

CORRELATIONS BETWEEN CASE AND THE D-SYSTEM AND THE INTERPRETABILITY OF CASE*

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ABSTRACT. A correlation between articles and Case has long been noted based on diachronic evidence. Beyond articles, evidence supports that this correlation extends further to clitics and the determiner system (the D-system) at large. The D-system in turn supports referential functions in grammar and is closely correlated to Person. The aim of the present article is to link support for these facts to the broader foundational question and independent recent theories of the function of Case as governing referential meaning in grammar at the level of clauses. This link is supported by specific evidence from the use of Accusative and Partitive clitics in Romance, which play the same roles strong Accusative vs. weak Partitive Case play in Finnish, which lacks articles, and similar patterns in languages such as Turkish, Russian, and Latin. Case therefore arguably determines the referential function of (pro-)nominals as part of event structures, whether synthetically or else analytically via the left periphery of the NP. This explains the historical links between Case and the D-system, which we further argue evidence from Greek has been incorrectly argued to contravene.

Keywords. clitics; case; person determiners; diachrony; Romance; Greek

RESUMEN. Desde hace mucho tiempo se ha observado una correlación entre los artículos y el caso que se basa en evidencia diacrónica. Más allá de los artículos, la evidencia apoya que esta correlación es aplicable en los clíticos y el sistema de los determinantes (el sistema D) en general. El sistema D, a su vez, admite funciones referenciales en gramática y está estrechamente relacionado con la persona gramatical. El objetivo del presente artículo es vincular el apoyo a estos hechos con la cuestión fundamental más amplia y característica de teorías recientes independientes que consideran que la función del caso es la de actuar como gobernador del significado referencial en la gramática a un nivel clausal. Esta conexión está respaldada por evidencia específica del uso de los clíticos acusativo y partitivo en romance, los cuales desempeñan los mismos roles que el acusativo fuerte frente al partitivo débil en lenguas como el finlandés, el turco, el ruso y el latín todas las cuales carecen de artículos pero tienen un sistema robusto de caso nominal. El caso puede considerarse, por tanto, que determina la función referencial de los elementos (pro)nominales como parte de las estructuras eventivas, ya sea sintética o analíticamente a través de la periferia izquierda del SN. Esto explica los vínculos históricos entre el caso y el sistema D, y explica además algunos datos del griego que en el pasado se usaron incorrectamente para contravenir esta correlación.

Palabras clave. clíticos; caso; persona; determinantes; diacronía; romance; griego

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1. Introduction

Languages appear to differ widely, yet the logical space of possible variation appears limited by general principles universal in our species, an idea often known as the *Uniformity Principle* (Chomsky 2001: 2). Applied to language diachrony, the basic tenet of such uniformity is that languages develop across human generations preserving a kind of unity and continuity in function, which is however not mirrored in form. A widespread rendition of this point takes the form of a diachronic shift from morphological ('synthetic') inflections that come to be implemented through syntactic ('analytic') configurations. The latter crucially depend on emerging phrases (e.g. Vincent 1997; Ledgeway 2012), and on earlier pragmatic phenomena becoming syntacticised (Sitaridou 2011; Haegeman & Hill 2013; or Corr 2021, *inter alia*). Well-known examples of such processes took place in the evolution from Latin to Romance: (i) The emergence of a DP structure to replace (Classical) Latin morphological Case¹ (Holmberg 1993; Giusti 1995; Ledgeway 2012); (ii) the extension of verbal auxiliaries that led from Aspect-based to Tense-based paradigms (Pérez-Saldanya 1997; Baker 2014); or (iii) the consolidation of a grammaticalized clausal left-periphery (Rizzi 1997) dedicated among other things to previously pragmatically-encoded information, as argued by Sitaridou (2011), or also Eide & Sitaridou (2014: 379) for the evolution of information structure in Spanish according to which the need for expressing discourse prominence is a constant but the grammatical means of its expression may vary over time.

While these facts are well-documented, the focus of the present article is to re-interpret these data—specifically the development of D (including clitics)—in the context of the theoretical question of the (un)interpretability of (structural) Case. Within the Minimalist Program (Chomsky 1995, and subsequent work), structural Case is a syntactic category without inherent meaning. While we here take for granted that Case is not interpretable in the way that thematic roles are, the claim of interest is that Case markers are overt indicators of underlying grammatical relations and functions governing the referential interpretation of NPs as part of events and propositions (see Hinzen 2014, 2018). On this view, Case is not viewed as a 'feature' but as a relational category. Rather than a feature on a DP, which needs to be valued and eliminated in the course of a derivation in order for it to converge, a given Case morpheme is the externalisation of internal grammatical relations. It is these relations that are interpretable, not the features, by licensing referential interpretations of NPs when appearing as parts of event or proposition-denoting configurations.

A further basic fact that powers the subsequent discussion is that the D-system governs referential functions of nominals (Longobardi 1994), which is both due to functional morphemes in the left periphery of nominals governing aspects such as genericity or definiteness, and to categories entering this periphery that also govern specific (i.e. deictic) aspects of referentiality, such as grammatical Person. A relation between Case and the D-system therefore raises the question of how referential functions of grammatical structure relate, not only to D, but also to Case. We will specifically claim that Case and D are related in the development of languages because they both are superficial manifestations of the same underlying interpretable grammatical functions, designed to link nominals to hierarchically higher structural domains and establish referentiality for these. This relational character of both Case and D will be shown to have evolved to become an analytic exponent in the configurational

¹ For clarity, technical grammatical concepts such as Person, Case, or Gender will be capitalized in this paper to avoid confusion with the equivalent homonymous non-technical common nouns.

topology (phase edge) of derivational phases, replacing inflectional Case marked on the nominal head, a previously synthetic feature (see Ledgeway 2012 for review).

2. The apparent complementarity of Case and articles

The idea that Case and articles seem to be in complementary distribution cross-linguistically, demonstrating a relation between them, is an old one (Behaghel 1923; Paul 1959; Holmberg 1993; or Giusti 1995). Holmberg, in particular, observed that Case and articles seem to be in partial complementary distribution in European languages, in that languages that have robust nominal Case² paradigms like Latin, most of Slavic, of Finno-Ugric, or Turkish, tend to lack articles completely. In contrast, languages with little to no nominal Case like Romance, Celtic, or Slavic outliers such as Bulgarian, or Macedonian, do show lexically specified articles. Diachronically speaking, moreover, languages that have had or may have had (as in proto-Indo-European) consistent nominal Case paradigms in earlier stages but evolved to lose them, very often develop articles in their evolution (Giusti 1995; Abraham 1997; Philippi 1997). For example, Latin's consistent Case deflection led to the generalized emergence of articles in their descendants (Vincent & Harris 1988; Maiden & Ledgeway 2016), a process surprisingly similar across the domain despite the wide variety of substrates in which the different subfamilies developed (Ibero-Romance, Gallo-Romance, Italo-Romance, Rhaeto-Romance, Eastern Romance, etc.). In the Germanic family, Gothic, Old High German, Old Saxon, or Old English, among others, all had and lost nominal Case to a large extent (with residues of it in German and Yiddish) at the same time that articles emerged (Abraham 1997; Philippi 1997; Lavidas 2017). In the Slavic family, generally more resistant to lose nominal case (as proven by modern Russian, Polish, Serbo-Croatian, etc.), the one two languages that did develop postnominal definite articles (common in the *Balkan Sprachbund*), i.e. Bulgarian and Macedonian, are also the ones in which nominal case weakened or disappeared out of their common Case-full but article-less Old Church Slavonic ancestor (Wahlström 2015).

These deflection processes always proceed in stages and are the result of multifactorial triggers. In the case of Latin, for instance, Case loss happened through phonological weakenings (e.g. loss of word-final accusative marking /m/), vowel mergers (e.g. short /ĭ, ŭ/ and long /ē, ō/), or vowel quantity loss (Calabrese 1996), all of which lead to growing syncretisms and motivated the development of stricter surface word orders to account for the grammatical mapping of argument structure, something Latin accomplished through Case jointly with a much more non-configurational word order. Articles then developed as an alternative strategy to mark arguments (Vincent 1997). A similar idea is presented for Germanic in Abraham (1997), Philippi (1997), or Leiss (2000) who point to the loss of verbal genitive and its growing syncretism with accusative as a main trigger for the development of determiners as referential markers. In this Germanic change, crucially, aspect seems to have been paramount to the deflection processes, a topic to which we come back when we elaborate our proposal in the discussion of Greek in Section 5 below.

Together, these facts suggest that there *must* be a relationship between fading Case and emerging articles. However, while such a theory is superficially appealing, the underlying explanation, i.e. on which underlying factor the correlation is based, is less clear. Some facts, moreover, seem to conspire against it. Philippi (1997: 64) points out

² Nominal Case, in this paper, refers to morphological exponence of Case appearing as inflectional affixes in the noun. In that sense, we distinguish between Case on N from Case on D.

four obvious issues: (i) In Greek, we find both definite articles and nominal Case morphology; (ii) in Chinese and other analytically extreme languages, absence of articles correlates with absence of any inflectional morphology (including obviously Case); (iii) in most of Romance or Germanic (e.g. English), Case deflection was not limited to nouns but also affected determiners (demonstratives or articles), and hence articles alone cannot identify the grammatical information that Case supplied; and (iv) in languages like Dutch or English, loss of Case was replaced by prepositions rather than by articles.

We assess these challenges in Section 5 concentrating particularly on the first, i.e. the coexistence of Case and articles throughout the different stages of Greek. Before getting there, however, we elaborate next on the fact that it is not just articles that evolved out of the loss of Case in languages like Latin, but in fact the D-system at large (Vincent 1997), made up of determiners (including articles) and pronouns (including clitics) as well. Inasmuch as pronouns are, in many languages, the only locus of Case, these will be crucial for our analysis. This will specifically be because Case on pronouns is interpretable in terms of referentiality, and reflects the referential roles played by Case in the earlier stages of languages that later lost inflection.

After that, in Section 4, we close in on our specific hypothesis about the cause in question, based on the fact that, while D is already widely assumed to play a role in the referentiality of nominals (Longobardi 1994), Case has recently been argued to play a role in generating expression with referential meaning at the event level as well (Hinzen 2014, 2018; Hinzen & Sheehan 2015; Martin, Schröder & Hinzen 2020). This view contravenes the much more common one that (structural) Case is an ‘uninterpretable’ feature, which has to be ‘checked’ in order for a derivation to converge at the semantic interface (Chomsky 1995), and is decoupled from the ‘interpretable’ bundle of ϕ -features (gender, number, person, ...) (Den Dikken 2011: 873; see also Adger & Harbour 2008; or Pesetsky & Torrego 2001). This common view raises an immediate question, however: If Case is not interpretable or referentially relevant, why would at least part of the Latin case system evolve into a D-system that is essentially designed for referential function? In line with this, we argue that Latin Case fulfilled the referential functions of the Romance D-system, thus connecting the three notions of Case, D, and referentiality in a single explanatory schema. Since there appears to be a gradable scale ranging from synthetic inflectional Case to analytic D, and languages move along that scale in their diachronic evolution, an answer to the Greek conundrum will be provided through this gradient perspective by the time we reach Section 5.

3. Structure and function of the D-system

D does not merely comprise articles but also pronominal systems, particularly clitics. To that end, we assume with Vincent (1997) that the decline of Latin Case did not only lead to the emergence of articles, but in fact to the emergence of what he calls a D-system of determiners (including articles) and pronominals (including clitics), both related to a newly emerged configurational phrasal category DP that in this view did not exist in Latin. According to the DP hypothesis we assume here (Szabolcsi 1983; Abney 1987; Longobardi 1994; Lyons 1999), full nominals³ (with or without overt

³ In this paper, we explicitly distinguish between nominal phrases (and *phases*), and Noun Phrases. The former can be of any category (DP, QP, NP), and the latter refers to the lexical projection of a noun, and will thus have to do with the make-up of the root into a nominal through features such as Gender and Number. Such features contribute to the lexical interpretation of the root as a noun, adding features concerning nounhood (gender) and countability (e.g. singular vs plural) without entailing referential

determiners) are in complementary distribution with pronominals (*The man runs*, *He runs*, **The he runs*). The latter share the same basic phrase structure, but they differ in that full nominals must include an overt NP restriction that makes them lexically determined, while pronominals must display an empty (or covert) NP restriction:

- (1) a. **Full nominals**
- | | |
|------------|---------------|
| DP | |
| D | NP |
| <i>la</i> | <i>maison</i> |
| <i>el</i> | <i>niño</i> |
| <i>you</i> | <i>guys</i> |
- b. **Pronouns** (to be refined)
- | | |
|------------|----|
| DP | |
| D | NP |
| <i>la</i> | ∅ |
| <i>él</i> | ∅ |
| <i>you</i> | ∅ |

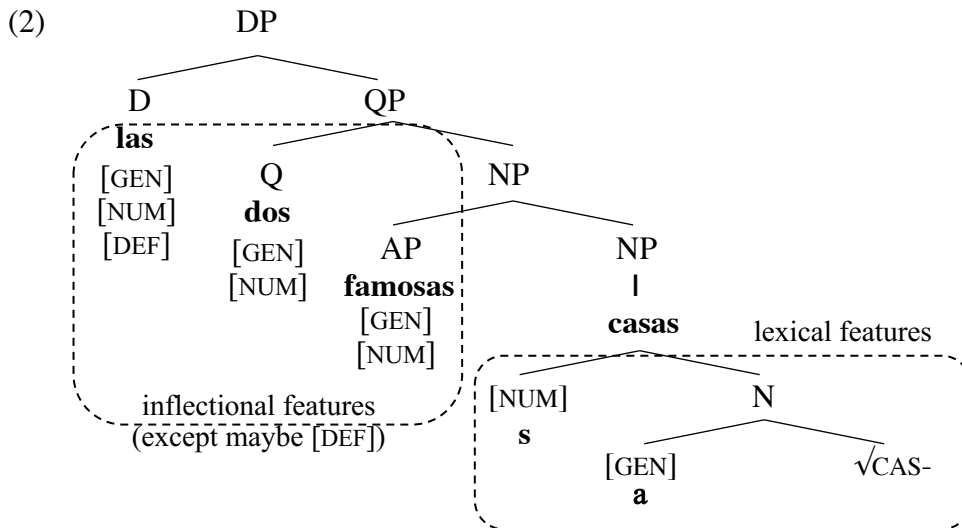
A crucial fact for what follows is that languages without a nominal Case paradigm, but a D-system instead, do often preserve Case in D, often in pronouns only, as in e.g. most of Romance (except Rumanian), most of Germanic (except German or Yiddish), and Bulgarian or Macedonian. Interestingly, Case loss from earlier stages in German or Yiddish is more limited than in the rest of Germanic, since Case is not just visible in pronouns but also in articles and demonstratives, as well as in adjectives (strong adjectival inflection: (*Ein*) *Neuer Mann* vs weak adjectival inflection: *der neue Mann*), and even residually in nouns (e.g. *Mensch*: NOM SG vs *Menschen*: rest of the paradigm). These adjectival and nominal residues are however not distinctive enough, and speakers must normally rely on determiners to identify syntactic function. We provide some basic details on the internal structure and interpretation of nominals, which we will see are reflected in the pronominals and clitics substituting them.

Case preservation in D is crucial to our argument since Case in D clearly is interpretable in terms of the referentiality of the DP involved, as we review in this section. Since full nominals and pronominals are both part of the D-system, and themselves in complementary distribution, we expect that any grammatical information we see overtly in one of them is likely to be present in the other. Most of the evidence we now summarise will be for Catalan, where clitics are particularly transparent with respect to their internal structure (Martin 2012; Boeckx & Martin 2012), and arguably illustrate a differentiation of layers of the D-system that mediate distinct referential functions that mirror classical functions of Case in Latin and Greek.

3.1 *Internal structure and interpretation of full nominals*

The structure of a full nominal such as Spanish *las dos famosas casas* ‘the two famous houses’ would often be represented as follows:

information of the type described in (2) through (8) below. For the latter, the D-system will be necessary, and that will not be part of NP, but rather of its functional left-periphery.



In this DP, the heads of phrases projected out of the heads D, Q, A, and N are filled through overt lexical items. As a consequence, the DP is read as a definite, countable (plural), qualified (through the adjective), and feminine nominal. The items in the head slots include two lexical items out of two different roots: $\sqrt{\text{CAS}}$ - ‘house’ and $\sqrt{\text{FAM}}$ - ‘fame’ (the latter is merged as an adjunct phrase), and three functional features: Gender, Number, and Definiteness. From this structure, the interpretation of the nominal follows. Gender arguably plays the role in Romance of nominalizing a category-neutral lexical root (Picallo 2008).⁴ Like Number (NUM), it is required lexically: lexical Gender and Number are NP-internal, while Case is a phrasal feature. As for Number, it can have three interpretive values:

(3) **Interpretations of nominal number:**

- | | | | | | |
|----|-----------|---|-------------------------|---|--------------------------------|
| a. | NO NUMBER | = | dog-breeding | → | predicate |
| b. | UNMARKED | = | (a) dog-∅ | → | (count, SG) or mass |
| c. | MARKED | = | (some/the) dog-s | → | count (non-singular: DUAL, PL) |

As seen in (3), NP-internal Number signals the denotation of the nominal as being (a) a predicate (no number), (b) a mass (singular, necessarily), or (c) a (countable) object (and if the latter, whether it is singular or not). At the same time, this contribution of Number is limited, since Number is well-known not to have a direct correlation with the quantification of the NP itself, which is a separate process governed by functional structure higher up in the nominal edge (QP). Thus, for example, plural Number does not always entail a plural interpretation.⁵ Just like Case in determiners (see below), both Gender and Number can also be inflectional, in which case they are determined through Agree relationships in lexical items such as quantifiers (e.g. *muchos*_{MASC.PL} ‘many’, *algunas*_{FEM.PL} ‘some’), determiners (e.g. *las*_{FEM.PL} ‘the’, *estos*_{MASC.PL} ‘those’), or

⁴ The same root can become a nominal by adding Gender (e.g. *fabric-a*_{GEN} ‘factory’) or a verb by adding a theme vowel (e.g. *fabric-a*_{TV} ‘s/he manufactures’). Gender signals that the root has become a nominal category, either a noun or an adjective. In a small few cases, Gender also specifies sexual dimorphisms: *niño* ‘boy’ vs *niña* ‘girl’, but this is a quite residual function, affecting a relatively small number of items in any language.

⁵ Thus in *Peter and John have dogs*, the plural morpheme in *dogs* does not necessarily mean *more than one dog*. The sentence would also be true if Peter and John had one dog each (Zweig 2009). Likewise, in *I have zero dogs*, the plural morpheme in *dogs* does not entail a plurality of dogs either.

adjectives (*buenas*_{FEM.PL.}, *buenos*_{MASC.PL.} ‘good’). In those cases, the two features contribute phrasal but not lexical meaning on the lexical item where they appear.

The definiteness expressed by *las* in (2), on the other hand, is a functional feature that is more often conceptualized as the morphosyntactic-semantic contribution of definite articles and other strong determiners, such as e.g. demonstratives. If the nominal in (2) lacked a lexical element in D (e.g. Spanish *dos casas famosas* ‘two famous houses’), the D head would still be projected but it would be empty, thus leading to an indefinite ([−DEF]) interpretation of the nominal, or the two would occupy the D position, thus yielding a [+DEF] interpretation. The feature of definiteness is thus not to be considered lexical (i.e. it is not NP-internal), since it does not describe objects or events in the world, and can only be merged as part of the left-periphery of the nominal.

Going beyond the structure of the DP depicted in (2), we turn to the features of Person and Case. Longobardi (2008) argues for D as the locus of Person (P). Again, P is not a lexical feature (NP-internal) of nominals, but rather belongs at the phrasal level. However, it is crosslinguistically universal that P is irrelevant in full nominals, inasmuch as they all are trivially 3rd person. Note that the 1st person feature of a pronoun such as e.g. Spanish *yo* ‘I’, which could be considered lexically defined, is in fact overridden when built inside a full nominal like *el yo* (literally ‘the I’ but meaning ‘the self’).⁶ Moreover, even at the phrasal level, a feature like P is in fact and crucially not interpreted in the (pro)nominal where it appears, but rather relationally with respect to the participants defined in the Speech Act context (Sigurðsson 2004, 2017).

This property of being relational is also shared by Case, another feature that, like Person, can only be interpreted with respect to the grammatical context where the carrier nominal appears, not inside the nominal per se. We argue below that, like Person, Case is a feature that belongs in D, as suggested by the fact that in most languages lacking noun Case, this grammatical feature is limited to the D-system. Moreover, the links between Case and referentiality transpire when considering the range of different interpretations available for full nominals in Romance, depending on their internal structure (Martin et al 2020):

- (4) a. Todos buscan [_{EDGE} ∅ [_{INT} secretario]] [predicative]
 All.PL seek.3P secretary
Everybody is doing secretary-hunting
- b. Todos buscan [_{EDGE} un [_{INT} secretario]] [indefinite]
 All.PL seek.3P a secretary
Everybody is looking for a (probably different) secretary
- c. Todos buscan [_{EDGE} a el [_{INT} secretario]] [definite]
 All.PL seek.3P to the secretary
Everybody is looking for the secretary
- d. Todos buscan [_{EDGE} a este [_{INT} secretario]] [deictic]
 All.PL seek.3P to this secretary
This secretary, everybody is looking for

(4)a is a case of abstract denotation of the nominal, in which the lexical ‘interior’ of the DP necessarily lacks grammatical marking (*secretario* does not have real number marking) and as a result it is not argumental, but rather just a predicate modifier (as

⁶ As we will argue in §3 below, what this actually tells us is that the category of Person is never a lexical feature of a lexical item like *yo* ‘I’, but rather that the Person interpretation is a functional feature that belongs in a particular topological position inside nominals.

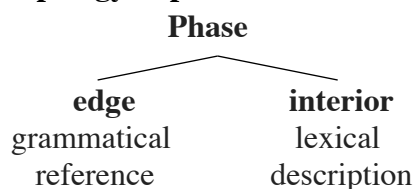
suggested by the English translation *secretary-hunting*). The functional left edge of the nominal in this case is necessarily empty and lacks both Case and Person, a fact visible in that incorporated nominals tend to be devoid of Case morphology, and do not have Person either, as they are just 3rd person (non-person following Benveniste 1966). Through the absence of Case and Person on predicative nominals, a first link between referentiality (the inverse of predicativity) is created.

In (4)b we move to a different kind of reference, where by the inclusion of a quantificational determiner in the phase edge, an operator-variable relationship is established, in which the lexical value of the operator determines how to pick up individual objects from the set denoted by its restriction. In this case, a variable reading arises in which for each person x in the domain of the universal quantifier, x is looking for a (possibly different) secretary y . The edge in this case is occupied by a *weak determiner* (Milsark 1974; or Barwise & Cooper 1981, inter alia), which correlates with indefinite arguments and existential quantification ($\exists x$), which attributes narrow scope to the nominal.

As for the definite interpretation in (4)c, it similarly establishes an operator-variable relationship, in which again every person x in the domain of the universal quantifier is looking for the secretary y . The difference with the previous case is that now y is the same for every person x in the domain of *everybody*, i.e. y has *constant* reference, the result of a wide scope specific reading accomplished by the fact that definite determiners count as *strong quantifiers*, which correlates with definite arguments, as formalized semantically through an iota operator (ιx), in which the nominal scopes over other elements. Finally, the deictic case in (4)d illustrates an even stronger form of nominal reference, due to the ‘direct’ reference of pronouns in their indexical uses, which Kaplan (1989) claimed for them contra the Russellian tradition.

Different positions within the nominal configuration are thus associated to different interpretations – an aspect of its *topology* in the terms of Longobardi (1994, 2005). The lexical information of the nominal, which describes the type of object in the world the nominal is about, and the grammatical information, which determines the kind of denotation/reference the nominal involves, must be separated. We implement this partition through the particular implementation of Longobardi’s (1994, 2005) topological mapping theory (TMT) in Hinzen (2012) or Arsenijević & Hinzen (2012), in which the *derivational phases* of Chomsky (2001 and subsequent work), are taken as *units of referential significance*. In that view, grammar works by mapping topological positions in the syntactic structure of phases to particular, hierarchically ordered, forms of meaning and reference. The basic structure of all phases in that sense distinguishes between the *phase interior*, related to lexical information (conceptual description), and the *phase edge*, related to referentiality:

(5) **Topology of phases**



Phase edges thus play a connecting role in our system. Smaller phases become part of higher phases as the grammatical derivation unfolds, i.e. the object expressed by the D phase becomes part of an event expressed by the v phase, which in turn becomes part of the proposition expressed by the C phase. Hinzen (2012), and Arsenijević & Hinzen

(2012) relate this idea to a general mechanism of phasal composition in which derivations take place by *single cycle* (Chomsky 2008). Just one referent is computed at each phase during the derivation, and so when lower phases integrate into higher ones, they can only specify descriptive conditions (denotations) for the referent computed in the new phase. The transition between them is then implemented through the connecting role of phase edges in our system. In the nominal phase, this schema accounts for the interpretations of full nominals presented above, though the following configurations:

(6) **Typology of nominal interpretation**

a.	PREDICATIVE	→	[EDGE	∅	[INT	<i>man</i>]]
b.	QUANTIFICATIONAL	→	[EDGE	D _{WEAK}	[INT	<i>man</i>]]
c.	DEFINITE (3P)	→	[EDGE	D _{STRONG}	[INT	<i>man</i>]]
d.	DEICTIC	→	[EDGE	D _{PERSON}	[INT	(<i>man</i>)]]

As we said above, however, Case and Person are not directly visible in full nominals, so to introduce them in the picture, we now need to turn to pronominals.

3.2 *Internal structure and interpretation of pronominals*

The concept of a pronoun is famous for being equivocal. In the received view, ‘pronoun’ is a cover term that stands for a variety of grammatical objects with quite different lexical, semantic, and grammatical properties (Roca 1992; 1996; Cardinaletti & Starke 1999; Déchaine & Wiltschko 2002; Martin 2012; or Ormazábal & Romero 2013, *inter alia*). Pronouns in Germanic and Romance, for instance, range from so called N-pronouns (e.g. Eng. *I like the red one*; Cat. *De pomes, l’Anna en vol* ‘Apples, Anna wants’), to Q-pronouns (e.g. Eng. *I don’t have any*; Cat. *En Joan va veure tothom* ‘John saw everybody’); to D-pronouns, which can be divided in personal pronouns such as Eng. *I, me, you, she, them, it*, etc.; or Cat. *jo, tu, em, et, ella, la, li*, etc., which include the category of Person (1st/2nd person) in their structure; and non-personal pronouns like demonstratives (*I want these, but those are cheaper*), which do not (because they are 3rd person only). For the purposes of this paper, we focus on clitic pronouns, inasmuch as they are devoid of lexical content and, as per our hypothesis, can only make a referential contribution. The focus of the paper is then on how different clitics can play the same roles grammatical Case plays in languages like Old Germanic, Russian, Finnish, or Latin.

As depicted in (1) above, clitics are linked to the syntactic category of DP (Postal 1996; Harris 1980; Szabolcsi 1983; Abney 1987; Longobardi 1994, or Lyons 1999, *inter alia*): the basic phrase structure of full nominals and pronouns (and hence clitics) is identical except for the fact that the latter have an empty NP restriction. However, the picture becomes more complex with three types of pronominals just mentioned (D-, Q-, N-). Following a suggestion of Kayne (2008) and Caha (2009), Martin & Hinzen (2014) argue that pronominals in general, and Romance object clitics in particular, present a complex, hierarchically ordered structure, which is essentially identical to the one for full nominals in (6). We now argue, however, not only that this hierarchical typology is visible in pronouns, but that the pronominalisation allows us to see features like Case and Person that were not represented in full nominals.

Starting from predicative interpretations, in languages like Catalan, which carry clitics in their sleeve, this non-referential class is represented by the N-pronoun partitive clitic *en*, with no ϕ -features (no Gender, no Number), as demonstrated by the fact that

the secretary-hunt we talk about in (7) is not for male secretaries, but rather for secretaries of any gender:

- (7) a. Tothom busca **secretari**
 Everybody seek.3S secretary
 b. Tothom **en** busca
 Everybody CL:PART seeks
 BOTH: *Everybody is secretary-hunting*

As we move on to indefinite interpretations including a quantifier, the structure of the resumptive clitic becomes more complex, which indeed shows that a more complex type of pronoun includes grammatically simpler ones as a subpart (Martin 2012; Boeckx & Martin 2012), in line with what Caha (2009) argues for Case, thus outlining once again the parallel between both categories:

- (8) a. Tothom busca **una secretària**
 Everybody seek.3S a.SF secretary.SF
Everybody is looking for a (probably different) female secretary
 b. Tothom **en** busca **una**
 Everybody CL:PART seeks one
Everybody is looking for a (probably different) one
 (9) a. Tothom busca **dues secretàries**
 Everybody seek.3S two.PF secretary.PF
Everybody is looking for two (probably different) female secretaries
 b. Tothom **en** busca **dues**
 Everybody CL:PART seeks two
Everybody is looking for two (probably different) ones

Quantificational structures like those in (8)-(9) establish operator-variable relationships, in which every person x in the domain of the universal quantifier *tothom* is looking for one or two (probably different) secretaries y . To express that result through pronominalisation, the partitive clitic must still be present, but now the resumption must be augmented by the presence of a pronominal quantifier downstairs, and the latter must show Gender and Number features.

When we move to definite full nominals, a different Case is now visible in Spanish, both in the full nominal (where the direct object is augmented by the presence of the directional preposition *a* 'to', in a case of Differential Object Marking) and in the pronominal, which now takes the form of an accusative (feminine, singular) clitic 'la':

- (10) a. Todos buscan **a la secretària**
 All.PL seek.3S to the.SF secretary.SF
Everybody is looking for the female secretary
 b. Todos **la** buscan
 All.PL CL:ACC.3SF seek.3S
Everybody is looking for her'

Finally, with deictic full nominals, which remember we read as including Person features, the pronominalisation is even stronger, since it must now include the prepositional augmentation, thus suggesting that the replacing pronoun (not a clitic in this case) has a more complex grammatical structure:

- (11) a. Todos buscan **a este secretario**
 All.PL seek to this secretary
Everybody is looking for this secretary
- b. Todos buscan **a este**⁷
 All.PL seek to this.SM
Everybody is looking for this one

This pronominal hierarchy, as argued in Martin & Hinzen (2014), shows that pronominals (and in particular Romance object clitics) essentially share the grammatical complexity of the DPs they stand for, and both can hence be interpreted along the same referential hierarchy. In a topological view, those different Cases, with their corresponding different interpretations, corresponds to different internal structures.⁸

Argumenthood can thus be indefinite or definite depending on the configuration of the nominal, but as we now discuss in more detail, also the kind of Case that it gets with this topological configuration. According to de Hoop (1996), there are two types of structural Case: strong and weak. The former is assigned to nominals with strong reference, the latter to nominals with weak reference (Barwise & Cooper 1981; Milsark 1974, *inter alia*). As noted above, languages without nominal Case marking do mark Case on pronouns or determiners, both of which are arguably Ds, suggesting the idea that it is Case rather than D itself that is crucial, not only to argumenthood, but also the referential interpretation of nominals.

As noted above, Case is related to increasingly strong referential interpretations of Romance clitics (Martin & Hinzen 2014), as we move from predicative partitive clitics deprived of any ϕ -features, which cannot be referential, to ACC clitics, which *can* be referential, grammatical complexity increases, as mirrored in the sequence of Cases assigned, and referentiality does as well. But in a similar direction, it has also been noted that the difference between accusative and partitive/genitive Case tracks definiteness as opposed to quantificational or indefinite readings in languages with morphologically rich Case systems like Finnish (cf. Belletti 1988; Kiparsky 1998), Turkish (Enç 1991), Hebrew (Danon 2006), or Old Germanic.⁹ Thus, strong interpretations are marked accusative in Finnish, Turkish or Russian, while weak interpretations are marked by partitive (Finnish), absolute (Turkish), or genitive (Russian) (see e.g. Enç 1991: 4-5 on Turkish). This layered hierarchy is mirrored in the morphological structure and syntactic behaviour of clitics, and entails the four

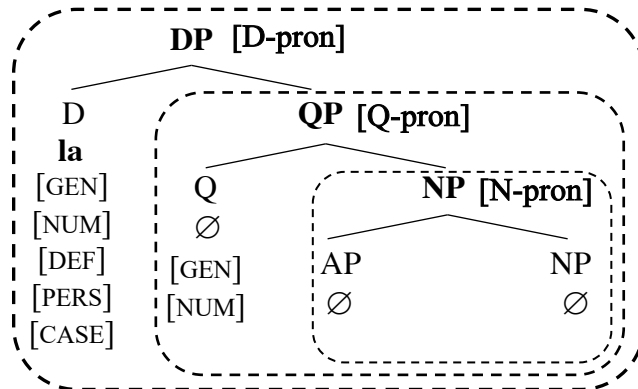
⁷ A reviewer is sceptical that *este* can refer anaphorically to an antecedent with which it shares the same referential strength. However, this is proven inaccurate by an example like *Mi padre tenía un reloj que no usaba mucho, pero éste era su objeto más valioso*. This further strengthens our view of Case as a relational (configurational) category, rather than a feature on lexical items.

⁸ Martin & Hinzen (2014) actually extend this pronominal hierarchy to include dative and personal clitics at the top end, based on the fact that these clitics were argued to crucially incorporate deictic (person) features. We do not develop that point in the present contribution, because it is in fact orthogonal to our main thesis, namely that the definite-indefinite referentiality that we got in Old Germanic through accusative-genitive case, is accomplished by accusative-partitive clitics in Romance.

⁹ “Definiteness and specificity can be marked through Case in, for example, Finnish, Turkish, Persian, Japanese, and Limbu (van Driem 1986: 34), through aspect as in Russian (Leiss 1994; 2000; Abraham 1997; Philippi 1997), through position as in Chinese, through a determiner, and through a combination of position and articles in Arabic, Dutch, and German, for example (Diesing 1992)” (van Gelderen 2011: 146).

interpretive classes we saw above, because of which we must refine the structure for pronouns in (1)b above:

(12) **Nominal structure (Pronominals)**



In this schema, N-pronouns only activate the interior of the phase, but both Q- and D-pronouns engage the phase edge. In full nominals, quantificational and definite interpretations create quantificational structures, in which NP supplies the restriction, and Q or D supply the operator. In that sense, it is expected that the pronouns represent the features of the full nominals they pronominalise. That is to say, the three different kinds of pronouns correspond to lexicalisations of different parts of this structure. First, NPs without an overt edge, or NPs with an AP adjunct, are pronominalised by the N-pronoun partitive clitic *en*:

- (13) a. Les noies volen **llibres**
 the.PF girls want.3P books.PM
The girls want books
- c. **De llibres** les noies **en** volen
 of books.PM the.PF girls.PF CL:PART want.3P
As for books, the girls want some
- (14) a. Les noies volen **llibres blaus**
 the.PF girls want.3P books.PM blue.PM
The girls want blue books
- b. **De llibres blaus** les noies **en** volen
 of books.PM blue.PM the.PF girls.PF CL:PART want.3P
As for blue books, the girls wants some

When we instead pronominalize a Q-pronoun, we pronominalise the lexical interior plus the quantificational weak edge represented by the Q head. Grammar is now increased by Gender and Number, which the quantifier represents. The pronominalisation is now complex, and includes the predicative N-pronoun *en*, but augmented with the floating weak quantifier:

- (15) a. Els nois volen **dues llibretes**
 the.PM boys want.3P two.PF notebooks.PF
The boys want two notebooks
- b. **De llibretes** els nois **en** volen **dues**
 of notebooks.PF the boys CL:PART want.3P two.PF
As for notebooks, the boys want two

Importantly, the weak quantifier is part of the phase edge, not the interior, because unlike the adjective, it cannot be left-dislocated with the noun, thus again emphasising the operator-variable quantificational structure of these pronominalisations:

- (16) a. Els nois volen **dues llibretes**
 the boys want.3P two.PF notebooks.PF
The boys want two notebooks
 b. ***De dues llibretes** els nois **en** volen
 of two.PF notebooks.PF the boys CL:PART want.3P
 INTENDED: *Books, the girls want some*

Interestingly, if ‘dues llibretes’ is dislocated without ‘de’ the partitive interpretation is lost, and the resumptive clitic must be accusative instead. This indeed suggests that in this case ‘dues’ does not occupy the Q position, but rather the D position:

- (17) **Dues llibretes** els nois **les** /*en volen
 two.PF notebooks.PF the boys CL:ACC.3PF CL:PART want.3P
(The) two notebooks, the boys want them

Finally, when we engage with D-pronouns, Gender and Number continue to be relevant, but definiteness becomes relevant too, as shown in (18), where the form of the resumptive object pronoun is determined by the presence or not of a definite article in the left-dislocated nominal:

- (18) a. **Les cartes** ell **les** vol
 the.PF letters STR:3SM CL:ACC.3PF want.3S
The letters, he wants them
 b. **De cartes** ell **en** vol
 of letters STR:3SM CL:PART want.3S
The letters, he wants some

The fact that Catalan (like French or Italian) uses clitics to make the strong vs weak referentiality that languages like Finnish make through partitive vs accusative supports the correlation between Case, D, and referentiality. Interestingly, diachronically the same facts can be replicated in the history of Germanic. According to Philippi (1997), the evolution of Germanic determiners happened for reasons also related to referentiality, i.e. marking strong vs weak interpretations. According to the author, all languages mark referentiality (definite/indefinite or specific/nonspecific distinctions), but markers are different between languages, and there is an evolution of this in the history of Germanic: old languages in the family marked the difference via different structural case (as in Finnish, Russian, Turkish): weak (indefinite) NPs are marked genitive, while strong (definite) NPs are marked accusative. Examples from Gothic (19) and Old High German (20) (Philippi 1997: 65):

- (19) a. hvas haldip aweþi jah **miluks** þis aweþjis ni matjai
 who tends a flock and does not milk(GEN) of the flock drink
 b. ja insandida ina haiþjos seinazos haldan **sweina**
 and (he) sent him out to his field to look after (the) pigs(ACC)

- (20) a. skancta sinan fianton bitteres lides
(he) poured out to his enemies a bitter drink(GEN)
b. Inti dir gibu sluzzila himilo riches
and to you I give (the) key(ACC) of the kindgdom of heaven

As verbal genitive weakens in the evolution of these languages (Abraham 1997), the difference cannot be made through Case anymore, and determiners come to do the job. In modern English, for instance, the difference is triggered by the presence of D:

- (21) a. John was drinking beer for hours/*in an hour
b. John drank up the beer in an hour/*for hours

Our proposal thus makes a prediction for Latin:

- (22) **Predicting the functionality of Case in Latin:**
- FACT 1: Old Germanic distinguished weak and strong reading of nominals through genitive vs accusative Case;
 - FACT 2: That distinction came to be implemented via the newly emerged D category when the genitive vs accusative Case difference was lost;
 - FACT 3: Romance implements the weak and strong reading of nominals through partitive (genitive) vs accusative clitics;
 - PREDICTION: Latin distinguished strong and weak readings of nominals through genitive vs accusative Case.

That this is the case is suggested by the following example (Napoli 2010: 25):

- (23) a. eo aquam addito
it.DAT.SG water.ACC.SG add.IMP.FUT
Add (the) water to it. (Cato, Agr. 37.2.8)
- b. aquae paulatim addito
water.GEN.SG gradually add.IMP.FUT
Add water gradually. (Cato, Agr. 74.1.2)

In short, pronominals can be interpreted along the same lines of nominals. They receive the same kinds of interpretations (hierarchical and downward entailing referentiality), and those interpretations are topologically mapped onto the internal structure of the (pro)nominal, be it through Case or through the presence of D, and the fact that both categories can be used referentially seems to lend further support to the fact that Case is referential and that there is indeed a correlation between Case and the D-system. At this point, looking at the structure we have put forth in (12), we must consider the features of Person and Case.

3.3 *Person and Case in pronominals*

Nominals belong in higher predicates (eventive, stative, etc.) that select them to provide referential content to their unsaturated argumental positions. As we saw above, grammar implements that insertion through two basic strategies: either the nominal's referent is identified deictically, i.e. through its Person (1/2) features, or its referent is identified with the help of descriptive content and must hence rely on Case. This alternative strategy suggests that there should be strong relations between Person and Case in the languages of the world, and that seems indeed to be the case in a number of

well-known phenomena: (i) the *Person Case Constraint* (Perlmutter 1971; Kayne 1975; Boeckx & Martin 2012 for elaboration); (ii) *split ergativity* in languages like Dyirbal or Hindi (Dixon 1979; Mahajan 1997, *inter alia*), where ergative and accusative agreements alternate depending upon the presence of speech participants (1/2 person) in the syntax or morphology; (iii) the Case progression from partitive in indefinite arguments to accusative or dative (DOM) in arguments specified for Person (de Hoop 1996; Danon 2006; Lidz 2006); or (iv) the differences in auxiliary selection depending on Person in Italian that lead to different Case patterns (unaccusative vs. transitive) (Kayne 1993).

This strong relation between Case and Person can be appropriately explained by means of the phase-based framework we presented above. In Martin et al. (2020), the idea is articulated through the hypothesis that the linking role in nominals of Case and Person stems from their being at the edge of the D phase, inasmuch as phase edges are the locus of connection to other grammatical and formal-ontological domains. It is through the phase edge that nominals become part of events (through Case), and get Person with respect to the speech act participants. This is not only a particularity of nominals. As we also mentioned above, that role can be thought of as relational along the lines of Sigurðsson (2004, 2017), for whom grammar in general relates speech acts and events, and in that sense Person behaves like Tense: Both are deictic categories that relate events (time or participants) to speech acts:

(24) **The Computation Principle** (Sigurðsson's 2004: 223)

- a. $\text{SPEECH}_F \leftrightarrow \text{GRAMMAR}_F \leftrightarrow \text{EVENT}_F$
 - b. Speech time \leftrightarrow Tense \leftrightarrow Event time
 - c. Speech participant \leftrightarrow Person \leftrightarrow Event participant
- (where ' $x \leftrightarrow y$ ' means ' x is computed with respect to y ')

We suggest that Case can be considered along similar lines, except that Case is not deictic and does not connect events to speech acts, but rather nominals and the predicates they are arguments of:

(25) **The Computation Principle** (adapted)

- $\text{Event}_F \leftrightarrow \text{Case} \leftrightarrow \text{Nominal}_F$

On this hypothesis, Person and Case effectively are the categories denoted by so-called 'determiners', which we can regard as a cover term associated to elements that get either Person or Case at the edge of the nominal phase. That is, (26)a should be spelled out as (26)b:

- (26) a. $[\text{edge D } [\text{interior } \dots]]]$
 b. $[\text{edge Person } [\text{Case } [\text{interior } \dots]]]$

Hence referential possibilities of nominals can be represented through where in the topology of the nominal phase edge elements end up:

(27) **Nominal reference** (adapted)

a. PREDICATIVE	→	[Person \emptyset	[Case \emptyset	[INT <i>man</i>]]
b. QUANTIFICATIONAL	→	[Person \emptyset	[Case D _{Weak}	[INT <i>man</i>]]
c. DEFINITE (3P)	→	[Person \emptyset	[Case D _{Strong}	[INT <i>man</i>]]
d. DEICTIC	→	[Person D	[Case \emptyset	[INT (<i>man</i>)]]

In sum, when D is not present in the edge, nominals receive predicative interpretations and are not argumental. If D occupies a Case position, then it *is* argumental, but either a variable if Case is weak, or a constant if Case is strong. Finally, Ds interpreted with respect to the Person features of the speech act participants are deictic (Martin & Hinzen 2014). The result of this model is that the morphological marking of referentiality on dependents characteristic of Latin and other languages with robust Case paradigms (Russian, Finnish, Turkish, etc.) becomes syntactic (analytic) and moves to the edge of the phase with the emergence of pronouns. That movement toward the edge leads to the emergence of the D-system, both for full nominals (articles and other pronominal determiners), and for pronouns (particularly clitics).

4. Independent reasons to link Case and referentiality

The previous section has provided evidence that, not only does the D-system regulate the referential interpretation of the nominals involved, but that within the D-system, Case morphology is sensitive to referentiality such as definite and deictic interpretations. There are other reasons, however, to link Case marking and referentiality.

A first basic reason for this conclusion is that neither referentiality nor its inverse, namely predicativity, or related notions such as argumenthood, are lexical notions. Predicates, referential expressions, or arguments do not exist in the lexicon, but only when lexical items appear in certain grammatical positions. Also within grammar, we know that such grammatical functions of particular lexical items do not come for free, but depend on complex processes of licensing, which lead to permitting or excluding expressions playing particular roles from specific positions. It is clear, in particular, that adjunctive grammatical relations are not sufficient to license arguments, on the assumption that adjuncts function semantically as predicates. Thematic roles alone also do not license arguments, both because adjuncts can play thematic roles as well, and because, in a passive like *He was killed*, the subject receives its normal thematic role from *kill*, while not being licensed in its normal position as its internal argument. The fact that it is licensed this way in the transitive *They killed him*, where the internal argument receives accusative marking, suggests that Case has something to do with the licensing of arguments.

If it did, it would follow logically that Case is not uninterpretable. Whether a given phrase functions as a predicate or argument obviously has formal semantic significance. Moreover, as arguments are sequentially licensed, denotations systematically change across Case-checking domains: In *They killed him*, a state of him being dead is entailed (the end state). But as nominative is checked too, formally a dynamic event arises, of which the state in question forms a (final and static) part. Therefore, not merely predicates and arguments arise as the grammatical process progresses up the syntactic hierarchy, but the formal ontology of meaning—going from objects to states to events to propositions (Hinzen & Sheehan 2015)—does so as well. This formal ontology of meaning could be due to a different mechanism than Case—though it cannot be due to a lexical or semantic feature, or thematic roles. Case, however, is clearly a candidate. If, as Chomsky (2001) maintains, ‘phases’ of grammatical derivations are Case-

checking domains, and D, *v*, and C are phasal boundaries, Case is specifically interpretable as part of the dynamics in which different formal types of referents corresponding to these phases—objects, events, propositions—are generated (Arsenijević & Hinzen 2012).

This approach predicts that a connection between Case and referentiality should have other manifestations. In particular, PRO has been central to early Case theory, since it arises from the constraint: *NP if NP has phonetic content and has no Case (Chomsky 1981: 49). Again, why should this be? As Hinzen (2018) notes, the most obvious fact about PRO is that while controlled PRO is referential (sharing the reference of the controlling NP), lacking phonetic content it lacks referential *independence*: no independent referent is introduced into the derivation and needs to be licensed to an event-denoting head or proposition. That it would not need to be Case-licensed would therefore follow, on the view of Case governing the referentiality of nominals as arguments of events (in other words, it is not referential by itself hence no need for Case). The clause that contains PRO is, in fact, destined never to become a truth-denoting proposition, remaining dependent on another clause that will bear the truth-value of the proposition as a whole.

Another prediction that stems from this view on Case is that clauses should be exempt from the Case filter, since clauses do not refer to objects the way nominals do. But this is precisely what a contrast between **John is proud [his son]* and *John is proud [that his son won]* suggests. Moreover, it would also fall into place that where clauses come closest to being referential in the classification of (Sheehan & Hinzen 2011), namely with factive verbs, they also need to pass the Case filter—and as argued in Kitagawa (1986) and Bošković (1995), they do. A similar pattern is predicted when clauses become DPs, as in *The fact that...*

A final observation relates to exceptional (ECM) accusatives that show up in clauses that are referentially weak in the sense of being incomplete, dependent, lacking finiteness, referential independence, and deictic anchoring in the speech context, is in order. In ECM, the phase boundary of the embedded clause, enclosing a unit of referentiality in our terms above, remains penetrable from the outside: an independent Case domain is not established (28). When the embedded clause is projected farther and comes to include a C-layer, making it referentially more complete, an exceptional Case assigned by *v* from within the next phase up can be licensed, but not within the embedded, non-tensed clause (29a versus 29b):

- (28) He seems [*t* to be at the door]
 (29) a. He expects [CP C her to be at the door]
 b. He tries [CP C (*her) to like French toast]

Moreover, when clauses become factive, ECM is predicted to be illicit again, on the assumption that factivity is as close as embedded clauses can come to being referentially complete and truth-denoting, only short of occurring as matrix assertions (Sheehan & Hinzen 2011). Once again, as Kiparsky & Kiparsky (1970) noted, in the canonically factive (30), ECM into the embedded clause is indeed ruled out:

- (30) *John regretted/resented Mary to be pretty.
 (31) John believed Mary to be pretty.

Together, these data regarding ECM and control are consistent with a hierarchy of referential completeness or strength, at the level of clausal denotations. In the case of

raising constructions, the embedded clause can never incorporate any Case on its subject. It never becomes an independent Case domain, whether the Case comes from the inside or outside (see (32) below). With ECM verbs, the embedded domain gets a subject, but only of sorts, since it is also or—in fact—an object of the matrix verb. A Case can penetrate the lower domain, but only as long as the clause is not fact-referential, though the Case still does not come from within its own domain yet. Moreover, it lacks independent Tense (33). With Control verbs, finally, the embedded clause has its own independent subject, though it is still lexically non-overt. Temporal independence now becomes possible (34):

- | | | |
|------|--|---------|
| (32) | Mary seems <i>t</i> to be pretty. | RAISING |
| (33) | I believe her to be happy (*tomorrow). | ECM |
| (34) | I hope/try PRO to be at the door tomorrow. | CONTROL |

As noted in Hinzen (2018), in Icelandic the mechanism of Case assignment is arguably different in raising and control, with Case independence in the embedded clause only in the latter, and Case assignment arguably independent of A-movement (Sigurðsson 2008:420; see also Wood 2012; Ndayiragije 2012). Also, for Russian, as Landau (2008) has argued based on patterns of Case concord, PRO can be licensed by the head of the embedded clause. However, as Landau argues, such Case independence in the embedded clause is limited to *tensed* infinitival contexts, where an embedded clause can be modified by a temporal adverb like *tomorrow*, as in (34), which indicates a different temporal anchoring from the one in the matrix clause. Only where embedded clauses are tensed is PRO case-licensed within the non-finite clause, illustrating a striking correlation between referentiality, finiteness, and morphological Case. PRO is not aprioristically caseless, in other words, but rather Case is determined relationally, through factors relating to referentiality. It is clear, in particular, on the present model of Case, why Tense would matter: Tense is critical to the referential anchoring of objects, events, and propositions. Whenever a clause is tensed in that it has its own temporal reference, it is to that degree referentially more complete—its phase can in this sense ‘close off’.¹⁰ As a phase completes and referentiality is established, argument DPs need to enter licensing relations with the heads that denote entities of which they become parts. High or NOM-case is associated with the establishment of propositional claims, which depends on the high left field of C, where speech features and force are checked (Sigurdsson 2004, 2008). Such checking ultimately requires finite Tense. Without it there is neither full proposition nor complete speech event, and hence no NOM-case.

In summary, there are reasons independent of object clitics and the D-system to pursue a new perspective on the interpretability of Case: we do not need to look at D to hypothesize links between Case and referentiality, but this link is independently

¹⁰ An obvious case in point is the personal infinitive construction in Spanish where the infinitive licenses a nominative-case marked subject which is distinct from the subject of the matrix verb. These nominative infinitival subjects were analysed as the result of independent T by Sitaridou (2002, 2006, 2007, 2009). If this is the case then one may wonder as to how we would then explain Latin Accusativus cum Infinitivo which, importantly, shows up in more veridical embedded contexts than the Spanish personal infinitive. The answer to that, we would like to suggest is morphological: when the language has an opposition between nominative and accusative as Latin does will use the former for independent contexts and the latter for dependent ones; when a system does not have cases such as Spanish, the nominative one would appear since there is no other morphological alternative. For elaboration on this idea, see Longa et al (1998).

supported by other facts. With this, we are finally ready to address the Greek challenge for correlations between Case and D, with which this paper began.

5. The Greek challenge

So far, we have put forward a proposal according to which Case and the D-system are essentially performing the same function, namely topologically assigning referentiality to nominals. The diachronic prediction made by others, was that when one goes down (namely, Case), the other (namely, the D-system) goes up, thus suggesting they are in complementary distribution. Indeed, Latin and the Romance languages as well other languages seem to confirm this prediction, as already discussed at length in the previous sections. As such, this correlation forms a neat and strong thesis, which, however is easy to falsify empirically: the obvious counter-case would be Modern Greek, which shows both Case and a D-system—the latter comprising both articles and clitics. Crucially however, although we, too, along with others, note the correlation between Case and the D-system, our analysis differs in having argued that there is Case on D (see the discussion on Ibero-Romance clitics) and the inverse, namely that D can be manifested through Case, as shown by the examples from Gothic (19) and Old High German (20). Hence, our own analysis affords us not to view the correlation in terms of complementarity, and, consequently, it grants us the possibility to frame a more nuanced diachronic hypothesis such that can actually capture the Greek outlier data.

Let us start by considering Standard Modern Greek (SMG), which contrary to Modern Romance allows for the following combination, namely: definite and indefinite articles; accusative and dative clitics¹¹ with CLLD even with inanimate direct objects; and five Cases. As things stand, the contemporary Greek grammar offers an immediate refutation of the correlation between D and Case—we return to this issue later in the section. However, when observing Greek with the binoculars, the correlative drift between loss of Case and rise of D is clear in the history of Greek too (Table (35) below):

(35) Drift in the history of Greek¹²

	D-System		Case
	Articles	Clitics	
Homeric Greek	X	X	✓ (6): nom, acc, gen, dat, voc, abl
Classical Greek	✓	X	✓ (5) : nom, acc, gen, dat, voc
Hellenistic Greek	✓	✓	✓ (5-4) : nom, acc, gen, (dat) voc
Medieval Greek	✓	✓	✓ (4): nom, acc, gen, voc
Modern Greek	✓	✓	✓ (4) : nom, acc, (gen), voc
Other Greek varieties (e.g. Asia Minor Greek)	(✓)	(✓)	✓ (3) : nom, acc, (gen)

Starting with Homeric Greek we note that there were no D elements, but a robust expression of Case instead. There is ample consensus that definiteness was not grammaticalized in Homeric Greek—on the contrary, it is the accusative case and its alternates that contribute to definiteness / specificity. Evidence is provided, for instance,

¹¹ However, morphologically these are genitive. For discussion, see Michelioudakis & Sitaridou (2012).

¹² **Ancient Greek:** 8th cent. BC - 3rd cent. BC (**Classical Greek:** 5th cent. BC - 3rd cent. BC), **Koine Greek:** 3rd cent. BC - 4th cent. AD (**New Testament Greek:** 1st cent. AD), **Early Byzantine Greek:** 5th cent. AD - 8th cent. AD

from the fact that *ho*, *hē*, *tó* (the definite articles in the three genders) in Homeric Greek do not appear together with a demonstrative—thus the former present properties of demonstrative pronouns themselves. The following example, from Guardiano (2013: 82), illustrates the absence of a definite article in a context of definiteness in Ancient Greek where the bare noun equals a definite DP:

- (36) karpalímōs árnas te phérein Príamón te kaléssai
 quickly lambs.ACC and fetch.INF Priam.ACC and summon.AOR.INF
Quickly to fetch the lambs and to summon Priam (Homer, Iliad. 3, 117)

Progressively, Classical and New Testament Greek demonstrate the grammaticalization of definiteness. The latter is attested in terms of the emergence of (a) the definite article in Classical Greek and (b) the indefinite article in (post-Koine). Demonstratives are reanalysed into definite articles in Classical Greek—in a similar way to the emergence of definite articles in the Romance languages, whereas indefinite articles derive from numerals in (post-)Koine Greek (again in a similar fashion and stage as in the Romance languages).

Presently, as previously mentioned, in SMG there is both a robust expression of D through articles and clitics as well as Case.¹³ The unquestionable conclusion is that until Hellenistic times the diachronic trajectories between Greek and Latin were very similar. If so, how can we explain the Modern Greek grammar settings, which deviate from Modern Ibero-Romance, and what does that tell us about our main thesis, namely advocating that referentiality is topologically assigned through Case?

Firstly, following the discussion in Lavidas (2017 and references therein), case alternation in Greek is not only used to signal definiteness: for instance, in Ancient Greek, alternation between the cases is found with the genitive (vs. accusative) used for the expression of low affectedness, whereas the dative (vs. accusative) for the expression of absence of change-of-state. Secondly, from Homeric and till post-Koine Greek, Case is linked to inner Aspect whereas from this point onwards the verbal system encodes temporal boundaries on events in terms of viewpoint aspect. This is captured by Lavidas (and others, most notably by Moser 2008) as a change from Inner-aspectual (interpretable) features on Asp to Outer-aspectual (uninterpretable) features on Trans. Thirdly, aspect aside, modality is also associated with Case (as discussed in section 4 in relation to the embedded domain) in Greek: nominative expresses ability and is used for subjects in truth-denoting events; oblique expresses possibility and is used for subjects in events whose truth value depends on a matrix clause, as is indeed the case of *Accusativus cum Infinitivo* (see also Danesi & Barðdal 2018). For our purposes, what is important, at this point of the discussion, to retain from what is undoubtedly a complex discussion (but see Lavidas 2017), is that Case is not only linked to D (not necessarily in terms of a head, but rather as a feature), but also to other heads in the history of Greek.

In fact, this may well be the key to understanding the outcome in SMG: the

¹³ An interesting example of case alternation comes from Differential Subject Marking in Pontic Greek, where ACC and NOM subjects stand for definite and indefinite subjects respectively:

- a. epiyen o kaloyeron
 go.PAST.3S the.SM monk.ACC.SM
The monk went
 b. erθen enas kaloyeros
 come.PAST.3S a monk.NOM.SM
A monk came

association of Case and D in Greek was never univocal, but, rather, Case was used to signal properties of other heads, which is why the retention of Cases may have been more motivated in Greek (among many other reasons not least contact or in fact the lesser degree thereof) than elsewhere, for instance Modern Romance. So, while D was emerging in Greek, Case was still needed for other functions by other heads and thus could not afford to become obsolete. This is how we explain the Greek exception. In diachronic terms, the more anchoring in the grammar a certain property has, the less prone to become obsolete unless of course there are ‘catastrophic’ conditions (aka contact) externally.

At this point, there is still one more thing we need to consider: namely, whether both aspect and modality are underlyingly reflecting referentiality through Case. If so, we can then conclude that the key mechanism here too is the assignment of referentiality and that Case is used as a device for that; or, that Case is generally speaking a tracking device of whatever features it is associated with (which can be other than referentiality). The issue clearly awaits further investigation, but it is worth pointing out that in the literature there is an association of both aspect and modality with referentiality (see Abraham 1997; Philippi 1997, Leiss 2000). Again this would work straightforwardly for Modern Romance too: as Latin Aktionsart was lost, definite articles compensated for the loss of aspect. In the case of Greek, however, aspect in general was not lost, but, instead, inner aspect changed into outer aspect. At this point we need to be careful to avoid an anachronism when comparing Greek and Romance: Greek reanalysed inner to outer aspect after the emergence of definite articles (the latter already in place by Classical times), but before the emergence of clitics (the latter emerged at some point post-Koine). It follows that while a more complex story is needed for the Greek data, what is crucial for our purposes here is that Case is linked to referentiality and the latter can be a feature of multiple heads (D, *v*, Outer Aspect, C)—the latter is obviously subject to parametric variation. Crucially, when referentiality is linked to more than one head (as is the case in Modern Romance) we cannot predict an all-out/all-in change, exactly what we find in Greek which ended up allowing for both D-elements and Case.

6. Conclusions

What are we to make of the evidence presented? First, it is clear that the same macro-observation we made for Latin and the Ibero-Romance languages still stands empirically for the change between Homeric and Classical Greek; however, it is still questionable whether the correlation between loss of Case and rise of D goes beyond what we call an accidental correlation. Importantly, proof for such interaction between the two comes from adopting a micro-perspective: essentially, finding patterns of case alternation yielding different D-related interpretations at different stages of Greek. Indeed, such a quest provides us with ample evidence, as discussed at length in Lavidas (2017 and references therein). According to him, in Homeric Greek inner aspect was associated with Case, thus the locus of D was indeed inner aspect and what we see diachronically is the grammaticalization of definiteness and outer aspect.

What comes out of it is that a categorical empirical generalization, namely languages without D have strong case and languages which develop D heads lose cases, is too narrow to capture the more intricate complexity of morphosyntax—the obvious case being Greek in its various diachronic incarnations. In fact, although the Greek data shows that such a drift is indeed in the history of Greek too, what actually happens is that there can be more gradual and synergetic types of change, which can lead to a symbiosis of both D heads and Case. Such a grammatical state where both Case and D

convey similar featural information can be seen in the same light as discontinuous negations, doubling phenomena, etc.

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