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THE CASE OF GERMAN ADJECTIVES

Henk van Riemsdijk

Part I. On the neutralization of syntactic categories and case theory

In this paper I wish to address certain questions relating to the fact that adjectives in Modern High German have the property of being able to assign cases to their complement NP. In particular, I wish to address three questions: (1) why is it that adjectives in German have this property at all?, (2) why are the cases that are assigned to the complements of adjectives dative and genitive, but not accusative and nominative?, and (3) why does there appear to be a correlation between the existence in a language of a morphological case system and the possibility for adjectives to assign case? I will offer an analysis of the German phrase structure system, and of the structure of adjective phrases in particular, which accounts for question (1). On the basis of that analysis, tentative outlines of a number of subtheories of case will be proposed which offer partial answers to the questions (2) and (3). These theories will include a theory of unmarked case, a theory of case assigning categories, and a theory of case receiving categories. Finally, the place of such subtheories in Universal Grammar will be assessed.

1. Some facts

The following are partial lists of adjectives which assign the genitive and the dative case:

- (1) Genitive: bedürftig (needy), eingedenk (mindful), (un)-mächtig ((not) in command of), überdrüssig (weary), habhaft (in possession of), gewiss (certain), teilhaftig (partaking), unteilhaftig (not partaking), ledig (single, free of), bar (devoid of), beflissen (studious), bewusst (conscious), fähig (capable),

geständig (confessing), gewärtig (expectant, conscious), verdächtig (suspected).

- (2) Dative: befreundet (friendly), bescherlich (troublesome), (un-)ertraglich ((intolerable), gehauer (kosher) gleichgültig (indifferent), verhasst (hated), widerlich (disgusting), bekannt (known), vertraut (familiar), dienlich (convenient), bewusst (conscious), deutlich (clear), geläufig (familiar, fluent), klar (clear), verständlich (comprehensible), verwandt (related), streitig (controversial), beschieden (given), geneigt (well disposed), verbunden (solitary), verfallen (addicted), verpflichtet (indebted), (un-)zugänglich ((in-) accessible), abhold (averse), angeboren (innate), gleich (equal), ebenbürtig (of equal match), egal (indifferent), fremd (foreign), gelegen (opportune), übrig (left), willkommen (welcome), beschoren (given).

(1) and (2) give an approximation of those adjectives that are still productively construed with case in the present day language. It should be obvious from the examples that no straightforward semantic classes can be established, although, of course, some subregularities exist. The sets are large enough not to be dismissed as completely idiosyncratic. Below are some examples of how these adjectives and their NP-complements are used in sentences:

- (3) Dieser Mann muss des Französischen mächtig sein
this man must of French in command of be
- (4) Der Hans ist seiner Freundin überdrüssig geworden
Hans has of his girl-friend weary become
- (5) Das Französische ist ihm ungeläufig
French is to him not-fluent
- (6) Die Universalgrammatik soll dem Menschen angeboren sein
universal grammar is-said to man innate be

Let us first dispense with some simple-minded theories. For example, one might suppose that case is really assigned by the copula in these cases. For one thing, the NP that appears to receive case from the adjective may not be part of the adjective phrase at all. And the copula might function like a verb in assigning case. But it seems implausible that the copula should function this way, since normally a noun phrase in the domain of the copula receives case not from the copula, but via agreement. Correspondingly the case on that NP is generally a nominative or an accusative, but never a genitive or a dative. Furthermore, as was noted above, the choice of case is largely an idiosyncratic property of the adjective - it would seem excessively redundant to distinguish as many copulas as there are adjectives assigning case. A somewhat more refined proposal would be to say that the adjective and the copula are

reanalyzed into a complex verb, an extension of a suggestion in Kayne (1979). The complex verb would then pick up the idiosyncratic properties of the adjective. But the question would still remain why the adjective has those properties in the first place, and why the complex verb does not inherit the crucial property of the copula, which is not to assign case. Finally, such a proposal appears inadequate also in the case of prenominal adjectives, which we will turn to below.

It would appear then that none of these attempts at reconciling German with the general tenet of the theory of abstract case (cf. Vergnaud (1979), Chomsky (1980, forthcoming)), viz. that V and P are case assigners and that A and N are not, will work. Consequently, we will explore possibilities of minimally relaxing case theory in order to accommodate the German facts.

Note first that the NP to which case is assigned is not always external to the adjective phrase. For example, NP - A structures may occur prenominally, i.e. attributively.

- (7) Ein [ihm ungeläufiges] Wort
a to him unfamiliar work
- (8) Die [dem Illyrischen verwandten] Sprachen
the to Illyrian cognate languages
- (9) Der [seiner Freundin überdrüssige] Student
the of his girl-friend weary student

The derivation of such constructions from participial ones where the copula would have the participial form and where that participle would then be deleted does not seem to be a viable one in view of the fact that (a) the non-deleted variants are very highly stylistically marked at best, and (b) that there are many idiosyncratic restrictions on which adjectives can occur in the attributive position and which cannot. We will not, however, argue this in detail. Rather, we can conclude that the bracketed constituent in (7-9) must be an adjective phrase, and hence that the NP-complement is internal to that phrase.

A similar conclusion can be drawn from another constituency test. It is a well-known fact that the finite verb in German root sentences can be preceded by at most one constituent. Correspondingly, the following sentences show NP-complements internal to the adjective phrase.

- (10) Ihm ungeläufig scheint diese Sprache nicht zu sein
to him not-fluent seems this language not to be
- (11) Dem Illyrischen verwandt sind ferner die folgenden Sprachen
to Illyrian related are further the following languages
- (12) Dieser Tatsache eingedenk, haben wir uns entschlossen, ...
of this fact mindful have we (us) decided, ...

This does not mean that the NP which receives its case from the adjective

is always internal to the AP. The following examples demonstrate several ways in which the NP and the adjective can be separated by material which cannot be part of the AP.

- (13) a. Er wird des Französischen niemals mächtig werden
 he will of French never-in-command-of become
 b. ?*Ein des Französischen niemals mächtiger Man
- (14) Dieser Oper könnte ich niemals überdrüssig werden
 of this opera would I never weary become
- (15) Wem ist dieses Wort geläufig?
 to whom is this word familiar?
- (16) So geläufig kann ihm dieses Wort unmöglich sein
 so familiar can to him this word impossibly be
- (17) Wie vertraut ist dir diese Umgebung?
 how familiar is to you this area?

In view of these facts it seems reasonable to propose that this type of adjective phrase is generated with the NP-complement internal to it, that case is assigned to that NP in its base position in the usual structural configuration of c-command, and that the separation of the adjective and the NP occurs at a later stage of the derivation.

2. A problem for the \bar{X} -theory

It appears, from the examples discussed so far that the NP-complement always precedes the adjective. We may thus assume that these constructions are generated, following the principles of the \bar{X} -theory, as $[\bar{A} \text{ NP } A]_{\bar{A}}$. The next question to ask, of course, is: what about the specifiers? Here, we would expect the specifier to either precede or follow the \bar{A} . But here we run into trouble because the specifier actually intervenes between the adjective and the NP. The specifier cannot even be external to the \bar{A} as we would expect under normal interpretations of the \bar{X} system. The following examples, which illustrate this fact, are again given in the contexts that are diagnostic for AP-constituency.

- (18) a. Ein [mir völlig/seit langem/ so_i ungeläufiges] Wort ([dass...]_i)
 a to me completely/ since long/ so unfamiliar word that
 b. *Ein völlig/seit langem/ so mir ungeläufiges Wort ([dass...])
- (19) a. Ein [seines Studiums geradezu/ im Wesentlichen/mehr als
 a of his studies downright essentially more than
 überdrüssiger] Student
 weary student

- b. *Ein geradezu/ im Wesentlichen/ mehr als seines Studiums
überdr. Student
- (20) a. Des Französischen ganz unmächtig scheint er nicht zu sein
of French completely not-in-command-of seems he not to be
- b. ??Ganz des Französischen unmächtig scheint er nicht zu sein
- (21) a. Ihm 100% geläufig ist dieses Wort anscheinend nicht
to him 100% familiar is this word apparently not
- b. *100% ihm geläufig ist dieses Wort anscheinend nicht

Note that these facts constitute a problem not only for the \bar{X} -theory, but also for the assumption that the NP, in order to receive case, must not only be governed by the case-assigning head but also be adjacent to it. The latter observation is interesting in that it carries over to VPs a fact that is obvious when we consider case-marking in the VP in German. As is well-known, the verb is last in the VP. The NPs that receive their case from the verb, however, tend to appear in the initial positions in the VP. Strictly subcategorized PPs, predicative constituents, etc. intervene between the V and the NP. Furthermore, NO-subjects of the infinitivals that are subject to exceptional case-marking are separated from the matrix verb by the complement VP. Thus, the adjacency condition cannot be maintained in German in any straightforward way, although it would be interesting to explore possibilities to predict the fact that strictly subcategorized PPs follow the NPs in German from some property of case theory. This would lead us beyond the scope of the present investigation, however.

What emerges from the preceding discussion is that there is at least one interesting parallelism between AP and VP in German. Pursuing this idea, note that what we have called specifiers above occur in exactly the same form and in exactly the same position within the VP:

- (22) weil diese Buch mir völlig/seit langem/ so_i gefällt ([dass...]_i)
because this book to me compl. since long so pleases that...
- (23) das er sein Studium geradezu/im Wesentlichen/mehr als hasst
that he his studies downright essentially more than hates

On this parallelism we may base our first tentative hypothesis. While the fact that German adjectives function as case-assigners constitutes a problem for case-theory, the fact that the contexts in which they assign case are isomorphic to VP, a typical case-assignment environment, is reassuring. In the next section we will present an analysis of the isomorphism which is designed to capture the idea that case theory should not be relaxed to such an extent that adjectives can assign case whenever they govern an NP but only when certain more restrictive conditions hold.

3. The neutralization of syntactic features

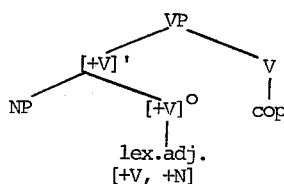
Whenever certain syntactic constructions share the properties of two syntactic categories, as for example in the case of gerunds, the question arises as to how these constructions-in-between can be accounted for without introducing excessively powerful mechanisms or relaxing the \bar{X} -theory to quasi-vacuity. The same problem arises in connection with the isomorphism between VP and AP in German. The heads of these APs are true adjectives in the sense that they have their own morphological characteristics, quite distinct from those of verbs. Nevertheless the syntactic structure in which they occur is like a VP. A fairly restrictive solution to this problem can be obtained by making use of the feature system that is already part of the \bar{X} -theory, and which is in part designed to capture cross-categorial phenomena.

Let us assume, in fact, that phrase structure rules may be cross-categorial, in much the same way that specifications in transformational rules, filters, and the like may be cross-categorial. We may then say that German does not have constituents of the type [+V, +N], i.e. adjectives, but only degenerate constituents of the type [+V], which are generated, with the appropriate number of bars, in the relevant attributive and predicative positions. We may further assume that constituents of the type [+V]¹ have all the characteristics of [+V, -N], the only type of constituent in the language from which they are nondistinct. Below we will sketch a system of phrase structure that will give this effect, but for now we will leave it at the assumption.

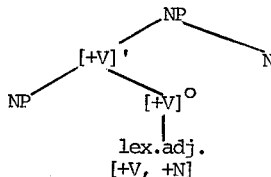
Another assumption that needs to be made is one concerning lexical insertion. Recall that lexically speaking adjectives are distinct from verbs, so let us suppose that they are entered in the lexicon as [+V, +N]. We can now stipulate that the necessary and sufficient condition for lexical insertion is not identity of features but non-distinctness of features, a natural corollary of the neutralization hypothesis.

The neutralization hypothesis, in fact, is quite in line with some proposals made by Aoun (1980a). It may indeed be the case that neutralization is a step on the way to the total disappearance of a category. Extending the markedness considerations invoked in Aoun's paper, we may impose a restriction on possible neutralizations. In fact, it appears that minimal categorial systems would consist only of nouns and verbs, which need not, of course, be fully specified. Such a categorial system would then have the categories [+V] and [+N]. We may then assume that neutralization may only be to one of these, a desirable restriction, a further application of which will be discussed below. What, then, are the structures resulting from these assumptions? For ease of exposition we take the maximal projection of [+V] to have one bar, but nothing hinges on this.

(24) predicative adjectives:



(25) attributive adjectives



We are now in a position to make further assumptions regarding case assignment. Let us say that case is assigned by the structural head of a phrase, but that inherent case is assigned, trivially, by the lexical head which is inserted into such a position. In the lexicon heads of any feature composition may carry inherent case assignment features, since abstract case decides whether an NP which is to receive such an inherent case is permissible. The principle for abstract case assignment may now be formulated as follows:

(26) Abstract case is assigned by structural heads that are nondistinct from [-N].

Below we will offer a feature analysis of this rule. For the present purposes, may it suffice to point out that the introduction of the notion of non-distinctness is the only modification of the standard version of case theory. Note that it is not necessary to assume that this addition is an option of a parameter along which the principle of abstract case marking may be relaxed, since the parameter is already present in the theory of neutralized categories. In languages that do not neutralize, such as English, only P and V will be nondistinct from [-N], as before.

Observe that in view of the separation phenomena noted in (13) through (17) the interaction of (26) with the binding theory of Chomsky (forthcoming) is problematic. If the separation is the result of NP-movement in examples like (13) and (14), then these examples should be ungrammatical by the binding theory, because the trace would receive case by (26) and would thus have to be a variable, which it cannot be. Hence it appears that the complementary distribution of case-marked trace and non-case-marked trace is also neutralized in the domain of [+V].

One way in which this fact could be accounted for would be to specify the canonical case markers in the statement of the binding theory, but not in (26). This would amount to replacing principle B of the bind-

ing theory by B' as shown below:

- B If a non-pronominal NP is case-marked, then
- (i) it is a lexical anaphor; or
- (ii) it is free in every governing category
- B' If a non-pronominal NP is governed by [-N], then
- (i) it is a lexical anaphor; or
- (ii) it is free in every governing category

Detailed discussion of this issue would take us too far afield in the present context, however.

Before going on to elaborate on a theory of case into which (26) may be incorporated, let us consider some further evidence for the neutralization analysis for German adjectives.

4. The distribution of [+V]'

The neutralization analysis as developed so far is designed to account for the internal isomorphism of VP and what we originally believed was AP. But the analysis also makes a straightforward prediction w.r.t. to the external distribution of such neutralized constituents. Given the fact that lexical verbs can freely be inserted into positions specified as [+V]₀, we expect to find verbal constructions wherever we find adjectival ones. We do. In the attributive position, the context imposes restrictions on the morphology: the head of the prenominal phrase is inflected for gender, number, and case. Since verbs cannot be inflected in this way they must be inserted in their participial forms (-end-) which have the property of being able to carry such inflections. In the predicative position, on the other hand, no such inflection is required. Observe that the verb keeps the infinitive marker (zu) in (28) and (29).

- (27) Ein [sein Studium seit langem hassender] Student
 a his studies since long hating student
- (28) Ein [nicht zu verkennendes] Zeichen
 a not to mistake sign
- (29) Das Zeichen wird [nicht zu verkennen] sein
 the sign will not to mistake be
- (30) Französisch ist [ohne Weiteres zu lernen]
 French is offhandedly to learn

Hence the neutralization analysis accounts for the fact that English, which has no neutralization, does not possess these participial possibilities. The prenominal particles of English exist only as reanalyzed lexical items (such as a pipe-smoking man etc.). In the predicative

position we now have an explanation for the fact that *tough*-movement-type clauses must always be headed by an adjective in English, but not in German.

5. An extension of the neutralization analysis to predicate nominals

The analysis, as we have presented it so far, encounters a problem when we consider cases like the following.

- (31) a. Er ist [auf Musik erpicht]
 he is on music keen
- b. er ist [erpicht auf Musik]

Evidently there are adjectives whose complements can follow them. The question then arises as to whether this is a property that is shared by verbal structures. Note that in (31) it is a PP which can both precede and follow the adjective. NP-complements of the type that we have studied so far do not have this property:

- (32) a. Er ist [dieses Problems gewärtig]
 he is of this problem conscious
- b. *Er ist [gewartig dieses Problems]

We may assume, for example, that there is a rule which extraposes PPs, but not NPs, rightward over [+V]⁰. It is, in fact, a very general property of German that the verb in its postverbal position can only be followed by PP or \bar{S} , but not by NP or AP. We may now extend this property to adjectives by formulating, for example, the filter in (33).

- (33) * [+V]⁰ [+N]ⁿ where $\bar{S} = V^n$

We may note, however, that (33) is a cross-categorial filter which will apply correctly, regardless of whether we have neutralization to [+V] at the level of phrase-structure. All that (33) does is provide evidence for the naturalness of the class composed of verbs and adjectives.

There is, however, another way of looking at the phenomena in (31) and (32). Consider the positions in the phrase structure of German that are affected by an adjective phrase or by a participial phrase. But these two are properly characterized by the notation [+V]ⁿ. But take the predicative position. Here, in addition to [+V]ⁿ we also have NPs. (We will assume that predicative PPs are just normal PPs, like locative PPs, for example). These NPs have to be mentioned because, like the other predicative constituents, they immediately precede the verb, and consequently they follow other NPs and all PPs within the VP. As a result the predicative position will be characterized as [+V]ⁿ or [-V, +N]ⁿ. But notice that we may now also neutralize the predicative NP to [+N]ⁿ, because under the non-distinctness clause for lexical insertion the only other type of constituent that can be inserted is adjectives, which are

permitted anyway. In other words, what we can say is that the predicative position is categorially reduced to the absolute minimum that is permitted under the markedness interpretation of the system of categorial features.

Recall that we interpreted the neutralization in such a way that a neutralized constituent has all the relevant properties of those categories of the language that it is non-distinct from. Thus we expect [+N] to have the properties of [-V, +N], which is, essentially (modulo certain genitive NPs), that they subcategorize PPs on their right. Thus, this extension of neutralization to all of the predicative constituents correctly predicts the paradigm of (31) and (32). The one exception to this is the fact that nouns do permit genitive NPs to occur on their right, but here we may say that this type of genitive assignment is structural rather than lexical, and that it is assigned in or from the determiner of [-V, +N]. This will account for the fact that, by and large, it is not possible to have more than one genitive assigned within an NP. In other words, genitives aside the correct predictions are made.

Observe now that the latter approach makes an interesting prediction for the attributive position. Attributive NPs do not exist, hence this position is uniquely characterized by the statement [+V]ⁿ. Consequently we would expect adjective phrases that occur in this position to exhibit solely the verbal (left subcategorizing) but not the nominal (right subcategorizing) behavior. This prediction is borne out. Pre-nominal adjectives cannot have a PP-complement on their right.

- (34) a. Ein [auf Musik erpichter] Student
 b. *Ein [erpicht(er) auf Musik] Student
 a keen on music student

Unfortunately, this may well be a redundant prediction, since structures like (34b) might also be excluded by some principle that excludes rightward recursion in specifiers. Formulations of such a principle may be along the lines of Emonds' (1976) surface recursion filter or via an adjacency requirement on the assignment of inflection from the nominal head into the adjective (or participle) as suggested in Reuland (1979).

We will leave these matters here. While the extension of the neutralization to [+N] may be redundant, it is in itself interesting to explore the consequences of the maximization of our hypothesis. Under a certain interpretation of Acun's (1980a) proposals for the markedness of categorial systems the maximally neutralized analysis may in fact be forced by the theory. Be that as it may, it is interesting to note that the extension of neutralization appears to make only correct and no incorrect predictions.

At this point, let us consider again the question that we asked about German adjectives and case at the beginning of this article. The first question, viz. why German adjectives can assign case at all, we have answered. The answer is provided by the conjunction of the neutralization analysis and a slight reformulation of the principle under which

abstract case is assigned. In the remainder of this article we will explore some tentative answers to the other two questions.

Part II: Dative as the unmarked oblique case in German

Part I of this note offers an answer to the first question regarding adjectives and case in German. The answer is based on the conjunction of the neutralization analysis and a slight modification of case theory to incorporate the notion of non-distinctness. Let us now turn to the second question: Why do adjectives in German usually assign a dative, sometimes a genitive, and hardly ever an accusative? I will suggest that this is because the dative case is the unmarked case in oblique contexts. First, I will outline a theory of case from which this follows, and second I will present evidence from a variety of constructions in German which supports this theory.

Before elaborating on the theory of case, one premise must be made. This is that cases should be represented in a feature system. I will not argue for this premise in detail here. Considerations have to do with phenomena of syncretism, both language-internal and cross-linguistic, and synchronic as well as diachronic. Other considerations relate to the fact it is inconsistent to combine categories which are analysed in terms of features with atomic cases. Finally, such notions as unmarked case are best characterized in terms of features.

The system which I will sketch here consists of several parts: four features, feature assignment rules, morphological correspondence conventions, an agreement theory, and a case filter. The system as a whole leaves much to be desired, and should be regarded as a first step in what hopefully is a good direction. Since nothing is known about feature representations for case systems, for example, many arbitrary decisions had to be made. The system is also quite powerful, and here too it is hoped that improvement will turn out to be possible. Finally, parts of the system are highly redundant. This is an aspect that I believe is an artifact due to the matching of this case system onto a quite structured X-bar-system, and one that I believe it will be possible to remedy.

1. Four Features

I will assume that the German case system is characterized in terms of the following, in principle universal, features: $\pm S$, $\pm CA$, $\pm ACC$, $\pm GEN$. The first two, which stand for the mnemonic categories 'subject' and 'closest argument' respectively, are, I believe, well-motivated, but the other two are arbitrarily chosen, because there appears, at present, to be no non-arbitrary way to cross-classify the cases dative, genitive, and (oblique) accusative. A full-scale discussion of the features $\pm S$ and $\pm CA$ would take us too far afield here, hence we will just discuss the cross-classification that these features impose on noun-phrases. A more complete discussion of these features can be found in the appendix.

The features give us the following classification:

S	+	+	-	-
CA	+	-	+	-

intr.subj. tr.subj. dir.obj. oblique
 (S) (A) (O)

The main characteristic of these features is that the nominative-accusative distinction and the absolutive-ergative distinction are corepresented in the same syntactic structure (cf. appendix). Another important consequence is that there is a straightforward characterization of the notions grammatical vs. oblique case.

2. Feature Assignment rules

We will assume that these features and their values are assigned to syntactic categories. Thus a matrix of the type [+N, -V] is gradually built up to a full morphosyntactic matrix. In the following rules, the arrow is to be interpreted as 'is assigned to'.

- I. a. [+S] → AG of S
 b. [-S] → AG of NP
 c. [-S] → NP_i iff NP_i is governed by a head H, H non-distinct from [-N]
- II. a. [+CA] → NP_i iff NP_i is governed by a (transitive) verb [+V, -N]
 b. [CA] → AG / ___ [-CA]_{VP}
 c. [-CA] → AG of NP
 d. [-CA] → NP_i iff NP_i is governed by a head H, H non-distinct from [-N]
- III. a. [+GEN] → AG of NP
 b. [+GEN] → NP 'inherently' by a head H
 c. [-GEN] → NP elsewhere
- IV. a. [+ACC] → NP 'inherently' by a head H
 b. [-ACC] → NP elsewhere

Some remarks on these rules. It is assumed that features are assigned to AG rather than to the NP adjacent to AG for reasons that have to do with doubling phenomena. Correspondingly a similar solution might be envisaged for the feature assignment to clitics instead of NPs, but this has not been attempted here because it is irrelevant to the German situation. The transfer from AG to NP will be discussed below. Second, several of the rules can presumably be collapsed, for example IIB and IIC (for IIB it is assumed that the transitivity feature is also a feature of VP), and Ia and Ib, depending on what the categorial

features of S are. No attempts in this direction have been undertaken here to avoid loss of perspicuousness. Third, the way that genitive is assigned in NPs implies that there is only one genitive in an NP, unless an additional one is inherently assigned. For German this appears to be by and large correct, though nothing much hinges on the issue. Fourth, the principle for assigning abstract case, as modified in part I, is now incorporated into the rules Ic and IID.

Note that every NP now gets feature specification for the features ACC and GEN via the elsewhere condition, but that not every NP automatically gets a specification for S and CA. This characteristic is, of course, instrumental in preserving the effect of the case filter which we can now formulate as follows:

- (1) CASE FILTER *defective matrix

The rules as formulated, constitute essentially a translation from a categorial notation into a morphological notation. In this sense the subcomponent of the grammar in which these rules apply can be regarded as a kind of readjustment component. This fact explains why the notation introduced by the rules is quite redundant in some ways. Subjecthood, for example, is encoded primarily as [NP, S] in this system, but redundantly as [+S]. In non-configurational languages, however, the feature notation may well be taken to be primary. In fact, it may be argued that the configurational character of some languages, superficially expressed by the X-bar theory, is just one specific type of expression of the feature system and its projections.

3. Morphological correspondence conventions

One of the properties, in fact one of the advantages, of the system, is that it only mediates between syntactic structures and case-forms but does not give any one-to-one correspondence. These correspondences are in fact quite idiosyncratic across languages, obeying principles that have to do with noun-classes and the like. The present feature system attempts to abstract away from such factors. Let us assume that the correspondence rules for German are the following:

- (2) [+GEN] → genitive case
 [+ACC] → (oblique) accusative case
 [-S, +CA] → (direct object) accusative case
 [-S, -CA] → dative case
 [+S] → nominative case

It should be considered a problem of this analysis that there are two correspondence rules for the accusative case. While the distinction between direct accusative and oblique accusative is syntactically real (see below), it has no morphological correlate. Hence this is probably a defect of the feature system, specifically of the features ACC and GEN. Improvement must, however, be deferred to future research.

Another point to be considered is the following. The correspondence

conventions in (2) work with minimal feature specification. This implies that there might be ambiguities. For example, [-S, -CA, -ACC, +GEN] corresponds to both genitive and dative case. This may be remedied by assuming that the features [+GEN] and [+ACC] take precedence over the others. Alternatively, the correspondence rules may be formulated with fully specified feature matrices.

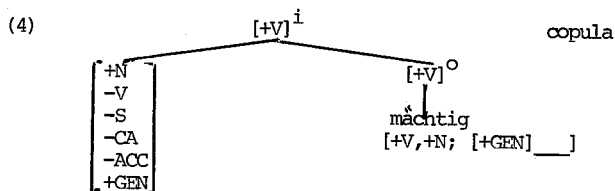
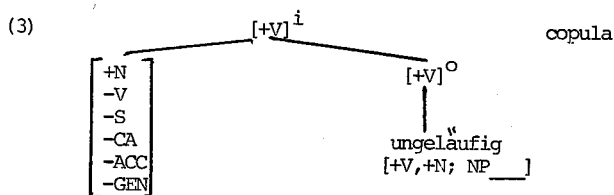
4. Agreement and transfer

Certain types of NPs receive their case via agreement. These include at least predicate nominals and appositive NPs. We will assume that agreement can apply freely by copying case features and their values from some NP to another NP, and that independently motivated structural conditions will characterize possible pairs of agreeing NPs. Furthermore, we will assume that agreement applies to features individually, not to a feature matrix as a whole. Agreement is always optional.

Regarding the transfer of case features from AG (of NP or S) to the adjacent NP, we will assume a somewhat different idea which is borrowed from the theories of clitic doubling of Jaeggli (1980) and Aoun (1980b). The difference has to do with the notion of case-absorption. In essence, the feature (+GEN), when spelled out phonetically, cannot give rise to agreement. We will take this to be a property of non-phrasal categories such as AG (and also CLITIC), and call this phenomenon case transfer.

5. Illustration

In order to see how the system works, let us see how case assignment works for the adjective cases discussed in part I. Take, for example, ihm ungeläufig (15) and des Französischen mächtig (13). The rules will work in the following way:

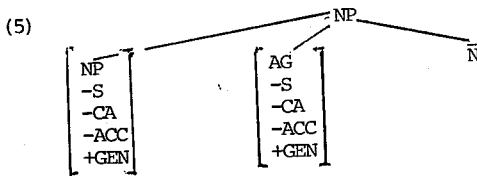


In (3) the NP corresponds to a morphological dative, in (4) to a genitive. The few accusatives that are assigned by adjectives will get their case in the same way as (4).

This then is basically what can be said about question two: the unmarked 'transitive' adjective assigns a dative, but it can inherently assign a genitive (or, rarely, an accusative) to its NP.

6. Possessive noun phrases

Let us now consider the transfer of case from the AG of NP to the adjacent NP, which we will call the possessive NP. This we offer as the first piece of independent evidence that the dative is the unmarked oblique case. We may assume that the relevant structure is as in (5).



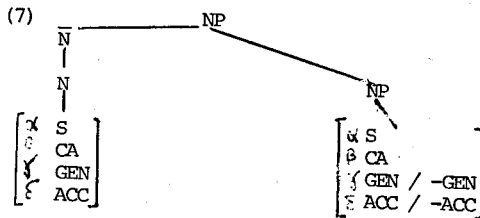
The AG has received its feature matrix by the operation of the assignment rules. Now the features must be transferred to the possessive NP. Agreement will assign the possessive NP the features [-S] and [-CA]. Notice that while agreement is optional, it must apply here, because otherwise the case filter takes effect and assigns *. The possessive NP will get the value [-ACC], either by agreement, or by the elsewhere condition in IV b. For the GEN feature, there are two possibilities. Either it gets spelled out, in which case, by convention, it cannot serve for agreement and we get [-GEN] on the possessive NP via the elsewhere condition, or it does not get spelled out, in which case agreement must apply and we get [+GEN] on the possessive NP. The former possibility would correspond to the doubling situation which frequently arises with clitics. Both structures occur, in fact.

- (6) a. [Dem Mann]_{NP} dat [sein]_{AG} Vater
 the man his father (=the man's father)
- b. [Des Mannes]_{NP} gen Vater
 the man's father
- c. *Des Mannes sein Vater
- d. *Dem Mann Vater

What the system presented here predicts correctly is that when the genitive case is absorbed the dative case shows up on the possessive NP.

7. Appositive noun phrases

As a second piece of independent evidence for the treatment of dative as the unmarked oblique case, consider appositive NPs. I will assume that these have the structure given in (7), though little hinges on this choice.



The appositive NP may receive a fully agreeing feature matrix by the application of the agreement convention. Recall that agreement is de facto obligatory for S and CA because of the case filter. For GEN and ACC, however, agreement may or may not apply, and when it doesn't, the elsewhere condition gives rise to the minus values. For the grammatical cases this has no effect, for they are all [-GEN, -ACC] anyway, but for the oblique accusative and the genitive, we predict that the appositive NP either appears in the same case as the head, or in the dative. The interesting fact, which has been reviled and suppressed by normative grammar, has been studied by Leirbukt (1978) for the accusative - dative pairs, and by Winter (1966) for the genitive - dative pairs. We will restrict ourselves here to some illustrative examples from these articles. For more the reader is referred to the two articles in question.

Take the genitive first:

- (8) Sie war im Besitz zweier Kleidungsstücke der Ermordeten,
 she was in possession of two pieces of clothing of the murdered (f),
 einem Persiermantel und einem roten Kimono ...
 a fur coat (dat) and a red kimono (dat)

Here, the appositive NP, which is itself coordinated, modifies an adnominal genitive. Similarly in (9).

- (9) Nach Ansicht der Verfassers, dem Ordinarius für Soziologie
 according to the author (gen), the professor for sociology (dat)
 an der Universität Tübingen, muss der Soziologe stets
 at the University of Tübingen, must the sociologist always
 Moralist ... sein
 moralist be

The same pattern arises with genitives that are inherently assigned from a preposition:

- (10) Die Hauptgestalt, Amos Comenius, war schon dem Knaben
 the main figure Amos Comenius was already to the boy
 Kokoschka... teuer gewesen wegen seines "Orbis Pictus",
 Kokoschka dear ben because of his Orbis Pictus (gen),
 dem alten Lehrbuch in Bildern
 the old schoolbook in pictures (dat)

Finally, consider the following example of a dative appositive to a genitive object to a verb.

- (11) Endlich hat sich ein kompetenter Mechanik meines Wagens
 at last has a competent mechanic my car (gen)
 angenommen, einem hierzulande seltenen russischen Modell
 attended-to, a in-this-country rare russian model

Regarding the accusative, inherent accusatives from verbs are rather too rare and frozen to base any conclusions on, but we get the non-agreement pattern again with accusatives from prepositions:

- (12) Der Verkauf des Grundstücks an den Komponisten, dem
 the sale of this land (gen) to the composer (acc), the
 späteren Ehrenbürger der Stadt, ...
 later honorary citizen (dat) of the city
- (13) Der König kam aber ohne Krone und Zepter, den wichtigsten
 the king came however without crown and scepter (acc), the
 Symbolen seiner Macht and Würde
 most important symbols (dat) of his power and dignity

Note that these are cases of oblique accusatives. We predict that direct object accusatives do not exhibit non-agreement:

- (14) a. *Ich besuchte dann Herrn Müller, unserem Vertreter
 I visited then Mr. Müller (acc), our representative (dat)
 in Pforzheim
 in P.
- b. Ich besuchte dann Herrn Müller, unseren (acc) Vertreter
 in Pforzheim

Similarly, a nominative can never give rise to a dative appositive NP

- (15) a. *Im Haus wohnte ein alter Mann, einem der ältesten
in the house lived an old man (nom), one (dat) of the oldest
Bewohner der Stadt
inhabitants of the city
- b. Im Haus wohnte ein alter Mann, einer der ältesten
Bewohner der Stadt

We may thus conclude that appositives provide another argument for the contention that the dative is the unmarked oblique case.

8. Intermezzo: an example from Walbiri

Walbiri has an agreement rule which applies in constructions involving body parts. These facts were pointed out to me by Ken Hale. For example:

- (16) Kurdu ka wanti-ma rdaka ngulya-kurra
child-abs pres.fall-nonpast hand-abs hole-allative

This sentence means something like 'the child's hand falls into the hole', that is, the child falls into the hole with his hand. The person and the body part agree obligatorily in case, here the absolutive case, since the child (or: the child's hand) is the subject of an intransitive verb, in other words it is [+S] [+CA]. Similarly, when the sentence is transitive and the body part is the object, the 'possessor' of the body part agrees with it in absolutive case:

- (17) Maliki-rli ka kurdu yarlki-rni rdaka
dog-erg pres child-abs bite-nonpast hand-abs
'the dog bites the child in the hand'

Agreement occurs also with the ergative, that is with the subject of an intransitive sentence:

- (18) Maliki-rli ka kurdu yarlki-rni kartirdi-rli (rdaka)
dog-erg pres child-abs bites-nonpast mouth-erg hand-abs
'the dog bites the child (into his hand) with its mouth'

Some constructions have a dative object, which is also marked by a special dative marker on the auxiliary element. With such a dative, agreement also occurs.

- (19) Kurdu ka-rla maliki-ki yarka-mi ngirnti-ki
child-abs pres-dat dog-dat go-for-nonpast tail-dat

In the above cases agreement is obligatory, as in the non-oblique appositives in German, for example. With the possible exception of (19), which could be analyzed either way, these cases are indeed those which, by virtue of our feature system, we have characterized as grammatical or non-oblique. However, Walbiri also has oblique cases, and here, as in

German, agreement is optional with the dative case showing up when agreement does not apply.

- (20) a. Yumangi ka langa-kurra yuka-mi maliki-kurra
fly-abs pres ear-allative enter-nonpast dog-allative
- b. Yumangi ka-rla langa-kurra yuka-mi maliki-ki
fly-abs pres-dat ear-allative enter-nonpast dog-dative

These examples, while only suggestive, to be sure, appear to support our conception of the dative as the unmarked oblique case and of agreement as an essentially optional phenomenon.

9. Concluding remarks

The preceding sections have been dedicated to an analysis of the dative case in German. The analysis grew out of an attempt to answer the second question we asked at the beginning of section I about adjectives. What we have established is that the dative is the case that we would expect an adjective to assign, in the unmarked case, to an NP it subcategorizes, in much the same way that a transitive verb will assign an accusative to its object. What we have not answered is the question as to why the genitive should be practically the only other oblique case available to the adjective for marked subcategorization. In other words, why don't adjectives in a language like German make use of the oblique accusative, with the possible exception of such cases as worth a nickel, which we will disregard here. I will not attempt to answer this subsidiary question here. Ultimately, I believe the answer to be rooted in an independent subtheory about the relationship between case-assigning categories and the case-system. The intuitive generalization appears to be that there are two hierarchies that are matched: one for the case-assigning heads, and one for the cases. The first is essentially as follows: V - P - A - N, and the second goes from least to most oblique. Consequently, we might expect prepositions to be capable of assigning oblique accusatives, but not adjectives. Similarly, we might expect nouns to assign only highly oblique cases in the quite marked situations where they can assign case at all. Locative case might qualify, for example, while the dative might not. The structure of such a theory might be comparable to the sketch of a theory of case-receiving categories which is given in the appendix in an attempt to provide further motivation for the case features that are proposed here.

What about the third question which we asked at the beginning? Here, again, we can only speculate. A not too unreasonable story might be the following. When a language loses the morphological means of expressing the unmarked oblique case, i.e. the dative, it will only be able to maintain adjectives in the system at very high cost, because every adjective which takes an NP will now have to be marked for taking the case with which the dative has merged. If, for example, the dative and the accusative have merged into the accusative case, then every adjective will have to be marked for taking an accusative. In such a situation the adjective can only revert to an unmarked subcategorization frame by

starting to take a PP rather than an NP. This is also in conformity with the markedness conventions for case-receiving categories in the appendix. This informal account is contingent on a specific interpretation of the morphological correspondence conventions. In particular, it must be assumed that the merger of two cases into one is always to the unmarked case of the pair. In other words, when dative and accusative merge, or syncretize, the resulting case must unambiguously be an accusative, in terms of the correspondence conventions, even if, as in English, for example, the accusative morphology hardly ever shows up. At this point we interrupt our speculation and defer further research to the future.

It should be obvious to the careful reader that the notion of markedness that we have been concerned with, in particular in the second section of this article is a Praguian one rather than one which corresponds to the usage that prevails (or should prevail, at least) in generative linguistics. Nevertheless I have tried to point out a number of ways in which the Praguian notion can be incorporated into a theory of core grammar and how it relates to our foggy notions of what a theory of markedness of which core grammar is a part will ultimately be like. In particular, it is my belief that primitive groundwork of the type illustrated here will be an indispensable cornerstone of such a theory of markedness because such a theory must eventually (cf. Van Riemsdijk (1978)) be construed as a theory about morpho-syntactic features.

APPENDIX:

A NOTE ON THE CHOICE BETWEEN NP AND PP

In these few remarks I would like to address the question of the choice that grammars of particular languages have to make between expressing certain relations or functions by means of noun phrases, using case as an indicator of the specific relation or function, or by means of prepositional phrases, using prepositions (or post-positions) as indicators. As usual, many things will be presupposed. So, for example, it will be assumed without supporting argument, that it is possible to decide in any given case whether an indicator is, syntactically, a preposition heading a prepositional phrase with the noun phrase its complement, or whether it is a case morpheme, inflectionally integrated in a noun phrase. While this choice is in many cases far from trivial (cf. Van Riemsdijk (1978)) we will not only assume the feasibility of the distinction, but also that data from grammars that provide answers to such questions can be used, at least to assess the relative frequency of occurrence of the different types of indicators across languages.

What I would like to outline is a possible way of conceiving the pressure from linguistic theory on particular grammars in the choice between the two types of realization of indicators. Recent theories of abstract case provide partial answers to this choice. Chomsky's Pisa theory, for example, assumes that verbs and prepositions have the property of assigning case to their complement, which can then ipso facto be an NP.

Adjectives and nouns, on the other hand, do not have this property. Hence for them to take a noun phrase complement is not possible unless there is a mediating preposition which can assign case to this NP.

That this system is probably too specifically designed to handle the situation in English should not come as a surprise. There are languages that mark their direct objects with prepositions, and there are languages in which adjectives assign case to their complements, to mention just a few of the instances in which the system gets stretched. Elsewhere I have proposed that marking conventions for subcategorization features may be held partly responsible for the structure in the variation in these matters that is observed cross-linguistically. Here I will explore a somewhat different approach which may end up by replacing the other system, or simply by complementing it. The general idea, however, remains the same: the answer to this type of questions will ultimately have to come from a substantive theory of syntactic features, and hence from a theory of syntactic markedness.

In a first step, and the only one I will attempt here, I want to try to express in the system of syntactic features that there appears to be an inverse probability relationship between the realization of what we have been calling indicators as prepositions or as Case. What I mean is this: it is extremely normal for a grammatical subject to be realized as a NP with the appropriate Case (nominative, absolutive, ergative, or even something else, as the case may be) and it is very odd for the subject to be realized as a PP. Nevertheless this opinion does not seem completely excluded, both cross-linguistically and within particular grammars. (Data, which can in any event only be suggestive at best for the type of problem at hand, will not be given here).

On the other hand it is very common for all kinds of 'oblique' relations to be expressed by PPs, while the frequency of case systems capable of expressing relations beyond the most basic grammatical ones is not very high. The latter claim is, of course, subject to the proviso that, all other things being equal, languages will opt for NP rather than PP, for languages lacking PPs appear to exist while languages lacking NPs don't. (Cf. Aoun (1978a) for discussion of a somewhat parallel case, as well as for a similar attempt to apply marking conventions to the system of syntactic features.)

Between grammatical subjects on the one hand and oblique positions on the other there are obviously a number of intermediate positions in which similar considerations apply, with the likelihood of occurrence of one vs. the other option appropriately changed. What results, then, is an inversely proportional scale of likelihood ranging from the position of the grammatical subject, in which NP is the most preferred option, to the most oblique situations, in which PP is the most preferred option subject to the proviso mentioned above. It is this scale that I want to express in terms of marking conventions of essentially the type proposed in Kean (1975).

Before setting out to write up these marking conventions, the system of syntactic features will have to be augmented somewhat, since it has so

far had a singularly impoverished existence. I will assume the two features [+N] and [+V] to begin with, and add to these two more features: [+S] and [+CA]. Before going on I will first briefly discuss these features, which are largely meant to cross classify the major grammatical cases. As features for case systems go, these two are grossly ad hoc. As a matter of fact, I believe that there are only two reasons to prefer them over their potential competitors. One has to do with the fact that they appear to yield satisfactory results for the problem under discussion, and the other has to do with the fact that they appear to generalize quite nicely over nominative-accusative systems and absolutive ergative-systems. This latter point will be briefly illustrated here, before we move on to the integration of these features with the categorial features. The two features [+S, +CA] define four categories: intransitive subjects, transitive subjects, direct objects, and a rest category which we may call 'oblique'. There is a very simple algorithm to assign these features to NPs: [+S] is assigned to NPs which structurally satisfy the definition of grammatical subject ([NP, S]), and [+CA] is assigned to the direct object if there is one, to the subject otherwise. (The mnemonic CA stands for 'closest argument', which is a direct reflection of that algorithm). The features have been chosen because they permit to generalize over nominative-accusative and absolutive-ergative systems in a straightforward way. This is a particularly important property given the fact that the two systems generally coexist in one and the same language. In other words, a given type of NP may be spelled out according to one system if it is a (certain type of) pronoun and according to the other system if it is another type of noun phrase, for example. Thus we have the following situation.

- (1) NP classes: [+S, +CA] = intransitive subjects
 [+S, -CA] = transitive subjects
 [-S, +CA] = direct objects
 [-S, -CA] = oblique

- (2) Spelling out systems:

- (a) nominative-accusative:

[+S] = nominative
 [-S, +CA] = accusative

- (b) absolutive-ergative

[+CA] = absolutive
 [+S, -CA] = ergative

- (c) three way systems:

[+S, +CA] = nominative
 [+S, -CA] = ergative
 [-S, +CA] = accusative

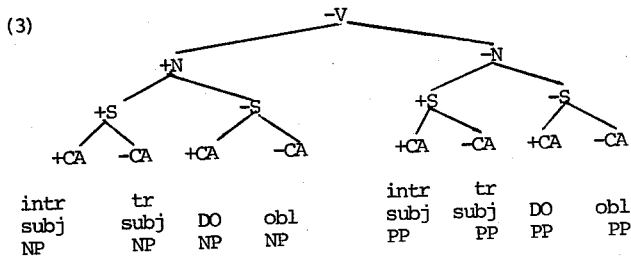
Note that this proposal reflects a Praguean type of morphological markedness in that nominative and absolutive have the simplest feature repre-

sentation in the spelling-out component. Three way systems are correctly predicted to be marked. Very few languages have this as a major option (Motu is an example), and those languages that have this as one option apply it only to a small subclass of noun-types.

A few more observations are in order here. The features appear to encode syntactic structure to a certain extent. This may be thought redundant, but in reality the features simply mediate between syntactic structure and the case system that is actually realized. Alternative systems that do not use such a feature system would build the structural information into the spelling-out rules which would then operate directly on syntactic structures.

A more serious danger arises from the fact that if syntactic rules are allowed to refer to these case features, we may end up with some sort of relational grammar. But notice first that some syntactic rules have to refer to certain types of morpho-syntactic features. Second there is no reason why certain syntactic rule-types should not be substantively constrained in such a way as to rule out reference to grammatical relations. Lastly, it is not obvious that one wants to rule out this possibility in an absolute way rather than defining it in the system as a marked option, which might for example, offer some perspective for 'syntactically ergative' languages such as Dyirbal.

Let us now return to our original problem, the relative likelihood of the realization of certain types of relations as NPs with a certain case or as a specific type of PP. The primitive system of four features that we have now, with the case features generalized to PPs, gives us the following eight-way distinctions.



It turns out that this system can be made to reflect the relative likelihood which we want to express in a very simple way by formulating three optimally simple marking conventions, employing Kean's (1975) complement convention:

- (4) a. [uN] [+N] / [-V]
- | | |
|------|-------------|
| [mN] | [-N] / [-V] |
| [uN] | [-N] / [+V] |
| [mN] | [+N] / [+V] |

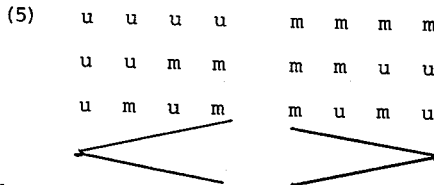
b. [uS] [+S] / [+N]

[mS]	[-S] / [+N]
[uS]	[-S] / [-N]
[mS]	[+S] / [-N]

c. [uCA] [-CA] / [-N]

[mCA]	[+CA] / [-N]
[uCA]	[+CA] / [+N]
[mCA]	[-CA] / [+N]

These marking conventions assign the following values to the eight categories as defined in (3). I give them here in (5) in the same order:



Thus, the marking conventions give exactly the result that we wanted: the likelihood of an NP expressing a certain function is inversely proportional to that of a PP expressing that function. Other implications of the system include a (putative) implicational universal to the effect that if a language chooses to express intransitive subjects with a preposition, then it will also indicate the other functions by PP. The reader can verify for him/her-self what the other predictions are. It appears to me that they express by and large what we want to say.

Many questions remain:

- where do we go from here? For example, when we start adding features to cross-classify the oblique and notational categories, will they also spread across to the other grammatical functions?
- is there a natural way to augment or modify the system in such a way that we can express relative probabilities under differing conditions of government. For example, we will want to say that the [+N] options are unmarked in the domain of [-N], while [-N] options appear unmarked in the domain of [+N]. Expressing this would amount to introducing a certain type of non-simultaneous environment in the marking conventions, which would create nontrivial problems for the interpretation of the complement convention.

It is my belief that the only way which will ultimately lead to the establishment of a substantive theory of markedness in syntax will be one which goes via and beyond these questions.

Footnotes

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