Towards a typology of morphological case

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Abstract

Adposition phrases in morphologically impoverished languages have a function similar to nouns with morphological cases in morphologically rich languages, leading some researchers to argue that at least some cases belong to the category P. The aim of this paper is to investigate whether all cases can be analysed as Ps. The focus is on partitive case in Finnish. Whilst the 'local' cases in many languages appear to be strong candidates for analysis as members of the category P, it will be argued that partitive case (and genitive in languages where there is no distinct partitive) spells out a functional head between P and D, and that it properly belongs to the D-system (quantifiers or determiners), not the P-system. Thus morphological cases do not form a coherent category in syntax. Instead, morphological case paradigms relate to one of three different syntactic items: (i) uninterpretable features (structural cases), (ii) PP structures (cases expressing spatial or thematic relations), and (iii) determiner or quantifier projections (partitive, and partitive uses of genitive). Possible extensions of the analysis to other languages (German, Tongan and English) are explored.

1. Introduction

Traditional grammars make use of morphological case paradigms such as those in (1)–(3).

(1) Latin nominal case paradigm

Case	'table'	'master'	'king'	Case Gloss
Nominative	mensa	dominus	rex	basic form
Vocative	mensa	domine	rex	address
Accusative	mensam	dominum	regem	direct object
Genitive	mensae	domini	regis	possessor
Dative	mensae	domino	regi	recipient
Ablative	mensa	domino	rege	by/with/from

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 Nordlyd: Tromsø Working Papers in Linguistics, 33.1, special issue on Adpositions, ed. Peter Svenonius and Marina Pantcheva, pp. 120–148. CASTL, Tromsø. http://www.ub.uit.no/munin/nordlyd/

(2) German definite article case paradigm (Durrell 1996:60)

Case	Singular			Plural
	Masculine	Feminine	Neuter	
Nominative	der	die	das	die
Accusative	den	die	das	die
Genitive	des	der	des	der
Dative	dem	der	dem	den

(3) Finnish nominal case paradigm (Kiparsky 2001, Karlsson 1999)

Case	'bear'	Case Description
Nominative	karhu	basic form
Accusative	karhu, karhu-n	direct object
Genitive	karhu-n	possessor
Partitive	karhu-a	indefinite quantity
Essive	karhu-na	state ('as a bear')
Translative	karhu-ksi	change of state ('into a bear')
Inessive	karhu-ssa	inside
Elative	karhu-sta	out of
Illative	karhu-un	into
Adessive	karhu-lla	on/instrument
Ablative	karhu-lta	off
Allative	karhu-lle	onto
Abessive	karhu-tta	without
Comitative	karhu-i-ne-	with
Instrumental	karhu-i-n	(idiomatic)

In recent syntactic theorising, however, there has been an implicit decomposition of such case forms. It has long been observed that adposition phrases (PPs) in morphologically impoverished languages have a function similar to nouns with morphological cases in morphologically rich languages such as those above. This has led some researchers to claim that cases and adpositions belong to one and the same category (Fillmore 1968, Emonds 1985; 1987), forming part of the extended functional projection of the noun (Grimshaw 1991). More recently, more detailed research on spatial expressions has led to the proposal that case suffixes expressing spatial relations in certain languages belong to the category P (van Riemsdijk and Huybregts 2001, den Dikken 2003, Svenonius 2006). Such claims are based initially on the apparent identity of function of adpositions in morphologically impoverished languages, as compared with case marked noun phrases in morphologically richer languages, as illustrated in (4). They are further substantiated by the observation that combinations of adpositions mirror combinations of cases cross-linguistically, with a general hierarchical ordering of path and place markers, such that place should be marked closer to

the lexical head than path, as illustrated in (5).[1]

(4) Identical function of English prepositions and Lezgian cases

Pacah.di-n rik' ala-j dewe m qw.e-laj wac'.u-z
king-GEN *heart be.on*-PTCP *camel bridge*-SREL *river*-DAT
awat-na.
fall.off-AOR

'The king's favourite camel fell from the bridge into the river.'
(from Svenonius 2006)

(5) Identity of case combinations in Lezgian and P combinations in English

a. sewre-qh
bear-POSTESS
'behind the bear'

b. sewre-qh-aj
bear-POSTESS-ELAT
'from behind the bear'

c. sewre-qh-di
bear-POSTESS-DIR
'to behind the bear'
(from van Riemsdijk and Huybregts 2001)

At the same time, others maintain that there is a more general link between case and additional nominal functional structure, usually termed KP (Bittner and Hale 1996, Bayer, Bader, and Meng 2001, among others). For the purpose of this article I will view KP as equivalent to PP, on the following grounds: firstly, the researchers on KP note that the K position may sometimes be filled by a preposition; secondly, I will not discuss data which provides evidence for the need for a specific separate category K, and in the absence of such evidence it seems desirable to keep the inventory of categories to a minimum. The proposal should, however, be compatible with the notion KP, should it turn out to be necessary for independent reasons. I will refer to those morphological cases analysed as spelling out P projections as *P-affixes*.

The aim of this paper is to investigate whether all morphological cases can be seen as members of the category P, arguing for the conclusion that such uniform treatment is not possible. Since I do not examine nomina-

[1]The following abbreviations are used in the examples: ABL=ablative, ABS=absolutive, ACC=accusative, ADESS=adessive, AL=alienable, ART=article, AUG=augment, BEN=benefactive, CL=clitic, COP=copula, DAT=dative, DEF=definite, DIR=directional, ELAT=elative, ERG=ergative, ESS=essive, GEN=genitive, INAL=inalienable, INESS=inessive, INIT=initial, LOC=locative, NOM=nominative, NONSPEC=non-specific, OBL=oblique, PART=partitive, PL=plural, POSTESS=postessive, PRES=present, PST=past, PTCP=participle, PV=preverb, R=referring, REFL=reflexive, REL=relative pronoun, SG=singular, SPEC=specific, SUBJ=subject.

tive, accusative or dative in detail, I simply adopt the standard Principles and Parameters view that nominative, accusative, and at least in some languages dative, involve a separate system, structural case, arising from uninterpretable features which must be checked in a particular structural configuration.[2] I contribute to the decomposition of the paradigms illustrated, focusing on partitive case (and genitive in languages where it has partitive function and there is no distinct partitive), particularly in contexts such as that illustrated for Finnish in (6), where the case seems to contribute indefiniteness or the force of a negative polarity item. Kiparsky (1998) argues that this case involves the unboundedness of the event.

(6) Finnish partitive expressing unboundedness (Karlsson 1999)

a. Purki-ssa on leipä-ä.
tin-INESS *is* *bread*-PART
'There is some bread in the tin.'

b. Silja joi maito-a.
Silja drank milk-PART
'Silja drank some milk.'

c. Silja ei juonut maito-a.
Silja not drink milk-PART
'Silja did not drink the/any milk.'

d. cf. Accusative, for an object in a bounded event
Silja joi maido-n.
Silja drank milk-ACC
'Silja drank the milk.'

I argue that the Finnish partitive is distinct both from the structural cases and from the P-affixes. The semantic content of partitive suggests that it comes more within the range of the DP than the PP, taking on a function similar to an indefinite article, negative polarity item, or quantifier. Thus it seems that, unlike the case suffixes expressing spatial relations, which are argued to spell out P heads, the Finnish partitive suffix properly belongs to the D-system. It is more akin to the suffixal determiners in (7). I will refer to these items as *D-affixes*.

[2]This is in line with general Principles and Parameters approaches to nominative and accusative case (cf. Chomsky 1981; 1995). It seems also to be necessary to account for behaviour of the dative in certain languages, as argued for Icelandic in Svenonius (2005). For other languages it has been argued that dative differs from nominative and accusative and requires further functional structure, as argued for German in Vogel and Steinbach (1998) and Bayer et al. (2001). I mention briefly how this may pertain to ergative languages in section 3.2.

(7) Definite article suffixes (Giusti 2002:58)
   a. baiat-ul (Romanian)
   b. djal-i (Albanian)
   c. momce-to (Bulgarian)
   d. gutt-en (Norwegian)
      boy-DEF
      'the boy'

I will attempt to extend the analysis to other languages, arguing that certain items that carry similar meaning but have previously been analysed as adpositions, such as English *of*, may also belong to this category. It goes beyond the scope of the paper to give a detailed account of the syntactic structure underlying nouns with this case, but I propose that it involves a head lower in the extended projection of the noun phrase than the P layer and higher than the article, belonging more with the D-system than with the P-system. The conclusion will therefore be that morphological cases do not form a coherent category in syntax, but rather that the case paradigms apparent at the morphological level relate to different syntactic categories.

The structure of this paper is as follows. Section 2 outlines the core proposal, introducing the Finnish data in 2.1, and sketching an analysis in 2.2. Section 3 investigates possible extensions to other languages, looking at German, Tongan and English. Section 4 addresses several theoretical implications of the analysis. Finally, section 5 summarises the main findings and the issues still to be accounted for, thus concluding the paper.

2. Finnish partitive

I propose that the Finnish partitive case belongs to the D-system, rather than the P-system, on the basis of its distribution and interpretation. This differs from past accounts, which have variably treated Finnish partitive as structural (Vainikka 1993), associated with aspect (Kiparsky 1998, Kratzer 2004), and as inherently assigned by unaccusative verbs (Belletti 1988). Section 2.1 presents data showing that partitive is distinct from nominative and accusative, in that it is semantically constrained, but also from P-affixes, in that it is not selected due to an idiosyncratic property of the predicate. Section 2.2 outlines my analysis.

2.1. Finnish data

The Finnish partitive is unlike other cases in that it alternates regularly with nominative and accusative arguments of the verb. Thus it emerges in contexts where one would expect to see structural nominative/accusative, but its distribution appears to be semantically constrained, relating to indefiniteness and boundedness (cf. discussion in Kiparsky 1998).

2.1.1. Partitive subjects

The Finnish partitive alternates with nominative on subjects, in three different contexts, as listed in (8), and illustrated in (9)–(11).[3]

(8) Three contexts for partitive subjects:
   a. indefinite divisible non-count nouns (9)
   b. indefinite plural count nouns (10) (whereas definite subjects are nominative)
   c. where the existence of the argument is completely negated (11) (Karlsson 1999:82–85)

(9) Partitive subject with divisible non-count nouns
   a. Partitive mass noun as indefinite subject
      Purki-ssa on leipä-ä.
      tin-INESS *is* *bread*-PART
      'There is some bread in the tin.'
   b. cf. Nominative mass noun as definite subject
      Leipä on purki-ssa.
      bread *is* *tin*-INESS
      'The bread is in the tin.'

(10) Partitive subject with plural count nouns
   a. Partitive count noun as indefinite subject
      Kadu-lla on auto-j-a.
      street-ADESS *is*.3SG *car*-PL-PART
      'There are cars in the street.'
   b. cf. Nominative count noun as definite subject
      Auto-t ovat kadulla.
      car-PL *are*.3PL *street*-ADESS
      'The cars are in the street.'

(11) Partitive subject with negation of existence
   a. Partitive for negation of existence
      Kadulla ei ole auto-a.
      street *not is* *car*-PART
      'There is no car in the street.'
   b. cf. Nominative for non-complete negation
      Auto ei ole kadulla.
      car *not is* *street*
      'The car is not in the street.'

[3]The situation is complicated by the fact that only nominative subjects appear to trigger agreement on the verb, and by the difference in word order, which suggests that there is a null expletive subject. The important point for the discussion here is the alternation with nominative, rather than subject status, so I will not discuss this further.

Thus partitive appears in contexts in which one would expect a nominative subject in many languages. It seems to have the function of an indefinite article or quantifier in (9) and (10) and of a negative polarity item in (11).

2.1.2. Partitive objects

The Finnish partitive alternates with accusative on objects, in four different contexts, as listed in (12), and illustrated in (13)–(16).

(12) Four contexts for partitive objects:
- a. negative sentences (13)
- b. indefinites of unlimited quantity (14)
- c. incomplete actions (15)
- d. verbs of emotion (16) (Karlsson 1999:84–85)

(13) Partitive objects and negation
- a. Partitive in negative sentence

  En osta auto-a.
  not buy car-PART
  'I won't buy the car.'
- b. cf. Accusative object in positive sentence

  Osta-n auto-n.
  buy-1SG *car*-ACC
  'I buy/will buy the car.'

(14) Partitive indefinite objects, non-limited quantity
- a. Partitive with indefinite quantity/incomplete action

  Silja joi maito-a.
  Silja drank milk-PART
  'Silja drank some milk.'
- b. Partitive object in negative sentence

  Silja ei juonut maito-a.
  Silja not drink milk-PART
  'Silja did not drink the/any milk.'
- c. cf. Accusative, completed action

  Silja joi maido-n.
  Silja drank milk-ACC
  'Silja drank the milk.'

(15) Partitive object with incomplete actions
- a. Partitive, incomplete action

  Tyttö luki läksy-ä.
  girl do homework-PART
  'The girl was doing her homework.'

b. cf. Accusative, complete action
Tyttö luki läksy-n.
girl *do* *homework*-ACC
'The girl did (i.e. finished) her homework.'

(16) Verbs of emotion with partitive objects
a. Rakastan tuo-ta nais-ta.
love.1SG *that*-PART *woman*-PART
'I love that woman.'
b. Pelkäätkö koir-i-a?
fear.2SG *dog*-PL-PART
'Are you afraid of dogs?'
c. Säälin hän-tä.
pity.1SG 3SG-PART
'I pity him/her.'

Thus the partitive object appears in contexts where one would expect an accusative in many languages. It seems to have the function of a negative polarity item in (13) and (14). Examples (15) and (16) indicate a relationship with aspect, partitive being used for unbounded objects, and accusative for bounded objects (Kiparsky 1998). I argue that even the use of partitive with verbs of emotion is distinct from the normal sense of 'inherent' case on objects, since it can be explained by the fact that these verbs inherently involve an activity which is not aspectually bounded.

2.1.3. How to interpret the Finnish data

The use of the partitive presented in the preceding sections is distinct from uses of other 'inherently selected' cases (PP structures under my assumptions).

(17) 'Inherently selected' cases in Finnish (from Fong 2001:2)
a. Sointu kehoitti Toinia laula-ma-an.
Sointu encouraged Toini *sing*-INF-ILL
'Sointu encouraged Toini to sing.'
b. Sointu kielsi Toinia poltta-ma-sta.
Sointu forbade Toini *smoke*-INF-ELAT
'Sointu forbade Toini to smoke.'

In these examples the illative and elative cases appear to be required by a semantically determined property of the selecting heads.[4] In contrast, the use of partitive in place of a nominative subject or accusative object appears to be independent of the lexical content of the assigning head (making it look more like a structural case), and yet semantically determined (making

[4]The Finnish infinitive behaves like a noun in that it can take certain case forms (Karlsson 1999:182).

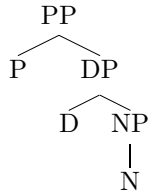
it look more like an inherent case, a P-affix under the framework adopted here).

Instead, the uses of the partitive seem more related to the expression of indefinite quantity and negative polarity. For this reason, I suggest that the partitive can be seen as a type of quantifier or determiner head, rather than the morphological realisation of a structural case feature or a P head.

2.2. Towards an analysis

This section presents a sketch of the way in which the distinctive behaviour of the partitive might be analysed and puts it into its theoretical context. If some case inflections spell out P because it is an extended projection of N (the P-affixes introduced above), then, by the same logic, other intervening functional heads such as determiners and quantifiers, should also sometimes be seen as inflections on N (D-inflections, like the determiner suffixes in (7)). Following Grimshaw (1991), I take P and D to be extended projections of the noun, as shown in (18). These functional heads may be spelled out on the nominal head.

(18) Schematic structure of a fully specified noun phrase

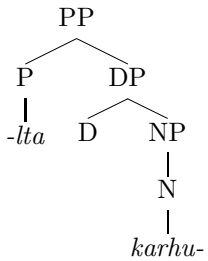


I suggest that the apparently anomalous behaviour of the Finnish partitive can be explained by treating it as a D-affix. Thus the basic structures for Finnish ablative and partitive nouns would be as follows.

(19) Finnish ablative structure

karhu-lta
bear-ABL

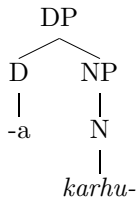
'from the bear'



(20) Finnish partitive structure

karhu-a
bear-PART

'of the bear'



From these structures the word orders are derived by movement. I will not attempt here to decide between accounts involving affix hopping or raising. However, it should be noted that all word/affix orders predicted by (18) are attested. That is to say, both adpositions and determiners may surface either as affixes or as separate words, and they can either precede or follow the lexical head, whether they are morphologically part of the noun or not, as illustrated in the following examples.[5]

(21) Adpositions preceding vs. following the noun

a. Preposition (English)
to the house

b. Postposition (Hungarian)
a ház mögött
the house behind
'behind the house'

(22) P-affixes preceding vs. following the noun

a. P-prefixes (Krongo, Reh 1985)
à-káaw
DAT-*person*
'to the person'

[5]The data here represent a somewhat idealised picture. P-inflection (referred to as 'case' in the literature cited) in some languages can appear as tones or stem changes on the noun. Dryer (2005:210), for example, notes that case is coded by tone in several African languages such as Maba (Maban, Nilo-Saharan, Chad) and Shilluk (Nilotic, Sudan), and by stem changes in the noun in Dinka and Nuer (Western Nilotic, Sudan). Other languages make use of mixtures of prefixes and suffixes for this purpose, as in Chukchi (eastern Siberia, Russia) and Mangarrayi (Northern Territory, Australia). I will not attempt to account for the full range of possible surface forms in any detail, but P. Svenonius (p.c.) notes that tones can be accounted for autosegmentally, and argues that the same is true of stem changes in Northern Sami (Svenonius 2004), so that the same mechanisms that result in clear prefixes and suffixes might also derive the stem changes.

b. P-suffixes (Hungarian)

a ház-ban
the house-INESS
'in the house'

(23) Determiners preceding vs. following the noun

a. Determiner precedes noun (English)
the house

b. Determiner follows noun (Ewe, Heine et al. 1991:65)

xo á
house DEF
'the house'

(24) D-affixes preceding vs. following the noun

a. D-prefix (Hebrew, Botwinik-Rotem 2004:4)

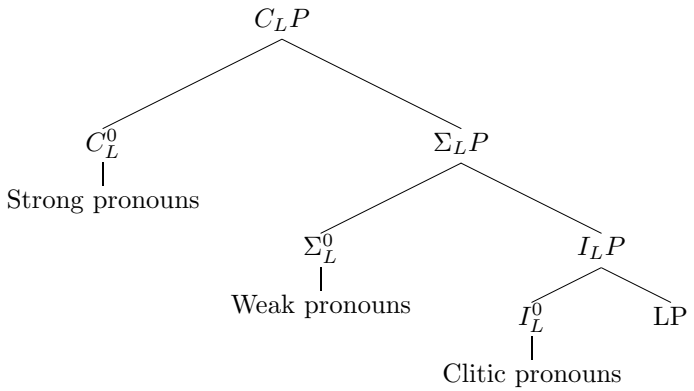
ha-sefer
DEF-*book*
'the book'

b. D-suffix (Norwegian, Giusti 2002:58)

gutt-en
boy-DEF
'the boy'

For the difference between structural case and inherent case I adopt an analysis along the lines of Bayer et al. (2001), with certain qualifications to be outlined here. I first summarise the analysis and then show how it might be applied to my proposal. For their analysis of German, Bayer et al. use Cardinaletti and Starke's (1999) notion of structural deficiency, taking nominative and accusative nouns to be structurally deficient (DPs), requiring movement to receive structural case, and taking genitive and dative nouns to have additional KP structure (my PP), such that they do not need to move for structural case. Cardinaletti and Starke's typology of pronouns is as follows.

(25) Typology of structural deficiency of pronouns
(Cardinaletti and Starke 1999:195)



L is the lexical head, I is the inflection category, Σ is a functional category where prosody-related features are located, and C is like C in the verbal domain. Under the assumptions presented in this paper, P would roughly correspond to C, and D to I, leaving room for a further determiner-like element or quantifier to correspond to Σ. This would be the locus of partitive case, explaining the use in negative contexts, as Cardinaletti and Starke suggest that Σ contains both polarity features (assertion/negation) and focus features. Thus it seems reasonable to place the partitive here.

I have argued that the partitive spells out a head in the D-system, and that it is distinct from the P-inflections spelled out by the cases with spatial meanings. If Cardinaletti and Starke's findings are interpreted to mean that structural cases are assigned to DPs (as in Bayer et al. 2001), then the patterning of partitive arguments with the structural cases on subjects and objects is expected. A case-checking verbal head, looking for something to check case with, will see a noun phrase with partitive case as a possible candidate, just as it will see a noun phrase with nominative or accusative. A noun phrase within a PP structure will appear unsuitable for case checking. For this reason partitive patterns rather similarly to nominative and accusative in the syntax, appearing on subjects and objects.

Finnish partitive patterns with P-affixes in the sense that it seems to make a semantic contribution to the noun phrase. Under the analysis adopted here, this is expected because the partitive involves more structure than the nominative and accusative cases, contributing additional semantic information. This additional structure will also go some way towards explaining the greater morphological complexity of German genitive and English *of* below, when compared with nominative and accusative noun phrases, as I argue that these languages also have a structure similar to the Finnish partitive. Thus the distinction between the D-system and the P-system emerges as crucial in determining the way in which a noun can be selected as an argument.

3. Extensions of the analysis

In this section I attempt to extend the analysis of Finnish partitive to other languages (German, Tongan and English), showing that it is not an exceptional phenomenon but that affixes formerly analysed as case, and words formerly analysed as adpositions, in other languages might be usefully reanalysed as belonging to the D-system.

3.1. German genitive

I argue here that German genitive may also form part of the D-system. Bayer et al. (2001) distinguish German nominative and accusative cases from genitive and dative cases, based on their different morphosyntactic behaviour. They attribute the difference to a structural asymmetry, nominative and accusative relating to a particular spec-head configuration between a DP and a verbal head, whilst genitive and dative spell out KP (my PP), an additional projection above DP. They leave several differences between genitive and dative unexplained. I will examine these differences here, adopting Bayer et al.'s assumptions for nominative and accusative, and arguing that the genitive/dative asymmetries result from a D/P asymmetry.

Genitive requires morphological licensing in contexts where the other cases do not. When a noun appears with the definite determiner, genitive case is obligatorily marked on masculine and neuter nouns. In this respect genitive differs from the nominative and accusative, which appear only on the determiner, and dative, which appears on the determiner and optionally on the noun.

(26) German case morphology on articles and nouns (Bayer et al. 2001:446)

Singular	masculine	feminine	neuter
Nominative	der Mann	die Frau	das Kind
Accusative	den Mann	die Frau	das Kind
Dative	dem Mann-(e)	der Frau	dem Kind-(e)
Genitive	des Mann-es	der Frau	des Kind-es

Proper names are ungrammatical if they are genitive and the genitive is not morphologically realised, whereas bare datives are acceptable.

(27) Need for genitive inflection on proper names

Bewohner Moskau-s /London-s /*Paris/*Graz/
inhabitants Moscow-GEN/*London*-GEN/ *Paris*/ *Graz*/
Graz-en-s
Graz-AUG-GEN

'inhabitants of Moscow/London/Paris/Graz'
(Bayer et al. 2001:467)

(28) Lack of dative inflection on proper names (Bayer et al. 2001:477)

a. Die Affäre hat Bill Clinton nicht geschadet.
the affair has Bill Clinton[DAT] *not harmed*
'The affair didn't harm Bill Clinton.'

b. Amerika hat Afghanistan den Kampf angesagt.
America has Afghanistan[DAT] *the fight told*
'America challenged Afghanistan.'

A similar phenomenon is encountered with plural nouns: bare plurals can be dative but not genitive.

(29) Bare plurals in dative and genitive (Bayer et al. 2001:481)

a. Bauern soll man nicht widersprechen/schaden.
farmers[DAT] *should one not object /harm*
'One should not object to/harm farmers.'

b. *Bauern kann ich mich leider nicht erinnern.
farmers[GEN] *can I* REFL *unfortunately not remember*
'Unfortunately I cannot remember farmers.'

In terms of morphological licensing, genitive is therefore distinct from the other cases.

Finally, genitive case is ungrammatical in the absence of an article or adjective (Bayer et al. 2001:482), unless the noun is already intrinsically definite (cf. the proper names in (27), which are grammatical without an article or adjective).

(30) Need for a genitive-marked article or adjective with German genitive-marked nouns

Ich erinnerte mich *(eines /des /gutes)
1SG *remembered* 1SG.ACC.REFL *a.*GEN/*the.*GEN/*good.*GEN
Wein-es aus Chile.
wine-GEN *from Chile*

'I remembered a/the/good wine from Chile.'

The connection with the article and definiteness status of the noun suggests a link between the DP layer and the genitive. I suggest that the analysis of genitive as belonging to the D-system goes some way towards explaining this link.[6]

The German data discussed here are comparable to the Finnish in that

[6]The connection with the adjective seems surprising if the explanation is to be based purely on the DP layer. I do not know of further evidence in German for a direct connection between adjectives and articles, but certain phenomena in languages with suffixing determiners do seem to point to such a link. For example, in Swedish (i) the definite article appears only as a suffix in the absence of an adjective, but when an adjective is present, the article additionally appears as a separate word and as an affix on the adjective. [footnote continued next page]

an element commonly treated as a case can be shown to be distinct from those cases which spell out PP (German dative, Finnish locative and directional cases) and those which spell out abstract case features (nominative and accusative), and in that the same element appears to undergo an interaction with the D-system. It is clear that the use of the German genitive is far more restricted than that of the Finnish partitive, with nothing like the regular subject/object alternations with nominative and accusative case. It looks as if German, with a full determiner system, has less need of this case to mark unboundedness. Thus the main function that the German genitive and Finnish partitive have in common is the adnominal partitive construction, as illustrated in (31) and (32).

(31) German genitive in expressions of quantity

a. die Hälfte des Kuchen-s
the half *the*.GEN *cake*-GEN
'half of the cake' (Durrell 1996:35)

b. der größte Teil des Tag-es
the biggest part the.GEN *day*-GEN
'most of the day'

(32) Finnish partitive in expressions of quantity (Karlsson 1999:89–90)

a. vähän maito-a
little *milk*-PART
'(a) little milk'

[footnote continued from preceding page]

(i) a. bil-en
car-DEF
'the car'

b. den stor-a bil-en
the *big*-DEF *car*-DEF
'the big car' (Kester 1996:16)

Similarly, Romanian definite determiners (ii) are realised as suffixes on the noun in the absence of other noun phrase internal elements, but on the adjective when it is in prenominal position.

(ii) a. parc-ul
park-DEF
'the park'

b. nverzit-ul parc
green-DEF park
'the green park'
(from Mardale forthcoming, who provides Albanian and Bulgarian data illustrating the same phenomenon)

(i) and (ii) clearly demonstrate interaction between the determiner and adjective. It goes beyond the scope of this paper to investigate this interaction in detail, but I suggest that this can be seen as a more general adjective-determiner link, which supports the idea of the genitive forming part of the D-system, rather than part of a higher category.

b. kuppi kahvi-a
cup *coffee*-PART
'a cup of coffee'

Even this is somewhat restricted in German, perhaps due to the gradual disappearance of the genitive, and replacement by the preposition *von*.[7] However, the fact that they have some overlap in function, taken with the fact that both seem distinct from the other 'cases' generally listed in paradigms for these languages, suggests that they may have a similar structure.

3.2. Tongan absolutive and genitive

I now turn to a possible extension of the analysis to a language which marks such categories analytically (that is, with adpositions instead of affixes). Tongan (Polynesian) is an ergative language with prepositions marking the different functions normally regarded as case functions (ergative, absolutive, benefactive, genitive, etc.). The Tongan data is interesting for two main reasons. Firstly, the absolutive preposition interacts with the article, showing that apparent case markers can also have features relating to specificity, which is commonly assumed to be characteristic of the D-system. Secondly, the genitive (the preposition marking possession), seems to have a formal link with the absolutive, suggesting that adnominal cases more generally may relate to the DP layer in syntax.

Tongan has a prepositional absolutive marker. As illustrated in (33), the absolutive preposition must be omitted before a non-specific article, is optional before a specific article and a pronominal object, and is obligatory with proper names and other nouns with specific reference where no article is present.

(33) Tongan absolutive (Broschart 1994:55)

a. Unacceptable with a non-specific article
Na′e kata (*′a) ha taha.
PST *laugh* ABS NONSPEC.ART *one*
'Somebody laughed.'

b. Generally present but not necessary with specific article
Na′e kata (′a) e sianá.
PST *laugh* ABS SPEC.ART *man*.DEF
'the man laughed'

c. Generally omitted but permissible with pronouns
Na′e kata (′a) ia.
PST *laugh* ABS 3SG
'He laughed.'

[7] See note 12 for a brief discussion of the status of *von*.

d. Obligatory with personal names
Na′e kata *(′a) Sione.
PST *laugh* ABS *Sione*
'Sione laughed.'

e. Obligatory with other nouns with clear contextual reference
Ke ma′a *(′a) peito!
SUBJ *clean* ABS *kitchen*
'Let the kitchen be clean!'

According to Bittner and Hale (1996), the appearance of morphological absolutive case in ergative languages (usually involving zero morphology) does not relate to a case feature, nor to any additional structure. Nouns which appear with absolutive are simply bare DPs.[8] Ergative morphology, on the other hand, is marked and spells out KP. The use of a preposition to mark absolutive is problematic for such an approach, but can be explained if one assumes that certain characteristics typically associated with the article are present in the absolutive preposition. That is to say, the absolutive preposition forms part of the determiner system, rather than the system of prepositions. Like the Finnish partitive, it spells out a head lower than the P-layer, explaining the determiner interaction, but higher than the determiner itself, explaining its ability to combine with the specific article. Thus in (33), the (a) example is explained by the idea that the absolutive contains specificity features incompatible with the non-specific article. (b-c) are explained by its being specific, and thus compatible with the specific article and pronoun but redundant in their presence. The obligatory presence of the absolutive in (d-e) is due to the fact that there is nothing else available to mark specificity overtly. The contrast between the ergative and absolutive prepositions is illustrated by the fact that the ergative, unlike the absolutive, cannot be omitted, as in (34).

(34) Omissible absolutive vs. obligatory ergative (Broschart 1994:44)

Na′e ma′u (′a) e ongo fu′u ′anga ′e ua ′i Maasi 1
PST *get* ABS SPEC.ART DUAL CL *shark* LNK 2 LOC *March 1*
*(′e) he kau toutai mei Kolonga.
ERG OBL.SPEC.ART PL *fisher* ABL *Kolonga*

'Fishermen from Kolonga caught two (big) sharks on 1st March.'

The behaviour of the Tongan absolutive is of further interest for the present discussion of genitive case because the same preposition that appears as the absolutive marker is also the preposition used for the genitive of alienable

[8] The same arguments are also applied to nominative case in nominative-accusative languages.

possession.[9]

(35) Identical form of Tongan absolutive and genitive of alienable possession (Broschart 1994:16,96)

a. Absolutive

Na′e ′alu **′a** Sione ki kolo.
PST *go* ABS *Sione* DIR *town*
'Sione went into (the) town.'

b. Genitive of alienable possession

ko e ka **′a** Sione
COP.ESS.PRES SPEC.ART *car* GEN.AL *Sioné*.DEF
'Sione's car'

Other Tongan prepositions, such as the benefactive, seem to incorporate the genitive. The genitive forms appear as part of the benefactive, with the same alienable/inalienable distinction as is visible in the genitive when it appears alone, suggesting that the genitive is selected by the benefactive. The genitive form does not appear to incorporate other 'prepositions'. This suggests that the genitive is lower in the structure than P. Compare the examples of the benefactives in (36) with those of the genitive in (37).

(36) Tongan benefactive incorporates genitive (Broschart 1994:50)

a. Benefactive based on genitive of inalienable possession

Na′a nau langa ′a e fale **mo′o**
PST 3PL.INIT *build* ABS.GEN SPEC.ART *house* BEN.INAL
Siale.
Siale
'They built a house for Siale.'

b. Benefactive based on genitive of alienable possession

Na′a nau tanaki ′a e pa′anga **ma′a**
PST 3PL.INIT *collect* ABS.GEN SPEC.ART *money* BEN.AL
Siale.
Siale
'They collected some money for Siale.'

[9]The word *ko*, which appears in the nominal exmaples, is described in Broschart (1994:14) as a copular or present tense form but also as a type of essive preposition, comparable to English 'as'. Broschart later mentions that it is used with the citation form of the noun (Broschart 1994:35). An alternative translation of (35b) would thus be as a full sentence, 'There is Sione's car'. For consistency, I have used the general gloss COP.ESS.PRES, but have kept Broschart's translation of the examples. The status of *ko*, and of the examples as noun phrases or clauses, should not bear on the discussion of the prepositions which are the focus of the examples I cite.

(37) Tongan genitive prepositions (Broschart 1994:96)

a. Genitive of inalienable possession

ko e ʻulu **ʻo** Sioné
cop.ess.pres spec.art *head* gen.inal *Sione*.def
'Sione's head'

b. Genitive of alienable possession

ko e ka **ʻa** Sioné
cop.ess.pres spec.art *car* gen.al *Sione*.def
'Sione's car'

Broschart (1994:122–123) further claims that there is evidence that the diachronic development of the Tongan genitive prepositions was closely connected with that of the article.

For the purposes of this paper the Tongan data is interesting in that it provides evidence from a typologically very different language for the idea that some of the words traditionally analysed as adpositions, with apparent case functions, are in fact closer to the noun than others and interact more directly with the D layer than with the P layer.

3.3. English *of*

In this section I look for evidence for a similar category in English, arguing that the analysis of Finnish partitive may also shed light on the anomalous behaviour of English *of*. The word *of* is unlike other English prepositions in several respects. Unlike other prepositions, which seem to be acceptable as arguments of cognate nouns and verbs, *of* cannot normally be used as a verbal complement.

(38) Prepositions as complements of nouns and verbs

a. arguments against the war
b. He argued against the war.

(39) *Of* as complement of noun and verb

a. the destruction of the city
b. *He destroyed of the city.

Instead *of* emerges as a default adnominal preposition, leading some researchers to suggest that it is the NP-internal structural case (cf. de Wit 1997).[10] Partitive use of *of* is restricted to NP-internal and quantifier-phrase internal use in English.

[10]This differs from the standard Principles and Parameters approach, according to which nouns cannot assign structural case and the insertion of a semantically empty preposition such as *of* allows for case-marking of the complement (Chomsky 1981:50–51).

(40) Partitive *of*

a. a cup/pot of tea
b. some/much of the fruit
c. ??He ate of the bread.

At earlier stages of the language, however, *of* was possible with verbal objects (41) and seems to have been an alternative to bare noun phrase objects (42).[11]

(41) *Of* as a verbal object in older texts

a. Eat ye every man of his own vine, and every one of his fig tree.
b. They did eat of the unleavened bread among their brethren.
c. Drink of this potion.
d. 'Twill fill your stomachs; please you eat of it.
e. I would you would accept of Grace and Love.
f. Hear him debate of commonwealth affairs.
((a-b) from the Bible, II Kings, King James Version, 1611; (c-f) from Shakespeare texts)

(42) Bare noun phrase objects from the same texts

a. He did eat bread continually before him all the days of his life.
b. I'll steep this letter in sack and make him eat it.
((a) from the Bible, II Kings, King James Version, 1611; (b) from Shakespeare)

Of also fails several tests for membership of the category P. Here I refer to diagnostics sometimes used for arguing that particles and prepositions belong to one category (cf. Svenonius 2006, drawing on Emonds 1972). *Of*-phrases cannot prepose (43) or be modified by right (44).

(43) Preposing

a. Into the house he ran!
b. Down the street rolled the carriage!
c. On the hill stands a castle.
d. *Of his children he thought!

(44) Modification by right

a. He pointed the gun (right) at the child.
b. He stayed (right) inside the tree trunk until the hunters had gone.
c. He thought (*right) of his children.

[11] On the basis of a brief search through Shakespeare texts on Project Gutenburg (http://www.gutenberg.org/), the use of *of* with verbal objects seems to be mainly limited to verbs involving consumption, with a few exceptions, as illustrated in the examples (and to verbs such as *speak*, *talk*, *think*, and *hear*, which also take *of*-phrases in modern English, but without obvious partitive meaning).

Of is also noteworthy for its apparent lack of semantic content by comparison with other prepositions. The notion of figure-ground relations applied to PP structure in Svenonius (forthcoming), among others, cannot easily be extended to *of* for this reason. Where various researchers have claimed that path is positioned hierarchically above place (van Riemsdijk and Huybregts 2001, Kracht 2002; 2003, den Dikken 2003, Svenonius forthcoming), it is difficult to fit *of* into such structures. Whilst *of* can be selected by certain Ps (such as *out*), it is not clear that *of* in such a context has any kind of locational meaning. (45) illustrates the surface phenomena predicted by the hierarchical ordering of path and place. (46) shows that the same ordering works for many English prepositions, but not for *of*, which has no obvious locational meaning when it is selected by a locative P, and cannot select a locative P itself. This suggests that it is lower than P in the structure.

(45) Hierarchical ordering of path and place

a. sewre-qh-aj
bear-POSTESS-ELAT
'from behind the bear'

b. sewre-qh-di
bear-POSTESS-DIR
'to behind the bear'
(van Riemsdijk and Huybregts 2001)

(46) Ordering of place/path Ps in English, contrasting with ordering with respect to *of*

a. from behind the tree
b. (out) from behind the tree
c. (from) out of the house (*of* has no obvious locational meaning)
d. north of the mountains
e. *of out/from the house (*of* cannot select other prepositions)

Although *of* can be used in several functions similar to the genitives and partitives discussed above (as a partitive, and in certain possessive constructions), the link with determiners is not clear in English. A possible counterargument to analysing *of* as belonging to the DP layer is the acceptability of stranding.

(47) English P- vs. D-stranding

a. I only know these children.
b. *Children, I know only these.
c. What were you thinking of?
d. What did you put the book on?

Giusti (1995), however, shows that there is a distinction between different types of determiner in several languages in this respect: articles cannot be stranded, but other types of determiner-like words, such as quantifiers, can.

She illustrates this with German and Italian.

(48) German quantifier float vs. determiner stranding (Giusti 1995:80)

a. Die Kinder kenne ich alle.
the children know I all
'I know all the children.'

b. Kinder kenne ich viele.
children know I many
'I know many children.'

c. *Kinder kenne ich die.
children know I the

(49) Italian quantifier float vs. determiner stranding (Giusti 1995:80)

a. (I ragazzi), li conosco tutti.
the boys CL.ACC *know*.1SG *all*
'I know all the boys.'

b. (Ragazzi), ne conosco pochi.
boys CL.GEN *know*.1SG *many*
'I know many boys.'

c. *((I) ragazzi), ne/li conosco i.
the boys CL.GEN/ACC *know*.1SG *the*

It is possible that such an explanation might also apply to *of*, where the acceptability of stranding is explained by its having a position higher in the DP projection than the article. Thus lack of determiner stranding may not be counter-evidence for the proposal, and it is possible that the exceptional nature of English *of* amongst prepositions might be explained by reanalysing it as part of the D-system, rather than part of the P-system[12] (cf. Kayne 1994 on *of* in N-of-N constructions).

4. Theoretical implications and problems

4.1. Coherence of the category P

The reanalysis of partitive allows a more semantically consistent characterisation of the category P, without expanding significantly the semantic coverage of the system of quantifiers and determiners. Part of speech categories can be distinguished at the levels of morphology, syntax and semantics. Ideally, the categories defined at one level match those defined at another level. For nouns, verbs and adjectives this can be broadly maintained. For example, nouns might be characterised by a semantic core denoting entities,

[12] I do not assume that the same analysis can be extended directly to Dutch *van* and German *von*, in spite of their similar use in partitive expressions. This is because *van* and *von* in spatial expressions have clear directional semantic content ('from'). Furthermore, German *von* selects for a noun with dative case. If Bayer et al. (2001) and Vogel and Steinbach (1998) are correct, then the dative case involves further structure above DP, such that *von* is not directly comparable to English *of*, which selects for a DP.

verbs as denoting events, and adjectives as denoting qualities. The classes characterised in this way often correlate with specific derivational suffixes which distinguish them from the other categories, and particular patterns of syntactic behaviour. This cannot be said of the category P. Whilst N, V and A are usually morphological words, with some consistency in derivational morphology, members of the category P may be individual words or affixes. Even as words they lack consistent derivational morphology, and are found in syntactically different contexts, surfacing as verbal prefixes and particles, as well as in the more nominal-related contexts of adpositions and case morphology. The reason for considering P to form one category is that the form, and often the individual semantic content, of many Ps remain fairly constant in the use of one item in the different nominal and verbal syntactic contexts.

(50) Consistent meaning/form of Ps across different syntactic contexts
   a. They had lunch after the lesson.
   b. Mary ran after John.

The category can be roughly semantically characterised as a class of relational markers, specifying the relationship of arguments and adjuncts to the predicate. These types of relations are normally either spatial relations (path/place) or thematic roles (explicit markings of agents, experiencers, beneficiaries, etc.). Much of the work on adpositions focuses on spatial relations, outlining a hierarchical path-place structure and explaining their role in aspectual interactions. The partitive meanings discussed here seem to be distinct from such spatial relations, and fail to take part in the same type of layered structure, as observed above with respect to *of* in English.[13] The partitive also seems to be a misfit amongst inventories of thematic roles. Intuitively speaking, the fact that an object is parted does not affect its patient/theme role, but rather the relevant quantity involved in the action.

4.2. Case paradigms and agreement

Under the current assumptions, the traditional notion of a case paradigm, illustrated in (1)–(3) is shown to be epiphenomenal, existing only at the morphological level. Different cases arise from different syntactic structures. The stark difference between the nature of minimal pairs based on verbal and nominal inflectional paradigms might receive a partial explanation under this view. Where verbal person/number agreement paradigms result easily in neat minimal pairs, finding a minimal pair of sentences varying only case on the noun often involves a complete change of predicate, as

[13]There is evidence, however, for a diachronic relationship between certain source morphemes and the partitive functions discussed here. Kiparsky (1998), for example, notes that the Finnish partitive case is derived from the former elative marker, and the Dutch and German prepositions *van* and *von* ('from') may well be on their way to becoming such partitive markers.

illustrated in (51)–(52).

(51) Nominal vs verbal paradigms in German

Nouns		Verbs	
Form	Gloss	Form	Gloss
der Mann	*the*.NOM *man*	ich kauf-e	1SG *buy*-1SG
den Mann	*the*.ACC *man*	du kauf-st	2SG *buy*-2SG
dem Mann-(e)	*the*.DAT *man*-(DAT)	er kauf-t	3SG *buy*-3SG
des Mann-es	*the*.GEN *man*-GEN	wir kauf-en	1PL *buy*-1PL
		ihr kauf-t	2PL *buy*-2PL
		sie kauf-en	3PL *buy*-3PL

(52) Minimal pairs based on the paradigms in (52)

a. Ich kauf-e ein Buch.
I buy-1SG *a book.*
'I buy a book.'

b. Du kauf-st ein Buch.
you buy-2SG *a book*
'You buy a book.'

c. Ich helfe dem Mann-(e).
I help the.DAT *man*-DAT
'I help the man.'

d. Ich erinnere mich des Mann-es.
I remember 1SG.REFL *the*.GEN *man*-GEN
'I remember the man.'

Under the account presented here, the difference might be attached to the idea that the verbal paradigm involves agreement, whereas the cases are heads in the extended projection of the noun. The implementation of such an idea, however, and the way it might apply to systems with adjectival case agreement, remains to be worked out, requiring a clearer picture of the full structure of the noun phrase and possibilities for (and constraints on) feature sharing within the extended projection.

4.3. Case hierarchies

The proposal also has consequences for the implicational hierarchies of cases, sometimes mentioned in the typological literature and in work on thematic roles. Blake (1994) sketches a rough implicational hierarchy along the lines of (53).

(53) Implicational hierarchy of cases (Blake 1994:157)
nominative > accusative/ergative > genitive > dative > locative > ablative/instrumental > others

A language which has locative case, for example, will also have all those preceding it on the hierarchy (nominative, accusative or ergative, genitive and dative). According to the view presented in this paper, it is necessary to make certain adjustments to the interpretation of such hierarchies. Instead of simply predicting the range of cases a language will have, the hierarchy predicts the likelihood of spell-out of a case in analytic (adpositional) or synthetic (affixal) form. For example, if a language spells out dative as an affix, then those items preceding it on the hierarchy will also have inflectional realisations, whereas if the dative is spelled out as an adposition, then those items following it on the hierarchy will also have adpositional realisations (cf. van Riemsdijk 1981). I assume that nominative, accusative and ergative must be taken from this list, on the grounds that nominative and accusative are structural and that not enough is understood about the distribution of ergative to identify it conclusively with one or other of the structures under consideration here.

Having allowed for these preliminary adjustments, I turn to the treatment of genitive in such a hierarchy. Clearly its present position cannot be correct, since Hungarian, for example, has dative, locative, ablative/instrumental and many others, but no genitive. Moving the genitive down the hierarchy does not improve matters, because German and Greek have nominative, accusative, genitive, dative and no others. If the genitive is analysed as belonging to a different category, then it no longer has any place on such a hierarchy, and thus the generalisations of (53) can be maintained without running into such contradictions.

4.4. D-inflection and P-inflection combinations

The structure I have assumed for this paper makes a prediction about the combinatorial properties of partitive, which appears not to be borne out in all situations. Just as there are combinations of adpositions and determiners in one PP (e.g. *to the shops*), so one should expect to encounter examples of combinations of a D-suffix with a P-suffix. An explanation should be found for the complementary distribution of partitive and, for example, ablative in Finnish. I suggest that the explanation may lie in morphophonological constraints, limiting the number of possible affixes which can attach to lexical heads within specific languages. Thus a full account of the Finnish data would require a notion of morphological competition for the suffixal slot on the noun, with the P-inflection winning where it is present, perhaps because it is the higher or more semantically marked head.

Still, languages clearly do exist in which more than one suffixal slot is available on the noun. Lezgian would be one such example, where there are productive combinations of two P-inflections, one representing path and the other place.

(54) Lezgian multiple suffixing

a. sewre-qh
bear-POSTESS
'behind the bear'

b. sewre-qh-aj
bear-POSTESS-ELAT
'from behind the bear'

c. sewre-qh-di
bear-POSTESS-DIR
'to behind the bear'
(van Riemsdijk and Huybregts 2001)

I am not at present aware of any languages which have productive inflectional combinations of P-inflections with such partitive markers. It would be necessary to look for a language with such stacking of affixes and also productive use of a morpheme with partitive functions, as in Finnish. This remains for future research. At present, the only available evidence for productive combination appears to come from languages which use separate words, rather than affixes, for these properties, as with English *out of*, French *près de* ('near'), and Modern Greek *prin apo* ('before').

5. Conclusion

The core point of this paper has been to demonstrate that partitive and partitive uses of genitive case (whether they are spelled out as 'case' morphology or as separate words normally assumed to be 'adpositions') do not belong in syntactic case paradigms. Their behaviour fails to conform with that of the core structural cases or with the nominal suffixes which I argue elsewhere are associated with the category P. I have proposed instead that partitive belongs to the determiner system. I have drawn on evidence from Finnish, German and Tongan, and argued that the same analysis should carry over to English *of*.

A consequence of this analysis is that the nominal case paradigms, often used in the traditional literature and teaching grammars of morphologically rich languages, emerge as epiphenomenal. Instead of forming a coherent category, at the syntactic level the different nominal inflections spell out one of three items (i) structural case features, (ii) members of the category D, or (iii) members of the category P. This has the advantage of providing the beginnings of an explanation for differences between dative and genitive in German, and makes it possible to view the use of cases such as Finnish partitive as part of a wider system, rather than as language-specific exceptions. In a broader perspective, the analysis presented provides a typology of a range of nominal inflections usually ignored in generative literature (where the focus is on abstract structural nominative and accusative case, rather than on the wide variety of inflections termed 'case' in traditional

grammars of morphologically rich languages). If the proposal can be successfully extended to other cases, then it might provide a useful tool for analysis of differential subject and object marking.

Much remains to be worked out in terms of the implementation of morphological rules determining where the different D and P heads would be spelled out in the extended nominal projection, and how the analysis fits with recent developments in research into the DP and PP systems. I have not addressed the interaction of partitive and aspect, the focus of much past research on partitivity (Kiparsky 1998, Kratzer 2004). Although on the face of it my proposal differs quite significantly from these approaches, it seems intuitively plausible that they should be compatible, given a detailed theory of the interaction of definiteness and specificity of the object with the bounding of an event. These issues remain for future research.

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