THE MANY CASES OF NON-FINITE SUBJECTS
THE CHALLENGE OF "DOMINANT" PARTICIPLES

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Abstract

In this paper we discuss the so-called "dominant" construction found with Latin participles. We argue that this construction instantiates a rare type of subject case assignment where the case of the participle's subject depends on the grammatical function of the participial clause. To capture this in the LFG formalism, we argue for a "copy theory" of agreement, where the information from the agreeing features are present in both the controller and the target of agreement: this theory enables us to offer a uniform account of agreement across all uses of participles. We also discuss the implications for LFG's theory of subject case assignment, in particular the constructive case approach.

1 Introduction

1.1 Morphological case and grammatical function

The relation between grammatical function, thematic role, and morphological case is notoriously complex (see, inter alia, Mohanan 1982; Andrews 1982; Zaenen et al. 1985; Butt and King 1991, 2005). One parameter of variation concerns the case marking "domain": standard single case markers specify the NP's grammatical function in a local clause or phrase whereas "stacked case" specifies the NP's grammatical function in the clause, so that for example a possessive modifier of an ergative noun receives two separate case markers: one for the genitive and one for the ergative (Nordlinger 1998, 2000).

In this paper we argue that the co-called "dominant participle" construction in Latin instantiates a third, rare and non-trivial relation between case and grammatical function: subjects of participial clauses can appear in any case, depending on the grammatical function of the participial clause. In other words, the case markers specify the grammatical function of the entire clause in a larger unit.

1.2 Non-finite forms in Latin

There are five types of non-finite forms in Latin: infinitives, supines, participles, gerunds and gerundives. In this paper we focus on the participles and gerundives, which are the two types that show the full set of nominal features CASE, GENDER and NUMBER.

In addition to these nominal features, participles and gerundives also bear the verbal features VOICE and TENSE. Although the different participles are traditionally named after their finite counterparts perfect, present and future, a tradition that

[†]We thank the audiences of the seminar for theoretical linguistics in Oslo and of the LFG conference 2012 for useful comments. We use standard abbreviations for references to Latin authors. For expository purposes we sometimes use constructed examples. Parallel examples are attested in the corpus and can be found in standard grammars.

name	form	REL-TENSE	VOICE
present participle	*amans*	*simultaneuous*	*active*
perfect participle	*amatus*	*anterior*	*passive*
future participle	*amaturus*	*posterior*	*active*
gerundive	*amandus*	*posterior*	*passive*

Table 1: The inventory of participles/gerundives

we will follow here, they clearly express relative, not absolute tense. The various existing forms of the verb *amare* 'love' are shown in Table 1.[1]

The future participle has a rather restricted distribution, and in classical Latin, it only appears in periphrastic forms. The other forms all have a variety of uses illustrated in (1)-(8): attributive (1), nominalized (2), subject predicative (3), object predicative (4), periphrasis (future in (5), perfect in (6)), free predicative (7) and absolute (8). Notice that the attributive and the free predicative uses do not differ in any way,[2] so the choice of the correct analysis is context dependent.

(1) rosa florens pulchra est
rose:NOM bloom:PTCP.PRES.NOM beautiful:NOM is
'The blooming rose is beatiful.'

(2) medici leviter aegrotantes leniter curant
doctors:NOM lightly be.ill:PTCP.PRES.ACC mildly cure:PRES.3P
'Doctors cure the lightly ill mildly.' (Cic. de Off 1.83)

(3) rosa florens est
rose:NOM bloom:PTCP.PRES.NOM is
'The rose is blooming.'

(4) vidi puerum currentem
see:PERF.1S boy:ACC run:PTCP.PRES.ACC
'I saw the boy running.'

(5) te sum visurus
you:ACC be:PRES.1S see:PTCP.FUT.NOM
'I will see you.' (Cic. Fam. 9.11.1)

(6) amatus est
love:PTCP.PERF.NOM be:PRES.3S
'He was/has been loved.'

[1] Table 1 simplifies the situation somewhat: the class of verbs known as 'deponents' have an active rather than a passive perfect participle. Some analyses assume that the gerundive is active, rather than passive; here we follow the traditional analysis.

[2] As far as we can tell from the written text, that is. But it is likely that attributive participles, unlike free predicates, formed constituents with their nouns. This constituency could have been marked prosodically, but such evidence is of course no longer available to us.

(7) rosa florens pulchra est
rose:NOM bloom:PTCP.PRES.NOM beautiful.NOM is
'A rose is beautiful when it blooms.'

(8) his pugnantibus illum in equum quidam
them:ABL fight:PTCP.PRES.ABL him:ACC in horse:ACC someone:NOM
ex suis intulit
from his own:ABL mount:PERF.3S
'while they were fighting, one from his [attendants] mounted him on a horse.' (Caes. Gal. 6.30)

Finally, there is the so-called "dominant" use, which is the focus of this paper and is illustrated in (9)–(10).

(9) occisus dictator Caesar aliis pessimum
kill:PTCP.PERF.PASS.NOM dictator:NOM C.:NOM others:DAT worst:NOM
aliis pulcherrimum facinus videretur
other:DAT most.beautiful:NOM deed:NOM perceive:IMPF.SUBJ.PASS.3S
'the slaying of Dictator Caesar seemed to some the worst, and to others, the most glorious deed.' (Tac. Ann. 1.8)

(10) ne eum Lentulus et Cethegus ...
lest him:ACC L.:NOM and C.:NOM
deprehensi terrerent
capture:PTCP.PERF.PASS.NOM.PL frighten.IMPF.SUBJ.3PL
'lest the capture of Lentulus and Cethegus should frighten him.' (Sall., Cat 48.4)

These examples look like attribute uses of the participle; on the surface, *occisus dictator Caesar* and *Lentulus et Cethegus ... deprehensi* look like perfectly normal NPs. But semantically, these examples are clearly different. As the translations show, these constructions have eventive meanings and the participle is typically translated as an event noun.

1.3 Syntactic assumptions

In order to avoid going into irrelevant details of Latin phrase structure we will just assume that finite and non-finite clauses are both S's headed by V. The exact category labels are not important here, but it is crucial to note that the ability to host a subject does not correlate with finiteness. This is well established for the infinitives by the so-called Accusative with Infinitive (AcI) construction and for participles by the absolute construction (8); but it has also been argued to hold for participles in the free predicative construction ('backward control', as argued for Greek in Haug 2011).

For the purposes of this paper, we will assume that the core of the Latin clause is captured by the rule in (11):

finite	(↑ SUBJ CASE) = NOM
infinitives	((↑ SUBJ CASE) = ACC)
participles	?
gerundives	?

Table 2: Subject case assignment

(11) $\quad S \rightarrow \underset{(\uparrow \text{GF}) = \downarrow}{\text{XP*}} \quad \underset{\uparrow = \downarrow}{\text{(V)}} \quad \underset{(\uparrow \text{GF}) = \downarrow}{\text{XP*}}$

This is a simplification in various ways: it does not account for the positional licensing of unbounded dependencies nor for auxiliary verb constructions such as (5) and (6). GF stands for a disjunction of all grammatical roles, which means that no particular grammatical function is assigned configurationally at the sentence level. However, XPs are required to have *some* function in their clause. This disallows scrambling across clauses. Inside each clause, the verb selects its grammatical functions and can assign case to the elements filling these functions. For non-subject functions, case assignment typically works on a lemma basis, i.e. if a verb requires a particular argument to be dative, then it does so in all its morphological incarnations. However, subject case assignment is different and depends on the finiteness of the verb form, as shown in Table 2.

Notice that the rule for finite verbs is not optional, i.e. we assume that finite verbs always assign nominative to their subjects.[3] By contrast, the rule for infinitives is a default rule: in functional control constructions, the controlled subject of the infinitive will typically be assigned case outside the infinitive clause, so case assignment from the infinitive itself typically only applies wherever the subject is not structure shared, e.g. in AcI constructions. We will come back to the question of subject case assignment by participles and gerundives, which is the main subject of this article.

At this point we can already see that subject case assignment in Latin raises problems for a constructive case approach along the lines of Nordlinger (1998). Since finite verbs and infinitives specify the subject's case, and the subject itself must specify its case either by a constructive or a constraining equation, case matching is enough to identify grammatical roles. This suggests that constructive case equations are superfluous. We will get back to this problem in more detail in section 5.

1.4 Syntax of participle phrases

The internal syntax of the participle phrase is surprisingly constant across uses shown in (1)-(10). In particular, we note that the subject of the participle is always coreferent with an argument present in the f-structure of the sentence. There are no

[3]There is a debate as to whether the oblique case arguments of some Latin verbs are subjects. If that turns out to be the case, it should be possible to override the FINITE rule on a lexical basis.

'dangling' participles controlled by implicit experiencers or agents. Furthermore, there is always agreement in case, number and gender between the participle and its subject. Number and gender are determined by the lexical features of the head of the subject noun phrase, whereas case is assigned externally and in different ways in the different constructions: the crucial point to note is that there is no particular case that the participle assigns to its subject. Notice also that even in cases where there is evidence of lexical conversion (participle $\rightarrow$ adjective), both the agreement facts and the non-subject arguments remain the same, e.g. if the verb is transitive, the adjective can still take an object. To capture the uniform agreement facts, we assume that the subject function is retained in adjective conversion. This allows us to maintain the generalization that participles always agree with their subjects. Since Latin has pro-drop of both referential and generic arguments, we can assume that nominalized participles are really modifiers of such dropped arguments (unless they are lexicalized).

The *configurational* relationship between the participle and the subject can vary: for example, it is natural to assume that in the attributive construction (1), the participle and the noun constitute a phrase, with the participle being adjoined to NP. On the other hand, the participle and its noun would appear to be sisters on the most natural analysis of the c-structure of (3) and (4), since they are co-arguments of the same governing verb. And in (8), it is likely that they make up an S constituent. The best way to capture the constant syntax throughout these various constituent structures is to assume a constant *functional* relationship, i.e. that the noun is always the subject of the participle at the level of f-structure. This of course means that whenever the noun is configurationally not in the subject position of the participle (or there is no configurational subject), then it functionally controls the subject f-structure.

Such an analysis is straighforward for the subject complement use; it is the familiar raising analysis of the copula. If we assume that *be* comes with (↑ SUBJ) = (↑ XCOMP SUBJ), we assign the f-structure in (12) to (3).

(12)
$$\begin{bmatrix} \text{PRED} & \text{'BE } \langle \text{SUBJ, XCOMP} \rangle \text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'ROSE'} \\ \text{CASE} & \text{NOM} \\ \text{GENDER} & \text{FEM} \\ \text{NUMBER} & \text{SG} \end{bmatrix} \\ \text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{'BLOOM } \langle \text{SUBJ} \rangle \text{'} \\ \text{SUBJ} & [\ ] \end{bmatrix} \end{bmatrix}$$

A similar functional control analysis is also available for the periphrastic constructions,[4] and, with a different control equation, for the object complement case. The

[4]On the assumption that the periphrastic tenses are biclausal. If they are monoclausal, the noun will be the subject of the participle (lexical verb) directly.

functional control analysis can also be extended to the attributive use (1). We assume that the adnominal ADJ function is assigned in the c-structure by the rule in (13).

(13)
$$\begin{array}{lcccc} \text{NP} & \rightarrow & \text{(AP)} & , & \text{(NP)} \\ & & \downarrow \in (\uparrow \text{ XADJ}) & & \uparrow = \downarrow \\ & & (\downarrow \text{ SUBJ}) = \uparrow & & \end{array}$$

The control equation appears as $(\downarrow \text{ SUBJ}) = \uparrow$ on the adjunct and creates a cyclic f-structure:

(14)
$$\left[\begin{array}{ll} \text{PRED} & \text{'ROSE'} \\ \text{CASE} & \text{NOM} \\ \text{GENDER} & \text{FEM} \\ \text{NUMBER} & \text{SG} \\ \text{XADJ} & \left\{\left[\begin{array}{ll} \text{PRED} & \text{'BLOOM } \langle \text{SUBJ} \rangle \text{'} \\ \text{SUBJ} & [\ ] \end{array}\right]\right\} \end{array}\right]$$

In (13) not only the adjunct but also the head is optional. When there is no head, the PRED of the grammatical function fulfilled by the NP can be contributed by the verb (pro-drop). The nominalized use follows directly from this configuration. Consider (2). The verb *curant* will introduce the equations in (15) (as well as others not directly relevant to the nominalized participle in object position).

(15) **curant**

$\uparrow$ PRED = 'cure $\langle$SUBJ, OBJ$\rangle$'
$\uparrow$ OBJ PRED = 'PRO'
$\uparrow$ OBJ CASE = ACC

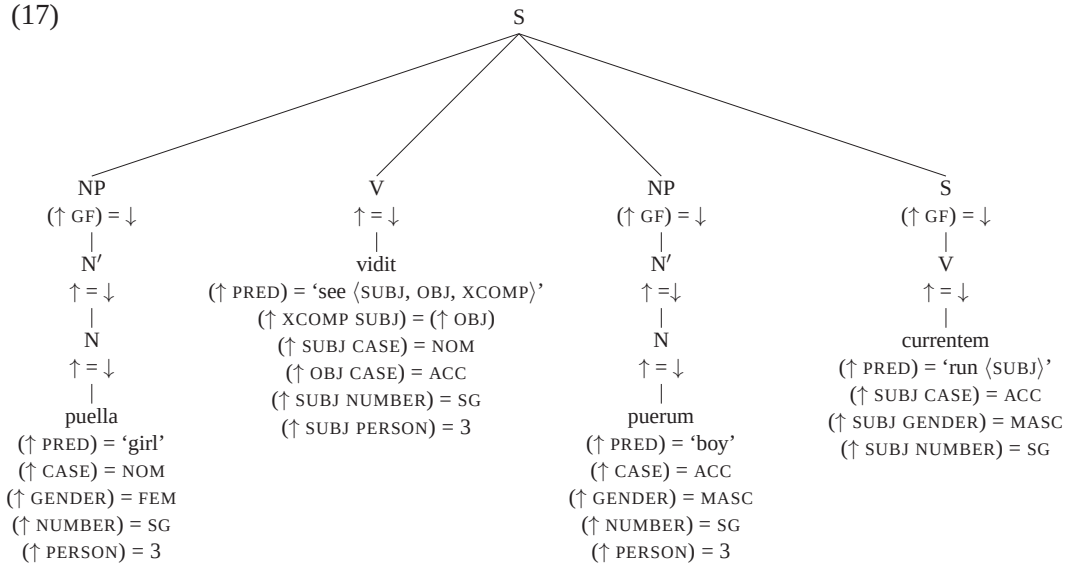
aegrotantes will be introduced by the rule in (13), but there is no head. This yields the partial f-structure in (16) (ignoring non-object functions in the matrix):

(16)
$$\left[\begin{array}{ll} \text{PRED} & \text{'CURE } \langle \text{SUBJ, OBJ} \rangle \text{'} \\ \text{OBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{ACC} \\ \text{GENDER} & \text{MASC} \\ \text{NUMBER} & \text{PL} \\ \text{XADJ} & \left\{\left[\begin{array}{ll} \text{PRED} & \text{'BE ILL } \langle \text{SUBJ} \rangle \text{'} \\ \text{SUBJ} & [\ ] \end{array}\right]\right\} \end{array}\right] \end{array}\right]$$

In this way, it is possible to always analyze the noun as the participle's f-structural

subject. This allows us to capture subject-participle agreement with a single rule. One way of stating this rule would use the standard approach to agreement in LFG, which involves multiple specification of feature values by a controller and target. This is shown in (17) and (18), which give the c- and f-structures for (4).

(17)



(18)

$$\begin{bmatrix} \text{PRED} & \text{'SEE } \langle \text{SUBJ, OBJ, XCOMP} \rangle \text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'GIRL'} \\ \text{CASE} & \text{NOM} \\ \text{GENDER} & \text{FEM} \\ \text{NUMBER} & \text{SG} \\ \text{PERSON} & 3 \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'BOY'} \\ \text{CASE} & \text{ACC} \\ \text{GENDER} & \text{MASC} \\ \text{NUMBER} & \text{SG} \end{bmatrix} \\ \text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{'RUN } \langle \text{SUBJ} \rangle \text{'} \\ \text{SUBJ} & [\ ] \end{bmatrix} \end{bmatrix}$$

Here, the agreement between the complement *currentem* 'running' and its subject *puerum* 'boy' is captured by having both items co-specify the CASE, GENDER and NUMBER features of the f-structure of *puer* 'boy'. This is identical to the way in which the matrix verb *vidit* 'see' and its subject *puella* 'girl' co-specify the PERSON and NUMBER features in the subject f-structure. Notice also that subject

case assignment in the finite clause, although not usually thought of as agreement, is captured by exactly the same mechanism of feature cospecification.

2 Dominant participles

Let us now return to the dominant construction. Examples (9) and (10) show the dominant construction in subject function, but it can also appear in a variety of other, typically nominal syntactic functions beside subject such as adnominal genitive (19), object of a preposition (20), or the ablative of comparison (21).

(19) mihi conservatae rei publicae
me:DAT preserve:PTCP.PERF.PASS.GEN affair:GEN public:GEN
dat testimonium
give:PRES.3S testimony:ACC
'He gives testimony, for my sake, of the state having been preserved.' (Cic. Att. 2.1.6)

(20) ante exactam hiemem
before expel:PTCP.PERF.PASS.ACC winter:ACC
'before the winter expired' (Caes. Gal. 6.1)

(21) nullum enim officium referenda gratia magis
none:NOM for duty:NOM render:GRDV.ABL gratitude:ABL more
necessarium est
necessary:NOM is
'For no duty is more imperative than that of rendering one's gratitude.' (Cic. Off. 1.47)

Observe that the case of both the participle and its subject vary with the function of the entire construction. This means that the noun's case is clearly not sensitive to its semantic role or grammatical function, which remain constant as the function of the entire construction changes:

(22) exacta hiems me delectat
expel:PTCP.PERF.PASS.NOM winter:NOM me.ACC pleases.PRES.3SG
'The expiration of the winter pleases me.'

(23) memoria exactae hiemis
remembrance.NOM expel:PTCP.PERF.PASS.GEN winter:GEN
'remembrance of the winter's expiration'

In (22), *hiems* 'winter' is nominative because the entire construction is the subject of *delectat* 'please' and in (23), *hiemis* is genitive because the entire construction is the object of the noun *memoria* 'remembrance'. However, the function of *hiems/hiemis* in both sentences (and of *hiemem* in (20) as well) is the same, namely subject of the passive verb *exagi* 'be expelled, expire'.

We will now examine the properties of this construction more closely.

2.1 Headedness

The fact that the noun phrase agrees with the participle is often taken as an indication of an attributive relation in which the noun is the head (Heick 1936; Bolkestein 1980; Ramat 1994 for Latin; Jones 1939 for Ancient Greek, inter alia). But as we have seen, agreement is characteristic of *all* uses of the participle in Latin, not just the attributive. Moreover, the dominant construction is commonly attested with a pronoun in the nominal slot, as in (24).

(24) Quibus latis gloriabatur
which:ABL carry:PTCP.PERF.PASS.ABL glory:IMPF.PASS.3S
'[the laws] in the passing of which he gloried.' (Cic. Phil. 1.10)

Pronouns cannot normally be modified in Latin, so this construction cannot be attributive. Instead, we will pursue an analysis of the dominant construction as a predication where the participle is the semantic predicate and the syntactic head. There are several indications that this is the correct analysis.

First, the meaning of the construction is clause-like, and (9) allows for a number of clausal periphrases, as noted by (Pinkster, 1990, 133):

(25) a. quod dictator occisus erat
that dictator:NOM kill:PTCP.PERF.PASS.NOM be:IMPF.3S
pulcherrimum facinus videbatur
most.beautiful:NOM deed:NOM perceive:IMPF.PASS.3S

b. dictatorem occisum esse
dictator:ACC kill:PTCP.PERF.PASS.ACC be:PRES.INF
pulcherrimum facinus videbatur
most.beautiful:NOM deed:NOM perceive:IMPF.PASS.3S
'That the dictator had been killed seemed the most glorious deed.'

As the matrix predicate *pulcherrimum facinus videbatur* 'seemed a glorious deed' indicates, the semantics of *dictator occisus* is specifically eventive, i.e. it entails the existence of an event in which Caesar was killed. This makes it different from constructions such as 'the young Isaac Newton' or 'a more resolute Roosevelt', which are often taken as referring to a stage or a manifestation of the head noun (von Heusinger and Wespel (2006)). In a sentence like *The dead Caesar frightened everyone*, *the dead Caesar* could be argued to refer to Caesar's manifestation as dead. On an analysis where stages and manifestations are inherent in the semantics of nouns it would then be possible to preserve the noun's status as the semantic (and syntactic) head. But in (9) (and its periphrases in (25)), the reference is clearly to an event, which cannot plausibly be inherent in the nominal semantics.

Related to this, it is clear that the participle cannot be omitted without radically changing the semantics.

(26) *dictator pulcherrimum facinus videbatur
dictator:NOM most.beautiful:NOM deed:NOM perceive:IMPF.PASS.3S
*‘The dictator seemed a beautiful deed.’

Finally, while the participle is not omissible, the noun *can* be left out if the verb is impersonal, as in (27).

(27) in libris Sibyllinis propter crebrius eo
in books:ABL Sibylline:ABL on.account.of more.frequently that:ABL
anno de caelo lapidatum
year:ABL from sky:ABL stone:PTCP.PERF.PASS.ACC
inspectis
examine:PTCP.PERF.PASS.ABL
‘. . . in the Sibylline books, which were consulted on account of the fact that it rained stones more frequently from the sky that year.’ (Liv. 29.10)

The participle *lapidatum* is from the impersonal verb *lapidare* ‘to rain stones’ and consequently, no noun occurs and the dominant construction consists of the participle alone.

2.2 Category

While the semantics of dominant constructions is clause-like, they typically occur in nominal positions such as subject, object and object of preposition. This suggests that externally, the construction is an NP. There is also evidence from coordination that the construction is an NP, as in (28).

(28) publicum imperium servitium=que
public:NOM dominion:NOM servitude:NOM=and
obversatur animo futura=que
show.oneself:PRES.PASS.3S mind:DAT be:PTCP.FUT.NOM=and
ea deinde patriae fortuna, quam
that:NOM thereafter homecountry:GEN fortune:NOM which:ACC
ipsi fecissent
selves:NOM make:PPF.SUBJ.3PL
‘The national sovereignty or servitude were on [their] minds, as well as the fact that the country’s fortune would henceforth be such that they themselves had made it.’

Here the dominant construction *futura=que . . . fortuna, quam ipsi fecissent* ‘the fact that the country’s future . . . ’ is coordinated with the NP *publicum imperium servitiumque’* ‘national sovereignty or servitude’. Although in LFG coordination can be based on identity of function rather than of category, we take this as another indication that the construction is externally nominal.

3 Analysis

The fact that the participle is the head of the construction suggests the construction is an S headed by the participle, as in (11).

However, the facts from distribution and coordination suggest that the construction is an NP. We capture this by a syntactic nominalization rule:

(29) $\text{NP} \rightarrow \underset{\uparrow = \downarrow}{\text{S}}$

This rule is also responsible for adding appropriate semantic type-shifting, as we will see in (38). For now we focus on what goes on inside the S.

In dominant participle constructions, the participle and its subject agree in case just as in other participle constructions. But the phenomenon cannot be entirely the same if the participle is the head. In all other participle constructions except absolutes, the *noun* receives case outside the construction, and the participle agrees in case. This is impossible here given the headedness fact: it must be the participle that receives case, and this must somehow be transmitted to the noun.

There is a very simple way to achieve this effect in LFG. As we noted in the introduction, agreement in LFG is usually treated as cospecification of a single set of features by both the controller and the target. In (17)–(18), we implemented this idea in the traditional way by representing the set of agreement features in the f-structure of the controller only and having the target contribute features to this set. As long as the target is also the head, as in typical nominal agreement, this means that the whole construction has the features of the target, which is crucial for CASE to work properly. But in the dominant construction, the target is not the head.

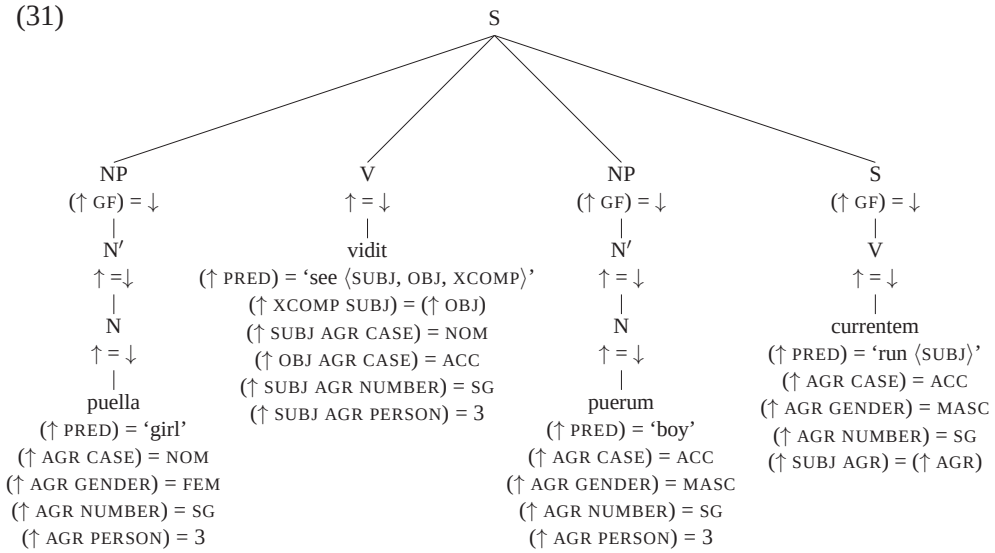
However, cospecification of the set of agreement features can also be implemented through functional control. In this way the set of agreement features can be present in the f-structures of both controller and target. To achieve this we will assume that agreement features are bundled in an f-structure which is the value of AGR in both controller and target.[5] The identification of these is secured by a lexical rule:

(30) $(\uparrow \text{FORM}) =_c \{\text{PTCP} \mid \text{GNDIVE}\} \quad \Rightarrow \quad (\uparrow \text{SUBJ AGR}) = (\uparrow \text{AGR})$

The f-structure of AGR will contain the agreement features CASE, GENDER and NUMBER. (17)–(18) can now be recast as (31)–(32).

[5]The use of a complex AGR feature whose value is an f-structure is in fact not crucial. The important point is that the information provided by the agreeing feature is available in both the controller's and the target's f-structure. This could be captured by equations like (↑ SUBJ CASE) = (↑ CASE), equating the atomic values of CASE, NUMBER and GENDER rather than the complex value of AGR. As far as we can tell, there is no empirical difference between the two approaches. Our AGR approach requires only one identity equation, but with atomic features a similar effect can be achieved by bundling the identity equations in a template.

(31)

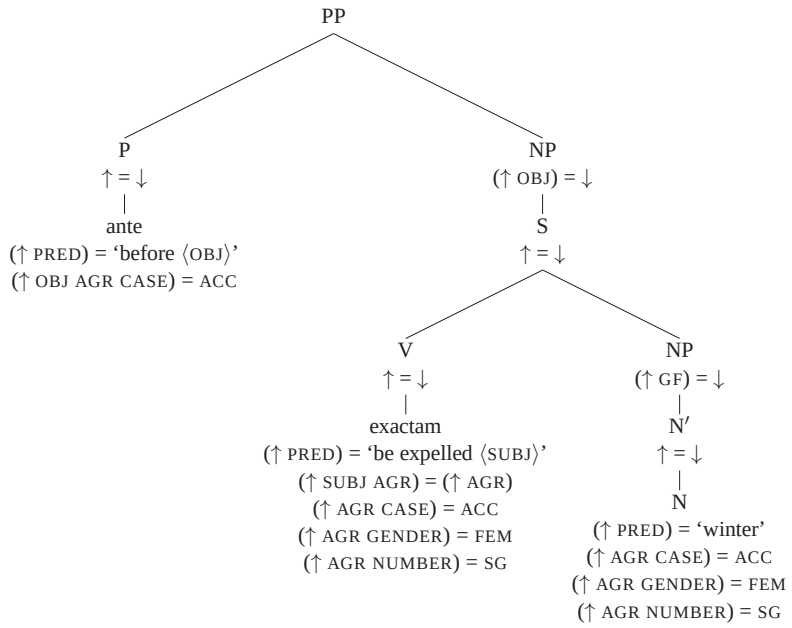


(32)

$$\begin{bmatrix} \text{PRED} & \text{‘SEE } \langle \text{SUBJ,OBJ, XCOMP} \rangle \text{’} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{‘GIRL’} \\ \text{AGR} & \begin{bmatrix} \text{CASE} & \text{NOM} \\ \text{GENDER} & \text{FEM} \\ \text{PERSON} & 3 \\ \text{NUMBER} & \text{SG} \end{bmatrix} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{‘BOY’} \\ \text{AGR} & \begin{bmatrix} \text{CASE} & \text{ACC} \\ \text{GENDER} & \text{MASC} \\ \text{NUMBER} & \text{SG} \end{bmatrix} \end{bmatrix} \\ \text{XCOMP} & \begin{bmatrix} \text{PRED} & \text{‘RUN } \langle \text{SUBJ} \rangle \text{’} \\ \text{AGR} & [\ ] \\ \text{SUBJ} & \begin{bmatrix} \vdots \\ \text{AGR} & [\ ] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The fact that the participle bears its own AGR feature lets us exploit the non-directionality of functional control. Case is assigned in the normal way to the NP containing the dominant participle. This is passed on to the S that is a (co-)head of the NP by (29) and then to the participle V that is the head of S. The participle and its subject agree in case, but the external case assignment is to the participle rather than to the NP. This is shown in (33)–(34).

(33)



(34)

$$\begin{bmatrix} \text{PRED} & \text{‘BEFORE } \langle \text{OBJ} \rangle \text{’} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{‘BE EXPELLED } \langle \text{SUBJ} \rangle \text{’} \\ \text{AGR} & \begin{bmatrix} \text{CASE} & \text{ACC} \\ \text{GENDER} & \text{FEM} \\ \text{NUMBER} & \text{SG} \end{bmatrix} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{‘WINTER’} \\ \text{AGR} & [\ ] \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

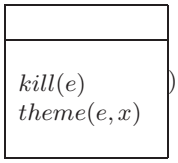
We observe that on this ‘copy theory’ of agreement, no special account of the dominant construction is needed beyond the nominalization rule in (29). Or to put it the other way around: the copy theory of agreement, which is needed for the dominant construction, generalizes directly to all agreement in Latin.

4 Semantics

On the traditional analysis of dominant constructions as NPs headed by the subject noun, there is a syntax-semantics mismatch: the noun is the syntactic head, but since the semantics is clausal, the participle must be a semantic predicate taking the noun as its subject. On our analysis, this mismatch disappears: the participle is both the syntactic and the semantic head of the construction. This allows us to give a rather straightforward semantics which crucially relies on a constructional meaning introduced by the nominalization rule in (29). We use Glue semantics (Dalrymple 1999) to combine our syntactic representations with semantic ones, which are cast

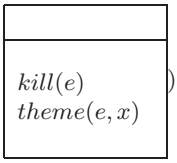
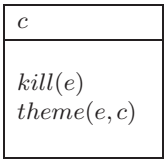
in Compositional Discourse Representation Theory (CDRT, Muskens 1996); the combination of LFG, Glue semantics and CDRT is also used in van Genabith and Crouch (1999) and Bary and Haug (2011).

The predicate *a glorious deed* in (9) suggests that the denotation of the dominant participle construction is an event-type referent.[6] We can assign the following lexical meaning in (35) to *occisus* and (36) to *Caesar* (c is a constant, following the treatment in Muskens (1996) of proper names as constant discourse referents):

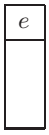
(35) $\lambda P \lambda e(P(\lambda x.$  $)) : ((E_{(\uparrow SUBJ)} \multimap T_\uparrow) \multimap T_\uparrow) \multimap (EV_\uparrow \multimap T_\uparrow)$

(36) λP  $: ((E_{(\uparrow SUBJ)} \multimap T_\uparrow) \multimap T_\uparrow)$

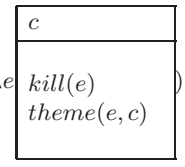
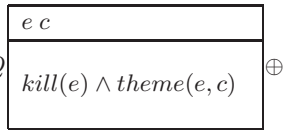
When these two meanings combine, we get (37).

(37) $\lambda P \lambda e(P(\lambda x$  $))(\lambda P.P(c)) \equiv \lambda e$ 

The result is, as we would expect, a set of events, i.e. the same denotation as an event nominal. The nominalization rule should have the same effect as an article, vz. it should pick a discourse referent from this set of events. This is shown in (38), which should be an annotation on (29).

(38) $\lambda P \lambda Q$  $: (EV_\uparrow \multimap T_\uparrow) \multimap (EV_\uparrow \multimap T_{GF\uparrow}) \multimap T_{GF\uparrow}$

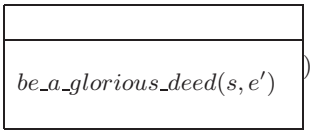
Applying (38) to (37) yields (39).

(39) $\lambda P \lambda Q$  $\oplus P(e) \oplus Q(e)(\lambda e$  $) \equiv \lambda Q$  $\oplus Q(e)$

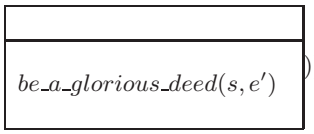
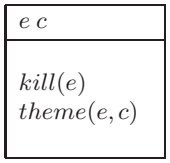
(39) is looking for a property of an event of Caesar being killed. This is supplied

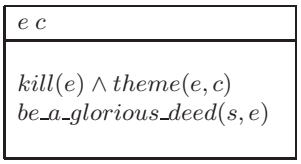
[6] Another obvious option would be to treat the dominant participle construction as denoting a proposition, which would make *a glorious deed* a second-order predicate. We do not pursue this possibility here.

by the denotation of the matrix predicate *be a glorious deed*, which we simplify as in (40).

(40) $\lambda P \lambda s(P(\lambda e'$  $))$

(39) and (40) combine as in (41).

(41) $\lambda P \lambda s(P(\lambda e'.$  $))(\lambda Q$  $\oplus Q(e)) \equiv$

λs 

(41) denotes a set of states of an event of Caesar being killed being a glorious deed. From this meaning, matrix tense and aspect will yield the final semantics. Notice that our semantics takes no account of the participle's relative tense. To do this we would probably need a function from sets of events to sets of times, but this would make the event variable inaccessible to the semantics of the nominalization in (38). This is a more general problem in the semantics of participles and cannot be dealt with here.

5 Consequences for the theory of case

There are many ways in which case and its relationship to grammatical function can be treated within LFG and they are suitable for different types of languages. A basic distinction is whether CASE is a syntactic feature at all or whether it is just a morphological phenomenon that serves to construct grammatical (i.e. syntactic) functions, but is otherwise not a syntactic feature and is not represented at f-structure. Some useful criteria are found in Spencer and Otoguro (2005), who point out that a syntactic feature CASE is needed to deal with agreement and some forms of government. The Latin agreement phenomena we have seen clearly demand a syntactic representation of the CASE feature.

Given that CASE is an f-structure feature,[7] we need to ask where it comes from. One option is the c-structure: c-structure rules could introduce CASE features, cf.

[7] In the following we will assume that if CASE is a syntactic feature, it is represented at f-structure. Some LFG theorists (e.g. Falk (2006)) deal with phenomena such as agreement at other (syntactic) levels, and our discussion should carry over to these as well, but for simplicity we maintain a uniform representation at f-structure here.

the notion of 'positional case' in Butt and King (2005). This is particularly likely to happen in configurational languages.

In languages like Latin, however, CASE features are more likely to come from the lexicon. In particular, they could come from the noun that bears the case morphology, or from its governing head, or from both. The dependent-only option is shown in (42).

(42)

nominative	accusative	finite head	infinitive head
(↑ CASE) = NOM	(↑ CASE) = ACC	—	—
((SUBJ ↑) TENSE)	((SUBJ ↑) FORM) = INF ∨ (OBJ ↑)		

Notice that because of the different subject case requirements of finite forms and infinitives, we cannot use simple constructive case features like (SUBJ ↑) – we also need to specify some formal features of the governing f-structures, such as their being finite (having tense) or being an infinitive. In (43) we see how case could be specified by the head only, while the constructive case equations are retained on the dependents.

(43)

nominative	accusative	finite head	infinitive head
((SUBJ ↑) TENSE)	((SUBJ ↑) FORM) = INF ∨ (OBJ ↑)	(↑ SUBJ CASE) = NOM (↑ OBJ CASE) = ACC	(↑ SUBJ CASE) = ACC (↑ OBJ CASE) = ACC

By exploiting properties of the governing f-structure, both these accounts will work. However, it is perhaps less natural to have heads assign case to adjuncts.

The picture is complicated by pro-dropped arguments, which do not have their own lexical entry, but which do have case, as evidenced by e.g. agreement with secondary predicates. This case feature has to be contributed by the verbal head, together with the optional PRED feature. This can be done by equations like (44).

(44)
$$\left(\begin{array}{c} \uparrow \text{SUBJ PRED} = \text{'PRO'} \\ \uparrow \text{SUBJ CASE} = \text{NOM} \end{array}\right) \left(\begin{array}{c} \uparrow \text{OBJ PRED} = \text{'PRO'} \\ \uparrow \text{OBJ CASE} = \text{ACC} \end{array}\right)$$

This means that in a 'pro-drop language' where there is evidence that PRO bears case, a pure dependent-based account of case is not possible. Still, it is possible to limit case specification by the head to pro-drop arguments only and let the CASE feature be contributed by the dependent in all other cases.

Finally, it is possible to have head and dependent cospecify case, as we have assumed in this paper. The equations are shown in Table (45).

(45)

nominative	accusative	finite head	infinitive head
(↑ CASE) = NOM	(↑ CASE) = ACC	(↑ SUBJ CASE) = NOM	(↑ SUBJ CASE) = ACC
		(↑ OBJ CASE) = ACC	(↑ OBJ CASE) = ACC

Notice that when case is specified on both the head and the dependent, the constructive case equations are superfluous – the matching CASE features are enough to establish the grammatical relations.

The dominant participle construction can in fact only be accounted for by this latter approach. We already noted that case assignment in Latin cannot use simple constructive case equations, but must access the features of the head that identify the kind of case it requires (TENSE and FORM in Tables (42) and (43)). For dominant participles, there is no such feature. For example, the equation in (46) for an accusative dependent would overgenerate.

(46) ((SUBJ ↑) FORM) = INF ∨ (OBJ ↑) ∨ ((SUBJ ↑) FORM) = PTCP

Accusatives can only be subjects of (morphologically) accusative participles, so the constraint that FORM should be PTCP is not restrictive enough. But equations like ((SUBJ ↑) CASE) = ACC would move the locus of the CASE feature to the head, which is unnatural except in a copy theory of agreement. But in such a theory, constructive case equations are redundant. We conclude that constructive case is not able to account for the dominant participle construction.

Moreover, this is just a symptom of a wider problem with the constructive case approach, namely that to deal with case variability, the constructive case marker needs to be able to see some feature in the governing f-structure that controls the choice of case. But this is not always available. 'Quirky case' (in the restricted sense of Butt and King (2005), i.e. case that is truly unpredictable and thus must be stated on a lexical basis rather than being derivable from some other feature) is typically captured by equations like (↑ SUBJ CASE) = DAT on the governing predicate, which leaves no feature in the governing f-structure that reveals the required type of case marking. And because of the global nature of constructive case, it is not possible to do only quirky case via case cospecification and leave the rest to constructive case: if there is a single predicate that requires a dative subject, every dative in the language must be marked with a disjunct (SUBJ ↑), which yields the wrong predictions.

6 Conclusions

We have presented a unified account of the various uses of Latin participles which relies in a crucial way on the formal tools offered by LFG. In particular, the notion of functional control allows us to capture the constant agreement between the participle and its subject, which is the major unifying property of participles.

Our analysis captures the 'dominant' construction through a syntactic nominalization rule. Again functional control is crucial, since it allows us to have a non-directional treatment of feature agreement. This means that the unusual case

agreement can be treated on a par with gender and number agreement by bundling the features in an AGR structure. The variable case of the participle's subject instantiates a rare type of case assignment which cannot be accounted for in terms of constructive case. It is also non-local, in that it is sensitive to the grammatical function of the entire clause and not just the grammatical function of an NP within that clause. But our copy theory of agreement lets us preserve locality in the analysis, since CASE is a feature of the verbal head itself, which is assigned in the normal way and passed on to the subject by the agreement rules. In this way, we do away with the syntax-semantics mismatch which previous analyses have assumed.

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