēsomen autous eînai
the PRT friend.NOM.PL what.ACC say.3PL 3MPL.ACC be.INF
'*About friends$_i$ now*, ... what would we say that they$_i$ are?'

One way to analyse hanging topic constructions as in (12) is to posit that the topic DP, outside the domain of the TP, receives default nominative case as per (9d) of the disjunctive case realization hierarchy (Schütze 2001). In other words, nominative ACs were DPs which received structural case precisely because they i) had lost their inherent case-assigning head in P, and ii) were syntactically displaced outside of the regular case assignment domain, in line with their function as (adjoined) hanging topics, co-referring to a main clause constituent in a different case.

3.1.1. FROM MEDIEVAL TO MODERN GREEK. Later developments in Greek show an even greater reduction of AC structure. Unlike the participial constructions in Byzantine and Ancient Greek, Modern Greek 'gerunds' (the descendants of these participles) cannot be used as arguments, showing they are no longer DPs but something smaller (Tsimpli 2000). We can directly compare Ancient Greek (6a) to the Modern Greek in (13), wherein it is no longer possible for the participial construction to serve as a clausal subject.

(13) **Modern Greek:**
*[(to) psifiz-ondas mikra komata] voithai ti dimokratia
the vote-GER small parties help.3SG the.ACC democracy
Intended: '[Voting for small parties] helps democracy.' (Tsimpli 2000: 134: ex. 2a)

In fact, Modern Greek gerunds can be shown to involve two distinct structures, based on whether they are of 'absolute' gerunds (14a) or 'manner' gerunds (14b).

(14) a. **Modern Greek** – Absolute gerund
[*Vlep-ondas htes <u>o</u> <u>Manos</u> ti Nina eki*] efiye simera.
see-GER yesterday the.NOM Manos the.ACC Nina there left today
'*Manos seeing Nina there yesterday*, [he] left today.' (Panagiotidis 2010: 9, ex. 20)

b. **Modern Greek** – Manner gerund

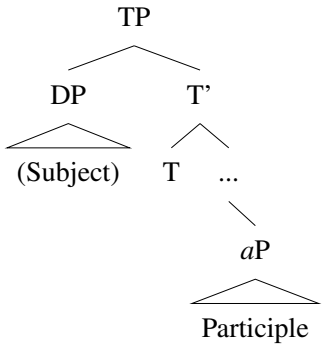
O	Manos	irthe	[PRO	*(*mi)*	*mil-ondas*	*sti* *Nina*].
the.NOM	Manos	came		not	talk-GER	to.the Nina

'Manos came, *(*not) talking to Nina*.' (*ibid.*: 8, ex. 18)

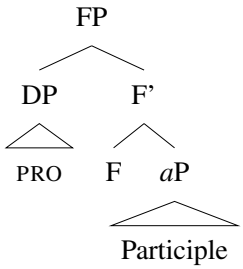
These two types of gerund differ in a range of properties, as summarised in Tsimpli (2000) and Panagiotidis (2010). Most crucially for our purposes, absolute gerunds (14a) admit temporal adverbs (e.g. *htes* 'yesterday'), nonveridical modal negation in *mi*, and auxiliaries for periphrastic tenses/aspects (e.g. *eho* 'have' in the present perfect), all of which indicate greater independence from the matrix clause and more structure in the clausal spine. In contrast, manner gerunds (14b) cannot host any of these elements, pointing to a reduced structure. Furthermore, absolute gerunds allow overt NOMINATIVE subjects (e.g., *o Manos* in 14a), whilst the subject of a manner gerund can only be a null PRO obligatorily bound by the matrix clause subject.[8]

All of these properties fall out directly from positing that these two types of gerunds have undergone varying degrees of truncation as compared to ACs, and constitute FPs of different sizes, shown in (15). In short, both types of gerunds have since lost the DP layer present in Byzantine Greek nominative ACs (10-11) and hence lack argumental function as in (13), but have also further reduced the participial small clause in different ways.

(15) a. **Absolute gerund**



b. **Manner gerund**



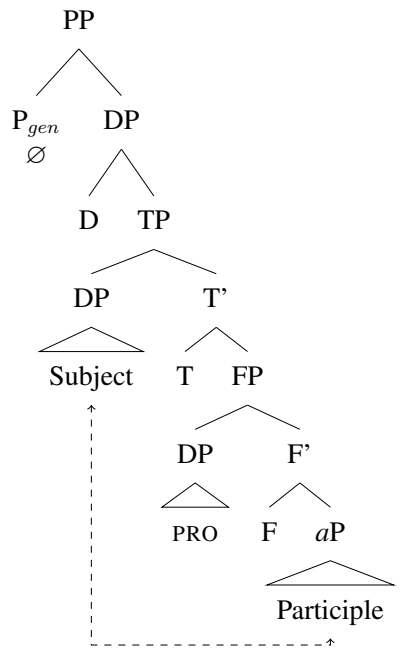
In particular, where absolute gerunds have been argued to constitute (defective) TPs as in (15a), continuing to admit temporal/aspectual adverbs and host overt subjects with unmarked nominative case (Haidou & Sitaridou 2002; Panagiotidis 2010),[9] manner gerunds lack this TP layer altogether (15b), serving as adjuncts to VP (Tsimpli 2000).

To summarise, the trajectory and development of Greek participial adjuncts can be schematised as in (16) as the gradual loss or reduction of functional structure, where the earliest Ancient Greek ACs in the genitive involved a null PP layer assigning inherent case to a participle and its subject (which crucially did not involve co-reference with a matrix clause argument, i.e., it was not a hanging topic "anacolouthon" construction). These were reduced in the Byzantine period to plain DPs which received default nominative case. Modern Greek gerunds show even greater structural simplification involving shedding of the nominal layer (losing argumental function altogether), with constructional variation as to the exact small clause structure that remains.

[8] As illustrated above, Byzantine and Ancient Greek ACs admit all types of temporal/aspectual adverbs and negation, and routinely admit overt subjects which need not co-refer to a matrix clause argument—indicating that they are (at least) the size of absolute gerunds.

[9] Panagiotidis (2010: §6) points out that absolute gerunds can be conjoined and scope under object cliticisation in T, suggesting they may be even smaller than TP.

(16)



⇒ Ancient Greek Genitive ACs (2)
Clausal adjunct; inherent case, ✗ Anacolouthon

⇒ Post-Classical Nominative ACs (11)
Hanging topic; default case; ✓ Argumental

⇒ Modern Greek absolute gerunds (14a)
TP adjunct; unmarked NOM subject
✓ TP adverbs
✗ Argumental

⇒ Modern Greek manner gerunds (14b)
VP adjunct; PRO subjects only
✗ TP adverbs
✗ Argumental

3.2. LATIN. Turning now to the development of Latin, we find that in the Early and Classical stages, ACs appeared exclusively in the ablative case as in (3). However, in Late Latin (3rd C. AD onward), both the nominative and accusative case begins to be used in ACs as well (17).

(17) a. **Late Latin** (NOMINATIVE) [Peregr. *Aeth.* 16, 7; 4th C. AD]
et [*benedīcēns nōs episcopus*]$_{AC}$ profectī sumus
and bless.PRS.PPL.NOM 1PL.ACC bishop.NOM.SG advance.PPP.NOM.PL be.PRS.1PL
'And, *the bishop blessing us*, we set out.'

b. **Late Latin** (ACCUSATIVE) [Iord. *Rom.* 323); 6th C. AD]
Halaricus rēx Vesegothārum [*vāstātam Italiam*]$_{AC}$
Halaricus king.NOM Visigoth.GEN.PL devastate.PPP.ACC.SG Italy.ACC.SG
Romam ingressus est.
Rome.ACC.SG enter.PPP.NOM.SG be.PRS.3SG
'Alaric$_i$, king of the Visigoths, entered Rome—*Italy having been devastated [by him$_i$].*'

Just as in Greek, we argue that the development of nominative and accusative ACs in Latin can likewise be attributed to the **loss of the null PP layer** and corresponding rise in the use of structural, rather than inherent, case assignment. To understand the analysis, we must first recognise that the two types of ACs display different properties. In particular, nominative ACs as in (17a) were associated with the present active participle and typically used when the DP subject was the AGENT of the participle. In contrast, accusative ACs as in (17b) were associated with the perfect passive participle, and were generally used when the DP subject was the PATIENT of the participle (Bauer 2000; Cotticelli-Kurras et al. 2025). In addition, accusative ACs frequently showed co-reference between the implicit AGENT of the participle and the overt matrix clause subject as can be seen in both (17b) and (18).

(18) **Late Latin** (ACCUSATIVE) [Chiron *Mul.* 34.10; 4th C. AD]
[*venās* *intercīsās*]$_{AC}$ quōmodo demonstrāvī
vein.ACC.PL cut.PPP.ACC.PL how demonstrate.PRF.1SG
'*The veins being cut [by me$_i$]*, I$_i$ showed how...'

Although it may at first seem unexpected for the PATIENT subject of a "passive" participle to occur in the accusative cause, this usage is in fact completely in line with both the Classical case system and later developments. In particular, impersonal passives in Early, Classical, and Late Latin took all took accusative PATIENT subjects (Pinkster 1992; Cennamo 2009, 2011), as illustrated in (19) below in which both *vītam* 'life' and *missam* 'mass' occur in the accusative, while the implied AGENT has an impersonal and/or generic interpretation.

(19) a. **Early Latin** [Enn. *scaen*. 240/1; 2nd C. BC]
Praeterpropter vītam vīvitur
more.or.less life.ACC.SG live.3SG.PASS
'Life is lived, more or less.'

b. **Late Latin** [Peregr. *Aeth*. 32,2; 4th C. AD]
cum factum fuerit missam
when make.PPP.SG be.FUT.PERF.3SG mass.ACC.SG
'When the mass is over'

Following recent work on the syntax of impersonal constructions (Legate et al. 2020; Tan & Kühlert 2020; Akkuş 2021), we posit that constructions such as (19) involve the merger of a syntactically-projected impersonal pronoun AGENT which serves as a case competitor following the algorithm in (9b), resulting in dependent accusative case on the DP PATIENT/THEME. Although a full discussion of the changes involved is outside the scope of this paper, it is worth noting that the fact that the implicit AGENTs of accusative ACs were almost always co-referent with the subject of the main clause may have allowed for syntactic reanalysis of the participles in question as "impersonal" passives with a *pro*/PRO AGENT, which would have served as a case competitor and allowed the overt argument of the AC to receive dependent accusative case.

Moreover, the usage of accusative case in ACs with PATIENT subjects is also in line with the development of the so-called "Extended Accusative" in Late Latin (Plank 1985; Cennamo 2009, 2011), wherein the language began to exhibit properties of an active alignment system in which PATIENTS were accusative even with unaccusative and passive predicates as illustrated in (20).

(20) a. **Late Latin** [Chiron *Mul.* 615; 4th C. AD]
clāvum morticīnum ... si natum fuerit.
corn.ACC.SG dead.ACC.SG if born.PPP.ACC.SG be.FUT.PRF.3SG
'If a dead corn ... arises.'

b. **Late Latin** [Anthim. *Obs. Cib.* 1; 5th C. AD]
Omnēs cibōs comedantur
all.ACC.PL food.ACC.PL eat.SUBJ.3PL.PASS
'That all the food be eaten.'

In this way, the fact that Late Latin ACs exhibited a strong correlation between nominative case and AGENT subjects on the one hand and accusative cause and PATIENTS on the other is entirely expected on the analysis that these ACs had lost their inherent case-assigning PP layer and began

to participate in structural case assignment, given i) existing "non-canonical" uses of these exact structural cases in Classical Latin impersonal passives (19), and ii) the on-going development of an "active" alignment system in Late Latin (20). These developments indicate the growing syntactic integration of ACs into the general nominal system, whereby loss of the PP layer resulted in ACs becoming DP nominalisations and hence being treated like other nominal arguments in the language, as has been proposed above for the change from Ancient to Byzantine Greek.[10]

3.2.1. FROM LATE LATIN TO ITALIAN. Just as with Modern Greek (Section 3.1.1), there is evidence that descendants of (Late) Latin showed further reduction from DP to increasingly small clausal fragments. Egerland (1996, 2022) in particular traces the syntactic development of ACs from Old Italian (including both the Medieval and Renaissance periods) into Modern Italian, identifying numerous properties that indicate a reduction in functional structure over time.

For one, neither Old nor Modern Italian ACs are able to serve as nominal arguments any longer, contra their distribution in Latin "dominant participle" constructions as in (6b), indicating that they no longer possess a nominalising DP layer. Yet even within the history of Italian there have been further changes as well. For instance, we can observe that ACs in Old Italian admit overt external arguments with both transitive and unergative predicates as well as clausal negation (21), whilst the equivalent participial small clauses in Modern Italian do not (22).[11]

(21) a. **Old Italian** [Giamboni *Libro d. Vizi* Ch. 16; 13th C. AD]
[*Cenato ogni gente*]$_{AC}$ ... disse la Fede a la Filosofia
dined.PP.M.SG all person say.PST.3SG the faith to the philosophy
'*Everyone having dined*, Faith said to Philosophy...'

b. **Old Italian** [Grazzini *Cene* I.5 ; 16th C. AD]
per la malignità, [*non uscito quasi sangue*]$_{AC}$, ebbe per certo
for the malady NEG go.out.PP.M.SG almost blood have.PST.3SG for certain
che egli fusse, come egli era veramente, morto
that 3SG be.IMPF.SUBJ.3SG as 3SG be.IMPF.IND.3SG truly dead.M.SG
'[As] for his serious condition, *blood having almost not come out*, he took for certain that he was, as he actually was, dead.'

[10] See Nikitina & Haug (2016) on Latin "dominant participles"/*ab urbe condita* constructions as the diachronic outcome of ACs becoming nominalised clauses, in line with what we have suggested here as the loss of the PP layer.

[11] While Modern Italian transitive ACs may take overt accusative IAs (but not overt nominative EAs), the source of accusative case on these PATIENTS is closely correlated to the presence of a covert PRO AGENT instantiating a case competitor under the algorithim in (9b). As shown in (i), if the IA is syncretic for nominative/accusative case (e.g. *il padre* 'the father'), co-reference is optional. However, if the IA is an accusative clitic (e.g. =*lo* 3MSG.ACC), the AGENT must be bound by the matrix subject whereby the covert PRO is a case competitor for the accusative pronoun.

(i) assassinato {il padre / =lo}, il figlio ascese al trono
assassinated.M.SG the.M.SG father.M.SG / =3MSG.ACC the son ascended the throne
a. 'The father having been killed (by s.o.), the son ascended the throne' (Co-ref optional)
b. 'Him having been killed (by his own son$_i$), the son$_i$ ...' (Co-ref obligatory)' (Alcázar & Saltarelli 2007: 3)

This predicts that ACs with accusative clitics are ungrammatical if there is no available controller in the matrix clause, which is indeed borne out as illustrated in (ii). Modern Italian ACs are hence similar to Modern Greek manner gerunds in terms of only admitting bound PRO external arguments (Section 3.1.1).

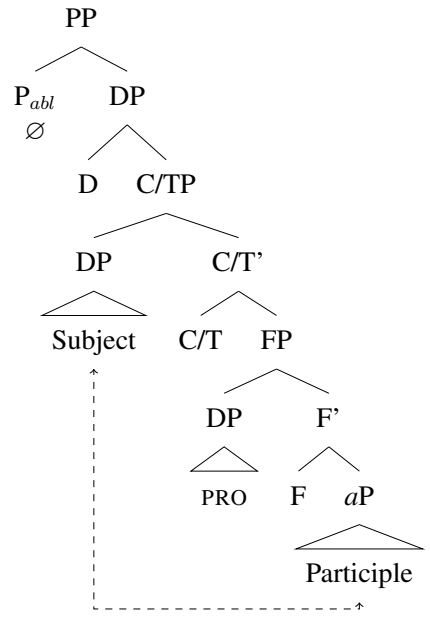
(ii) Assolto {l'imputato / *=lo}, scopiarono gli applausi
acquitted.M.SG the.defendant.M.SG / 3MSG.ACC broke.out the applause
'Having acquitted the defendant/*him, applause broke out.' (Rosen 1988: 59-60)

(22) a. **Modern Italian**: (Mod. from Bruno 2011: 272)
*[*Telefonato* (*Luca*/*pro*$_i$)], Gianni$_i$ raccontò la storia
telephoned.PP.M.SG Luca/PRO Gianni recounted the story
Intended: '*(Luca/Gianni) having telephoned*, Gianni recounted the story.'

b. **Modern Italian** (Mod. from Egerland 1996: 203 ex. 33a)
[(*Non) *arrivata* *Maria*], Gianni tirò un sospiro di sollievo
NEG arrive.PP.F.SG Maria, John pull.PST.3SG a sigh of relief
'Maria (*not) having arrived, John breathed a sigh of relief'

Amongst other diagnostics, Modern Italian ACs also prohibit *wh*-elements, whether interrogative or relative (Egerland 2022: §2.7.2), pointing to the absence or deficiency of a CP layer. These differences have led many scholars to propose that Modern Italian ACs are structurally smaller than in Old Italian, lacking (at least) TP and NegP (Belletti 1990, 1992; Bruno 2011; Egerland 1996, 2022; but contra Gallardo & Castiglione 2025). Again, such a characterisation is entirely in line with the diachronic trajectory we have proposed and discussed as occurring also in the history of Greek (Section 3.1), where initial loss of the PP and DP layers produce a small clause which is subject to increased truncation over time. These developments can again be schematised in (23) as the gradual reduction of functional structure, paralleling the Greek changes in (16).

(23)



⇒ Classical Latin Ablative ACs (3)
Clausal adjunct; inherent case; all theta-roles

⇒ Late Latin Nominative/Accusative ACs (17)
Theta-role sensitive unmarked/dependent case

⇒ Old Italian ACs (21)
✓ Overt NOM EA and ACC IA + negation;
✗ Argumental

⇒ Modern Italian ACs (22)
✗ Overt NOM EA or negation;
ACC IA requires PRO subject
✗ Argumental

This section has hence outlined two case studies of the first pathway of change in which ACs are syntactically reduced and integrated over time, beginning with the loss of the null PP layer and resulting in the rise of structural case assignment and changes in functional distribution.[12]

[12] Sanskrit, like Latin and Ancient Greek, also saw the emergence of ACs with structural rather than inherent case. The earliest form of Sanskrit, Vedic (~12th-9th C. BC), employs the locative case, as demonstrated in (ia). In Epic Sanskrit (4th C. BC - 3rd C. AD) as well as Classical Sanskrit, the genitive absolute is attested (ib).

(i) a. **Vedic Sanskrit** [*Rig Veda* 8.27.19]
yat adya [*sūrye* *ud-yati*]$_{AC}$ priya-kṣatrāḥ ṛtam dadha
as today sun.LOC.SG up-go.PRS.PPL.LOC.SG dear-ruler.VOC.PL rite.ACC.AG give.PRF.2PL
'As today, *the sun rising*, you–beloved rulers–appointed the rite.'

4. Trajectory II: Manifesting the Preposition. Having established the first diachronic pathway for the development of ACs across Indo-European as involving the gradual loss and reduction of functional structure over time, we turn now to the second pathway wherein there is no change in structural complexity but rather the relexification of the null P head into an overt preposition. This pathway is most clearly found in Germanic, the earliest attested languages of which constructed ACs using the dative case as in (24). That all three branches of Germanic attest dative case in this usage suggest that dative ACs are reconstructable to Proto-Germanic.

(24) a. **Gothic** [Luke 19:36; 4th C. AD]
[*gaggandin þan imma*]$_{AC}$ ufstrawidedun wastjom seinaim
go.PRS.PPL.DAT.SG as 3MSG.DAT strew.PRT.3PL clothes.DAT.PL their.DAT
ana wiga.
in way.DAT.SG
'Then, *him going*, they spread their clothes in the way.'

b. **Old High German** [Cod. Sg. 916; 9th C. AD]
Erstantames ... [*eruuechenteru unsih kescrifti ioh*
stand.up.SUBJ.1PL awaken.PRS.PPL.DAT.SG 1PL.ACC scripture.DAT.SG and
qhuedenteru]$_{AC}$
say.PRS.PPL.DAT.SG
'Let us rise ..., *the scripture having awoken us and said ...*'

c. **Old Norse** [*Östgötalagen*., p. 17; 13th C. AD]
[*hanum livande*]$_{AC}$
3MSG.DAT live.PRS.PPL.DAT.SG
'*Him being alive ...*'

Already in these early stages of Germanic, we find that dative ACs could surface with an overt preposition capable of assigning dative case (Bauer 2000). For instance, Ancient Greek genitive absolutes were translated into Gothic with either bare dative absolutes as in (24a) or with an overt preposition, e.g. *at* 'at' as seen in (25). Similarly, Old High German can be found to reinforce dative absolutes with the dative case-assigning preposition *bî* 'by, at', as in (26).

(25) **Gothic** [Mark 16:2; 4th C. AD]
[at urrinnandin sunnin]$_{AC}$
at rise.PRS.PPL.DAT.SG sun.DAT.SG
'at the rising of the sun'

(26) **Old High German** [*Is.* 85.16; 9th C. AD]
[bî ... fatere lebendemu]$_{AC}$
at father.DAT.SG live.PRT.PPL.DAT.SG
'when my father was alive'

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b. **Epic Sanskrit** [*MBh* 3.103.3]
Maitrā-varuṇir ... samudram apibat [*sarvalokasya paśyataḥ*]$_{AC}$
Mitra-Varuna's.NOM.SG ... ocean.ACC.SG drink.PST.3SG world.GEN.SG look.PRS.PPL.GEN.SG
'Mitra and Varuṇa's son drained the ocean, *the whole world watching*'

Pending further investigation of the syntactic distribution of these AC types, we suggest that the latter may involve unmarked genitive case within the DP (Baker 2015) and would serve as another example of the first pathway.

In later varieties of Germanic, dative absolutes could *only* occur if reinforced with dative case-assigning prepositions (Grimm 1898), as found in Middle High German as shown in (27), but also in Middle Dutch and Old Frisian.

(27) **Middle High German** [Herb. *L.v.T* 6524; 12th C. AD]
[bî schînender sunnen]$_{AC}$
by shine.PRS.PPL.DAT.SG sun.DAT.SG
'with the sun shining ...'

The development of ACs in Germanic can be summarised as follows. In Stage 1, ACs were marked in Proto-Germanic with inherent dative case assigned by a null P_{dat} as in (24), similar to early stages of Greek and Latin. In Stage 2, the covert P_{dat} could optionally be expressed as an overt preposition as in Gothic (25) and Old High German (26), with a potential reinforcing effect. Finally, in Stage 3, overt expression of the P_{dat} head as a dative case-assigning preposition becomes obligatory, as in Middle High German (27). In this way, Pathway 2 maintains the underlying structure of ACs laid out in (5) but resolves the opacity of having a phonologically null inherent case-assigning P head by rendering it overt.

5. Conclusion. In all, we have identified two diachronic pathways along which ACs develop in Indo-European. The first, attested in Greek and Latin (Section 3.1.-2), involves the gradual loss or reduction of structure from a full PP headed by a phonologically null P head capable of assigning case into a nominalised participal clause DP, where later stages of these languages show further reduction into a defective CP/TP or even simpler small clause. Such structural simplification goes hand-in-hand with other syntactic changes such as a loss of argumental function, change in the manner of case-assignment (specifically, a switch from inherent to structural case assignment—whether default, unmarked, or dependent), rise in co-reference (and binding obligations, cf. the discussion of PRO AGENTS in both Modern Greek and Italian), and the loss of ability to host functional elements such as aspectual adverbs, clausal negation, or wh-items (losing also the possibility of independent temporal reference). Future research may seek to explore the extent to which this pattern obtains also in languages such as Sanskrit (footnote 12), Lithuanian (Bauer 2000: 281), or even beyond Indo-European.

The second pathway, illustrated in this paper with examples from Germanic (Section 4), shows no loss in structure but rather the relexicalisation or manifestation of the null P head into an overt dative case-assigning preposition, following an initial stage wherein reinforcement with this preposition appears to be optional. Pending further investigation, one could arguably conceive of this development as similar to Jespersen's Cycle, although it is yet to be seen whether ACs in Stage 3 may once again lose their overt preposition (in line with general case loss in the language), returning again to Stage 1.[13] Further research may hence want to investigate the extent to which this loss-and-reinforcement occurs cyclically.

Remaining issues include what exact mechanism is involved in the loss of functional structure exhibited in Pathway 1; reduction in clause size can clearly be correlated with the absence of overt evidence for the (null) P, D, or C layer, but further research should explore what input constructions (or corresponding increase/decrease in the frequency thereof) allowed for this reanalysis to occur, and the formal mechanisms underlying it (e.g., a loss of movement steps; Roberts

[13] For instance, it is unclear how to treat the synchronic variability of the preposition in Modern English ACs such as *(With) the store being closed, John had to go hungry.*

& Roussou 2003; Roberts 2007). In addition, the languages we have investigated are far from contemporaneous, even when arguably instantiating the same "stage" of development (e.g. the DP stage in Byzantine Greek vs. Late Latin, or the P-reinforcement stage in Gothic vs. Old High German). As such, careful diachronic corpus study will be required for each in order to identify the language-specific triggers for change (e.g. patterns of case loss), and whether or not they can be generalised. In this vein, one may also be able to discover the factors that condition whether a given language might alter its ACs along Pathway 1 (structural reduction) as opposed to Pathway 2 (lexicalising the P head).

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