On Cyclic Domains and the Archetypal Phasal Head

Evidence from the Adverbial Articular Infinitive in Post-Classical Greek

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'[V]oilà la merveille. Un arbre bifide n'a rien d'étrange, mais un bosquet d'arbres bifides, un bois, une forêt ? *Silva portentosa*.'
– Joseph Bédier (1928: 172)

Acknowledgements

ABSTRACT: This thesis puts forward the idea that the two clausal phases (C-phase and v*-phase) can be reduced to one template, i.e. the *archetypal* phasal head (APH). This is done in a reductionist fashion: a phase is first reduced to a phasal head by means of a derivational *one phase-one head*-approach. The C-phase comes down to a C-head and a v*-phase to a v*-head. Then, based on their communalities, the C- and v*-head are reduced to an APH, a template for each phasal head which is specified for a same set of formal features and an interpretability status. The difference between the C and v* lies in the valuation on their interpretable features: C, for instance, is specified for Tense (i.e. [iT:Tense]), v* only encodes Aspect (i.e. [iT:Aspect]). Other properties differentiating v* from C are due to factors external to Syntax proper (i.e. Narrow Syntax); v*, for instance, derives much of its event and argument structure, diathesis, etc. from the Root. Those properties are not inherent to v*, but are derived from the interpretation of the Root at the interface. Evidence for separating the Syntax-internal phasal properties from the Syntax-external ones is provided by a v*-phase which was not influenced by the Root. The adverbial articular infinitive in Post-Classical Greek is argued to possess a double-v* construction, with evidence from (a) the accusative case on the subject, (b) the relative tense-interpretation on the infinitive, (c) the disappearance of the article, modelled as the remaining ϕ-features in C, and (d) the presence of finite verbs and licensing of a nominative subject. Comparing $v*_1$ with $v*_2$ shows that $v*_1$, having access to the Root, displays both Syntax-internal and -external properties, whilst $v*_2$ displays only Syntax-internal properties. $v*_2$ is argued to be a pure Aspectual head with phasal properties ($v*_2 = \text{Asp}*$), whilst $v*_1$ shows to be an Aspectual head with external influences ($v*_1 = \text{Asp}* + [\text{Voice}]$). When all external factors are taken out, the communalities can be abstracted and the v*-head, together with a C-head, can be reduced to one APH.

ABSTRACT: Deze thesis stelt dat dat de twee zinsfases (C-fase en v*-fase) kunnen worden teruggebracht tot één sjabloon, namelijk het *archetypische* fasenhoofd (APH). Dit gebeurt op een reductionistische manier: een fase wordt eerst gereduceerd tot een fasenhoofd door middel van een *één fase-één hoofd*-benadering. De C-fase wordt teruggebracht tot een C-hoofd, een v*-fase tot een v*-hoofd. op basis van hun gemeenschappelijke kenmerken worden vervolgens de C- en v*-hoofden gereduceerd tot een APH, een sjabloon voor elke fasehoofd dat is gespecificeerd voor eenzelfde reeks formele kenmerken en een interpreteerbaarheidsstatus. Het verschil tussen de C en v* ligt hem in de waarde van de interpreteerbare kenmerken: C, bijvoorbeeld, is gespecificeerd voor Tijd (d.w.z. [iT:Tijd]), terwijl v* alleen maar Aspect codeert (d.w.z. [iT:Aspect]). Andere eigenschappen die v* van C onderscheiden, zijn te wijten aan factoren buiten de eigenlijke Syntaxis; v*, bijvoorbeeld, ontleent veel van zijn gebeurtenis- en argumentstructuur, diathese, enz. aan de Wortel. Deze eigenschappen zijn niet inherent aan v*, maar zijn afgeleid van de interpretatie van de Wortel bij de semantische interface. Ik staaf my hypothese voor het scheiden van Syntax-interne van de Syntax-externe fase-eigenschappen met een v*-fase die niet werd beïnvloed door de Wortel. Ik stel dat de adverbiale articulaire infinitief een dubbele v*-constructie bezit. Aanwijzingen hiervoor haal ik uit (a) het accusatief subject, (b) de relatieve tijdsinterpretatie van de infinitief, (c) de verdwijning van het lidwoord, gemodelleerd als de resterende ϕ-kenmerken in C, en (d) de aanwezigheid van finiete werkwoorden en nominatieve subjecten. Een vergelijking van $v*_1$ met $v*_2$ laat zien dat $v*_1$, die toegang heeft tot de Wortel, zowel Syntax-interne als -externe eigenschappen vertoont, terwijl $v*_2$ alleen Syntax-interne eigenschappen vertoont. $v*_2$ is als een puur Aspectueel hoofd met fasale eigenschappen ($v*_2 = \text{Asp}*$), terwijl $v*_1$ een Aspectueel hoofd blijkt te zijn met externe invloeden ($v*_1 = \text{Asp}* + [\text{Voice}]$). Wanneer alle externe factoren weggenomen worden, kunnen de gemeenschappelijke kenmerken worden geabstraheerd en kan de v*-head, samen met een C-head, worden teruggebracht tot één APH.

Content

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Abbreviations used in the main text:

Adv(P)	Adverb(ial Phrase/Label)	P(P)	Prepositional (Phrase/Label)
APH	Archetypal Phasal Head	Q(P)	Question (Phrase/Label)
AspP	Aspect (Phrase/Label)	RC	Relative Clause
case	Morphological Case	R(P)	Relativiser (Phrase/Label)
Case	Structural Case	S	Selection
CAT	Category	SM	Sensimotoric Interface
CGr	Classical Greek	SO	Syntactic Object
CI	Conceptional Intentional Interface	Spec	Specifier
		SPH	Specific Phasal Head
C(P)	Complementiser (Phrase/Label)	Top(P)	Topic (Phrase/Label)
D(P)	Determiner/Definiteness (Phrase/Label)	Topv(P)	Topic (Phrase/Label) in Lower Left Periphery
EA	External Argument	T_E	Event Tense
ECM	Exceptional Case Marking	T(P)	Tense (Phrase/Label)
EM	External Merge	T_R	Reference Tense
EPP	Extended Projection Principle	T_S	Speech Tense
FI	Feature Inheritance	t	Trace/Copy
Foc(P)	Focus (Phrase/Label)	uF	Uninterpretable Formal Feature
Fin(P)	Finite (Phrase/Label)	Val	Valuation
Force(P)	Force (Phrase/Label)	V(P)	Verb (Phrase/Label)
IA	Internal Argument	v(P)	Little v (Phrase/Label)
iF	Interpretable Formal Feature	$(v)\sqrt{_x}$	(Verbal) Root
IM	Internal Merge	~~XP~~	Trace/Copy (of a Phrase)
LA	Labelling Algorithm	<X>	Trace/Copy (of a Head)
Mod(P)	Modifier (Phrase/Label)	⟪X, Y⟫	Pair-Merge of head X and Y
Mod(P)	Modality (Phrase/Label)	Y*	Archetypal Phasal Head
N(P)	Noun (Phrase/Label)	δ	Discourse Feature
NS	Narrow Syntax	φ(P)	Phi-Feature (Phrase/Label)
PCGr	Post-Classical Greek	??(P)	Unlabelled (Phrase/Label)
PIC	Phrase Impenetrability Condition		
p(P)	Light Prepositional(Phrase/Label)		

Abbreviations used in the glosses (based on the Leipzig Glossing Rules):

ACC	Accusative	N	Neuter
ACT	Active	NEG	Negation, Negative
AOR	Aorist	NOM	Nominative
DAT	Dative	OPT	Optative
DEM	Demonstrative	PASS	Passive
F	Feminine	PL	Plural
FUT	Future	PRF	Perfect
GEN	Genitive	PLQMPERF	Plusquamperfect
IMP	Imperative	PREP	Preposition
IND	Indicative	PRS	Present
INF	Infinitive	PTCP	Participle
M	Masculine	PRON	Pronoun
MID	Middle	SG	Singular
MIDPASS	Middle-Passive	SUBJ	Subjunctive

0. Introduction

(Post-)Classical Greek ((P)CGr)[1] displays the adverbial articular infinitive-construction: an infinitive introduced by a preposition and (neuter) article (1). In traditional grammars, an articular infinitive is described as an infinitive which is nominalised by means of an article (Kühner & Gerth, 1872: 601-609; Mayser, 1926: 320-333; among others). When occurring with a preposition, the articular infinitive receives an adverbial function: it functions as the non-finite counterpart to a finite subordinate clause (cf. Horrocks, 2010: 94-96).

(1) διὰ   τὸ αὐτὸν   καταπατῆσαι τοὺς ἐχθρούς
     because.of.PREP ART him.ACC squash.INF.AOR ART enemies.ACC
     'because he squashed his enemies'   (P.Koeln 7.317, 7-8 (500-599 CE))[2]

If the subject is expressed, an accusative case is required (1), a phenomenon always noted but never explained in grammatical works. Researchers, however, did not settle for these descriptive analyses and tried getting a firmer grasp on these kinds of phenomena. Within a generative approach, and more recently within its Minimalist conception (cf. Chomsky, 1995), explanations were sought by resorting to syntactic principles (cf. Cecchetto & Oniga, 2002; Hovind, 2020; Melazzo, 2005; Sevdali, 2013; Spyropoulos, 2005; among others). Theoretical constructs are used to explain whatever is found in the data, but data is also used as a way of testing, falsifying or refining the theoretical model proposed in the literature. In this thesis, I continue within this line of reasoning and explore a further analysis of this accusative subject with some of its consequences and implications for syntactic theory.

Following current Minimalist theorisation (cf. Chomsky, 2001, 2008, 2019, 2020), this thesis will be couched in a phasal framework. Focusing on the clause, the initial idea behind this framework is that a clause is not produced in one go, but is split up into different units. Within Minimalist assumptions, these (clausal) units equal what is called cyclic domains. The finite clausal structure is hypothesised to be split into two of these domains, also called phases: a domain encoding Tense- and discourse-related information (i.e. the C-phase) and a domain encoding events, argument structure and other verbal properties (i.e. the v*-phase) (2). One of the core properties of a cyclic domain is the ability to check Case on an argument (cf. Epstein, Kitahara & Seely, 2010, 2012; Takahasi, 2010); an argument cannot appear without being licensed, and needs to be linked to the structure by checking its structural Case with a phasal domain. One phase checks one structural Case (by hypothesis) and returns a morphological case back to the argument it checked the Case on.[3] The type of morphological case the argument receives, however, depends on the type of phase the argument is in (cf. Chomsky, 2001). If the argument (DP) is within a C-phase, a nominative is assigned. If it is in a v*-phase, an accusative is assigned (2). If one phase checks one Case and if there are multiple arguments in the structure, Case checking is crucial to find where one phase stops and another phase starts and, therefore, has been argued to be a core property to determine the boundaries of a phasal domain.

(2)   [$_{CP}$ C DP$_{NOM}$ [$_{v*P}$ v* DP$_{ACC}$ ...]]

         Tense/Discourse   Verbal
             Domain   Domain

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[1] Post-Classical and Early-Byzantine Egyptian Greek (1-8th c. CE) discussed here has been taken to be a variant belonging to the κοινὴ διάλεκτος (*common dialect*), a koineised type of Greek based on the Classical Attic variant from Athens itself (4th c. BCE) (cf. Bubenik, 1989: 214-227; Dahlgren, 2016; Horrocks, 2010: 110-113; Leiwo, 2020). Most of our information of this variety comes from papyrological data which have been a pivotal importance for our understanding of the diachrony of Greek (cf. Dickey, 2009: 149; Evans & Obbink, 2010: 9).
[2] If not indicated differently, all attestations are from PCGr.
[3] I distinguish structural Case from morphological case by means of a capital.

If it is indeed correct that a nominative is checked within a C-phase and an accusative within a v*-phase, the articular infinitive might actually possess two v*-domains (i.e. $v*_1$ and $v*_2$), one for the subject and one for the object. A C-phase, however, has also been argued for in the literature for the infinitives in (P)CGr (cf. Sevdali, 2013; among others), and, instead of assigning a nominative case, one could argue that it encodes the Tense (cf. tense-morphology on the infinitive) and contains the subordinating element (i.e. the preposition and article) in the adverbial articular infinitive. The structure argued for can be found in (3), with (3a) being the more formal notation and (3b) being the application of the construction to the data in a linear fashion.

(3)   a. [$_{CP}$ C   [$_{v*P}$ Subject $v*_2$ [$_{v*P}$ Complement $v*_1$ v√   ]]]
    b.   διὰ τὸ   αὐτὸν   καταπατῆσαι   τοὺς ἐχθρούς

Despite their common property of Case checking, $v*_1$ and $v*_2$ display some differences. $v*_1$, for instance, has access to the verbal Root (v√ in (3a)). A Root is used to refer to concepts in the outside world (Panagiotidis, 2014: 290; Panagiotidis & Nóbrega, To appear: 17) and, therefore, introduces many Syntax-external properties into the derivation (such as event structure). $v*_1$, being close to the Root, is influenced by many of these aspects and does not purely show its phasal properties. I model $v*_1$ as having phasal properties plus murk from the Root. $v*_2$, however, couched within another phase, seems to be independent from the Root and displays those phasal properties common to phases.

In this thesis, I compare the C and v*-domain (minus murk) and propose a unified structure. I argue that the two clausal domains can be reduced to one template, i.e. an archetypal structure lying behind both the C- and v*-domain which captures the communalities between phases. The goal of this thesis, in other words, is to reduce the conception of a (clausal) phase to its core properties. The reduction in this thesis is twofold. First, I reduce each phase to one head, i.e. a C-phase to a C-head and a v*-phase to a v*-head (§1). This *one phase-one head*-approach reduces my object of study to just two heads, C and v*, and defines more clearly what is at stake when comparing the two. Second, I reduce the two clausal heads to one template. For this to be possible, I first argue for a double-v* structure for the adverbial articular infinitive in PCGr (§2; (3a)), providing evidence from the presence and positioning of an accusative subject (§2.1), the relative tense-interpretation (§2.2), the nominaliser (§2.3) and nominative assignment (§2.4). The non-finite structure has three cycles instead of two: one C-phase and two v*-phases, with $v*_1$ showing murked properties and $v*_2$ being purely phasal. From there on out, I start comparing and reducing these phasal heads to one template (§3). C and $v*_2$ will be argued to share common properties, whilst $v*_1$, next to having these common properties, seems to be specified with additional features. If these features are filtered out, $v*_1$ shows the common properties of a phase (§3.1). This thesis, therefore, puts forward the idea that C and v* can be unified into one *archetypal* phasal head (APH), with the difference between the two coming down to the valuation on their features.

Chomsky (2000, 2001, 2004, 2007, 2008) claims that one property of an optimal design of any language system is cyclic transfer to the interfaces.[4] Within standard minimalist assumptions, this is done by means of phases; syntax spits out the derivation bit by bit, forming phases, and hands over these separate units to the interfaces one by one at different points within the derivation (Uriagereka, 1999). They function as a tool for intermodular communication between the interfaces (Scheer, 2012).

Phases have been conceptualised in two ways. Within Chomsky's original conception, C and v* have a phasal status bound to their category, independent of any contextual factors. A phase, in this way, is defined as a lexical subarray, which contains an occurrence of either a C- or v*-head; the presence of such a head determines whether the array is a phasal one or not (Chomsky 2000, 2001; Richards, 2011). A second approach, which will be adopted throughout this paper in an updated fashion, relates phasehood to the phase head itself and its central role as the engine of the derivation; it functions as the locus of uninterpretable features driving the derivation forward (cf. Chomsky, 2007, 2008; Richards, 2007). Uninterpretable features are assumed to be inherited from the phasal head to the phasal domain by means of Feature Inheritance (FI), i.e. only the phasal head is specified with uninterpretable features ([uF]s) and, when merged, scatters them all over the phasal domain (see (4)).

(4)   a. $[_{TP}$ T …]
        b. $[_{CP}$ C $[_{TP}$ T …]]
                [uF]   [uF]

                    FI
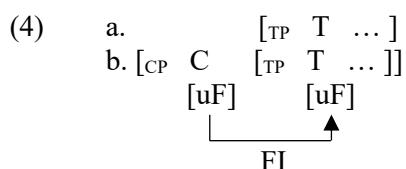
One set of uninterpretable features are the ϕ-features (i.e. person, number and gender), encoded in both C and v*. In standard Minimalist assumptions, ϕ-features are linked to the checking of Case (cf. Chomsky, 2001). Agreement between a verb and the subject in person, number and gender is done by means of ϕ-features. From this relation between an argument (DP) and the clausal head (T(ense)), structural Case is assigned and a morphological nominative case emerges on the DP as a reflex of this relation. When a relation is established with v*, an accusative case emerges. In other words, both C and v* check Case and return a morphological case to their argument: nominative in the case of C, accusative in the case of v*. Checking Case (by hypothesis) is one of the core properties of a phase (cf. Epstein, Kitahara & Seely, 2010, 2012; Takahasi, 2010). If assumed that a phase can only check one Case to one argument, arguments with different C/cases are in different phases. Agreement and Case checking, therefore, are crucial to find where one phase stops and another one starts.

FI and Case checking by ϕ-features are standard assumptions within current Minimalist theorisations and play a crucial role in Chomsky's (2007, 2008) conceptualisation of a phase, i.e. the phase is driven by the phasal head. In this chapter, however, I discuss a third conception of a phase, where one phase actually comes down to one phasal head, ultimately affecting how FI (§1.1) and Case checking (§1.2) are implemented. The goal of this chapter, therefore, is discuss how a phase can be reduced to one phasal head by looking at two of its core properties. After laying out why FI was introduced in the first place (§1.1.1) and pointing out some of its conceptual and empirical problems (§1.1.2), FI will be dispensed with and will be replaced by a *one phase-one head*-approach (§1.1.3). Case, then, will be reduced to (formal) Tense (§1.2). Section §1.3 concludes.

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[4] An interface is the boundary where syntax (in the broad sense) and external systems of language use meet. Two interfaces will be considered here; the Sensimotoric system (SM), where the structure is given an audible/visible form, and the Intentional-Conceptional System (CI), where the argument structure and the discourse-related and scopal properties are interpreted (cf. Chomsky, 2008).

1.1 The Distribution of Features over the Phase: Feature Inheritance (FI)

Within standard Minimalist assumptions, the distribution of features over the phase is done by means of FI: the phasal head is specified with uninterpretable features and, when merged, scatters them all over its phasal domain. First, the standard assumptions regarding this mechanism are laid out (§1.1.1), but they quickly run into some conceptual and empirical problems (§ 1.1.2). I, therefore, opt for an alternative to FI, a derivational *one phase-one head*-model based on Gallego (2014), in which phases are derived from one phasal head (§ 1.1.3).

1.1.1 Standard Theory for FI (Chomsky 2007, 2008)

Chomsky (2007, 2008) and Richards (2007) argue that the phase head plays a central role in a phase; it is the engine of the derivation and functions as the locus of uninterpretable features, which are inherited (or shared, in Gallego's 2010 conception) from the phasal to a non-phasal head. As they are semantically devoid, uninterpretable features must be deleted before reaching the semantic component (CI). When they are checked and valued, however, they become undistinguishable from interpretable features; the distinction in interpretability is lost. If a phase is transferred to the semantic component with a semantically devoid feature, the derivation will ultimately crash. To avoid this, Transfer (sending of the phasal domain to the semantic and phonological component) must happen simultaneous with Valuation (not to lose the interpretability status of the feature) and Deletion (so uninterpretable features can be deleted before the phase is sent off to the semantic component). Deletion, however, only occurs in the phasal domain; valued uninterpretable features appearing outside of this domain cannot be deleted and would induce crash at the semantic component. Uninterpretable features, therefore, must be valued phase-internally (in TP, not on C in (5)); they are inherited to or shared with the non-phasal head to be deleted and transferred within the same phasal domain. This mechanism has been called Feature Inheritance (FI) and is used to scatter uninterpretable features from the phasal head (C in (5)) all over its phasal domain (TP in (5)).

(5)   [$_{CP}$ C [$_{TP}$ T …]]
         [uF]   [uF]

1.1.2 Problems with Standard FI

Although FI has been a widespread notion within the minimalist literature, some conceptual concerns were raised pertaining to its existence and added value. First, FI counts as an enrichment of the UG. Researchers differ as to how much properties they ascribe within the UG, ranging from a minimal UG with only a (feature-blind) Merge (cf. Hauser, Chomsky, & Fitch, 2002) to a very rich structure within a cartographic (Cinque & Rizzi, 2010, 2016) or even nanosyntactic framework (Starke, 2009). A somewhat milder view is presented in Chomsky (2001: 10), where the UG 'specifies the features F that are available to fix each particular language L'. The question on whether FI is a conceptual part of the UG is not yet settled; whilst Chomsky (2008: 144), for instance, argues that FI distinguishes A from A-bar movement (i.e. the features related to A movement are inherited to the non-phasal head, the ones linked to A-bar movement are not), Gallego (2014, 2017) dispenses of this idea, showing that SpecTP (a non-phasal projection) behaves as a A-bar position within an agreement- and discourse-prominent language.[7] Alternatives as Feature Sharing (Gallego, 2010: 85-90) have been proposed.

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[7] For a typology based on FI, see Jiménez-Fernández (2010, 2011), Jiménez-Fernández & Spyropoulos (2013), Ouali (2008) and Roberts & Biberauer (2010).

Second, the status of the non-phasal T has been questioned; within a FI-approach, T has been seen as a pure 'feature receptacle' (Richards, 2007), a vacuous element within the lexicon which only inherits its (uninterpretable) features when the phase head is merged. This paves the way for countercyclic operations to non-phasal heads[8] and the idea of parallel operations, where operations at C and T happen simultaneously or where operations on T are derivatively driven by C (cf. Chomsky, 2008). Broekhuis (2016), however, convincingly argues that Chomsky's (2008) generalisation on parallel movement are not independently motivated and dispenses with operation of FI (see §1.1.3 for further discussion).

Third, Chomsky's (2007, 2008) and Richards's (2007) concept of FI is built under the assumption that Value, Transfer and Deletion must operate simultaneously and that Deletion can only target the complement domain. Epstein, Kitahara and Seely (2012), however, note that in a construction as in (6a), the object wh-phrase moves to the edge of v* before Transfer. Deletion, however, can only affect material within the phasal domain, meaning the Case feature (if conceptualised as a [uCase] on who in (6b)) appears outside the deletion zone. When an uninterpretable feature is checked and valued, its interpretability status is lost. Being semantically devoid, not immediately deleting it could induce a crash when transferred to the semantic interface at the next phase. Two solutions to this problem seem to be viable (Gallego, 2010: 69, n. 13). The first option goes back to Chomsky's (2001: 16) assumption that Case is not a feature, but a pure 'reflex of agreement'. If this were true, a Case feature is present at the phasal edge and cannot be not affected by Deletion (6c). Questions, however, can be raised with regards to how come the object remains active to be affected by a probing goal.[9] A second proposal argues for a feature split hypothesis (cf. Epstein & Obata, 2011; Obata, 2012), where phonological features and case features are split; the former moves towards the v*P-edge, whilst the latter move to the SpecVP (6d).

(6)   a. who do they like?   English
       b. [$_{v*P}$ who$_{[i\phi], [uCase]}$ [$_{v*P}$ they v* [$_{VP}$ like ~~who~~]]]

       c. [$_{v*P}$ who$_{[iQ], [i\phi: acc]}$ [$_{v*P}$ they v* [$_{VP}$ like ~~who~~]]]

       d. [$_{v*P}$ who$_{[iQ][Phon/Acc]}$ [$_{v*P}$ they v* [$_{VP}$ who$_{[i\phi][uCase]}$ [like ~~who~~]]]]
                                                                        (Obata 2010: 45)

Epstein, Kitahara and Seely (2010, 2012), however, dispense with the need for Transfer to occur simultaneously with (Checking and) Valuation and argue that uninterpretable features do not need to be transferred within the phasal complement. To understand their argumentation a bit better, I must lay out the difference between Checking and Valuation

Feature-checking and -valuation are taken to be distinct operations (cf. Chomsky, 2000, 2001; Pesetsky & Torrego, 2007). Checking is concerned with the (un)interpretability of features, i.e. linking each uninterpretable feature ([uF]) to an interpretable counterpart ([iF]), and occurs exclusively in Narrow Syntax (NS). After checking, the value (Val) of the feature it entered into a checking-relation with is copied over to the feature itself by accessibility measures, but valuation can also happen contextually (i.e. outside Narrow Syntax, cf. Kučerová, 2018: 832-833). The interpretability status (i/u), the type of formal feature (F) and the value it has (Val) are each interpreted at different stages in the derivation (7). The phonological component (SM), for instance, is only interested in the values of the features, whilst (un)interpretability and the type of feature are relevant for the Narrow syntax, not the

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[8] For countercyclic approach to Internal Merge (IM) for elements in the TP and the left periphery of the v*P, see Epstein, Kitahara and Seely (2012) and Fukuda (2019) respectively. But see Ginsburg (2016) for a non-countercyclic approach to FI.
[9] For the Activity Condition and parametrisation, see Oxford (2017).

values themselves (cf. Zeijlstra, 2014). As the semantic component (CI) cannot interpret semantically devoid material, it is only interested in the value and type of formal feature of the interpretable features.[10]

(7) a. $\begin{array}{c} \text{NS} \\ \uparrow \\ \boxed{[\text{uF:Val}]} \\ \downarrow \\ \text{SM} \end{array}$ b. $\begin{array}{c} \text{NS } \text{CI} \\ \uparrow \quad \uparrow \\ \boxed{[\text{iF:Val}]} \\ \downarrow \\ \text{SM} \end{array}$
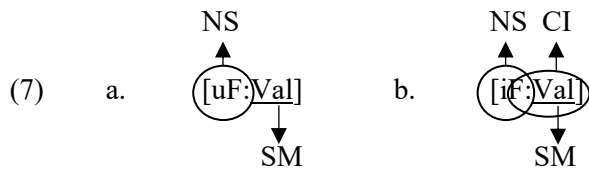
To argue that uninterpretable features do not need to be transferred within the phasal complement, Epstein, Kitahara and Seely (2010, 2012) propose that a syntactic object (SO) is transferred with both interpretable and uninterpretable features and their valuation to the interfaces. As the derivation would crash at the semantic component when semantically uninterpretable features are present, they argue that CI does not recognise uninterpretable features. Transfer does not need to delete uninterpretable features from the SO, as they are invisible to CI. Transfer sends $SO_{[uF:Val], [iF:Val]}$ to the interfaces, and is recognised as $SO_{<(i)F:Val>}$ at the semantic component (which only cares for interpretable formal features and their value), and as $SO_{<Val, Val>}$ at the phonological one (which only cares for the valuation, not the interpretability status or the type of formal feature) (8). Transfer, in other words, is invariably triggered at the phasal head, with *Deletion* (i.e. whether a feature is (in)visibile or not) happening after Transfer. This assumption will be taken up throughout this paper.

(8) $\begin{array}{c} SO_{[uF:Val], [iF:Val]} \\ \swarrow \qquad \searrow \\ SO_{<Val, Val>} \qquad SO_{<(i)F:Val>} \\ \text{(SM)} \qquad \text{(CI)} \end{array}$
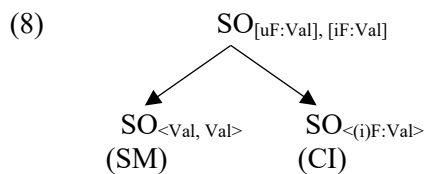
1.1.3 Alternative to FI: One Phase, One Head

Although FI is standard assumption within Minimalist approaches, it does not come without its problems. In this section, I dispense with the idea of FI and propose an alternative model based on Gallego (2014), where one phase amounts to one head. The distinction between a phasal and non-phasal head is understood under a copy mechanism; instead of T and C being two different heads, Gallego (2014) argues that what is assumed to be T, is actually a copy of a C head (see (9)). The phasal C-head internally merges C with its own phrase and leaves a copy (i.e. <C>, with the <>-bracketing indicating a copy). The phase head and its copy create a non-trivial chain, which can give rise to a distinction between a phasal and a non-phasal head; the highest occurrence in the chain functions as the phasal head (in line with Bošković 2014), the copies are non-phasal heads. C and T, in other words, are the occurrences of the same lexical item taken from the lexicon, but whilst C is the highest occurrence (and so the phasal head), T is only a copy (i.e. <C>) and, therefore, does not bear any phasal properties This idea dispenses with the FI and is captured under the Feature Inheritance as Copying Thesis in (10).

(9) $[_{CP}$ C $\qquad [_{??P}$ $\overset{\text{(T)}}{<C>}$ $\qquad [_{v*P}$ … $]]]$

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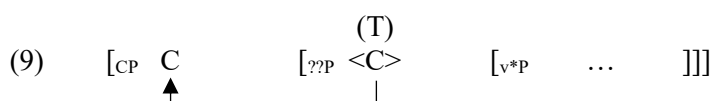
[10] The assumption that the value is not of interest to the NS runs counter to Pesetsky and Torrego's (2007) proposal that it is the valuation of a feature that probes, not the interpretability.

(10)   Feature Inheritance as Copying Thesis
         Non-phase heads are (copies of) phase heads   (Gallego, 2014: 42)

This model basically assumes that one phase comes down one head (in addition to the remaining phasal head from the previous phase). The goal of this section is to elaborate and remodel the Feature Inheritance as Copying Thesis within a Labelling approach. This approach aligns with Chomsky's (2007, 2008) and Richards's (2008) conception of the phasal head as the engine of the phase; it is the locus of uninterpretable features and drives the phase onwards. A phase ends when the phasal head runs out of features to check.

Within the Labelling framework (cf. Chomsky, 2013, 2015), Merge is assumed to apply freely without encoding a label to the structure. The label is provided by a separate mechanism, called the Labelling Algorithm (LA), which only operates at the phase level. Labelling assumptions are the following: in the simplest case, a constituent will be labelled by the head (H in (11a)). When two phrases are merged, however, LA searches within each to identify a label, but typically fails to find one, as the two phrases often do not matching heads; no label can be provided (?? in (11b)). A constituent, however, must be fully labelled to be fully interpretable; if not, it will induce a crash at the semantic component. Two options are available: first, if two heads bear a common feature, the intersection of those features can count as a label for the whole construction ($<\phi, \phi>$, or simply ϕ, in (11c)). Alternatively,, the LA forces one of the two elements to move; as copies are argued to be too weak for labelling, the head of the non-moved phrase will be able to provide a label (Y in (11d)). From here on out, I will present labelled constituents informally as phrases (HP, YP, etc.) to roughly distinguish them from heads (H, Y).[11]

(11)   a. {H, XP}   => Label: H   HP
         b. {{X, ZP},{Y, WP}}   => Label: ??   ??P
         c. {{X$_{[\phi]}$, ZP},{Y$_{[\phi]}$, WP}}   => Label: $<\phi, \phi>$ ϕP
         d. {<XP>, {Y, WP}}   => Label: Y   YP

Syntactic operations such as Merge and Agree precede the LA (following Chomsky 2015; contra Ginsburg 2016). As for Agree, I propose that a labelling analysis fits with an Upwards Agree-model (cf. Bjorkman & Zeijlstra, 2014, 2019; Zeijlstra, 2012). Instead of assuming Chomsky's (2000, 2001) curious EPP-features or Bošković's (2007) Agree as a trigger for movement, the potential for movement is deduced from labelling factor. Take the external argument in (12a), for instance; DP$_{EA}$ is merged to the v*P at hand, but the constituent cannot be labelled (as they are two phrases, see (11b)). As they do not match in heads (11a), nor have a feature in common (11c), labelling is only possible when one of the phrases moves out of the constituent (11d), but the exact location within the derivation is not yet determined. The uninterpretable features on the D(P), say [uT],[12] naturally start probing upwards to become accessible to other heads within the derivation. When a phasal C-head with a [iT]-feature is merged (without a label, as Agree precedes the LA, cf. ??P), the [uT]-feature on D(P) is checked and valued and D(P) becomes accessible to C for other checking relations (12b). Accessibility here is taken to determine the position to which D(P) can be internally merged by label-triggered movement; as [uϕ] has not yet been checked and valued on C, the DP moves over and merges to a ??P above C (12c) and uϕ-features are checked in an upward fashion. With the movement of DP$_{EA}$, the LA will be able to label the constituent where the DP was base generated, in the assumption that copies are weak for labelling purposes; at the phase level, the v*-head will provide a label. As can be seen from

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[11] Following Harizanov (2019) and Preminger (2019), the labels X and XP are used to distinguish heads from labelled constituent, but all features are available in both X and XP.
[12] For assumptions on [uT] and its relation to Case, see the discussion in §1.2.

this discussion, the timing of operations becomes crucial to the analysis.[13] I assume that both Agree and Labelling are both based on Minimal Search (but not fully confined to it; cf. Chomsky, 2013, 2015; Ke, 2019, 2022; Nomura, 2017). In its original conception, however, Chomsky (2013, 2015) does not refer to the timing of both operations. In my Upwards Agree-model, although Labelling and Agree will be operative at the same time by Minimal Search, the direction between the two differs. Minimal Search operates upwards in the case of Agree, and downwards in the case of Labelling. When a phasal head is merged, therefore, elements which already probe upwards from lower down the structure will first find their goal, with subsequent movement. Labelling will only occur when all features on the phasal head are checked and valued. Agree, in other words, precedes the LA in an Upwards Agree model.

(12)   a.   [$_{??P}$ DP$_{EA}$ [$_{v*P}$ v* …]]
                                                  [iɸ:Val]
                                                  [uT]

       b.   [$_{??P}$ C   [$_{??P}$ DP$_{EA}$ [$_{v*P}$ v* …]]]
                                  [uɸ:__]   [iɸ:Val]
                                  [iT]   [uT]

       c. [$_{??P}$ DP$_{EA}$ [$_{??P}$ C   [$_{v*P}$ D̶P̶$_{EA}$ [$_{v*P}$ v* …]]]]
              [iɸ:Val]   [uɸ:Val]   [iɸ:Val]
              [uT]   [iT]   [uT]
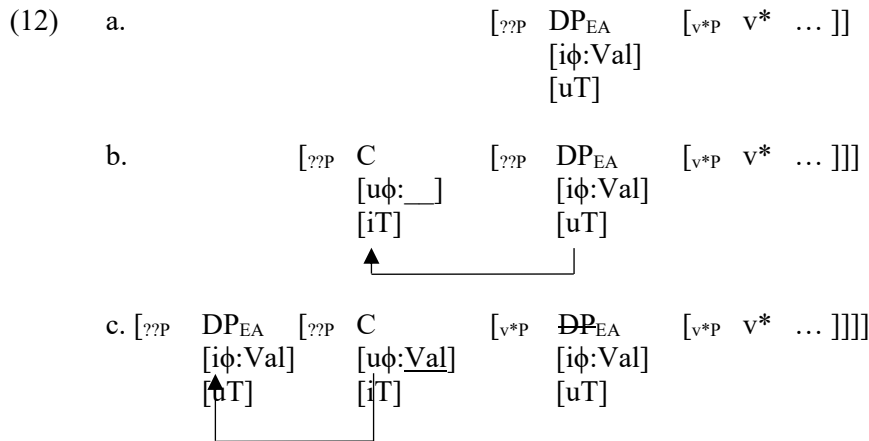
A phasal head, however, still has other features with which it can enter into a checking relation, and is therefore said to remerge internally in an exocentric manner; it reprojects, as one could say in pre-labelling terms. C in (13), for instance, is copied and merged to the whole SO at once. Syntactic features, such as interpretable discourse features ([iδ]), [14] are now open for other agree- and accessibility-relations. The copy of the phasal head, <C>, is now weak for labelling at the phase level. A label, therefore, is provided by the intersection of features on <C> and DP (11c); as both elements match in [ɸ]- and [T]-features, the system can label by either one of them. I assume that parametric variation will decide here which feature will provide the label; in agreement-prominent languages, the ɸ-feature will label the constituent (cf. Chomsky, 2013, 2015; Goto, 2017; ɸP in (13)), whilst in discourse-prominent ones, T-features will be the prominent one (cf. Saito, 2016, 2018; TP in (13). Instead of basing the parametric typology on FI based on (see note 7, based on Ouali 2008), variation can be brought back to structural properties and labelling. A further discussion of features other than [ɸ], [T] and [δ], however, lies outside the scope of this paper and will be left to future research.

(13)   [$_{??P}$ C   [$_{ɸ/TP}$ DP$_{EA, [ɸ], [T]}$ [$_{ɸ/TP}$ <C>$_{[ɸ], [T]}$ [$_{v*P}$ D̶P̶$_{EA}$ [$_{v*P}$ v* …]]]]]]
          [uɸ:Val]   [iɸ:Val]   [uɸ:Val]   [iɸ:Val]
          [iT]   [uT]   [iT]   [uT]
          [iδ]   [iδ]
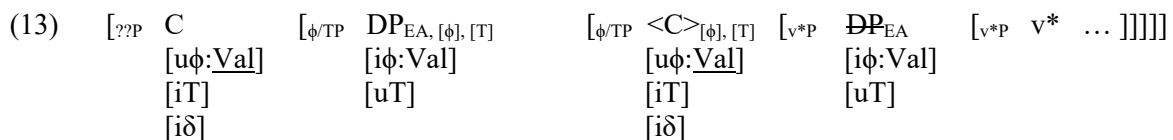
The internal merge of the phasal C-head can be seen as a type of head-to-phrase movement or reprojection (in pre-labelling terms). With regards to the labelling-approach, however, questions can be asked as to when the phasal head labels. As it is assumed that syntactic operations such as Merge and Agree precede the LA, labelling by the head is delayed to when all uFs within the phasal domain are

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[13] See, also, Bošković (2015) for similar observation on the importance of timing regarding the LA.
[14] Following Bjorkmann and Zeijlstra (2019: 556), discourse features are assumed to be interpretable on C, but uninterpretable on DP and other phrases. This could be brought in line with the ideas on the topic-assignment in Kratzer and Selkirk (2007). I do not, however, comment on any further on the (dis)advantages of such an approach and leave a further discussion to future research.

checked. Similarly, a phase ends when all uFs are checked phase-internally (cf. Richards, 2007). One could, therefore, argue that the phasal domain is transferred as soon as the phasal head labels the SO (in line with Kučerová 2018). In (14), for instance, the features on C do not enter into further syntactic operations and, therefore, LA becomes operative; the phasal C-head labels the structure. As a result, the phasal domain is transferred to the interfaces. Labelling, in this regard, is part of the Transfer of a phasal domain.

(14)   [$_{CP}$ C   [$_{\phi P}$ DP$_{EA, [\phi]}$ [$_{\phi P}$ <C>$_{[\phi]}$ [$_{v*P}$ ~~DP~~$_{EA}$ [$_{v*P}$ v*   ...]]]]]

This type of successive head-to-phrase movement has already been explored within the literature. Two approaches can be identified. The first approach, based on pure movement, takes a head to be structurally complex; it can be split up into different pieces and moved bit by bit during the derivation. A head, in this conception, can be either made up of multiple, pre-syntactically adjoint heads (cf. Shimada, 2007), or an array of multiple hierarchically ordered features which is split up during the derivation (i.e. head splitting, cf. Martinović 2023). Unvalued features, therefore, are split up over different heads to be checked in different positions within the structure.

The second approach, which will be followed here, takes a copy-approach, in that the fully specified head is copied to a higher position. Instead of moving parts of the structure, the head itself is copied and either splits up its features over different heads (cf. Erlewine, 2018), or all features are present in all heads, but when a feature is checked in one occurrence within the chain, it is valued in all occurrences of that chain (cf. Gallego, 2014, 2017). If <C$_\phi$> checks its ϕ-features on a DP, ϕ-features are checked on all occurrences within that chain, but remain present on each head; their overt realisation on C is subject to parametric variation. The latter approach dispenses with the idea of FI or feature splitting over C and T and will be assumed here.

There are, however, some problems with this approach at hand, which will be left for future research to discuss. First, the idea that if a feature is checked in one occurrence within the chain, it is checked in all occurrences within that chain, raises the question why multiple heads are needed and, therefore, can be considered as one of the weaknesses of this approach. This problem could be countered by arguing for a feature geometrical analysis (Martinović, 2023); features are hierarchically ordered within a head and must be checked of one by one accordingly. For English, for instance, [ϕ]-features must be checked before [δ]-features, meaning [ϕ] must be positioned higher in C's hierarchy than [δ]. A further discussion on what this hierarchy could be, how it could be implemented within this derivational one phase-one head-approach and whether it could be naturally derived from an Upwards Agree model, will be left to future research. Second, Chomsky's (1993, 1995) Copy Theory of Movement predicts that a copy of a moved element is not pronounced at SM. If this is indeed assumed, how come a copy of C, encoding, for instance, [Tense], can receive a phonological form at the interface? I tentatively point towards a solution based on feature hierarchy. The idea that features are ordered and checked one by one on different heads and provide a label for their constituent by feature sharing could be combined with an anti-lexicalist and late insertion approach, as is standard in Distributed Morphological (Embick & Noyer, 2007; Halle & Marantz, 1993) and Nanosyntactic (Starke, 2009) approach, but which has also been adopted within the Minimalist Literature (cf. Caha, To Appear; Panagiotidis & Nóbrega, To appear; Sigurðsson, 2011). A phonological exponent is provided to the head on which the feature is checked. A related concern for this *one phase-one head*-approach is the phenomenon of complentiser agreement (cf. Carstens, 2003; Haegeman & Danckaert, 2013; Haegeman & van Koppen, 2012; Jarrah, 2020). Deal (2015), however, provides a preliminary solution for this problem by resorting to a feature geometric analysis and by putting the burden on the morphological component, in that two heads may have the same set of features, but may expone differently (instead of

two head having fully different features). A similar line of reasoning might be followed, but will be left for future discussion.

In sum, I remodelled the idea of a phase being one head into a labelling approach. Internal merge is repeatedly used to extend the phasal domain in order to check all features one by one, with Agree being the driving operation (in line with Chomsky 2007, 2008; Richards 2008); the phase ends when all features are checked within its domain and the phasal head labels the syntactic object. This similarly implies that phasal boundaries can be spotted by looking at the checking and valuation of different features throughout the derivation; when a phase runs out of features, the phase is closed and a new one must be started. Agreement and Case have become an important criterion in determining where a phase ends and another one starts (for agreement, see Epstein, Kitahara, & Seely, 2010, 2012; for case, see Takahashi, 2010). In the next section, therefore, I will discuss some of the analyses proposed for the checking and valuation of Case-features, and I will argue that Case can be reduced to Tense/Aspect. Each phase is equipped with a similar set of features in order to assign a Case to the element within its phasal domain.

1.2 Delimiting the Phase: Case Reduced to Tense/Aspect

One of the core properties of a cyclic domain is the ability to check Case on an argument (cf. Epstein, Kitahara & Seely, 2010, 2012; Takahasi, 2010). One phase checks one structural Case and returns a morphological case back to the argument it checked the Case on. The type of morphological case the argument receives, however, depends on the type of phase the argument is in (cf. Chomsky, 2001). If the argument is within a C-phase, a nominative is assigned. If it is in a v*-phase, an accusative is assigned. If one phase checks one Case and if there are multiple arguments in the structure, Case checking is crucial to find where one phase stops and another phase starts and has, therefore, been argued to be a core property to determine the boundaries of a phasal domain.

Within the current minimalist assumptions, different proposals have been put forward as to how (structural) Case and (morphological) case are assigned. The first (and standard) approach, proposed by Chomsky (2001, 2004), takes Case to be dependent on ϕ-agreement: Case is a pure 'reflex of agreement' with the Case-assigning head. 'The value assigned depends on the probe: nominative for T, accusative for v' (Chomsky, 2001: 16, 6).[18] In a similar line of thought, Pesetsky and Torrego (2001, 2004, 2011) proposed that Case comes down to Tense; Case is an uninterpretable [uT]-feature on D.[19] Φ-agreement still drives the operation, in that it establishes the first relation between the Case-assigning head and the element to which the Case is assigned. [uT]-checking ultimately follows ϕ-agreement as a subsequent operation.

A second approach takes ϕ-agreement to be dependent on the nominal Case.[20] Whether a DP can be probed for ϕ-agreement depends on the type of Case it already has (if it has any). The different types of Case can be found in (15). Next to Case being checked by a functional head (i.e. the assignment of lexical/oblique case), other forms of case assignment are viable at the syntactic level. A dependent case is assigned when two DPs with as-yet unvalued Case features are in case competition (cf. Marantz, 1991); if one DP is positioned structurally higher than the other and, therefore, asymmetrically m-commands it (in X-bar theoretical terms), the case feature of the lower one (in nominative-accusative systems) can be said to be valued and a morphological accusative case is assigned to the lower one. The unmarked case, as the third type of Case in (15), is assigned to those DPs that possess no valued Case

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[18] For the link between morphological case and structural Case, see Legate (2008). See, however, Preminger (2011, 2014) for some arguments against the idea that structural case is assigned as reflex of ϕ-agreement.
[19] Gallego (2010) argues that one should distinguish [T] as a case feature from [Tense] as a tense feature. This proposal, however, just relabels the old [Case]-feature as [T] (cf. Chomsky, 1995) and has no theoretical or empirical advantages.
[20] Bobaljik (2008) places ϕ-agreement in the phonological domain, whilst Preminger (2011, 2014, 2019) brings the operation back into the Narrow Syntax. I follow the latter approach.

feature and overtly realises as a nominative case. One of the problems of this approach is that the hierarchy and mechanisms proposed are inherently based on a finite context (cf. Bobaljik, 2008: 296); questions can be raised as to how these could operate within a non-finite one. The theory itself would weaken if unmarked case, for instance, were to be dependent on contextual factors; nominative in finite environments, accusative in non-finite ones. As there is as of now no approach to non-finite domains within this framework and as I will focus on non-finite structures in §2, I will not pursue this line of reasoning within this thesis.

(15)   The Moravcsik hierarchy (Bobaljik 2008: 303)
        unmarked case > dependent case > lexical/oblique case

The approach to Case I will be taking within this thesis is an eclectic one. In line with the second approach, I will be assuming that φ-agreement is dependent on Case, in that Case precedes φ-agreement. However, a Case-related feature is to be checked on a functional head within a phase (i.e. on the phasal head). Following Pesetsky and Torrego (2001, 2004), Case is reduced to a (formal) tense-feature ([uT]) on the DP, but the assignment of Case starts from the DP's need of a Case, not from the φ-features in the derivation. Next to the labelling model proposed in §1.1.3, the idea of Upwards Agree also fits the bill for feature-checking; instead of probing downwards, an uninterpretable feature probes upwards in order to be checked (and valued) by an interpretable one (cf. Bjorkman & Zeijlstra, 2014, 2019; Zeijlstra, 2012). Take (16), for instance. The [uT] on the DP probes upwards to check its Tense-feature on a higher functional head, C in this case, and copy its value (see (16a)).[23] By means of labelling and accessibility (cf. §1.1.3), the DP is moved over the C head, where the [uφ] on C probes and checked and valued in an upward fashion (see (16b)).

(16)   a.   [$_{??P}$ C   [$_{??P}$ DP   [$_{v*P}$ v* …]]]
                    [uφ:__]   [iφ:Val]
                    [iT:Tense]   [uT:Tense]

        b. [$_{??P}$ DP   [$_{??P}$ C   [$_{v*P}$ ~~DP~~   [$_{v*P}$ v* …]]]]
           [iφ:Val]   [uφ:Val]   [iφ:Val]
           [uT:Tense]   [iT:Tense]   [uT:Tense]
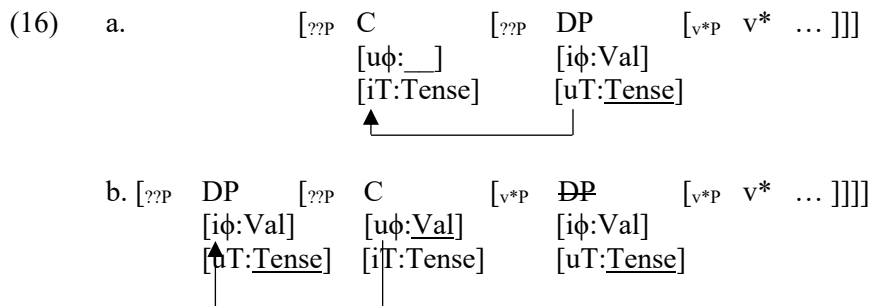
If Case is indeed an upwards probing [uT]-feature on the DP, a checking relation is naturally established between a phasal head and a DP in its phasal domain. The DP in checking relation with C is valued for Tense (i.e. [uT:Tense] as structural Case) and receives a morphological nominative case. Tentatively, the DP in checking relation with v* is valued for Aspect (i.e. [uT:Aspect] as structural Case) and receives a morphological accusative case. Whilst the assumption that Tense and nominative case are linked are quite standard within minimalist assumptions (cf. Chomsky, 2001; Legate, 2008), a link has also been proposed between Aspect and accusative case (cf. Pesetsky & Torrego, 2004; Richardson, 2012; Travis, 1992, 2010; amongst others) and is reminiscent of the ideas proposed by Svenonius (2001, 2002). I unify Tense and Aspect under a (formal) [T]-feature: Tense and Aspect are both values of the [T]-feature.[24] In this conception, Case does not come down to the type of functional head it agrees with (contra Chomsky 2001), but to the valuation it receives from the agreement relation.

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[23] For this, I assume a cyclic Agree-model, as put forward by Béjar and Rezac (2009) and Deal (2015).

[24] Technically, Tense and Aspect are subcategories under [T], but can understood as general values. Values such as PRESENT, PAST, etc. are more precise values of a general Tense-value. Clausal heads care for the specific value, DPs for the general one (at least for PCGr). Whether the DP is specified with a [uT:PAST]- or [uT:PRESENT]-feature does not matter: they are all Tense-values and will lead to a nominative case. For reasons of space, this discussion will be left to future research.

The realisation of case is reduced to the valuation of a [T]-feature: Tense on a DP receives a nominative case, Aspect an accusative case (see (17)).

(17)   Morphological Case reduced to Valuation on [uT]
        a. $DP_{[uT:Tense]}$ => Transfer to SM: $DP_{<Tense>}$ => DP_{NOM}
        b. $DP_{[uT:Aspect]}$ => Transfer to SM: $DP_{<Aspect>}$ => DP_{ACC}

In sum, I assume that Case precedes ϕ-agreement: first, the Case feature must be checked, and only then ϕ-features become accessible. Case, moreover, is reduced to (formal) Tense ([T]) and C and v* differ in the valuation on their [iT]-feature; whilst v* is specified for Aspect, C is valued for Tense. When these valuations are copied over to the [uT]-feature on the D(P), a Tense valuation receives a morphological nominative case at the SM, Aspect an accusative one.

1.3 Summary

The goal of this chapter was to reduce a phasal structure to one phasal head, by means of a derivational *one phase-one head*-approach; a C-phase comes down to a C-head, the v*-phase to a v*-head. One of the core properties of a phase is to check Case on the arguments within its domain (cf. Takahasi, 2010) and I laid down a model based on [uT] as a Case-feature. C and v* are both able to check Case, but differ in the type of morphological case that they assign; in the C-phase an argument gets a nominative case (i.e. [uT:Tense]), in the v*-phase an accusative case (i.e. [uT:Aspect]).

The first reduction is completed: a phasal structure is reduced to a phasal head. One can question whether a further reduction is possible: could the C- and v*-head be reduced to ultimately one type of (archetypal) head based on the common properties of these two phases? For this to be possible, one must overcome some of the differences between the two heads; Voice (i.e. active, passive, etc.), for instances, is encoded within the verb or event domain (i.e. v*-phase, cf. Kratzer, 1996; Collins, 2004), but not in the tense-domain (i.e. C-phase, see (18)).

(18)   [$_{CP}$ C   [$_{v*P}$ v*   …   ]]]
        [uϕ]   [uϕ]
        [iT]   [iT]
                    [Voice]

The question can be raised whether properties such as diathesis could come from somewhere else and whether one could find a v*-phase free from them. In the next section, I argue that PCGr has a construction containing such a v*-head, namely the adverbial articular infinitive with a double-v* structure.

In standard grammars for CGr, an articular infinitive is described as an infinitive which is nominalised by means of an article (Kühner & Gerth, 1872: 601-609; Mayser, 1926: 320-333; among others). When occurring with a preposition, the articular infinitive receives an adverbial function: it functions as the non-finite counterpart to a finite subordinate clause (cf. Horrocks, 2010: 94-96). When the subject is expressed, it generally appears in an accusative case (see (19), repeated from (1)). Whilst this description found in the literature and standard grammars may be reasonably correct for Classical Greek and Early Koine Greek, Post-Classical and Early-Byzantine Egyptian Greek over the years starts showing some syntactic variation; the subject can be expressed in a nominative case (20a), the article itself is dropped at times (20b) and even finite verbs start occurring within this syntax (20c).

(19) The Adverbial Articular Infinitive: PREP + ART + [Accusative$_{SUBJ}$ V Accusative$_{OBJ}$]
 δια   τὸ αὐτὸν   καταπατῆσαι   τοὺς ἐχθρούς
 because.of.PREP ART him.ACC squash.INF.AOR ART enemies.ACC
 'because he squashed his enemies'   (P.Koeln 7.317, 7-8 (500-599 CE))

(20) a. εἰς   τὸ [μὴ] ἀμεληθῆναι [τὸν]   ποτισμὸς   τοῦ   κήπ[ου][38]
   to.PREP ART NEG neglect.PASS.INF ART.ACC irrigation.NOM ART.GEN garden.GEN
   'so that the irrigation of the garden would not be neglected'
                                      (P. Ryl. 2.239, 7-8 (250 CE))

   b. πρὸς <τὸ> ἀπόδιξ[ι]ν καὶ ἀμεριμνείαν αἴχιν τὸν   αἰωνούμ[ε]ν[ο]ν[39]
   to.PREP ART proof.ACC and receipt.ACC have.INF ART.ACC buyer.ACC
   'so that the buyer would have proof of his purchase' (P. Oxy. 36.2771, 8 (323 CE))

   c. ἐπὶ   τῷ μετρήσω   εἰς τὸ δημ(όσιον)
   in.order.PREP ART measure.SUBJ.1SG to ART state
   'In order to measure it to the state'   (BGU. 1.223, 7-8 (212 CE))

The goal of this section is to discuss the structure of the adverbial articular infinitive, its accusative subject and its variation. If it is indeed correct that a nominative is checked within a C-phase and an accusative is checked within a v*-phase (cf. Chomksy, 2001), the articular infinitive might possess two v*-domains (i.e. v*$_1$ and v*$_2$), checking accusative C/case on the subject and object respectively. A C-phase, moreover, has also been argued for in the literature (cf. Sevdali, 2013; among others), and, instead of assigning a nominative case, one could argue that it encodes the Tense (cf. tense-morphology on the infinitive) and the subordinating element(s) (i.e. the preposition and article). The structure argued for throughout this chapter can be found in (21) (repeated from (2)). I provide four arguments in favour of this C-double-v* analysis: (a) the presence and positioning of the accusative subject (§2.1), (b) on a semantico-morphological level, the aspect-distinction on the infinitive in its semantic, but its morphological specification for tense (§ 2.2), (c) the disappearance of the article, modelled as the remaining φ-features in C (§ 2.3), and (d) the presence of finite verbs and licensing of a nominative subject (§ 2.4).

(21) a. [$_{CP}$ C   [$_{v*P}$ Subject v*$_2$ [$_{v*P}$ Complement   v*$_1$ …   ]]]
   b. διὰ τὸ   αὐτὸν   καταπατῆσαι   τοὺς ἐχθρούς

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[38] The editor of the papyri filled in the lacuna with an accusative article and suggested an accusative instead of a nominative subject. The papyrus, however, clearly mentions a nominative.
[39] The editor added a τὸ between πρὸς and ἀπόδιξιν, but τὸ is not present in the papyrus and should, therefore, be left out.

My analysis is based on a corpus of 1107 documentary papyri from Egypt, dating from the third BCE to the eighth century CE.[40] Their distribution over time is set out in Figure 1; the peak in the number of papyri in the third and in the sixth century AD is due to the general amount of papyri found from these periods. The corpus consists of 2009 adverbial articular infinitives; other articular constructions such as complemention structures are left out, as these are possibly do not form syntactic island and can be influenced by the matrix clause (such as exceptionally case-marking by the matrix v*, for instance). Although relevant for the discussion at hand, these are left to future research. Adverbial expressions, however, are adjunctional structures and fall under these conditions of syntactic islands. These will be the focus of the rest of the paper.
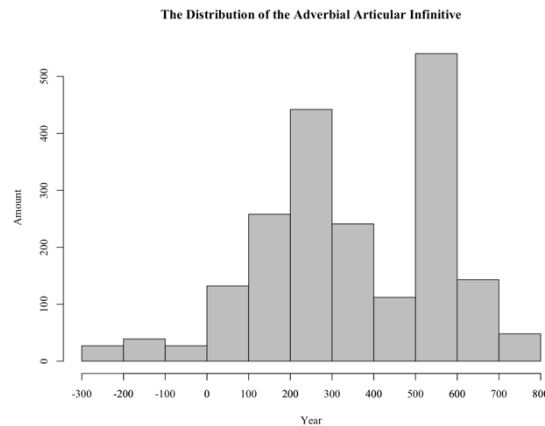
Figure 1 The Distribution of 2009 Adverbial Articular
Infinitives in EVWRIT over Time

2.1 On the Presence and Positioning of the Accusative Subject

One argument in favour of a C-double-v* structure is the licensing of an accusative case on the subject. First, I touch upon three previous proposals: one based on Exceptional Case Marking (ECM), a T-hypothesis and a C-hypothesis (§2.1.1). Second, I pose some problems for the C-hypothesis and posit the double-v* structure.

2.1.1 Previous Approaches

The literature on the accusative subject in infinitival clauses focuses on complement structures, i.e. the so-called *Accusatiuus cum Infinitiuo*, but most analyses also qualify for the (adverbial) articular infinitive. Two groups can be identified, one pertaining to usage-based approaches, the other from a formal perspective.

The first group pertains to the usage-based approaches and entertains the hypothesis that in complement structures, although at first being licensed by the matrix verb, the accusative subject was reanalysed as part of the complement clause, either by hearer-induced grammaticalisation (cf. Keydana, 2017) or semantic contiguity (and information recoverability, cf. Cristofaro, 2012) with ambiguously interpreted modal-deontic predicates as bridging contexts. In their conventionalisation, these accusatives fulfilled the semantic and pragmatic function of subjects and, tentatively, were reused as part of the nominalised infinitival clauses at hand. Although quite fruitful, I will not pursue this line of research any further: they are purely based on grammaticalisation and do not provide a synchronic

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[40] These annotations are part of the EVWRIT-corpus, which takes a particular interest in the social variation of language (and other element pertaining to the papyrology, cf. Bentein & Amory 2019).

analysis. As this thesis is couched within a Minimalist framework, the goal is to look for the different (synchronic) grammars in competition (cf. Kroch, 1989; Yang, 2000, 2002).

The second strand is related to generative proposals and argues that the accusative can be accounted for by specific syntactic properties of the *Accusatiuus cum Infinitiuo*. As adverbial articular infinitives are syntactic islands by themselves, analyses relying on exceptional case marking (ECM; Calboli, 1983; Maraldi, 1983) or Raising-to-Object (Pepicello, 1977) for complement structures can be easily discarded; the accusative subject cannot be licensed by factors external to the clause, but must be licensed within the structure of the infinitive. Two hypotheses have been proposed, both in the assumption that infinitives are CPs in (P)CGr;[41] the first hypothesis, the T-hypothesis, argues that the infinitives are morphologically specified for [Tense] and constitute an independent tense domain, capitalising on the idea that T functions as the case licenser (cf. Philippaki-Warburton & Catsimali, 1999); whilst a finite T always assigns nominative case, a non-finite T only checks a nominative case when agreement features are present (as in European Portuguese) or an accusative one when T is not specified for agreement (as in (P)CGr). An argument against this analysis, however, is the possibility of having an overt, independently case marked subjects and caseless $DP_{PRO/trace}$ within the same environment (Spyropoulos, 2005: 312-315).[42] Sevdali (2013: 332), moreover, convincingly argues that case agreement across copula within control structures (see (22)) cannot be accounted for when T licenses the accusative on the subject; the predicate agrees with the controlled element in the matrix clause and does not occur in the accusative case (cf. *Nominatiuus cum Infinitiuo*). Tense, in this way, does not have an effect in the dependence or independence of the infinitival construction and should, therefore, be left out of the discussion.

(22) $pro_{NOM, i}$ ὁμολογ-ῶ   [PRO$_{NOM, i}$ ὑπεύθυν-ος   εἶναι]
         agree-1SG   responsible-NOM.M.SG   be.INF
         'I agree that I am responsible'   (P.Oxy.69.4756, 21-22 (590 CE))

The second hypothesis, the C-hypothesis, argues that the inflectional part has no case assigning properties and that the accusative on the subject is checked by an element within C. Proposals differ as to what element this may be. Whilst Cecchetto and Oniga (2002), Melazzo (2005) and Tantalou (2003) argue for an empty prepositional complementiser (Ø$_{for}$) in C with covert V-to-C movement, Spyropoulos (2005) hypothesises agreement features within the Fin-head (in assuming Rizzi's 1997, 2001 left peripheral structure), which are only licensed by the presence of a [Tense]-feature in T. By checking its agreement features on Fin, the subject is assigned an accusative case. Sevdali (2013), on the other hand, disconnects T from the case assignment and locates the subject within the left periphery; although being licensed as topic in C, the subject functions as a φ-independent element and is assigned a default case, i.e. the accusative in CGr.

2.1.2 Some problems for the C-Hypothesis

Focusing on Sevdali's (2013) proposal, however, two problems occur. The first problem relates to the idea of default case within (P)CGr. She argues that the accusative subjects do not bear a structural case, but a default one (cf. Schütze, 2001). For CGr, she assumes this to be the morphological accusative case, without further discussion. There are, however, some pointers towards the default case being a nominative instead of an accusative one. First, Sevdali's (2013) hypothesis implicitly entails that all hanging topics in (P)CGr are expected to bear an accusative case, an assumption countered by the

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[41] For the assumption that infinitives are CPs in CGr, see Faure (2010: 85-88), Sevdali (2013: 335-343), Spyropoulos (2005: 304-306), Tantalou (2003), and see §2.3 for further assumptions on the structural make-up of the (P)CGr infinitive.
[42] See, however, Hovind (2020) for the idea that the Case assignment on the accusative subject and its overtness are two separate questions and should not be confined to one another.

example in (23a) for CGr and (23b) for PCGr (*nominatiuus pendens*, cf. Boas, Rijksbaron, Huitink, & Bakker, 2019: 489-490; Havers, 1925; Kühner & Gerth, 1989: 46-47; Mayser, 1934: 65-66 n. 1, 196; Smyth, 1920: 22). Second, if one wants to express a nominal exclamation, a nominative is used (see (23c)).[43] Third, a nominative also surfaces in wishes and orders expressed by an infinitive (as a substitute for an imperative mood, cf. also Mayser, 1926: 303-305; Sevdali, 2013: 337-338) (23d) and in standard greetings for letters (23e).[44] The default case should, therefore, have a morphological nominative realisation in (P)CGr, and not an accusative one.

(23)　　a. [οὗτος　　Ἀπολλόδωρος, 　[*pro* οὐ　περιμενεῖς;]] 　　　　　CGr
　　　　　　DEM.NOM Apollodoros.NOM　　　NEG wait.FUT.2SG
　　　　　　'Hey, Apollodoros, will you not wait?'　　　(Plato Symp. 172a (5-4th c. BCE))

　　　　b. [Αὐρήλιος　　Κορνήλιος　　[*pro* ὁμολογῶ]]
　　　　　　Aurelius.NOM　Cornelius.NOM　　　agree.1SG
　　　　　　'I, Aurelius Cornelius, agree'　　　(P.Mich. Inv. 1354, 28 (289 CE))

　　　　c. ὦ　γενναῖος　　　　　　　　　　　　　　　　　　　　CGr
　　　　　　PRT noble.NOM
　　　　　　'Oh noble man!'　　　(Pl. Phdr. 227c (5-4th c. BCE); cf. Boas et al., 2019: 489)

　　　　d. ἡ　　　θία　　πρόνοια　　διαφυλάξαι εὖ　πράττοντα
　　　　　　ART.NOM holy.NOM　precaution.NOM　guard.INF　well do.PTCP.ACC
　　　　　　'The holy precaution must guard <you> who is doing well'
　　　　　　　　　　　　　　　　　　　　　　　(P. Oxy. 55. 3821, 113 (341-342 CE))

　　　　e. Εὐδαιμονὶς　Ἀπολλωνίωι　τῶι　υἱῶι　χαίρειν
　　　　　　Eudaimonis.NOM　Apollonius.DAT ART.DAT son.DAT greet.INF
　　　　　　'Eudaimonis greets Apollonios, his son'　　(P.Flor.3.332, 1-2 (114-119 CE))

A second problem relates to the placement of the accusative subject within the structure; Sevdali (2013) argues that these subjects are topics in a topic position. Two such positions have been noted: either within the high left periphery (TopP in C, cf. Frascarelli & Hinterhölzl, 2006; Rizzi, 1997; among others) or the low one (TopvP in vP, cf. Belletti, 2004; Jayaseelan, 2001; among others). This hypothesis, however, does not seem to hold when tested against the placement of adverbial expressions in comparison to the subject. Within Cinque's (1999, 2006) approach, adverbs occur within distinct projections within the Tense- and Aspect-field,[46] with circumstantial and other adverbs being assumed lower down the structure. Manner adverbs and agent pPs, following Adger and Tsoulas (2004) and Anagnostopoulou (2017), will be assumed to occupy a specific place within the hierarchy, i.e. on v*P[47]

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[43] See, however, Biraud et al. (2021) for further complications.

[44] The standard greeting for letters has a DP$_{NOM}$-DP$_{DAT}$-infinitive-structure (with variation) which functions as a matrix construction. One could, therefore, argue that a reduced construction is here at play, with the infinitive arguably projecting up to a v*P, where the nominative cannot check its case on the infinitive at hand. In the idea that clauses are built up exocentric (Chomsky, 2019) and by means of labelling, the subject is externally merged to v*P and receives a φ-label by means of feature sharing (see (ia)). Following Cecchetto and Donati (2024), a φP can be associated with an illocutionary force, independent of the structure of the derivation under it. Case on the DP, however, has not yet been checked, and as there is possibly no T present (or there is one, but it is defective and cannot check nominative case), the subject moves to the edge where it receives a topical interpretation; a topic does not need structural Case and, therefore, becomes invisible to further operations (see (ib)). The morphological nominative, in this way, can be said to be a default case. A similar analysis could be argued for for the orders and wished in (23d).

(i)　　　　a.　　　[$_{φP}$ DP$_φ$　[$_{v*P}$ v* $_φ$]]
　　　　　　　b. [$_{TopP}$ DP$_{[Top]}$ [$_{φP}$ ~~DP~~$_φ$　[$_{v*P}$ v* $_φ$]]

[46] For a discussion on the higher-up Tense domain in Ancient Greek and the hypothesis that it may be hierarchically structured, see Matticchio and Sanfelici (2021).

[47] It should be noted that will use a v*-head for both active and passive/unaccusative structures, without a strong-weak distinction (contra Chomsky, 2001). See §3.1.1 for further discussion.

(manner adverbs adjoint to Voice*P and agent pPs in SpecVoice*P, in pre-labelling terms).[48] These will be used as markers for phasal boundaries within the structure. Table 1 summarises the position of the subject with regards to manner adverbs and agentive pPs (i.e. XPs as cover term for both) within the corpus. Clitics and empty categories (i.e. PRO/pro) were sorted out. Overt subjects could either linearly precede or follow these adverbs/PPs. If they follow, their position could be ambiguous; next to v*P, a position in Rizzi's (2004) Modifier position (ModP) (or focused in C) seems to be viable in some examples. The linear order of the two does not differ if one only looks at the subject and the adverb/pP (see (24)), so to determine its position other factors must be taken into account.

The Position of the Subject with Regards to Agent pPs and Manner Adverbs in/on v*P						
	Subject-XP	XP-Subject		Empty Category	Clitic	Total
		XP in v*P	Ambiguous v*P/ModP			
XP = Agent pP	3	1	0	3	0	7
XP = Manner Adverb	77	1	6	25	13	122
Total	80	2	6	28	13	129

Table 1 The Position of the Subject with Regards to Agent pPs and Manner Adverbs in/on v*P

(24) a. [$_{CP}$ …   [$_{v*P}$ AdvP$_{Manner}$ Subject   v*   …]]
     b. [$_{ModP}$ AdvP$_{Manner}$ …   [$_{v*P}$ ~~AdvP$_{Manner}$~~ Subject   v*   …]]]

There are two attestations where the manner adverb and agent pP appear unambiguously on v*P. In the attestation in (25), the accusative subject ἐπίσκεψιν follows the manner expression. Arguing for a position within Rizzi's (2004) ModP, however, seems to be unviable, as ἐπίσκεψιν occurs under the temporal adverb ἤδη (in TP$_{Anterior}$). The manner expression must be adjoint to the v*P. The accusative subject, therefore, is placed even lower down the hierarchical structure, either within the v*P or even lower down. Following Sevdali (2013), ἐπίσκεψιν would be placed in a topic position, if the lower periphery is located lower than v*/Voice*P (cf. Belletti, 2004; Laenzlinger, 2015).

(25)   εἰς   τὸ [$_{TP}$ ἤδη   ποτὲ [$_{v*P}$ ἀκολ[ούθ]ως [ταῖς ἐ]ντολαῖς τοῦ   κρατίστου
     to.PREP ART   already=ever   following   ART commands ART.GEN most.mighty.GEN
     ἡγεμόνος] [$_{ZP}$ τὴν ἐπίσκεψιν   ἀπαρτισθῆναι]]]
     leader.GEN   ART inspection.ACC complete.PASS.INF.AOR
     'So that the inspection is already completed following the orders of the most mighty leader'
                                            (P.Giss.1.62, 10-12 (114-117 CE))

When looking over at agent pPs in passive constructions, however, the accusative subject cannot be in a topic position. As the attestation in (26) shows, the internal argument οἰκίαν is moved higher up above the agentive pP in v*P (i.e. SpecVoice*P), which linearly displays a Subject-pP$_{Agent}$-order. Tentatively, one could argue that there is a higher head on which the Case-feature is checked and above which the internal argument is moved. If the core property of a phasal head is to check Case on an argument, this higher head might be a phasal one. Attempting to unifying the attestations in (25) and (26) into one position (in passive constructions), I argue that a double-v* structure could indeed capture this

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[48] Cinque (1999) assumes manner adverbs to be adjoint to VP lower down the structure. Adger and Tsoulas (2014), however, argue against this hypothesis and propose them to be in v*P. Anagnostopoulou (2017) only discusses agent-oriented manner adverbs and argues them to provide evidence for the phasal boundary at hand.

distribution; the internal argument is generated under the lower v^*_1 and its Case is checked by the higher v^*_2 (see (27), unnecessary movement has been left out for now). The differences in position, in this regard, can be reduced to a labelling phenomenon.[49] I will go into each one by one.

(26) ἕνεκα   τοῦ ὑ[π]ερβεβλῆσθαι   [YP [τὴν   προκειμένην   οἰκίαν]i
      because.of.PREP ART neglect.PASS.INF.PRF   ART.ACC aforementioned.ACC house.ACC
      [v*P ὑπὸ σοῦ ti]]
          by   you
      'Because the aforementioned house is neglected by you' (P.Oxy.3.513, 25-26 (184 CE))

(27)   [v*P v*2   [v*P DPIA   v*1   …]]
              [iT]   [uT]

Attestation with the manner adverb in (25) could be structured as in (28). When a manner adverb externally merges to the v*P, no label can be provided (28a). As v* in the construction in (25) is a passive one,[50] v* and the internal argument could be argued to share φ-features. When the internal argument is moved, stopping just above v*, one could question whether it must be merged higher up than the manner adverb or just below (by tucking-in movement, cf. Richards, 2001). The idea in the labelling framework is that locality conditions on movement only apply to movement across labelled constituents (cf. Bošković, 2015); if the adjunction of the manner adverb to the v*P does not label (??P in (28)),[51] movement of the internal argument does not cross the adverb when moving up to the v*P, leaving it tucked-in within the structure. As the internal argument and the passive v* share the same φ-features, labelling occurs by feature sharing (φP) (28b). The case on the internal argument (i.e. [uT]), however, has not been checked and must be by a higher probing head, which I argue to be a higher v^*_2-head (28c).

(28) a.   [??P AdvPManner   [v*P v*   …   DPIA]]
      b.   [??P AdvPManner [φP DPIA, [φ]   [v*P v*[φ] …   D̶P̶IA]]]

      c. [??P v*2   [??P AdvPManner [φP DPIA   [v*P v*1 …   D̶P̶IA]]]
             [iT]   [uT]

Whilst the internal argument in (28c) was not moved into the higher v^*_2-phase, I argue that it does in the construction with the agent pP in (26). In the assumption that the agentive pP (or DP) is actually the external argument and inherently possess φ-features (and Case), the pP is externally merged to the v*P and this constituent is labelled by φ-feature sharing between v* and p/DP (29a). When the second v*-head is merged, the internal argument checks its Case (i.e. [uT]) and is subsequently moved over to check the φ-features on v^*_2 (29b).

(29) a.   [φP pP/DPEA, [φ] [v*P v*[φ] …   DPIA]]
      b. [φP DPIA, [φ]   [φP v*2, [φ] [φP pP/DPEA   [v*P v*1 …   D̶P̶IA]]]]
            [uT]   [iT]   [uT]
            [iφ]   [uφ]   [iφ]

The difference in position between (25) and (26) is reduced to a labelling phenomenon; if an agent pP is externally merged with v*P, the constituent is labelled and the movement of internal argument crosses the external one (30a). If a manner adverb is externally merged with v*P, however, the constituent is not labelled and the internal argument is tucked in between the adverb and v*$_1$ (30b). From here on out, the internal argument can check its Case on a higher v*$_2$-head. As for active constructions (30c), the internal argument checks its case on the v*$_1$ itself. The external argument, on the other hand, is merged at the left edge of the lower v*$_1$ (in line with Wood and Marantz's 2017 i* at the edge) and checks its Case on the higher v*$_2$.

(30) a.
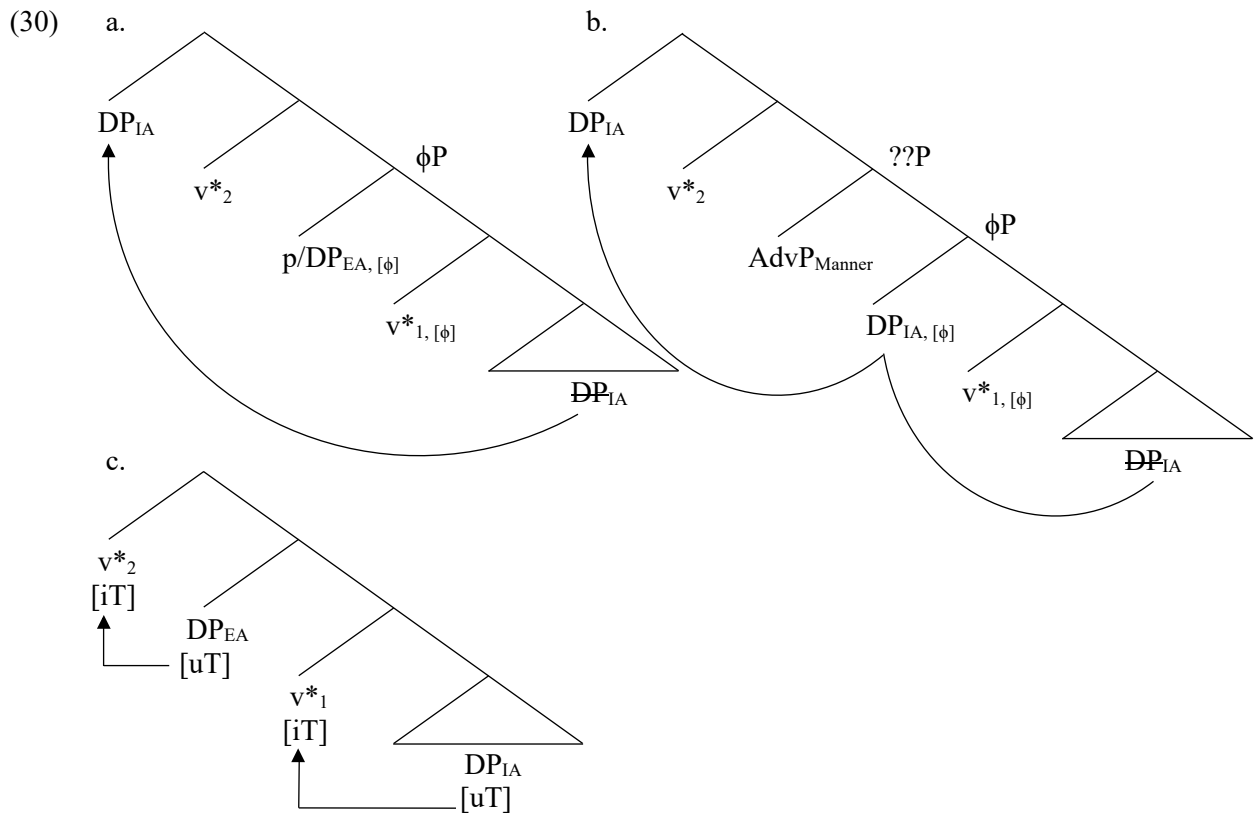
In sum, I provided two arguments against Sevdali's (2013) C-hypothesis for the accusative subject in infinitival clauses. First, the default case in (P)CGr seems to be nominative instead of accusative. Second, based a close inspection of the placement of the internal argument within the clause, there are attestations where the accusative subject cannot be in a topic-position. A double v*-structure, however, can easily account for this distribution; the arguments are introduced within the first phasal syntax (i.e. v*$_1$) and the accusative case on the subject is checked on the higher-up v*$_2$.

This does not take away, however, that discourse positions are not open for accusative subjects. As ϕ-features and Case are already checked and valued, only further A-bar movement is allowed (cf. Chomsky's 2000, 2001). In my approach, this can be done by means of checking discourse features ([δ]) on phasal heads (in line with Jiménez-Fernández 2010, 2011; for (P)CGr as a discourse-configurational language, see É. Kiss 2001 and Matić 2003). In (31), for instance, both accusative subjects are topicalised in the company of the topical markers μέν-δέ in the clause (cf. Arad & Roussou, 1997; Goldstein, 2016).

(31) χάριν   τοῦ [TopP Μαρσύαν   μὲν [ἀπεσταλκέναι ἐπιστολήν]],   PCGr
      thanks.to.PREP ART   Marsua.ACC PRT   send.INF.PRF   letter.ACC
      [TopP σὲ   δὲ [μηθέν   μοι   γεγραφηκέναι]]
            you.ACC PRT nothing.ACC=me.DAT write.INF.PRF
      'Because Marsua sent the letter and you did not write anything to me'
                                                              (P. Baden 4.48, 11 (127 BCE))

In the next section, I will focus on the second argument for a double-v* structure: the relative tense aspectual reading of the infinitive.

2.2 v*₂ and Tense: Relative Tense Interpretation

Although the (P)CGr infinitive is morphologically marked for tense (present, aorist (past), future and (present) perfect) and voice (active, passive, and mediopassive; see Table 2), it has been noted that the tense-distinction masks a distinction based on aspect (cf. Jannaris, 1897): the present, for instance, denotes an imperfective/durative aspect (32a), the aorist a perfective/punctual one (32b). However, in a construction like the adverbial articular infinitive, the infinitive gets a relative tense interpretation: the present expresses simultaneity, the aorist anteriority. Debates on whether the distinction between present and aorist tense directly encodes temporality (i.e. relative tense, cf. Rijksbaron, 2006; Ruijgh, 1991; Sevdali, 2013; de la Villa, 2014) or might be a side effect of their aspectual value (cf. Bentein, 2018; Boas & Huitink, 2010; Napoli, 2014) are still ongoing. In this thesis, I stay neutral in this regard and do not intend to contribute to the discussion on the functional properties of the infinitive. The adverbial articular infinitive in the fifth century, moreover, has already started its grammatical journey towards a finite subordinate clause and will be shown to already encode tense in a direct fashion (see also §2.3 and §2.4 for a discussion on C). The goal here is to show that this Aspect/Tense-pairing naturally derives from the C-double-v* structure of the (articular) infinitive (33). I argue that the infinitival construction in PCGr contains a (higher-up) T/C-domain (§3.1.1), and I preliminarily model this relative tense interpretation within an edge-linking approach (§ 3.1.2, cf. Sigurðsson, 2014, 2016, 2019; Sigurðsson & Maling, 2012). I conclude that the Aspect/Tense-interpretation is due to structural properties of the infinitive; a [iT:Tense] is indeed present within the structure, but the Root's temporal properties are dependent on the v*₂-head, not the C/T-head. This evidence supports a double-v*-hypothesis for PCGr infinitives.

Infinitive Forms of the Verb παιδεύω 'educate'		
Tense	Voice	
	Active	Medio-Passive	Passive
Present	παιδεύειν	παιδεύεσθαι	παιδεύεσθαι
Aorist (Past)	παιδεῦσαι	παιδεύσασθαι	παιδευθῆναι
Future	παιδεύσειν	παιδεύσεσθαι	παιδευθήσεσθαι
(Present) Perfect	πεπαιδευκέναι	πεπαιδεῦσθαι	πεπαιδεῦσθαι

Table 2 Infinitive Forms of the Verb παιδεύω 'educate'

(32)   a. βούλομαι μάχ-εσθαι
         want.1SG fight-INF.PRES
         'I want to (start) fight(ing)'

         b. βούλομαι μαχ-έσασθαι
         want.1SG fight-INF.AOR
         'I want to fight'

(33)   [$_{CP}$ C   [$_{v*P}$ v*$_1$ [$_{v*P}$ v*$_2$ …   ]]]
             [iT:Tense]   [iT:Aspect]   [iT:Aspect]

<u>2.2.1 The Presence of T(ense) (and a C-domain) in the Articular Infinitival Constructions</u>

        Following Pollock (1989) and Cinque (1999), adverbs are assumed to have a fixed place within the hierarchical structure and can reveal which type of functional properties the structures possesses; they function as sign posts to uncover what domains the construction may encode. If, for instance, the construction occurs with a tense-adverb, one can argue that a T(ense)P-domain is structurally present.[53] In line with much of the literature on CGr infinitives (cf. Faure, 2010: 85-88; Sevdali, 2013: 335-343; Spyropoulos, 2005: 304-306; Tantalou, 2003), I argue that PCGr articular infinitives are CPs, and provide evidence by looking at temporal adverbs. In this section I focus on the presence of the higher-up adverbs (i.e. higher than T$_{Anterior}$), as lower adverbs are taken to belong to the verbal domain (cf. Biberauer & Roberts, 2015a). As the TP-domain has been argued to be hierarchically organised in both Classical (cf. Matticchio & Sanfelici, 2021) and Modern Greek (cf. Alexiadou, 1997), I naturally suppose a similar line of reasoning for PCGr.

        In Table 3, I summarise the types of adverbs found in the TP-domain of articular infinitival constructions and their frequency within the corpus. It should, however, be noted that TP-related adverbs already pop up within the Hellenistic period and that these findings should, therefore, be extended to earlier periods of the Greek language.[54] Even epistemic adverbs seem to be licensed (see (34b)), meaning the high-up TP is accessible within the construction.[55] If it is assumed that these adverbs occupy a fixed position, in a Cinquian structure, one can attempt to study word order within the infinitival clause. Although this enterprise lies outside the scope of this paper, I note here that, whilst the verb can easily remain within the v*P (see (34a)), the v*P itself can be moved over the temporal adverb (see (34c)). The possibility of head-movement of the verb itself to a higher C/T-position is left to future research. What is of importance here is that a tense-domain (i.e. T/<C>) is present within the adverbial articular infinitive.

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[53] The enormous cartographic structure provided by UG, however, is not assumed to be present at all times (as in Cinque's 1999 approach). I follow Adger and Tsoulas (2004), in that projections are only present when the specifier receives phonological material.
[54] See Kavčič (2017: 82), however, for the statement that 'it remains open whether or not one can claim that [CGr] infinitives encoded tense.'
[55] An epistemic reading of the infinitive, moreover, already seemed available within the Classical Period (cf. Bentein, 2018; Kurzová, 1968). One could, therefore, argue that the C-domain of the CGr infinitive does not differ from the PCGr one to a large extent.

Epistemic (Mod)	1	εἰκότως *in all likelihood*
Future/Past (T)	8	νῦν *now*, τότε *then*, ἐνταῦθα *then*
Necessity (Mod)	5	δεόντως, ἀναγκαίως *necessarily*
Habitual (Aspect)	1	συνήθως *usually*
Repetitive (Aspect)	5	πάλιν *again*
Volition (Mod)	4	ἀναμφιλόγως *willingly*, ἑκουσίως *voluntarily*, εὐμαρῶς *readily*
Anterior (T)	8	ἤδη *already*

Table 3 The Type of TP-Adverbs found within the Articular Infinitival
Constructions and their Frequencies

(34) a. διὰ   τ[ό] σε   [TP τότε καταπεπλευκέναι]
         because.of.PREP ART you.ACC   then sail.away.INF
         'Because you then sailed away'   (P.Giss.Apoll.26, 9-10 (113-120 CE))

      b. ἐφ'   ᾧ δὲ [τοὺ[ς εἰρημένους] ποθεινοὺς υἱοὺς   μου]ᵢ […]
         upon.PREP REL PART ART   said   beloved   sons.ACC me.GEN
         [ModP εἰκότως   tᵢ διοικεῖσθαι]
            in.all.likelihood   control.PASS.INF
         'On the condition that my beforementioned beloved sons are in all likelihood controlled'
                                            (P.Cair.Masp 2.67151, 228-230 (570 CE))

      c. πρὸς   τῶι [μηδ'   εἰληφέναι μηθὲν   ἐνιαυτοῦ]ᵢ [TP ἤδ[η] tᵢ]
         to.PREP ART NEG.CONJ take.INF   nothing year.GEN   already
         'For I have not even received anything yet from this year'
                                            (P.Col. 3.6, 9 (257 BCE))

The fact that infinitival adverbial clauses can possess speaker-anchored modal adverbs, such as epistemic ones, should not be taken for granted. These adverbs do not only mark the presence of a higher-up TP domain, (i.e. the presence of Mood), but can also be used to determine the size of the clause. The presence of Mood in the higher TP has been linked to the presence of illocutionary force, which is encoded a clause typing Force-head in the high C-domain in Rizzi's (1997) system (cf. Endo & Haegeman, 2019). This attestation may predict that the adverbial articular infinitive was already a clause-typed construction by the end of the sixth century (as a *terminus ad quem*).

From the presence of temporal adverbs, I deduce that the infinitival structure has a tense domain, i.e. a C-head specified with a [iT:Tense]-feature. It has also been shown that the adverbial articular infinitive possesses a clause-typing Force head. The infinitive in this construction, in other words, is tensed and functions as a syntactic island. How the relative tense arises, will be the topic of the next section.

2.2.2 The Relative Tense Interpretation: [iT] in C

As noted, the (P)CGr infinitive expresses an aspectual value, but can get a relative tense interpretation in a construction as the adverbial articular infinitive. I argue that this interpretation is due to structural properties of the infinitive; a [iT:Tense] is indeed present within the structure, but the temporal properties of the verb are dependent on the $v*_2$-head, not the C/T-head. This can be derived from a double-$v*$ structure.

To account for the relative tense reading, I will model the data in an edge-linking approach (Sigurðsson, 2014, 2016, 2019; Sigurðsson & Maling, 2012). The idea here is that a phase is not contextually independent, but are linked to the previous one. This link is established by edge linkers; they can be understood as features on the remaining phasal head which recycles features from the previous phase and reuses them in the upcoming one. These features, in a way, are computed in relation to an element within the inner phase and, similarly, function within the next phase. Take a [T]-feature, for instance, on a v*-head in (35a). When a v*-head is copied and remerged, [iT:Aspect] is encoded both phase-internal and at the edge. The phasal domain with [iT:Aspect] is transferred phase-internally (35b), but a [iT] remains at the edge to link the information of the previous phase with the upcoming one. As the feature is already transferred within the phasal domain (and therefore lost its interpretability status), and should not be interpretable at SM at the next phase, the edge linker functions as an uninterpretable feature on the phasal head; it is syntactically active. In this regard, Upwards Agreement can take place. When C with an [iT:Tense] is merged, v* with [uT:Aspect] probes upwards and agrees with the [iT:Tense] on C (35c). Either [uT] copies over the Tense-value or the Aspect-value remains.[56] When C transfers its phasal domain, the remaining [T] on the remaining C again becomes an edge linker, but this time a control relation is established between the context and C (in case of the CP being the matrix clause) or the matrix clause and C (in case of the CP being a subordinate one) (35d).

(35)   a. $[_{??P}$ v* $[_{??P}$ <v*> …]]
                                                              [iT:Aspect]   [iT:Aspect]

       b. $[_{v*P}$ v* $[_{vP}$ <v*> …]]
                                                              [uT:Aspect]

       c. $[_{??P}$ C $[_{v*P}$ v* $[_{vP}$ <v*> …]]
                                                  [iT:Tense]   [uT:Aspect]

                                                          Agree
                                                   past/future/simultaneous

       d. CONTEXT/MATRIX $[_{CP}$ C $[_{cP}$ <C> $[_{v*P}$ v* $[_{vP}$ <v*> …]]]]
                                        [uT:Tense]

                                    Control
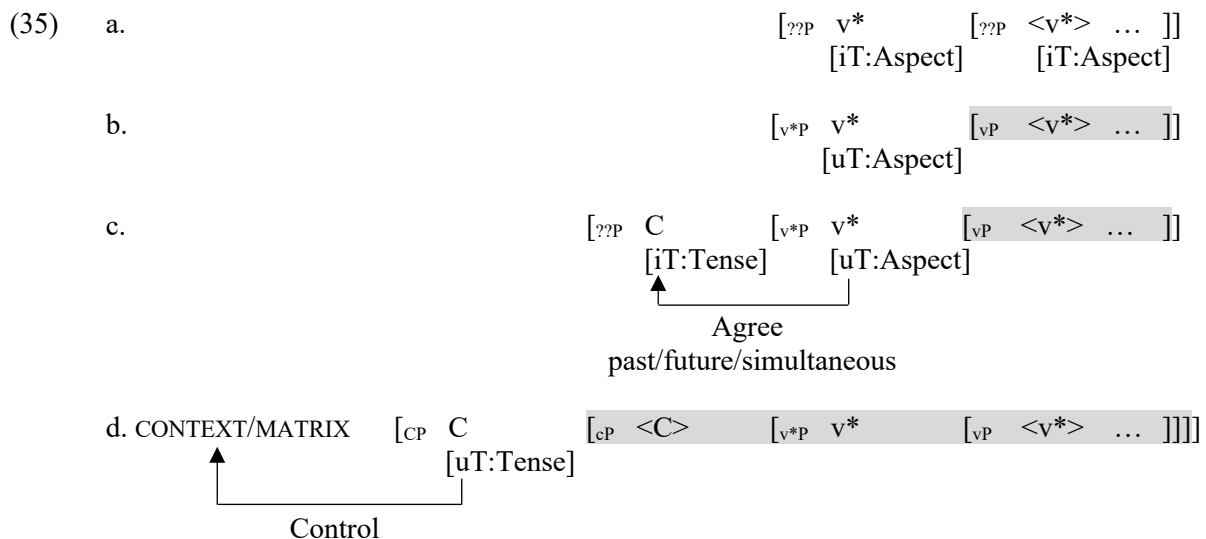
Following this approach, Tense could be argued to be encoded in three positions within the syntactic derivation. Each position has been argued to correspond to one of the three Tense components in the Reichenbachian Tense-split: (i) Speech Time ($[T_S]$), (ii) Reference Tense ($[T_R]$) and (iii) Event Tense ($[T_E]$) (see (36)). Speech Time ($[T_S]$) is computed within the context-sensitive C-domain and basically links the clause to the broader linguistic context (by means of control). As the articular infinitive discussed in this paper functions as an adjunction, Speech Time will be contextually based on the matrix clause (in an anaphoric relation) and will, therefore, not be discussed further in this paper. Event Tense ($[T_E]$), on the other hand, is located within the v-domain, encodes propositional content of the event and is, therefore, linked to the Root. In other words, T_S and T_E encode context and content of Tense respectively, and the link between the two is made by means of the grammatical T-(or, in my approach, <C>-)domain; Grammatical Tense (T_R) interprets the Event Time (T_E) in relation to the Speech Time (T_S). I formalise the information related to tense as features within the syntax; $[iT_R]$ will be computed phase-internally as an interpretable feature, whilst $[uT_S]$ and $[uT_E]$ will be formalised as

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[56] This difference could be at the base of the difference between languages having a Consecutio Temporum (as, for instance, English) and those that do not (as, for instance, Japanese). See Sigurðsson (2014, 2016) for further discussion.

features on the phase heads C and v* respectively (i.e. edge linkers; see (36) for finite constructions). Take (37), for instance. Whilst the event of walking happened in the past (i.e. T_E is specified for Past), what is referenced is also in the past (i.e. T_R is specified for Past). Event and Reference Tense match, so there is a non-past Agreement relation between the two. As the speaker, however, utters the clause in the present (i.e. NOW as CONTEXT), the valuation on [uT] on C, once valued for Past, is respecified for Present as Speech Tense. The relation between Speech and Reference Tense, therefore, is one of the past.

(36)   [$_{CP}$ C   [$_{??P}$ <C>   [$_{v*P}$ v*   …   ]]]
              [uT_S]   [iT_R]   [uT_E]

(37)   a. I walked   English
           b.   NOW   [$_{CP}$ C   [$_{\phi P}$ I   <C>   [$_{v*P}$ v*-walked …]]]
                                   [uT_S:~~Past~~/Present]   [iT_R:Past]   [uT_E:Past]

For my purposes, the relation between [T_R] and [T_E] can tentatively model the tension between the aspectual and temporal reading of the infinitives in the (P)CGr adverbial articular infinitival clause. In a double-v* structure, v*$_1$ encodes the aspectual properties and diathesis, v*$_2$ only aspectual information (see (38)). Of these two heads, only v*$_1$ has access to the verbal Root (v√) and can therefore encode the actual event tense ([T_E]) at its edge. v*$_2$, however, without access to the Root, only encrypts aspectual information as an Asp*. Event Tense, in this way, is unable to directly agree with Reference Tense; an v*/Asp*-head intervenes and blocks any direct agreement between the two. Event Tense, in other words, cannot agree with the Grammatical/Reference Tense and must base itself off of the aspectual v*$_2$-head, leading to an aspectual reading on the infinitive (38a). The Reference Tense, however, is still present within the structure as an [iT] and provides the infinitive with its tense morphology. The temporal properties of the infinitive, therefore, depend on certain contextual factors in the C-domain, as the type of verb (i.e. the properties of its first phasal syntax and which type of CP it selects[57]) in complement clauses or the matrix Speech Time ([T_S]) in the case of adjuncts. The Reference Tense, however, must be matched with the relevant type of Aspect: a present is linked to an imperfective aspect, the aorist a perfective one. This is done by the edge linker in v*$_2$, which links up and matches the type of Aspect on the verb with the type of Tense in C (38b).[58]

(38)   a.   [$_{??P}$ v*$_2$ [$_{v*P}$ v*$_1$ [$_{√P}$ v√]]]
                                                                                 [iT:Aspect]   [uT_E:Aspect]

           b. [$_{CP}$ C   [$_{??P}$ <C>   [$_{v*P}$ v*$_2$ [$_{??P}$ <v*$_2$>   [$_{v*P}$ v*$_1$ [$_{√P}$ v√]]]]]]
                      [T_S]   [iT_R:Tense]   [uT:Aspect]

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[57] Sevdali (2013) argues for two types of infinitives in CGr: one type with a weak phasal CP, another type with a strong phasal C*P (in line with Basse's 2008 proposal that phasehood is related to the Force). The former one derives (exhaustive) obligatory control, the latter no control. This could potentially be remodelled within Landau's (2013) model, put within a probe-goal and FI-framework by Rouveret (2023: 43-44, 49-52), combined with the derivational analysis used in this paper, and relinked to Tense: what Sevdali calls a weak CP is actually a C-head endowed with a [uT:Tense]-feature and what she calls a strong C with a [iT:Tense]. In both constructions, the Tense-valuation will provide the tense-morphology on the infinitive at the SM interface. Whether this assumption is viable is up for future research to decide. In this thesis, I am only concerned with the strong C-head, i.e. the C endowed with a [iT:Tense], as I am working with adjunctions as syntactic island.
[58] The idea that the present and aorist infinitive became polyfunctional (cf. Bentein, 2017) or omitted more temporal distinctions in PCGr (Kavčič, 2017) may be modelled as a failing agreement between T_R and the [Asp]-feature on v*$_2$. In this regard, these might be interpreted as the first instances of the weakening of the phasal properties of the v*$_2$-head, leading towards the subjunctive in the later evolution of Greek where no phasal v*$_2$-head can be detected. See, however, Jarrah (2020) for the idea that infinitives and subjunctives just differ in one parameter.

In sum, I argued that a C/T-domain is present within the structure of the (P)CGr infinitive, where temporal properties are encoded and where the morphology on the infinitive originates from. The double-v* structure, however, encodes the infinitive's aspectual reading. The Event Tense on $v*_1$ can only be directly influenced by the aspectual domain on $v*_2$, not by the Tense domain in C. Next to the encoding of temporal properties, however, the C-domain is equally used for checking up on ϕ-features on a DP in the structure. The question can be raised as to whether these features are also present within the infinitival structure. In the next section, I will argue they are and that they form the base for the article on the infinitive.

2.3 Nominalisation or Subordination: The Remaining [φ]-Features in C

Within a double-v* structure, the internal and external argument each checked their Case-feature (i.e. [uT]) on a v*-head and, subsequently, checked and valued their ϕ-features within the respective phases. C, however, although having an interpretable and valued [iT]-feature, still has unchecked and unvalued [ϕ]-features left (39). By the derivational analysis proposed in §1.1.3, unchecked features naturally stay at the edge for edge computation. In this section, I will argue that this bundle of ϕ-features results into the article on the infinitive. The article, in other words, is nothing more than a bundle of ϕ-features (without [Person]) combined with Case and, therefore, semantically vacuous (in line with Stavrou 1996 and Tsimpli and Stavrakaki 1999). The goal of this chapter is to show that C still has ϕ-features which are repurposed for computation at the edge.[61]

(39) $[_{??P}$ C $[_{v*P}$ $v*_2$ $DP_{EA, ACC}$ $[_{v*P}$ $v*_1$ $DP_{IA, ACC}$ $]]]$
          $[u\phi:\_\_]$ $[u\phi:\underline{Val}]$ $[u\phi:\underline{Val}]$
          $[iT:Tense]$

Although the articular infinitive can be interpreted as a nominalised construction in CGr, this analysis runs into some problems when moving over to PCGr (§2.3.1). I argue that the article has become part of the CP of the infinitive, and that it is an instantion of its remaining unvalued ϕ-features. Evidence for this claim is provided by looking at constructions without an article, i.e. where the ϕ-features on C have been checked (§2.3.2) and at articular infinitives having nominative subjects (§2.4).

2.3.1 Traditional Grammars: Nominalisation and its Problems

Standard grammars assume the adverbial articular infinitive to have a nominalising structure; the article turns the infinitive into a noun by means of the article (Boas, Rijksbaron, Huitink, & Bakker, 2019: 601-604; Burguière, 1960: ch. 5; Horrocks, 2010: 94-96; Hult, 1990: 209-219; Kühner & Gerth, 1872: 601-609; Mayser, 1926: 320-333; Rijksbaron, 2006: 112-115). When introduced by a preposition, the construction at hand functions as a non-finite alternative to adverbial subordinate constructions. When put into a formal framework, the infinitival CP is topped by a nominalising head, whether that be a D in the sense of Giannakidou and Stavrou (1999) or a Relator R in the sense of den Dikken (2006) (see (40)).

(40) $[_{PP}$ P $[_{D/RP}$ D/R $[_{CP}$ … $]]]$

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[61] For reasons of space, a discussion on the preposition and adjunctional clauses will be left to future research. I will assume that they are CPs, with the PP base generated within the subordinate clause and moved up towards the C(P) ((i); cf. Blümel, 2017; Blümel & Pitsch, 2019; Endo & Haegeman, 2019; Haegeman, 2010). The PP is internally complex (in line with Cinque, 2010; Noonan, 2010; Terzi, 2010) and, at this time, can be aligned with other subordinators (cf. Blümel & Pitsch, 2019). Further discussion is left to future research.

(i) $[_{??P}$ PP $[_{CP}$ C ~~PP~~ … $]]$
            διὰ   τὸ

Whilst this may indeed be the origin of the articular infinitival construction, this analysis quickly runs into some problems from the Post-Classical period, onwards. First, Post-Classical constructions show the use different moods in an articular construction. Finite verbs such as indicatives (41a) and subjunctives (41bc) start occurring from the third century onward, and a construction with a participle is attested only one time in the sixth century ((41d; for the distribution, see Table 4).[63] Infinitives and finite verbs have also been found coordinated with one another by means of καί (see (41e)). Arguably, infinitives are also been found with complementisers and subordinators in PCGr which are traditionally reserved for finite verbs (see (41f)).

(41) a. διὰ   τὸ μέχρι τούτου ἐπὶ ⌐τῇ˥ κλείνη⟦νη⟧ ἐστίν
         because.of.PREP ART until this   in ART bed   is.IND.3SG
         'Because he has been in bed up till now'   (P. Oxy. 77.5112, 10-11 (212-246 CE))

      b. ἐπὶ   τῷ   μετρήσω   εἰς τὸ   δημ(όσιον)
         in.order.PREP ART   measure.SUBJ.1SG to ART state
         'In order to measure it to the state'   (BGU. 1.223, 7-8 (212 CE))

      c. πρὸ   τοὺν ἔλθωμεν
         before.PREP ART come.SUBJ.1PL
         'Before we come'   (P. Oxy. 36.2781, 4 (100-199 CE))

      d. διὰ   τὸ μηδεμίαν μετουσίαν ἔχων   τοῦ λοιποῦ πρὸς ὑμᾶς
         because.of.PREP ART not.one   part   have.PRTC.NOM   now   with you
         'Because I have no part with you now'   (P. Mich. Aphrod. 1, 69-70 (537 CE))

      e. ἐπὶ   τῷ   δέ   σε   ἐξουσιάζειν   λαβεῖν   καθ' ἔτος ἀρούρας δύο […]
         on.condition.PREP ART PART you have.power.INF take.INF by   year arourai two
         καὶ γεμίσω   μίας ἀρούρης
         and fertilise.SUBJ.1SG one   aroura
         'On the condition that you have the power to take two arourai annually and that I fertilise
         one'   (P. Vat. Aphrod. 1, 21-24 (598 CE))

      f. [εἴ] τις   ἐξ   ἡμῶ[ν π]αραβῆναι   τὰ   ἐγγεγραμμένα ὁμολογεῖ […]
         if someone.NOM from us   transgress.INF ART written   agree.IND.3SG
         νομισμάτια δύο
         nomisata   two
         'If one of us transgresses what is written, he agrees (to give) two gold nomismata'
                                                         (P.Lond. 5.1712, 21-22 (569 CE))

The Distribution of Mood in Adverbial Articular Clauses					
Non-Finite		Finite		Uncertain	Total
Infinitive	Participle	Indicative	Subjunctive		
1902	11	50	44	1	2009

Table 4 The Distribution of Mood in Articular Constructions

[63] (P)CGr allows for an infinitival adverbial clause introduced by ἐφ'ᾧ (*on the condition that*, 309 occurrences), a subordinator consisting of the preposition ἐπί and the relativiser ὅς. For reasons of space, however, I leave this construction to future research.

Second, there seems to be variation in the types of negators used. Whilst descriptive grammars for CGr allow only a μή as negational element,[64] PCGr seems to allow for both μή and οὐ; whilst adverbial articular infinitives predominantly display a μή as a negator (42a), a negation by means of οὐ can be found one time in the corpus from the fifth century (οὐδὲν in (42b)). If one can model the distinction between negators based on (non)veridicality, with οὐ occuring in nonveridical and μή in veridical contexts (cf. Chatzopoulou, 2019; contra Philippaki-Warburton & Spyropoulos, 2004; Willmott, 2008, 2013), one could argue that the articular infinitive starts varying in veridicality by the end of the fifth century. This prediction is borne out by the use of the infinitive in finite contexts (41f).

(42) a. πρὸς   τὸ   μὴ   διαφθαρῆναι [τὸ   γάλα]
         to.PREP ART NEG harm.PASS.INF ART milk
         'For the (breast) milk not to be harmed'   (C. Pap. Gr. 1.14, 18-19 (26 CE))

      b. μετὰ   καὶ τοῦ οὐδὲν ἧττον ἀρραγῆ   καὶ ἀσάλευτον εἶναί
         along.with.PREP also ART nothing less unbroken and unshaken be.INF
         'Whilst (the agreement) is unbreakable and immovable'
                                              (P. Gen. 4.186, 29 (473-490 CE))

Third, the adverbial articular construction is also attested without an article (16 times within my corpus). As with the upcoming of the articular finite constructions in (41abc), the first attestations occur within the third century (43ab). In §2.3.2, I will argue that the mismatch between object-gap purpose clauses and the superficially quite similar infinitival relative clause reading might be a first trigger within this direction (cf. Douglas, 2016: 167-171; Landau, 2013).

(43) a. [πα]ρὰ   Αὐρηλ(ίου) […] αἱρεθέντο[ς] […] εἰς   συνων[ὴν   ποιήσε]σθαι
         from.prep Aurelius   chosen   to.PREP purchase.ACC make.INF
         'From Aurelius who has been chosen to make the purchase'
                                              (Cpr. 35.35, 5-7 (266-267 CE))

      b. μετ[ὰ]   καὶ ὑπευθύνους εἶν[αι σέ   τε   καὶ ὑ]μ[ᾶ]ς
         after.PREP also responsible be.INF you.ACC PART and us.ACC
         'after you and I have become responsible'   (P. Flor. 3.384, 107-108 (489 CE))

In sum, I provided three arguments against a nominalising account for the adverbial articular infinitive construction in PCGr. In the next section, I will proceed the discussion on the remaining φ-features on C and argue that the article is a cluster of these φ-features.

2.3.2 Clause Typing by a φP: the Article

In the infinitival construction, the internal and external argument each check their Case-feature (i.e. [uT]) on a v*-head and, subsequently, the φ-features on the respective phasal heads. C, however, although having an interpretable and valued [iT]-feature, still has unchecked and unvalued [φ]-features (see (44)).

(44)   [??P C   [v*P v*2   DPEA, ACC [v*P v*1   DPIA, ACC]]]
           [uφ:__]   [uφ:Val]   [uφ:Val]

I argue that unchecked features stay at the edge of the phase for edge computation. It is standardly assumed that non-finite forms possess defective φ-features in C/T; whilst [Gender] and

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[64] Articular infinitives, under the traditional hypothesis, would need to fall under the DP-internal contexts in Chatzopoulou (2019: 77), which predominantly licenses μή. A further discussion on the negation in these contexts, however, is left to future research.

[Number] are argued to be present, the [Person]-feature seems to be lacking (cf. Chomsky, 2001). These features, however, still need to be checked. As the defective ϕ-features in C have not yet been valued within the phasal domain, they are encoded higher up the phase at the edge. In the spirit of Donati and Cecchetto (2024), these remaining features can be used to type the clause at hand in an exocentric manner; [Number] and [Gender] are bundled under one ϕ-head and provide the construction by its own illocutionary force. Instead of externally merging a fully specified Force-head ((45a) for full finite clauses), the ϕ-head functions an alternative to Force (45b). Clause typing is done by the remaining ϕ-features in C. They value themselves by means of Last Resort with the default third person neuter-option and form what has been described as the article on the infinitive.

(45)   a. [_{??P} C_{Force}   [_{??P} C_{Fin}   …]]]   (Finite Clause)
        b. [_{??P} ϕ   [_{??P} C_{(Fin)} …]]]   (Articular Infinitive)
              [uNum:$\underline{3}$]
              [uGen:$\underline{n}$]

Assuming this to be correct, this type of clause typing points towards the beginning of the growth of the construction towards the presence of a fully specified Force-head. A clause typing ϕ-head is throughout time will be reanalysed as a dedicated Force-head, a structural change which can lead to the emergence of finite forms such as indicatives and subjunctives. This analysis of a *one step up*-building of the left peripheral structure is much in line with the growing-tree model proposed by Friedmann, Belletti and Rizzi (2021); starting out with a simplified left periphery, the clausal structure grows over time and creates a Force-head from a clause typing element. The article may have been exactly this.

        Evidence for the idea of a clause-typing ϕP may be the emergence of indicatives and subjunctives within this construction. As noted above, finite forms start occurring from the third century onwards (41a), and infinitives and finite forms have been found coordinated to one another (41b). These are pointers as finite and non-finite verbs need to be able occur under the same growing clause-typing head and can be argued to be the *terminus ante quem* of the emergence of the ϕ-head. The sixth century, similarly, can be regarded as the *terminus ante quem* for the presence of a specified Force-head. Speaker-anchored modal adverbs are often linked to the presence of Force (see (41e); cf. Endo & Haegeman, 2019: 5-6) and the occurrences without an (Force-typing) article (43b) may hint at the fact that Force did not need an overt expression anymore. Even fully specified finite clauses with finite complementisers can be similarly attached to an articular construction at this point in time (46a). That the article has become a Force-related element may also become clear from its evolution to Medieval Greek; the infinitive from this moment onwards has been predominantly swapped out with a νά + subjunctive-construction. If νά is assumed to be generated within Rizzi's (1997) Fin (cf. Roberts & Roussou, 2003: 74-87; Roussou, 2000), Force may be filled with the article at hand (46b). However, when νά moves from Fin to Force, the article cannot be inserted in Force (46c). Because of reasons of scope, however, I will not discuss this any further.

(46)   a. ὅρκου […] περὶ   τοῦ ὅτι   οὐδὲν   ἀπεκρύψατο
           oath   about.PREP ART COMP nothing   hide.AOR.3SG
           'the oath […] regarding the fact that she did not hide anything'
                                                      (P. Münch. 1.6, 8 (583 CE))

        b. διὰ   [_{ForceP} τὸ [_{FinP} νὰ   εἰποῦν   […]]]]
           for.PREP   ART   COMP say.SUBJ.3PL
           'So that he would say […]'   (Ptochoprodromica 3.265 (12th c. CE))

c. διὰ   [ForceP νὰ [FinP ~~νὰ~~ μηδὲν βλαβοῦμεν   ]]
   for.PREP   COMP   NEG distract.SUBJ.1PL
   'So we would not be distracted'   (Ptochoprodromica 4.392 (12ᵗʰ c. CE))

Further evidence that the article is part of the CP comes from the first attestations of articleless adverbial infinitives (18 attestations). The earliest examples, such as (47) (6 attestations between first and third century CE), occur as object-gap purpose clauses (Green, 2019; Jones, 1991; Landau, 2013). An object-gap purpose clause contains a gap within the purpose clause which is coreferential with the theme argument in the object position of the matrix clause. An additional empty category (PRO) may be present in coreference with the subject or indirect object (in the case of (47) and (43a)) in the matrix clause.

(47)   χορηγήσεις   ἡμῖνᵢ   ὕδωρ   [εἰς   ~~ὕδωρ~~ [PROᵢ πεῖν ~~ὕδωρ~~]]
        supply.FUT.2SG us.DAT water.ACC to.PREP   drink.INF
        'You will supply us with water to drink'   (P.Flor.1.101, 7-8 (91 CE))

It has been noted that object-gap purpose clauses (48a) and infinitival relative clauses (48b), although differing in function semantically and syntactically, are superficially quite similar (Douglas, 2016: 167-171). The most prominent difference lies in the adjunction host: whilst the purpose clause adjoins to a clausal projection, the relative clause adjoins to a noun.

(48)   a. Iᵢ bought the book [PC ~~book~~ [PROᵢ to read ~~book~~]] (Object-gap Purpose Clause (PC)) English
        b. This is the [book [RC to read ~~book~~]]   (Infinitival Relative Clause (RC)) English

The fact that these object-gap purpose clauses are the attestations where the article is first dropped, might actually not be random. I argue that these object-gap purpose clauses may have been reanalysed as relative clauses (RCs), although infinitival relative clauses are not normally licensed in PCGr. The attestation in (47), from an object-gap PC in (49a), is reanalysed as an infinitival RC adjoint to the noun ὕδωρ in (49b). In line with the matching analysis to RCs (Cinque, 2020: 36-52; Douglas, 2016: 12 and references there), the internal head ὕδωρ is moved over to the edge of the RC (i.e. in SpecCP, in pre-labelling terms) in order to be ready to be matched by the external head ὕδωρ. Because of the position of the internal head at the edge, C can check its probing φ-features in an upwards manner. If the article was indeed a bundle of the remaining unchecked φ-features on C, the absence of the article in this construction might be explained: there is no article, because the φ-features on C are checked by the raised internal head. This analysis may have been the gateway for articleless constructions later down the line; the change started out in one construction and spread over to other ones.

(49)   a. χορηγήσεις ἡμῖνᵢ ὕδωρ [PC εἰς ~~ὕδωρ~~ [PROᵢ πεῖν ~~ὕδωρ~~]]

                              Move

                              Match

        b. χορηγήσεις ἡμῖνᵢ [NP [NP ὕδωρ]   [RC/CP εἰς ~~ὕδωρ~~ C   [PROᵢ πεῖν ~~ὕδωρ~~]]   ]
                                                  [iφ]   [uφ]
                                                  Agree
                                                       Move
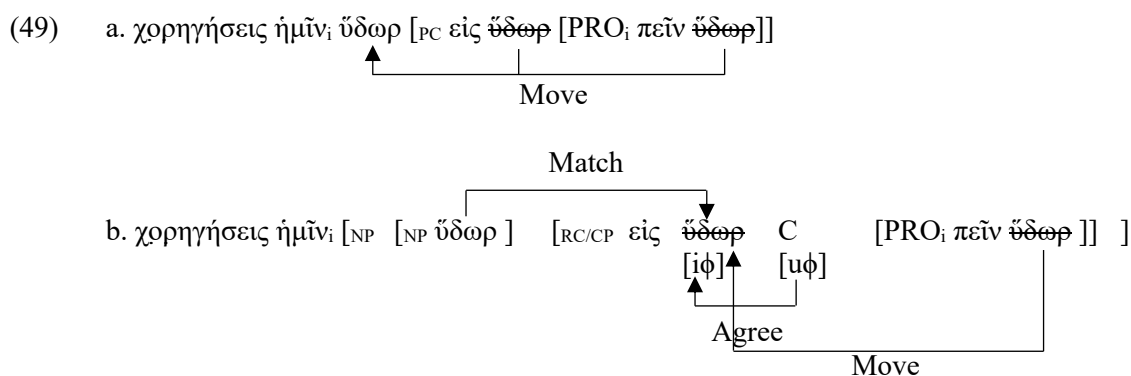
One extra argument in favour of this analysis might come from the external argument in the object-gap PC. In (47), an empty category (PRO) is present in coreference with the subject of the matrix

clause. If the subject were to be overt, the subject could be licensed by a prepositional complementiser in C in English, as in (50). Interestingly, an empty prepositional complementiser in C has been argued to account for the accusative subject in infinitival constructions (cf. 2.2.1; Cecchetto & Oniga, 2002; Tantalou, 2003). Even in Spyropoulos's (2005), Sevdali's (2013) and my double-v* hypothesis, an accusative subject would be expected. However, when the subject is overtly expressed within these constructions, a dative or genitive seems to be used (50bc). Following Michelioudakis (2015), I analyse both as inherent case which can surface in two morphological realisations in PCGr, i.e. the dative and the genitive. The external argument in both cases, therefore, is here assigned an inherent case, i.e. its [uT]-feature is inherently valued. As other dative and genitive subjects only start to surface from the sixth century onwards, I argue that these early examples are due to the restructuring of the purpose clause into a relative one; although PCGr does not normally allow for infinitival relative clauses, the infinitive in these examples is restructured into one and is, therefore, not able to provide the external argument with Case. If one, on the other hand, to express an overt subject, an inherent case can be used.

(50)   a. I bought the book [PC ~~book~~ [CP for [you to read ~~book~~]]]   English
        b. ἵνα   μοι   παρα[δί]ξῃ   […] βυβλίον [PC εἰς   ~~βυβλίον~~ [ἀναγεινώσκειν
           COMP=me.DAT furnish.SUBJ.3SG   book.ACC   to.PREP   read.INF
           Ἡραιδοῦτι   ~~βυβλίον~~]]
           Heraidous.DAT
           'so that he may furnish me with a book for Heraidous to read'
                                                          (P.Giss.Apoll.18, 13-15 (117 CE))

        c. κόμισον   δὲ   διὰ   τοῦ αὐτοῦ [PC εἰς   ~~βωξίον ἐλαίου~~ [φαγῖν   σου
           receive.IMP PRT through ART same   to.PREP   eat.INF=you.GEN
           ~~βωξίον ἐλαίου~~]] [βωξίον ἐλαίου]
                             jar.ACC oil.GEN
           'And receive through the same messenger for your own consumption a jar of oil'
                                                          (P.Oxy.34.2728, 31-32 (312-318 CE))

In sum, I argued that the article is a bundle of remaining φ-features on C. They appear to be the clause-typing element at the edge of the C-phase. Evidence for this hypothesis was provided by the presence of finite verbs, articleless adverbial purposes clauses, speaker-anchored modal adverbs and the construction in Medieval Greek. Having a C-phase fully specified for Tense ultimately that arguments may check nominative C/case. This is indeed a feature of the adverbial articular clause form the third century onwards and will be discussed in the next section.

2.4 De-Doubling v*P: On the Finite Verbs and Nominative Subject

From the third century onwards, the PCGr adverbial articular infinitives shows constructions containing nominative subjects (51a). As noted in §2.3.1, finite verbs start occurring in an articular structure from this period onwards. Both of these phenomena point towards the presence of a fully specified tense-domain which can license and check arguments with a nominative C/case (i.e. C-head with [iT] and [uφ]), if Case is reduced to Tense. The infinitive, in a sense, has become a finite. In (51b), the external argument (Subject) is moved up to a position just across v*$_2$ to check its Case- and φ-features and specified for Aspect (i.e. an accusative case). However, Case ([uT]) is reactivated (by means of the Activity Condition; cf. Chomsky 2000), rechecked on C, revalued for Tense and the external argument is assigned a nominative case. It should be noted that the external argument only rechecks its own probing [uT]; the φ-features on C are not necessarily checked. As DP$_{EA}$ is not moved up any higher within the derivation, C's unvalued φ-features still remain operative within the derivation, ultimately leading to the emergence of the article (§2.3).

(51) a. εἰς ..τὸ [μὴ] ἀμεληθῆναι [τὸν] ποτισμὸς τοῦ κῆπ[ου][67]
    to.PREP ART NEG neglect.PASS.INF ART.ACC irrigation.NOM ART.GEN garden.GEN
    'so that the irrigation of the garden would not be neglected'

$$\hfill \text{(P. Ryl. 2.239, 7-8 (250 CE))}$$

b. [$_{CP}$ C   [$_{v*P}$ DP$_{EA}$ v*$_2$ [$_{v*P}$ ~~DP$_{EA}$~~ v*$_1$ v√   ]]]
    [iT:Tense]   [uT:~~Aspect~~/Tense]
    [uφ]
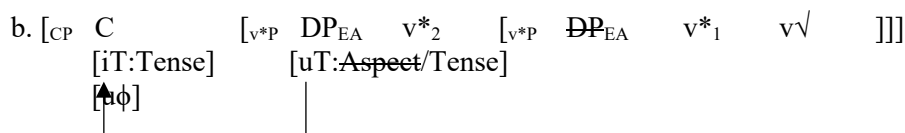
Looking at the distribution of morphological cases with relation to the Mood of the verb in adverbial articular clauses (Table 5), one can see that accusative is most prevalent in this regard, but other morphological cases also appear in a marginal fashion. Next to the nominative, genitive and dative cases can similarly be found, which, as noted above, are assumed to be inherent cases (cf. Michelioudakis, 2015); an interesting case, in this regard, is (52), where DPs having structural and inherent case are coordinated.[68]

(52) ἐφ'   ὧι τὸν ποτεισμὸν   καὶ τῆς ἐκχύσεως   ποήσεται
    on.condition.PREP REL ART irrigation.ACC and ART drainage.GEN do.MID.SUBJ.3SG
    'On condition that the irrigation and the drainage will be carried out'

$$\hfill \text{(P.Mich. 5.252, 5 (25-26 CE))}$$

The Distribution of Mood and Case of Subject in Adverbial Articular Clauses					
	Non-Finite		Finite		Total
	Infinitive	Participle	Indicative	Subjunctive	
Nominative	13	3	14	10	40 (2,0%)
Accusative	1316	0	9	5	1330 (66,2%)
Genitive	2	3	0	0	5 (0,2%)
Dative	5	0	0	0	5 (0,2%)
Null Subjects	527	3	27	28	585 (29,2%)
Uncertain	39	1	3	1	44 (2,2%)
Total	1902 (94,7%)	10 (0,5%)	53 (2,6%)	44 (2,2%)	2009 (100%)

Table 5 The Distribution of Mood and Case of Subject in Adverbial Articular Clauses

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[67] The editor of the papyri filled in the lacuna with an accusative article and suggested an accusative instead of a nominative subject. The papyrus, however, clearly mentions a nominative.

[68] Coordination of DPs having two different cases, however, might be a sign of the second one having a default case (cf. Schütze, 2001). As this does not seems like a standard construction to me, I will assume these to be the coordination of two DPs with structural and inherent Case respectively. A further discussion is left to future research.

Although the accusative appears, the nominative statistically seems to have a stronger link with finite verbs (see Table 6). The accusative seems to be stronger with the infinitive, but marginally a nominative subject appears. These infinitival constructions may be argued to have a reactivated [uT]-feature on the subject; although it has checked its Case on $v*_2$, it rechecks it on the [iT] on C and is assigned a nominative case, without movement. The question then arises why the second v*-head is still present; with the $v*_2$-head losing its Case-checking property, one may expect that the head itself is lost over time (53).

Statistics of the Distribution of Mood and Case of Subject in Adverbial Articular Clauses					
	Non-Finite		Finite		Total
	Infinitive	Participle	Indicative	Subjunctive	
Nominative	13	3	14	10	40
Residuals	-18,217027	8,318998	13,147398	9,945859	
Accusative	1316	0	9	5	1330
Residuals	11,820149	-3,584096	-7,698720	-8,032913	
Null Subjects	527	3	27	28	585
Residuals	-6,408872	1,079487	3,777988	5,107713	
Total	1856	6	50	43	1955
$X^2 = 418,61$; df = 6; p-value $< 2.2e^{-16}$; V = 0,647811					

Table 6 Statistics of Mood and Case of Subject in Adverbial Articular Clauses (Pearson's χ^2-test, residuals and Cramér's V)

(53)   [$_{CP}$ C   [$_{v*P}$ DP$_{EA}$ v*   v√   ]]   (reanalysis from (51b))
        [iT:Tense]   [uT:Tense]
        [uφ]

This de-doubling of v* might be exactly what is at stake. From the third century onwards, the articular infinitive is fully specified for Tense and allows for nominative subjects to occur. Arguably, the double-v* structure is reanalysed as a finite construction by means of economy. From the input of the nominative subject, new acquirers build their own grammar and interpret the construction with as few features as possible (in line with Roberts and Roussou's 2003: 201 Feature Economy) and maximalise all available features as much as possible (in line with Roberts's 2007: 275 Input Generalisation). Chomsky's (2005) third factor is at play (which can dubbed Maximalise Minimal Means as a cognitive bias, cf. Biberauer, 2019); the structure is reanalysed and simplified from a double- to a single-v* structure by economy principles, making finite verbs become prevalent within the structure.

In sum, the articular infinitives from the third century onwards are fully tensed and, next to accusative subject in the v*-domain, can license nominative subjects in C (by reactivation of the [uT] on the subject). Their structure can be reanalysed as having one v* and, therefore, display finite morphology (indicative, subjunctive).

2.5 Summary

Adverbial articular infinitive in PCGr predominantly displays an accusative subject. If it is indeed correct that a nominative is checked within a C-phase and an accusative is checked within a v*-

phase (cf. Chomksy, 2001), the articular infinitive might possess two v*-domains (i.e. $v*_1$ and $v*_2$), checking accusative C/case on the subject and object respectively. A C-phase seems to be similarly present, but instead of assigning a nominative C/case, one could argue that it encodes the Tense (cf. tense-morphology on the infinitive) and the subordinating elements (i.e. the preposition and article). Arguments in favour of this analysis were drawn from (a) the presence and positioning of the accusative subject, (b) the aspect-distinction on the infinitive in its semantic, but its morphological specification for tense, (c) the disappearance of the article, modelled as the remaining ϕ-features in C, and (d) the presence of finite verbs and nominative subjects.

In the next section, I go on to ask what this structure may tell us about phases in general and whether it could help understand how C and v* can be reduced to one archetypal phasal head.

In the first section, I reduced a phasal structure to one phasal head, by means of a derivational *one phase-one head*-approach; a C-phase comes down to a C-head, the v*-phase to a v*-head. One of the core properties of a phase is to check Case on the arguments within its domain (cf. Takahasi, 2010) and I laid down a model where Case was reduced to Tense (i.e. [uT] on the argument). C and v* are both able to check Case, but differ in the type of morphological case that they assign; an argument gets a nominative case in the C-phase, an accusative case in the v*-phase (54). Case assigning, therefore, is a common property of a phasal domain. This was a first reduction.

(54) [$_{CP}$ C Subject$_{NOM}$ [$_{v*P}$ v* Complement$_{ACC}$ v√]]]
       αὐτὸς   κατεπάτησε   τοὺς ἐχθρούς
       he.NOM   squash.IND.AOR   ART   enemies.ACC
   'he squashed his enemies'
          (finite counterpart of P.Koeln 7.317, 7-8 (500-599 CE), as matrix clause; cf. (1))

In this section, I argue that a second reduction is possible: the C- and v*-head can be reduced to a(n archetypal) head based on their common phasal properties. Despite their common property of Case checking, C and v* show some differences. v*, for instance, being the verbal domain, encodes information related to the verb, such as event ([v]; cf. Ramchand, 2008, 2017) and argument structure ([S(election)]; cf. Wood & Marantz, 2017; Wood & Tyler, To appear), and other verbal properties such as the diathesis of the verb ([Voice]; cf. Collins, 2004; Kratzer, 1996). These are not inherent to the Tense-domain and should be confined to the verbal domain. I argue that these properties are due to v* having access to the verbal Root (v√ in (55)). Language uses a Root to refer to concepts in the outside world (Panagiotidis, 2014: 290; Panagiotidis & Nóbrega, To appear: 17) and, therefore, introduces many of the properties related to the event and argument structure in the derivation. I claim that v* is the verbalising element of the Root and is influenced by many of the Root's properties. Properties as event structure, argument structure and diathesis are not inherent to the v*-domain itself, but are derived from the Root (and its interpretation at the interfaces) (55). Its phasal properties, therefore, are murked and prevent a clear comparison between the C- and v*-domain from being made.

(55) [$_{CP}$ C   [$_{v*P}$ v*   v√   ]]]   (Finite Clause Structure)
     [uφ]   [uφ]
     [iT]   [iT]
                       Derived from the (verbal) Root
         [v]
         [S]
         [Voice]

In a double-v* structure, however, this problem can be overcome; v*$_2$ is independent from the Root as it is couched within another phase and shows the pure phasal properties of the v*-domain (56). C and v*$_2$, therefore, can be compared with one another. Based on their common properties, I will propose that both heads can be reduced to one template, an archetypal phasal head.

(56) a. [$_{CP}$ C [$_{v*P}$ Subject$_{ACC}$ v*$_2$ [$_{v*P}$ Complement$_{ACC}$ v*$_1$ v√]]]
       διὰ   τὸ   αὐτὸν   καταπατῆσαι   τοὺς ἐχθρούς
     because.of.PREP   ART   him.ACC   squash.INF.AOR   ART   enemies.ACC
    'because he squashed his enemies'   (P.Koeln 7.317, 7-8 (500-599 CE); cf. (2))

b. [$_{CP}$ C   [$_{v*P}$ v*$_2$ [$_{v*P}$ v*$_1$ v√   ]]]   (Adverbial Articular Infinitive)
     [uφ]   [uφ]   [uφ]
     [iT]   [iT]   [iT]
                       Derived from the (verbal) Root
                  [v]
                  [S]
                  [Voice]
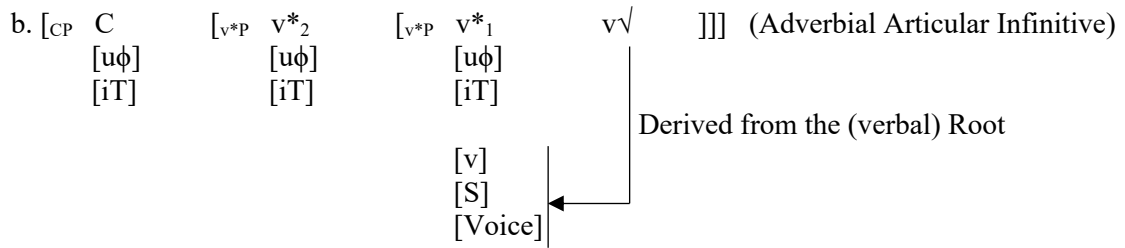
This discussion is structured as follows: First, I discuss the relation between v* and the Root (§3.1). I claim that the phasal v*-head categorises the Root (§3.1.1) and, therefore, is influenced by the Root's interpretation at the interfaces (§3.1.2). Then, I go on to propose that C and v* can be reduced to the same formal template, i.e. the Archetypal Phasal Head (§3.2). §3.3 Concludes

3.1 The First Phasal Syntax and the Access to the Root

The phasal v*-head has been assigned an array of functions within the minimalist tradition, which differ from the C-head. Within a more cartographic approach, v* has been split into multiple heads to account for these functions, and most importantly for my purposes into Voice* and v. Each head has its own functional properties, as summed up in (57). Languages differ as to whether the two heads are always split or bundled within one (cf. Harley, 2017; Pylkkänen, 2008). Following Collins (2004), the Voice*-head is taken to be the actual phasal one.

(57)   The functions of v* (cf. Harley, 2017: 3):
         a. introducing the external argument (EA)   (Voice*)
         b. checking the accusative case   (Voice*)
         c. delimiting the cyclic domain   (Voice*)
         d. verbalising the head of its complement   (v)
         e. introducing agentive/causative semantics   (v)
         f. initiating a subevent   (v)

Within a derivational *one phase-one head*-approach, one could argue that v is the copy of the v*-head, with the latter functioning as Voice* (see (58)). The first phasal syntax, therefore, can be seen as one head with a few occurrences; the highest occurrence of the chain functions as the actual phasal head (Voice*), the copied heads as the complement domain (v or Asp by its [iT:Aspect]-feature).

            (Voice*)   (v/Asp)
(58)   [$_{v*P}$ v*   [$_{??P}$ <v*>   [...]]]
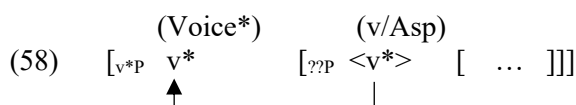
The core property of a phase is checking Case (nominative in C, accusative in v*; (57b)) and the delimiting of a cyclic domain (57c). If one wants to reduce C and v* to one common template, these two properties may be the place to start. Other properties, such as the encoding of argument structure and diathesis in v*, are argued to mask these phasal properties of the phasal head and can be derived from (Narrow) Syntax-external factors. In this section, I argue that the (verbal) Root (v√) might be this disturbing factor; a Root is used to refer to the external world and brings much external information to the syntactic derivation when interpreted at the interfaces. Access to the Root, in other words, influences the interpretation of the phase at the interfaces. Within the clausal structure, only v* has access to the Root (59a); C does not by means of a strict Phase Impenetrability Condition (PIC, cf. Chomsky 2000) (59b). Properties as event structure, argument structure and diathesis are not inherent to the v*-domain itself, but are derived from the Root (and its interpretation at the interfaces).

(59)   a. $[_{v*P}$ v* $[_{\sqrt{P}}$ v√   ]]

       b. $[_{CP}$ C $[_{v*P}$ v* $[_{\sqrt{P}}$ v√   ]]]
                                              PIC
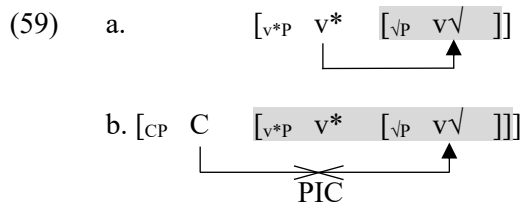
In this chapter, I spell out this interplay between v* and the Root in a bit more detail. The tight interaction between the first phasal syntax (v*) and the Root is already clear from the categorisation; v* categorises the Root (§3.1.1). When the Root is transferred together with the first phasal syntax, these disturbing may derivationally derive (§3.1.2).

3.1.1 Access to the Root: Categorisation by means of a Phasal Head

A Root is acategorical in and of itself and can never occur naked; it must be categorised, by hypothesis, within syntax (cf. Halle & Marantz, 1993). This can be done either by postulating functional superstructure on top of the Root (see, for instance, Alexiadou, 2001), or by assuming a categorising head (n, v, a), which turns a Root directly into a noun/verb/adjective (cf. Embick, 2010; Harley, 2014; amongst others). Within this paper, the latter approach will be assumed.

As to what type of heads qualify as categorisers, I follow Marantz (2007), Embick (2010) and Ingason (To appear) who argue that categorisers are phasal heads; they are able to send off the Root (and the rest of the phasal domain) to the interfaces where it can be interpreted as a noun, verb or adjective at CI, and receive phonological (and prosodic) exponent at SM. In the case of the verb, the verbaliser v* corresponds to the clausal phase-head v*.

The fact that the categoriser is a phasal head, however, does not say anything about how the categoriser is merged with the Root and what part of the structure exactly will be sent off to the interfaces. Embick (2010: 13), together with Harley (2014) and Acquaviva (2009), assumes that a Root can project and, therefore, can select for a complement; the verbaliser is merged on top, so to say, and categorises the phrasal Root (60a). A complex (verbal) head is obtained by head movement of the Root to the verbaliser by merging the two heads together (60b).

(60)   a. $[_{v*P}$ v* $[_{\sqrt{P}}$ √   …]]
       b. $[_{v*P}$ $[_{v*}$ v* √$]$ $[_{\sqrt{P}}$ <√> …]]
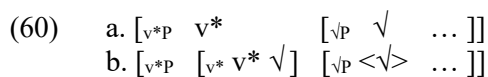
The assumption that Roots project, however, has been argued against in the literature (cf. Alexiadou & Lohndal, 2017; Merchant, 2019; Panagiotidis & Nóbrega, To appear), but is still the dominant assumption in many Minimalist approaches (and still has its remnants in the Labelling framework; cf. Chomsky, 2013, 2015; amongst others). The Root is introduced separate from its categorising v* (61a) and later on head-moved to v* by internal pair-Merge (61b).[79]

(61)   a. $[_{v*P}$ v* $[_{??P}$ √   …]]
       b. $[_{v*P}$ ⟪√, v*⟫ $[_{??P}$ <√> …]]
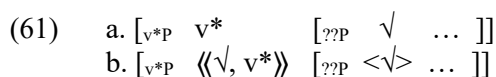
Epstein, Kitahara and Seely (2016), interestingly, add a second way of introducing the Root. Next to separately introducing a full Root and a full v* (as in (61)), the Root can be introduced as a pair with the v*-head. Pre-syntactically (or in a different Workspace, in the sense of Chomsky 2019), the Root and v*-head are merged as a pair and introduced as one within the derivation by means of External

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[79] Head movement, in this approach, is assumed to be pair-Merge. Pair-Merge of two heads will be represented as ⟪X, Y⟫.

pair-Merge (62).[80] The perks of externally merging the two heads as a pair is that v* is dephased; as it is assumed that the v* is affixed to the Root (√ precedes v* in the pair), v* becomes invisible to the LA and cannot function as a fully-fledged phase. The difference between the two ways of introducing the Root replaces the weak-strong distinction of v* in Chomsky (2001) and Legate (2002). When the Root and v* are separately introduced (61a), v* functions as a strong phase (i.e. transitive, etc.). When the Root and v* are introduced as a pair, v* functions as a weak phase (i.e. unaccusative, anticausative, passive, bridge-verbs, etc.); because of v* is affixed to the Root, its phasehood is already cancelled from the start.

(62) $\langle\langle √, v* \rangle\rangle$

A problem for this approach, however, is the fact that passives still show phasal properties (cf. Jarrah, 2023); passives, for instance, differ from unaccusatives/anticausatives in the presence of a (semantic) agent.[81] If passives are initially merged as a pair of the Root and v*, the phasehood of v* is already cancelled from the get-go: v* does not show any phasal properties, contrary to the facts. I would like to propse that this problem can be solved within a derivational one phase-one head approach.

Instead of having two ways of introducing the Root, I would like to propose that there is only one: by externally pair-Merging the Root and v*, with v* being affixed to the Root.[82] In a derivational *one phase-one head*-approach, the Root and phase head can easily start off as a complex head (in pre-labelling terms) or a paired constituent (in labelling terms). As v* is affixed to the Root, the phase is cancelled from the start, which accounts for unaccusative and unergative structures; the internal argument checks its Case on the C-head (63a). In transitive structures, however, the internal argument needs to check its Case within the verbal domain. For this to happen, v* is moved out of the pair, checks the Case on the internal argument and introduces an external argument, which checks its Case on C (63b). In passive structures, v* is also moved out of the pair (in line with the phasal properties of passives in Jarrah 2023), but the Root is subsequently head moved over to the v*-head.[83] They again form a pair, with v* affixed to the Root (in line with Chomsky 2013, 2015). The v*-phase is again cancelled, meaning the internal argument need to check its Case on C (63c). The one phase-one head-approach, in other words, can derive all three structures from a $\langle\langle √, v* \rangle\rangle$-pair.

(63)   a. [$_{CP}$ C   [$_{√P}$ $\langle\langle √, v* \rangle\rangle$ DP$_{IA}$]]   (unaccusative)
            [iT]   [uT]

        b. [$_{CP}$ C   [$_{v*P}$ DP$_{EA}$ v*   [$_{√P}$ $\langle\langle √, \langle v* \rangle \rangle\rangle$ DP$_{IA}$]]]   (transitive)
            [iT]   [uT]   [iT]   [uT]

        c. [$_{CP}$ C   [$_{vP}$ pP$_{EA}$ $\langle\langle √, v* \rangle\rangle$ [$_{√P}$ $\langle\langle \langle √ \rangle, \langle v* \rangle \rangle\rangle$ DP$_{IA}$]]]   (passive)
            [iT]   [uT]

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[80] For ideas on how pair-Merge of heads can be derived from set-Merge, see Omune (2018) and Oseki (2015).

[81] Within a more cartographic approach, one could argue for the absence of Voice* (Alexiadou, Anagnostopoulou, & Schäfer, 2015; Jarrah, 2023) or the presence of a non-active (i.e. without Specifier) or expletive Voice* (Schäfer, 2008) in unaccusatives/anticausatives and for a Voice* in passives (cf. Wood & Tyler To appear for an overview). Minimalist approaches, however, argue for a weak v*-phase for both unaccusatives and passives (cf. Chomsky, 2001; Legate, 2002).

[82] Theoretically, the Root could also be affixed to v*. For arguments agains this, see Epstein, Kitahara and Seely (2016) and Omune (2018). For reasons of space, I will not discuss this any further.

[83] Just like the internal merge of a phasal head to build its phasal domain, this type of head movement is argued to be part of Narrow Syntax, as it has some effect within the syntax (cf. Den Dikken, 2007; Roberts, 2010, 2011). If the Root ever needs to move for positional reasons, one could argue that this is done by post-syntactical head movement (*pace* Chomsky, 2001).

In sum, I argued that v* and the Root are introduced as a pair within the syntax; categorisation is done by means of externally pair-merging the Root with a phasal head, which already points towards a very close interaction between the categorising/phasal head and the Root itself. The question, however, remains what happens with the Root at the interfaces when v* transfers the Root to the interfaces. This will be the topic of the next section. For expository reasons, however, ⟪√, <v*>⟫ will be further on represented as v√, a verbalised Root, with √P as a label.

3.1.2 Roots at the Interfaces

Whilst there is a growing consensus that Roots are acategorical and must be categorised in the syntax, there is still much discussion on how much information is actually encoded within the Root. As I cannot do justice to the literature on the topic (see, for instance, Panagiotidis and Nóbrega To appear for an overview), I take up the idea that a Root does not consist of any inherent semantic (or phonological) material within the Narrow Syntax, is subject to late insertion, and, thus, does not encode any structural features related to the argument structure (Harley, 2014). Some first semantic properties are provided by the categoriser (v*, in this case),[84] but receives many of its properties through the derivation within the first phasal syntax. The interpretation of the Root, therefore, is assumed to be defined and fixed only at the first phase level, i.e. v* (=Voice*). The only element a Root is endowed with is an index (x on $\sqrt{_x}$), which points towards an entry in Lists at the interfaces (cf. Acquaviva, 2009). When the phasal domain is sent to the interfaces, the index on the Root will be matched with one of these entries, once at CI and once at SM. These entries possess semantic or phonological templates which provide the Root with further semantic and phonological material. Take the structure in (64) for the verb *throw*, for instance, as in *to throw a ball*: when the complement domain is transferred (see (64a)), the Root with the (random) index 77 ($\sqrt{_{77}}$) is linked to certain instructions at the interfaces. At SM, only one phonetic exponent /θrow/ can be assigned (see (64b)). At CI, however, multiple interpretations are possible. The exact interpretation of the Root depends on its surrounding structure (see (64c)); if the structure possesses a prepositional element *up*, i.e. *throw up*, the Root and its context is matched with the interpretation of *vomit* at CI. If nominal (i.e. possessing a n*), it matches the interpretation of *a light blanket*, etc. . If the transferred structure matches none of the specific templates at hand, an Elsewhere-principle can be adopted; here, the Root is matched with the *literal*[85] meaning of *throw*, as is needed in the case of *throw a ball*.
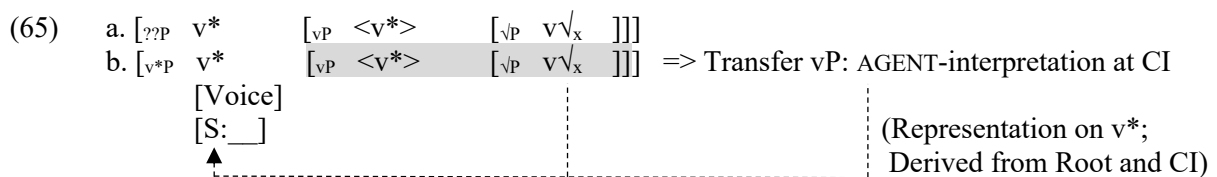
(64) Interpretation of *throw a ball* in English
    a. [$_{v*P}$ v*   [$_{√P}$ v$\sqrt{_{77}}$ DP]]
    b. SM instructions: $\sqrt{_{77}}$ ←→ /θrow/   => Match
    c. CI instructions: $\sqrt{_{77}}$ ←→ 'vomit' / [$_{v*P}$ v* [[$_{√}$__][$_P$ up]]]
                         ←→ 'a light blanket' / [n* [$_{√}$__]]
                         ←→ …
                         ←→ Elsewhere Principle   => Match
                                           (cf. Harley, 2014: 244)

Harley's (2014) discussion shows very clearly how important the structure of the first phasal syntax is for the interpretation of the Root; it must match certain templates at the interfaces. Wood (2016) takes this idea even further and argues that Voice is entirely determined by the overall interpretation of the vP, not by the Root or by a feature within the vP (65). Instead of diathesis being directly encoded as a standard feature in the Voice*/v*-head within the structure, as is argued for in the
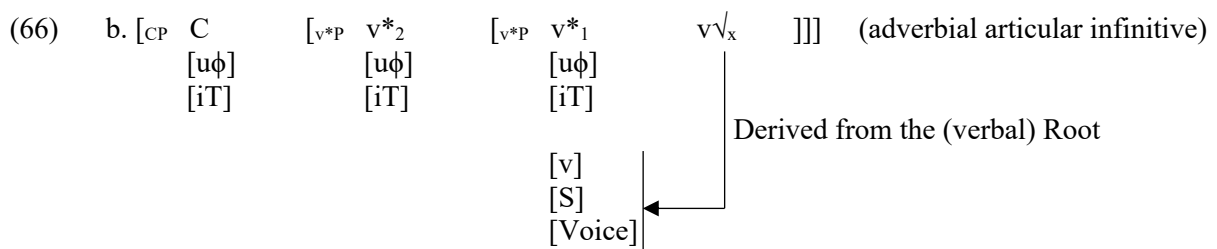
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[84] See, for instance, Embick (2010) for the idea that the the way the Root is merged to its categoriser has syntactic-semantic consequences. I stay neutral as to whether this can be captured within the model proposed above.
[85] See Harley (2014: 245-246) for the difficulties (and even impossibility) of defining a truly Elsewhere-interpretation.

traditional approach (cf. Kratzer, 1996), Voice is subject to late interpretation. The idea behind this hypothesis is that Voice* sends its complement domain vP over to the semantic component, where it receives an interpretation. Whether a vP is interpreted as agentive, stative, etc., depends on the interpretation of the Root and its surroundings; the vP *throw a ball* in (64), for instance, is interpreted agentive because of the Root is linked up with an action at CI (*throw* is a dynamic verb), the object DP_{IA} is interpreted as the grammatical patient, and there is a need for a semantic agent (DP_{EA}). From this interpretation, one can go back to Voice: Voice* is interpreted as agentive because it combines with a vP that is interpreted as agentive at CI, and will, therefore, be able to select an external argument.[86] The diathesis is not in and of itself encoded within a Voice*-head, but is purely a consequence of the interpretation of the vP at the interface. Voice is encoded derivationally at CI, not within Narrow Syntax. Representationally, however, I will put Voice ([Voice]) and Selection ([S(election)]) as features on the Voice*/v*-head, as they derive from its phasal domain, but will be represented without interpretability status; they do not operate within NS, but only derive from CI (65).

(65)   a. [$_{??P}$ v*   [$_{vP}$ <v*>   [$_{\sqrt{P}}$ v$\sqrt{}_x$]]]
       b. [$_{v*P}$ v*   [$_{vP}$ <v*>   [$_{\sqrt{P}}$ v$\sqrt{}_x$]]]   => Transfer vP: AGENT-interpretation at CI
          [Voice]
          [S:__]   (Representation on v*;
                                                                          Derived from Root and CI)

To conclude, v* has in and of itself purely phasal properties: it assigns C/case to the arguments in its domain and triggers Transfer to the interfaces. Other properties such as event structure, argument structure and diathesis are factors external to the phasal head; they are derived from the interpretation of the Root at the interfaces. The PCGr adverbial articular infinitive displays this distinction quite clearly; whilst v*$_1$ has both (Narrow) Syntax-internal (e.g. checking Case on the complement) and Syntax-external (e.g. encoding Voice) properties, v*$_2$ is used for only phasal properties (e.g. check Case on the subject) (66). v*$_1$ has access to the Root, whilst v*$_2$ does not. In the next section, I go on to argue that these common properties can be captured under a common template, i.e. an archetypal phasal head.

(66)   b. [$_{CP}$ C   [$_{v*P}$ v*$_2$ [$_{v*P}$ v*$_1$ v$\sqrt{}_x$]]]   (adverbial articular infinitive)
          [uϕ]   [uϕ]   [uϕ]
          [iT]   [iT]   [iT]
                                                                Derived from the (verbal) Root
                                             [v]
                                             [S]
                                             [Voice]

3.2 Archetypal Phasal Head (APH)

In this chapter, I have tried to show that the clausal phase heads C and v* have some inherent properties in common, but differ also in some crucial aspects. The communalities between C and v* (such as Case and Agreement) can be tentatively captured under the Archetypal Phasal Head (APH) Hypothesis in (67).[87]

(67)   Archetypal Phasal Head (APH) Hypothesis
       Each phasal head is introduced with the same set of formal features with an
       (un)interpretability status. The difference between phasal heads lies in the valuation
       on their interpretable features.

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[86] For a similar idea on the selectional feature, see Wood and Marantz (2017).
[87] It should be noted that I focus on clausal heads in this discussion. Nominal heads are left to future research (see the conclusion for some pointers).

(68)   Archetypal Phasal Head (APH) and Specific Phasal Head (SPH): Feature Valuation
        (first version)
        a.   Y*   b.   C   c.   v*
              [uφ:__]   [uφ:__]   [uφ:__]
              [iδ:__]   [iδ:__]   [iδ:__]
              [iT:Val]   [iT:Tense]   [iT:Aspect]

I hypothesise that each phasal head is introduced the same set of formal features with an (un)interpretability status. For a clausal head (i.e. C and v*), this would be an uninterpretable [uφ]-feature and an interpretable discourse ([iδ]) and (formal) tense ([iT]) feature. This is what I call an APH, i.e. a template from which each clausal phasal head can be derived (see Y* in (68a)). The difference between C and v* lies in the specification for valuation on their interpretable features (see (68b) and (68c)). Uninterpretable features, such as [uφ], are unvalued in these phasal heads; they drive forward the derivation and retrieve their values from their interpretable counterparts. Interpretable features differ on this regard; [iδ], for instance, seems to be unvalued for both C and v*, as the topic/focus interpretation must be initiated by the DP itself (through a [uδ:Topic/Focus] on D(P)). The two phasal heads, therefore, only differ in their value on [iT], arguably already specified within the lexicon; whilst C is specified for Tense, v* is valued for Aspect. A further argument in favour of this hypothesis may come from the (un)interpretability status itself. Within a minimalist approach, a feature is only present when it has a reflex within the primary linguistic data (cf. Zeijlstra, 2014); if a feature is posited, in other words, it must be interpretable within the language. An uninterpretable feature is only postulated when it has an interpretable counterpart. Interpretable features, in other words, precede the existence of uninterpretable ones and are, therefore, more likely to be valued in and of themselves.[88] Evidence for this may be provided from second language acquisition by means of the Interpretability Hypothesis (cf. Tsimpli & Dimitrakopoulou, 2007), where it is argued that uninterpretable features are universally more difficult to be acquired than interpretable ones, and from variation across the diachronic and geographical domain, where uninterpretable features are typically lost (cf. Walkden & Breitbarth, 2019).

C and v* can be reduced to one APH (Y*), with the difference between the two coming down to the valuation on their interpretable features. v*, moreover, has been shown to encode some properties brought about by Syntax-external factors. Properties such as event structure, argument structure and diathesis are not inherent to the v*-domain, but are derived from the Root (and its interpretation at the interfaces). A Root is used to refer to the external world and brings much external information to the syntactic derivation when interpreted at the interfaces. v*'s access to the Root, in other words, influences its interpretation at the interfaces. Features such as [Voice] and [S:__] are derived from the Root, but can be represented on the v*-head. If v* is indeed characterised by a [iT:Aspect]-feature by its phasal properties, one could argue that v* is actually an aspectual phasal head plus all the fog obtained from the interpretation of the Root at the semantic interface (69).

(69)   v* = Asp* + [Voice] etc.

One problem for the APH-hypothesis is the fact that Aspectual heads are also present within the lower T/C-domain in the Cinquian (1999, 2006) system. Whilst those in v* can be covered by its [iT:Aspect]-feature (i.e. the different v-heads within the Voice*-phase (70); cf. Ramchand, 2008; Sleeman & Brito, 2010), the Aspectual heads in C/T cannot be derived from its [iT:Tense]-feature. Biberauer and Roberts (2015ab), Cardinaletti (2004) and Richards (2011: 82, n. 5), however, have argued that these Aspect-heads up until Asp$_{Terminative}$ are part of the verbal domain, not of the T/C-domain.

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[88] It should be noted that this is not a hard-and-fast rule, as one can notice when looking over at [iδ:__]. This problem is left to future discussion.

This can be modelled under the idea that when the phasal v*-head transfers it complement domain, the v*-head is still kept in the derivation and possesses a [T]-feature with Aspectual value. The Aspect-head, in this way, could be still part of the v*-phase.

$$(70) \quad [_{??P} \; C \quad\quad [_{v*P} \; v* \quad\quad \overset{(Voice*)}{[_{v*P} \; <v*>} \quad\quad \overset{(v/Asp)}{[_{\sqrt{P}} \; v\sqrt{_x} \;]]]]$$
$$\qquad\qquad\qquad [iT{:}Tense] \qquad [iT{:}Aspect] \qquad\quad [iT{:}Aspect]$$

For the adverbial articular infinitive, however, I argued that it contains a double v*-construction; whilst $v*_1$ has access to the Root (i.e. $v*_1$ = Voice* = Asp* + [Voice] etc.), $v*_2$ does not and, therefore, is a pure Aspect-phasal head (i.e. $v*_2$ = Asp*; cf. Hinterhölzl 2006) (71). Aspectual values are not encoded within the lower C/T-area, but in a separate phase. As $v*_2$ has a phasal status, $v*_2$ can subsequently also check Case (cf. Takahashi, 2010).

$$(71) \quad [_{CP} \; C \quad\quad [_{v*P} \; v*_2 \quad\quad [_{v*P} \; v*_1 \quad\quad [_{\sqrt{P}} \; v\sqrt{_x} \;]]]]$$
$$\qquad\qquad\quad [iT{:}Tense] \qquad [iT{:}Aspect] \qquad [iT{:}Aspect]$$

$$\text{For which:} \quad \text{a. } v*_1 = \text{Asp* + [Voice] etc.} \quad \text{(access to } \sqrt{)}$$
$$\qquad\qquad\qquad \text{b. } v*_2 = \text{Asp*} \qquad\qquad\quad \text{(no access to } \sqrt{)}$$

A further question raised by the APH-hypothesis is why only v*, and not C, can verbalise the Root and why the construction in (72) is illicit. I propose that this has to do with the implementation of the categorical feature present on v* and C.

$$(72) \quad *[_{CP} \; C \quad [_{\sqrt{P}} \; c\sqrt{_x} \;]]$$

In the assumption that a categoriser is a phasal head externally pair-merged with a Root ($c\sqrt{_x} = \langle\!\langle \sqrt{_x}, <C> \rangle\!\rangle$; §1.3.1), one can implement the idea of the APH as being a general categoriser; Y* is pair-merged to the Root ($y\sqrt{_x} = \langle\!\langle \sqrt{_x}, <Y*> \rangle\!\rangle$). However, the APH is not inherently specified for any category, leaving open as to whether the Root must be interpreted as either a verb or noun. Following Acquaviva (2009: 1-5) and Panagiotidis (2011: 372), a noun encodes sortality, i.e. specifying the kind and identity of an object. A verb, however, encodes events which extend into time. The categorial features [CAT(egory):V] and [CAT:N], in other words, encode different perspectives and receive different values depending how the construction is to be interpreted at CI; they are shared through the spine throughout the derivation at hand (cf. Biberauer, Holmberg, & Roberts, 2014: 211-212). As the feature valuation is shared from the lower phase to the higher (by the remaining phasal head; (71)), the valuation of the categorial feature determines the possible extended functional superstructure.

$$(71) \quad [_{Y*P} \; Y* \quad\quad [_{Y*P} \; Y* \quad\quad [_{\sqrt{P}} \; y\sqrt{_x} \;]]]$$
$$\qquad\qquad\quad [CAT{:}\underline{V}] \qquad\quad [CAT{:}V]$$

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I assume that the valuation of this categorial feature subsumes a first distinction between APH for verbs and APH for nouns. As I am only concerned with clausal heads with [CAT:V], I will leave the APH specified for [CAT:N] to future research.[89] As to why C cannot categorise a Root, one could hold the

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[89] I only focus on verbal categorial features ([CAT:V]), because nouns not only seem to have a different categorial feature value ([cat:N]), but also the opposite interpretability status of verbs ([iϕ:Val], [uδ:Val], [uT:__]). A further discussion of how interpretability interacts with the categorial status is left to future research.
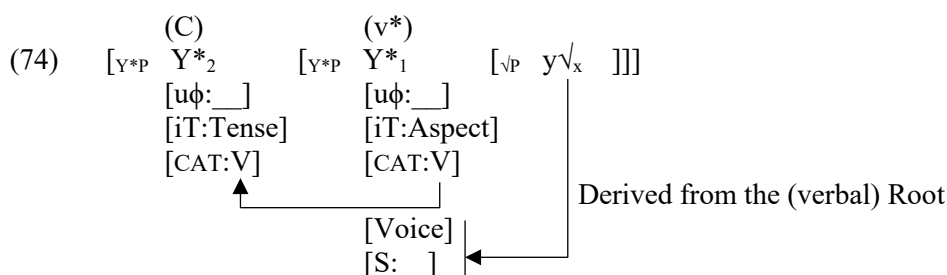
interpretation of the categorial feature and its event-semantics accountable. Panagiotidis (2011) argues that a verb must encode an event, which is then extended into time; an eventual interpretation must precede a time one. If C encodes Tense (i.e. [iT:Tense]) and v* Aspect (i.e. [iT:Aspect]), one could argue that a head encoding Aspect must precede one encoding Tense (72a). In this way, (72b) is accounted for, as the Root is directly merged with Tense.

(72)   a. Y* (= v*)   <   Y* (= C)
            [CAT:V]   [CAT:V]
            [iT:Aspect]   [iT:Tense]

        b. *[$_{Y*P}$ Y*   [$_{\sqrt{}P}$ y$\sqrt{}_x$]]
               [CAT:V]
               [iT:Tense]

Based on this discussion, the structure of the APH can, next to the formal featural sets, be enriched with an unvalued categorial feature (73). Specific heads value this features in different ways; a first distinction, therefore, can be made between those with a V-valued categorial feature and those with a N-valued one. As I am only discussing clausal heads (C and v*), the categorial features of the specific heads are set for V. A further distinction can be made based on the valuation of the formal interpretable features; C differs from v* in the valuation on the [iT]-feature, i.e. Tense for C and Aspect for v*. These are the common phasal properties. v*, however, can also be influenced by external factors; it is enhanced with derivational features such as [Voice] and [S] when having access to the Root. Notice that these do not possess an (un)interpretability status, as they are on the v*-head only for representational reasons.
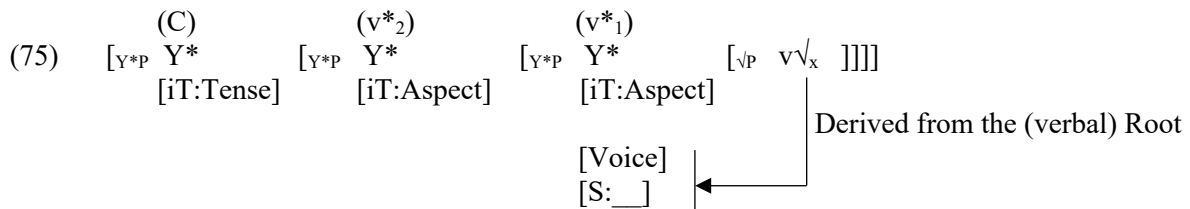
(73)   (Clausal) Archetypal Phasal Head (APH) and Specific Phasal Head (SPH): Feature Valuation
        a.   Y*   b.   C   c.   v*
                [uφ:__]   [uφ:__]   [uφ:__]
                [iδ:__]   [iδ:__]   [iδ:__]
                [iT:Val]   [iT:Tense]   [iT:Aspect]

                [CAT:__]   [CAT:V]   [CAT:V]
                                                                [Voice]
                                                                [S:__]

If one were to implement the APH-hypothesis in a derivational structure, one would end up with the structure in (74). Y*$_1$ (= v*) verbalises the Root as a verb (i.e. [CAT:V]) and in its interaction, specific semantics are introduced and arguments selected by means of the Roots interpretation at CI (i.e. [Voice] and [S:__]). As Y*$_1$ is the first head merged to the Root, [iT] must be specified for Aspect. When Y*$_2$ is merged, valuation of the categorial feature is shared through the spine. In theory, nothing prohibits the [iT] from being specified for either Tense (i.e. C) or Aspect (i.e. v*). In tensed finite clauses with a nominative subject (i.e. [uT:Tense] on DP), C would be the head to merge (as in (74)).

            (C)   (v*)
(74)   [$_{Y*P}$ Y*$_2$ [$_{Y*P}$ Y*$_1$ [$_{\sqrt{}P}$ y$\sqrt{}_x$]]]
                [uφ:__]   [uφ:__]
                [iT:Tense]   [iT:Aspect]
                [CAT:V]   [CAT:V]

                                        [Voice]
                                        [S:__]   Derived from the (verbal) Root

As noted, nothing prohibits the [iT] Y*$_2$ to be specified for either Tense (i.e. C) or Aspect (i.e. v*). If it were specified for Aspect, one would end up with a double-v* structure, just as argued for for the adverbial articular infinitive in PCGr. The lower v*$_1$ would amount to an Asp*-head with some features derived from the Root, the higher v*$_2$ would encode pure aspectual values (i.e. as Asp*; Hinterhölzl, 2006) (75).

(75)   (C)   (v*$_2$)   (v*$_1$)
[Y*P Y*   [Y*P Y*   [Y*P Y*   [√P v√$_x$]]]]
        [iT:Tense]   [iT:Aspect]   [iT:Aspect]

                                                                  Derived from the (verbal) Root

                                           [Voice]
                                           [S:__]

3.3 Summary

In the first chapter, I reduced a phasal structure to one phasal head. In this chapter, I reduced the two clausal phasal heads (i.e. C and v*) to one archetypal head (Y*) based on the (phasal) communalities between the two. The differences between the heads were allocated to external factors, i.e. v*'s access to the Root. The event structure, argument structure and encoding of diathesis are not inherent to the v*-head, but are derived from the Root's interpretation at the interfaces. One can test this prediction by looking at a verbal head not influenced by the Root; the v*$_2$ in adverbial articular infinitives in PCGr, for instance, is not directly influenced and is characterised by purely phasal properties.

This thesis put forward the idea that the two clausal phases (C-phase and v*-phase) can be reduced to one template, i.e. the *archetypal* phasal head (APH). This was done in a reductionist fashion: a phase was first reduced to a phasal head by means of a derivational *one phase-one head*-approach. The C-phase came down to a C-head and a v*-phase to a v*-head. Then, based on their communalities, the C- and v*-head were reduced to an APH, a template for each phasal head which is specified for a same set of formal features and an (un)interpretability status. The difference between the C and v* lies in the valuation on their interpretable features: C, for instance, is specified for Tense (i.e. [iT:Tense]), v* only encodes Aspect (i.e. [iT:Aspect]). Other properties differentiating v* from C were due to factors external to syntax proper; v*, for instance, derives much of its event and argument structure, diathesis, etc. from the Root. Those properties are not inherent to v*, but are derived from the interpretation of the Root at the interface.

Evidence for separating the Syntax-internal phasal properties from the external ones was provided by a v*-phase which has not been influenced by the Root. The adverbial articular infinitive was argued to possess a double-v* construction, with evidence from (a) the accusative case on the subject, (b) the relative tense-interpretation on the infinitive, (c) the disappearance of the article, modelled as the remaining φ-features in C, and (d) the presence of finite verbs and licensing of a nominative subject. Comparing $v*_1$ with $v*_2$ showed that $v*_1$, having access to the Root, showed both Syntax-internal and -external properties, whilst $v*_2$ only showed Syntax-internal properties. $v*_2$ was argued to be a pure Aspectual head with phasal properties ($v*_2$ = Asp*), whilst $v*_1$ showed to be an Aspectual head with external influences ($v*_1$ = Asp* + [Voice]). When all external factors were taken out, the communalities could be abstracted and the v*-head, together with a C-head, could be reduced to one APH.

A prediction made by the APH-hypothesis is that other phasal heads, such as P* (Gallego, 2010: 79-81; Weerasooriya, 2021) and D* (Chomsky, 2005: 17), may also originate from the same archetypal phasal head (76). D* can be said to be an anti-cyclic head compared to the clausal phasal heads, i.e. D* has the opposite interpretability status on its formal features compared to C or v*. To account for this distinction, one could argue that the valuation of the categorial feature plays a role; phasal heads with [CAT:N] have the opposite interpretability status on its features from the ones with [CAT:V]. The phasal P* might be quite an interesting head, in this regard; it has been argued to be a nor a verb, nor a noun, and the interpretability on its formal features might be a reflex of this. How the categorial feature correlates with the uninterpretability of the formal features is a track left open for future research.

(76)   Archetypal Phasal Head (APH) and Specific Phasal Head (SPH): Feature Valuation

a.	Y*	b.	P*	c.	D*
	[φ:__]		[uφ:__]		[iφ:Val]
	[δ:__]		[uδ:__]		[uδ:Val]
	[T:__]		[iT:Val]		[uT:__]
	[CAT:__]		[CAT:V/N]		[CAT:N]

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