Feature Checking, Case, and Agreement in German DPs *

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1 Introduction

In this article I discuss and reanalyze data which have been taken as evidence that certain morphological Case markings of German nouns can or must be "dropped" under specific syntactic circumstances (cf. Gallmann (1990), Gallmann (1996), Gallmann (1998), Müller (2002), judgments from the literature cited):

(1) *Accusative:*
   a. ein Orchester ohne *Dirigent*
      an orchestra without conductor
   b. *ein Orchester ohne *Dirigent-en* (Singular)
   c. ein Orchester ohne *eigen-en Dirigent-en*
      an orchestra without its-own conductor
   d. *ein Orchester ohne jedweden Dirigent
      an orchestra without any conductor

(2) *Dative:*
   a. ein Schiff aus *Holz*
      a ship made-of wood
   b. *ein Schiff aus *Holz-e*
   c. ein Schiff aus *hart-em Holz-(e)*
      a ship made-of hard wood

These examples show that a noun can appear inflected or uninflected within its DP, but the inflected form is only possible in combination with another inflected element. Even if a Case-less form is not possible, as with genitive singular nouns in (3), the generalization seems to hold that Case marking

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of a noun is grammatical only in conjunction with another inflected element within its DP:

(3) *Genitive:*
   a. die Verarbeitung *d-es Holz-es*
      the manufacturing of-the wood
   b. *die Verarbeitung *Holz-es*
   c. die Verarbeitung *tropisch-en Holz-es*
      the manufacturing of-tropical wood
   d. *die Verarbeitung (*d-es*) (*tropisch-en*) *Holz*

I will compare two analyses of the phenomenon: one which proceeds in terms of Optimality Theory and another which accounts for the data within a (minimalist) checking theory. I will argue that the OT account runs into difficulties on conceptual and empirical grounds, whereas the checking theory may account for the data in a less problematic, descriptively more adequate way.

2 An OT Analysis

The general rule obeyed by the data above seems to be the following:

(4) If N is Case marked, there exists another Case marked pre-nominal element (an adjective, adjective phrase, or a determiner that c-commands N) within N's DP.

Let us call this Gallmann's agreement rule.[1]

As has been observed by Müller (2002), however, this rule is too strong because it would predict that the following data are ungrammatical, contrary to fact:

(5) a. Holz mit $[_{DP}$ $\emptyset$ Nägel-n]
      wood with nail-s

[1] Gallmann's original wording is given in (i):

(i) *Nomen sind kasusindifferent, außer wenn sie mit einer Wortform mit Kasussuffix kongruieren.* (Gallmann (1996, p. 290)) "Nouns are Case indifferent except when they agree with a word form that has a Case suffix." And likewise: *Nominal word-forms are underspecified with respect to Case (and therefore necessarily have no Case suffixes), unless they are preceded by an adjectivally inflected word-form with Case suffix within its DP*. Gallmann (1998, p. 151)

b. [$_{DP}$ ∅ Kinder-n] gebührt mehr Aufmerksamkeit
children deserve more attention

c. [$_{DP}$ (Europas) ∅ Wälder-n] droht der Tod
Europe's wood-s threatens the death

The dative plural Case affix is in fact obligatory, i.e. cannot be omitted without causing severe ungrammaticality. Müller therefore distinguishes between primary and secondary affixes. Given the following table of the most frequent inflectional paradigms,[2] it is the optional *e*-affix (marked by ! in (6)) and the dative and accusative singular *(e)n*-affix in P_6 which are secondary affixes and which therefore can be dropped; all others are primary affixes and cannot be dropped.

(6)

		Staat state	Mann man	Hund dog	Streik strike	Vogel bird	Junge boy	Frau frau	Wurst wurst	Bar bar	Mutter mother
SG	N	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅
	G	es	es	es	es	s	n	∅	∅	∅	∅
	D	(e!)	(e!)	(e!)	(e!)	∅	n!	∅	∅	∅	∅
	A	∅	∅	∅	∅	∅	n!	∅	∅	∅	∅
PL	N	en	er	e	s	∅	n	en	e	s	∅
	G	en	er	e	s	∅	n	en	e	s	∅
	D	en	er+n	e+n	s	∅+n	n	en	e+n	s	∅+n
	A	en	er	e	s	∅	n	en	e	s	∅
		P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9	P_{10}

Note in particular that genitive affixes, even when belonging to the so called weak inflection P_6, cannot be omitted:

(7) des Bär*(-en), des Junge*(-n), des Dirigent*(-en)
of-the bear, boy, conductor

In his OT-analysis, Müller assumes that the OT-input contains morphologically fully specified N-forms, whereas the output contains Case-less and Case-marked N-stems. The relation between input and output is governed by the rules summarized in (8):

(8) a. Don't drop primary Case.
b. Agree (= Gallmann's rule stated in (4)).
c. Don't drop secondary Case.

[2] I have ignored Umlaut, which is partly predictable (cf. Wurzel (1998)) but plays no role in the following, and the inflection of names, the discussion of which would exceed the limits of this paper.

(8-a) is ranked highest, which means that the relevant data we are looking at involve dropping of secondary forms only, cf. also the ungrammaticality in (7). Then comes (8-b), which is violated in (5); this violation is acceptable, however, because removing the Case affix in order to satisfy (8-b) would violate (8-a), because the dative plural affix is classified as primary. The data in (1) can now be explained by the ranking between (8-b) and (8-c): (1-b) (=**ohne Dirigent-en*) violates (8-b), and (1-a) (=*ohne Dirigent*) violates (8-c), but since (8-b) is ranked higher than (8-c), (1-a) wins and (1-b) is ungrammatical.[3] I will discuss the data in (2) and (3) below.

3 Some Problems of the Analysis

In his (1996) paper Gallmann assumes a principle to the effect that more specific forms are to be preferred over less specific ones. As pointed out by Müller, this condition is at odds with the fact that in the dative of P_1 to P_4 both *dem Mann* and *dem Mann-e* are possible: as the latter has more specific Case marking than the former (which has no Case marking at all), we would expect that the second blocks the first one. In fact, however, the *e*-dative is old fashioned and dispreferred; nonetheless it is judged as fully grammatical. In order to account for the optionality in (2-c) we must therefore guarantee that (9-a) does not block (9-b):

(9) a. ein Schiff aus *hartem Holze*
    b. ein Schiff aus *hartem Holz*

Müller's analysis solves the problem by a standard assumption of Prince and Smolensky (1993), namely that the generator GEN can produce two distinct input forms */Holz/Mann/...* and */Holze/Manne/...* It is then assumed that two outputs that go back to different inputs do not compete with each other. The analysis of (2-a) and (2-b) then proceeds more or less as before.

This solution, however, somewhat weakens the theory proposed because the distinction between primary and secondary inflection becomes factually irrelevant for the *e*-affix. More importantly, the assumption of parallel generation of non-competing forms only goes halfway and does not take into account that the secondary *en*-form is also beginning to perish. To illustrate, there is overwhelming evidence that the presence and absence of the accusative and dative suffixes in (10-a) are equally acceptable, whereas the *n*-affix sounds old fashioned in (10-b).

[3] Some speakers do not share these judgments, a matter to which we return immediately.

(10) a. der Bär (*the bear*), des Bär*(-en), dem Bär(-en), den Bär(-en)
b. der Storch (*the stork*), des Storch*(-s/?-en), dem Storch(??-en), den Storch(??-en)

As has occasionally been pointed out in reference grammars, cases like (10-b) indicate a gradual change of the inflection class, in particular, since the *s*-genitive in (10-b) does not belong to the original paradigm P_6 (and *Storch* ended up in P_3). The question then arises why the OT analysis discussed above treats the *e*-dative and the secondary forms of P_6 so differently. In particular, the analysis would block the coexistence of the inflected and uninflected forms in (10-a), a wrong result. Chosing the same way out as in the case of the *e*-dative implies that *Bär* belongs to two different paradigms, with the new paradigm ∅, *-en*, ∅, ∅ not being listed in (6).

At the same time, however, the old paradigm still exists, and in fact only a subclass of lexical items of P_6 is involved. That is, not all members of P_6 behave like *Bär* in (10-a), i.e. some nouns in P_6 do not lose their inflection. So I do not find the following instances of Case marker drop grammatical (where (11-b) is constructed parallel to (1-a)):

(11) a. der Experte, des Experten, dem Experte*(-n), den Experte*(-n)
the$_{nom}$ expert, the$_{gen}$ expert, the$_{dat}$ exp., the$_{acc}$ exp.
b. *eine Kommission ohne Experte
a comission without expert

Note that this finding is inconsistent with the assumption that the endings in P_6 are secondary, otherwise all forms in (11) should be grammatical. The OT-theory under consideration therefore would need a further distinction between primary and secondary *-n*-affixes (or otherwise a new inviolable constraint to the effect that the secondary affix in (11) cannot be dropped) — a distinction (or a principle) which is not required in an account that recognises that nouns may belong to different inflection classes.

In fact, the assumption that there is a second paradigm that deloped from P_6 is not a standard assumption of traditional grammar — witness the most prestigeous refererence grammar of German, which treats the subject under the heading “Nicht anerkannte Unterlassung der Deklination” (*unauthorized omission of declension*, Duden (1998), §438) without specifying who could authorize the omission. DUDEN also specifies a list of nouns for which a missing declension has been observed as a “strong tendency.” I tested this list

(given below) by letting *Altavista* search for inflected and uninflected items of the form specified in (12):

(12)	einem X	einem X-en	dem X	dem X-en	einen X	einen X-en
Bär	179	1145	696	2428	430	2542
Bub	22	219	165	662	56	571
*Bursche	0	271	2	794	0	450
Elefant	61	1684	136	1676	117	3359
Fink	5	8	33	22	4	13
Fürst	27	571	398	3727	31	543
Geck	5	4	8	16	9	10
Graf	35	520	509	6609	36	436
Held	143	1066	342	3233	150	2402
Hirt	2	535	30	967	16	630
Kamerad	20	811	42	443	9	1719
Mensch	537	32637	2748	73322	594	54935
Mohr	9	26	72	178	22	72
Narr	13	373	77	552	38	1691
*Ochse	0	383	0	991	2	321
*Pfaffe	1	41	0	198	1	109
Prinz	49	525	629	3752	152	1117
Soldat	38	1586	90	1896	49	2283
†Spatz	80	30	318	98	181	73
†Steinmetz	169	13	140	24	170	16
Tor[4]						
Vorfahr	34	191	12	101	18	234
Automat	59	1571	494	5543	71	1384
Barbar	22	66	58	318	18	176
Diplomat	8	146	19	208	9	266
Dirigent	36	74	74	3314	4	564
Dramaturg	1	24	6	203	0	27
Exponent	13	198	29	303	4	184
Fabrikant	2	88	5	338	1	78
Gendarm	5	47	57	74	20	70
†Gnom	88	2	219	16	121	11
Jurist	6	1011	15	1004	5	805
Komet	15	670	34	1016	27	794
Kommandant	3	115	105	2281	5	116
Konkurrent	7	1489	23	2844	8	4040
Lakai	4	37	9	22	8	39

	einem X	einem X-en	dem X	dem X-en	einen X	einen X-en
Leopard	52	156	161	154	88	254
Obelisk	34	162	99	239	46	207
Paragraph	17	260	197	540	39	569
Passant	4	588	12	270	6	1345
Philanthrop	1	7	1	10	0	0
Präsident	45	1700	843	29932	32	2266
Regent	8	40	73	348	3	90
Therapeut	10	1250	61	2722	6	1359
Vagabund	4	35	7	47	3	48
Zar	3	8	91	713	11	23
	15,22%		21,18%		11,46%	

It is obvious that items ending with a schwa should not be included in the list. Moreover, some items have lost their inflection in present day German more or less completely, these two types of exception are marked by an asterisk and a dagger respectively. For the remaining items I calculated the percentage of non-inflected occurences for each item; the last line shows the mean percentage of non-inflected occurrences for all the remaining items taken together.

Given that the expectation that a particular lexical item's occurence is uninflected is about 16%, one cannot claim that lack of inflection is substandard or ungrammatical; rather it follows that the rule which blocks the deletion of secondary Case must be abandoned. In particular, it is not true, as seems to be suggested in the exposition of the DUDEN, that Case omission affects only an idiosyncratic subclass of nouns. On the contrary, apart from the exception mentioned above, namely nouns ending with a schwa, omission of dative and accusative Case in P_6 is a very *general* phenomenon which even does not require a specific syntactic context.

Now, giving up the prohibition against the omission of secondary Case implies that only two rules remain, one of which simply states which Case inflections cannot be deleted. All it does is to define the domain of application for the second rule, the agreement rule. Given this state of affairs, it is clear that nothing would remain that an OT-analysis could account for in an explanatory way. In particular, the theories' presupposition that lack of Case is the result of an "unfaithfulness" to the input would no longer be convincing, since an alternative input without Case would always be available. In consequence, the condition on secondary Case and the distinction between primary and secondary Case could be dropped entirely, without loss of descriptove adequacy.

[4]This item cannot be tested because it is semantically ambiguous (*fool* vs. *goal*), with the two lexemes belonging to different declension classes.

Note that this reasoning does not affect the validity of the agreement rule for inflected Ns as such; indeed it seems that this part of the analysis still might survive, if only as a rule that is violable, as in (13),

(13) ?eine Kommission ohne Experten (*singular*)

which is still questionable but still much more acceptable than (12). Nonetheless, there are in fact a number of exceptions to the agreement rule. A case in point is Case agreement constructions like “him/me as a Christian”, where *him/me* and *Christian* agree in Case. An *Altavista* research confirms that both the Case marked and the unmarked forms are acceptable:

(14)

		Christ-en	Christ
ACCUSATIVE	ihn als	22	16
	mich als	56	277
DATIVE	ihm als	7	10
	mir als	20	73

The Case marked forms pose a problem for the agreement rule, since there is no other agreeing form within the DP of the *als*-Phrase. I will discuss similar cases further below.

Another set of data (from the COSMAS Corpus, IDS Mannheim) exhibiting disobedience to the agreement condition is (15):

(15) a. die Doppelmoral manch Arbeitgebers
the double-standards of-many-an employer

b. zu manch Theaterfreunds Entzücken
to many-a theater-lover’s delight

c. Der “Riecher” manch Trainers hat ausgedient
the “nose” of-many-a coach has had-its-day
‘Certain coaches no longer have a nose for sniffing out the best players’

d. der Vater manch Gedankens
the father of-many-an idea

e. aus Fehlern manch Vorgängers [lernen]
from mistakes of-many-a predecessor [learn]

f. . . . , der sich über die Egomanie manch Vorgängers
. . . , who REFL at the egomania of-many-a predecessor
mokierte
sneered

According to the logic of OT, we are obliged to find some deep grammatical priciple that outranges the agreement condition; but it seems to me that no such more general and more important principle can be found.

Let us now turn to the data in (3), repeated as (16):

(16) *Genitive:*
  a. die Verarbeitung *d-es Holz-es*
  b. *die Verarbeitung *Holz-es*
  c. die Verarbeitung *tropisch-en Holz-es*

Here the problem is to account for the ungrammaticality of (16-b) which differs from (16-a) in not having a determiner to agree with. Note that the constructions in (16) cannot compete. In order to rule out (16-b) we would expect it to be blocked by (17), which unfortunately is ungrammatical as well:

(17) *die Verarbeitung *Holz*

Here, Müller discusses Gallmann's idea that besides Case-dropped forms we are also allowed to throw the *Ersatzform* (18) into the competition.

(18) die Verarbeitung [$_{PP}$ von Holz]
  the manufacturing of wood

Lack of Case-marking is grammatical in (18), because the preposition *von* governs (abstract) dative Case. It is not clear, however, how this can be worked out without construction specific assumptions. One problem, which we will not discuss here, is that additional constraints must be invoked that allow for overriding the faithfulness to the primary inflected input (16-b). A more recalcitrant problem, however, is that such a solution might work only with postverbal DPs; there is no such way out in other syntactic contexts where the genitive is governed by a verb, as in (19-c):

(19) a. *Wir bedurften Holz-es
  we needed wood
  b. *Wir bedurften von Holz
  c. *Er enthielt sich (von) Widerstand-es
  he renounced himself (of) resistance
  (from Gallmann (1998, p. 156))

Since an *Ersatzform* like (18-b) is not available, and since the Case marked forms are ruled out by Müller's highest constraint (which says that a genitive has to agree), we would expect that (20) is the winner of the competion.

(20) a. *Wir bedurften Holz
b. *Er enthielt sich Widerstand

Since all conceivable alternatives are ungrammatical, we here have to face the standard OT problem of ineffability. Although most OT-syntactitions accept a solution in terms of a null-parse, one would clearly prefer an analysis that could do away with Gallmann's use of *Ersatzformen*.

4 The Genitive Condition

As mentioned by Müller in a footnote, his analysis does not yet account for the ungrammaticality of (21-d):

(21) a. der Traum manch-es Schüler-s
the dream of-many-a pupil
b. der Traum manch-en Schüler-s
c. der Traum manch-es Dirigent-en
d. *der Traum manch-en Dirigent-en

Manch- can either bear strong or weak inflection as in (a./c.) and (b./d.) respectively, or no inflection at all, as will be discussed and illustrated below. As (21-d) shows, this difference of inflection is significant. Following Gallmann again, the relevant condition seems to be that within a genitive DP there must be at least one genitive *-er* or *-es* affix. This condition is satisfied in (21-a,b,c) but violated in (21-d); it is further confirmed by the examples in (22):

(22) a. (i) Der Traum manch klug-en Schüler-*s*
(ii) der Traum manch*(-*es*) (klug-en) Student-en
(iii) *der Traum manch(-en) (klug-en) Student-en
(iv) der Traum manch*(-*er*) Studentin
b. (i) Er bedurfte (zwei) überzeugend-*er* Beweis-e
He needed (two) compelling proofs
(ii) Er bedurfte zwei*(-*er*) Beweis-e
(iii) *Er bedurfte Beweis-e

Formulating this generalization in Müller's rule format, i.e. as a condition on the Case features on N, and refering to the *er-* and *es*-affixes as to g-strong inflection, one could assume a rule as given in (23).

(23) If a genitive N does not have g-strong inflection, some other agreeing element within DP has.

Given that some such condition is needed independently of the data the OT theory attempts to account for, it is suggestive to slightly reformulate (23) in such a way as to cover also the ungrammaticality of (3-b) as well, which is not yet excluded by (23). We might therefore replace the conditional statement (23) by a stronger existential statement as formulated in (24):

(24) Within a genitive DP there is some non-nominal inflection which is either g-strong itself or agrees with a g-strong inflection.

Since both agreement conditions hold without exception in the data considered so far, (24) could very well be part of the generating system GEN, in the same way as (23) could be. Likewise, the agreement condition for the dative *e*-affix also cannot be violated;[5] this leaves only the *n*-affixes in P_6 as reasonable candidates for an OT-like i.e. violable condition.

The relevance of the agreement rule for the *n*-Case is, however, not undisputable: On the one hand, judgments concerning (1), in particular (1-c), vary considerably, on the other hand it is not clear whether the rule is really relevant (but violated) in Cases like (13): The reason is that we would expect the construction to become more acceptable if an agreeing element is added:

(25) ?eine Kommission ohne exzellenten Experten
a comission without excellent expert

It seems to me, however, that this is not the case. What makes (25) questionable is the lack of a determiner which is normally required for Ns in P_6 (animated masculine Ns) in the singular.

Given that the agreement rule either holds without exception for the *e*-dative or might be irrelevant for the weak N-inflection, it seems that there is no violable constraint left that an OT theory could reasonably account for.

5 Feature Checking within DP

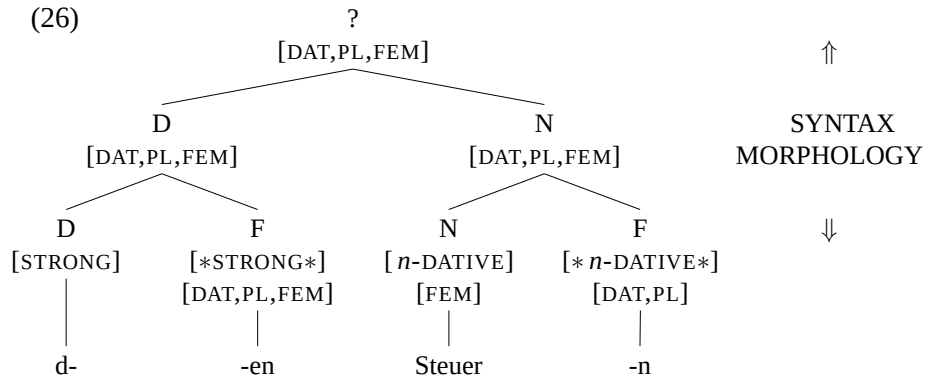
In this section and the section to come I will show how rules like (23) and (24) can be implemented technically in a minimalist checking system that generates the forms fully specified for Case inflection. The system has been developed more fully in Sternefeld (2003).

As an example for the general checking format assumed in Sternefeld (2003), consider the preliminary (and simplified) analysis of the dative plural

[5] Counter-examples are idioms like *zu Kreuze kriechen, zu Grabe tragen, zu Tode trampeln*; for other counter-examples see section 6.

phrase *den Steuern* ('the taxes'):[6]

(26)



Consider first MORPHOLOGY. Given that the determiner has number, gender, and Case, these features are generated by the affix (characterized by the letter F) and are projected onto the word level, where they are head features of D. Likewise, the Case and number feature of the nominal F-affix are projected onto the word level, where they are head features of N. The features [STRONG] and [*n*-DATIVE] are formal morphological features that characterize the inflection class of the respective stems D and N; these features must be checked inside morphology by affixation. Checking proceeds via the corresponding features [∗STRONG∗] and [∗ *n*-DATIVE∗] respectively in a MERGE configuration, where features of the form [α] and [$*\alpha*$] are sisters.

The feature [FEM] of N is an inherent feature of the stem and is therefore projected onto the word level. Within inflectional morphology, features must be projected from both the stem and the inflectional element, unless they enter a checking relation. As defined above, such a configuration arises if and only if features of the form [$*\alpha*$] and [α] are sisters. If so, a feature of the form [$*\alpha*$] cannot project any further; concerning its counterpart [α], features of this form will not project if they are "contextual" (in Chomsky's terminology: *non-interpretable*), but they must project if they are "inherent" (Chomsky's term: *interpretable*). We assume that Case features are contextual but that number and gender features of this form (i.e. without asterisk) are inherent. All features of the form [$*\alpha*$] are contextual. Contextual features must, at some point of the derivation, enter into a checking relation; inherent features need not.[7]

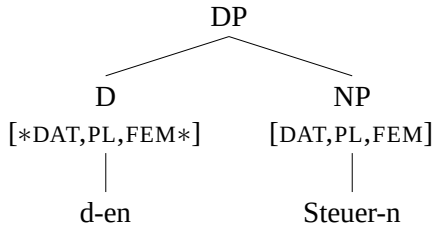
[6]The simplification primarily concerns the affix *-n*, which should rather be analyzed as two affixes, namely a plural affix *-n* plus a dativ affix *-n* which can attach only to a plural N.

[7]In recent literature it has been proposed that checking must occur within a "phase", but

All nodes are composed of features only, so that F should be a feature as well. But obviously it does not project, which according to the above should be necessary, as the inflectional structure is double-headed. I therefore assume that F, which marks the level of morphology as a purely notational device, should in fact be interpreted as a subcategorization feature. Strictly speaking then, the F of *-en* should be interpreted as (or replaced by) [∗D∗], and that of *-n* should be replaced by [∗N∗].

Turning next to SYNTAX, features behave in the same way except that only one branch can be the head. That is, features can project only up to their maximal projection, i.e. the non-head of a branching structure. We thus have to decide whether D or N in (26) is the head of the construction. As will become apparent further below it is decisive that D be the head. The question then arises how agreement can be captured in the checking system outlined above. A natural way of doing so is to assume that the features of D are complement features[8]; the result is shown in (27):

(27)

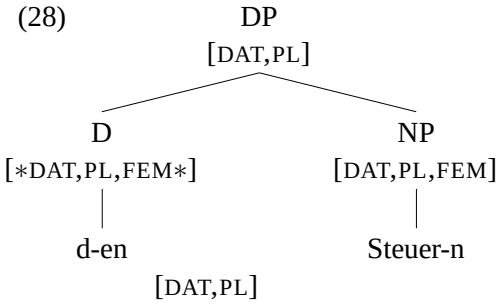


This accounts for agreement within DP. Assuming that maximal projections are maximal because their features cannot project any further, the features of the NP cannot percolate to the DP. Since D is the head of DP, we must assume that the features of DP are the head features of D, as shown in (28):

unless no movement is involved we can assume that a feature enters checking within its X-bar projection line. This is an extremely restrictive condition we will adhere to throughout the paper.

[8]We thus distinguish between head and non-head features; the former projects to the phrasal level, whereas the latter, being features of the form [$*\alpha*$], only partially project unless they merge with their counterparts of the form [α]. Complement features are features which must be satisfied before specifier features can.

(28)



Since gender of a DP plays no role in the syntactic system of German,[9] I decided not to represent the gender feature of the DP. Obviously, the relation between the features of F, namely [CASE] and [NUMBER] and the corresponding features [∗CASE∗] and [∗NUMBER∗], is not arbitrary: the values of these feature dimensions must be identical. I will discuss this issue further in section 8.2.

Concerning agreement with adjectives, a crucial fact of German is that determiners subcategorize for the inflection class of the following adjective. Traditional grammar distinguishes the three classes exemplified for the masculine singular paradigm in (29):

(29)

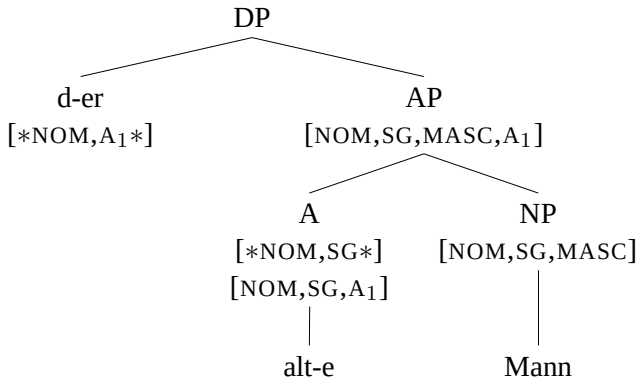
MASC.SG.	weak (A_1)	mixed (A_2)	strong (A_3)
NOMINATIVE	-e	-er	-er
GENITIVE	-en	-en	-en
DATIVE	-en	-en	-em
ACCUSATIVE	-en	-en	-en

The weak class is selected by strongly inflecting determiners, the mixed class is selected by weakly inflecting determiners, and the strong class can provisionally be analyzed as being is selected by the null-determiner.[10] Given that subcategorization is a matter of complement selection, the adjectival morphology must be a complement of D. We would therefore expect structures as in (30) (irrelevant features of the DP being omitted):

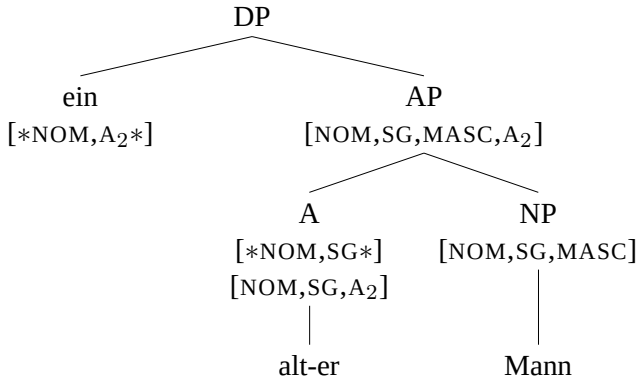
(30) a. *the old man:*

[9] Note that identity of gender under coindexation is not considered a matter of syntax because it does not obey syntactic restrictions.

[10] More accurately, it seems that the strong class is selected because it stands in for the inflection of the determiner, in fact, the strong forms of A_3 are identical to that of a strong determiner. I will account for this further below.

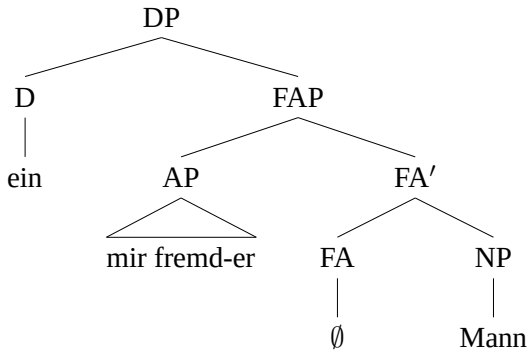


b. *an old man:*



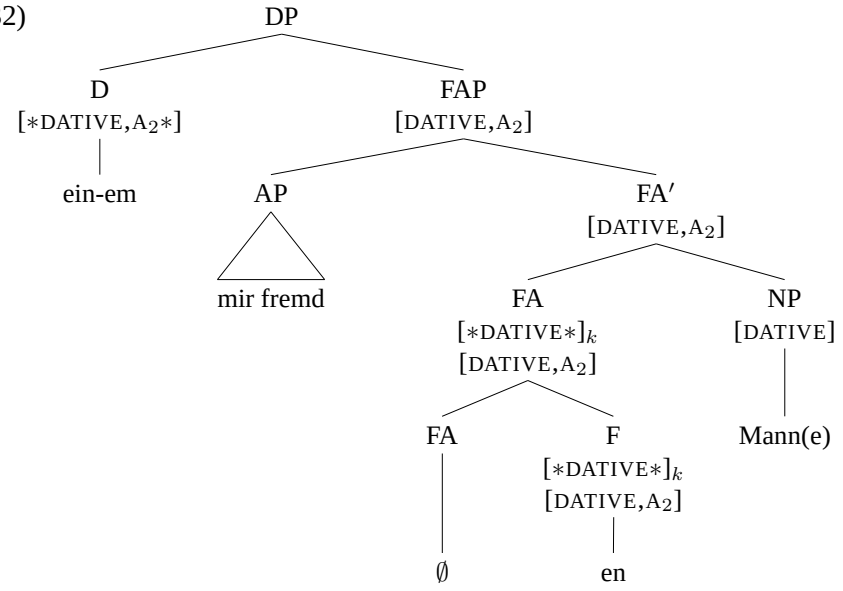
However, since adjectives do not subcategorize for NP complements, but rather govern DPs, PPs or CPs, we assume a more abstract structure, containing an additional "agreement phrase" with an AP as its specifier. This functional projection forms a shell that hosts the AP; let us call its head a functional adjective FA:

(31) ein mir fremd-er Mann
a to-me alien man
'a man alien to me'



(31) implies that the head features of FAP are checked by D; these features are located in FA and agree with the features of the AP and/or the NP, as subcases of head specifier and head complement agreement (for the latter, cf. section 8.2). Alternatively, a more direct relation between the features selected by D can be established by assuming that the adjectival inflection is attached to the functional adjective FA rather than to A itself. This is shown in (32), where the information selected by D is realized as an affix of FA, which in turn has to be incorporated into the adjective via head movement:[11]

(32)

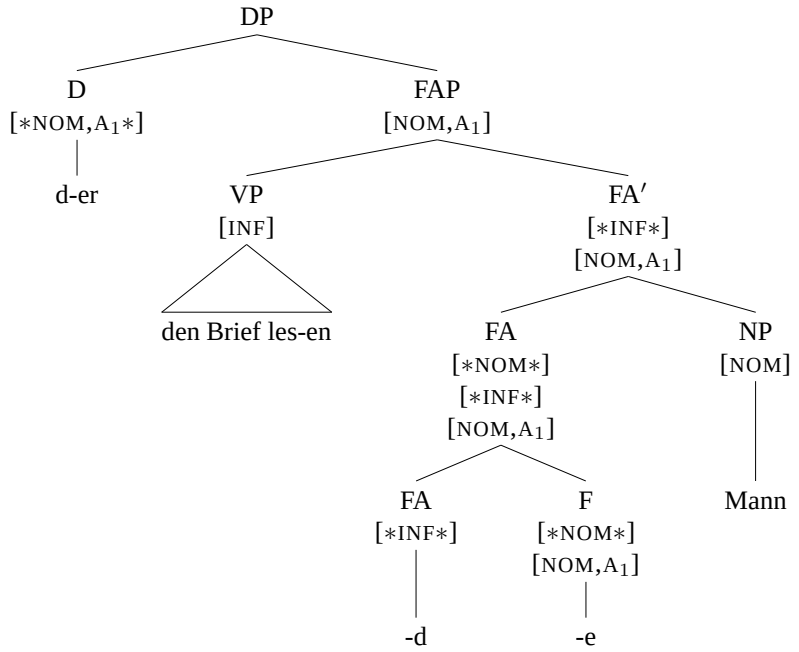


[11]Again, the relation between F's head feature [DATIVE] and its complement feature [∗DATIVE∗] is not arbitrary, a matter I will discuss in section 8.2. I will return to head movement in section 8.1.

5.1 Prenominal Participles in German

The basic function of FA in (32) is that of a phrasal affix. Whereas its motivation seems to be more or less theory internal in (32), the structure (32) can be justified independently by looking at prenominal participle constructions, which are traditionally analyzed as phrasal affix constructions in German. Here the function of the FAP is to host a VP rather than an AP. Participles come in three forms: a present participle, a modal participle, and a past participle. The first is illustrated in (33):

(33) d-er d-en Brief les-en-d-e Mann
the$_{nom}$ the$_{acc}$ letter reading man



The second has exactly the same structure, but differs from the first in that FA selects an infinitive (a modal passive form) with *zu* ("to"); the third selects a past participle and is empty-headed:

(34) a. [$_{DP}$ der [$_{FAP}$ [$_{VP}$ zu lesen][$_{FA}$ [$_{FA}$ -d][$_{F}$ -e]][$_{NP}$ Brief]]]
the to read letter
'the letter to be read'

b. [$_{DP}$ der [$_{FAP}$ [$_{VP}$ gestern verloren][$_{FA}$ [$_{FA}$ ∅][F -e]][$_{NP}$
the yesterday lost

Brief]]]
letter
'the letter lost yesterday'

Traditionally, only an overt phrasal affix turns a VP into an AP in the structue [AP [VP ...] affix]. The phrasal analysis thus nicely fits into our account of agreement which independently assumes the existence of a functional projection "above" AP.

5.2 Disagreement in Russion DPs

Additional evidence for a functional projection that mediates between determiner, adjective, and noun comes from constructions where the inflection of the noun and the adjective depend on the determiner in different, independent ways. The relation between the determiner and the noun must then be mediated by a functional projection, rather than the adjective itself. A case in point is agreement with number words in Russian (cf. Maltzoff (1984)). In general, numerals agree with the adjective and the noun; however, number expressions ending with 2, 3, and 4 (except 12, 13, and 14) in nominative and accusative DPs are followed by genitive marked As and Ns. Given that numbers are Ds, these special numerals have the feature [∗GEN∗]. The relevant observation now is that N is marked singular, whereas A is marked plural:

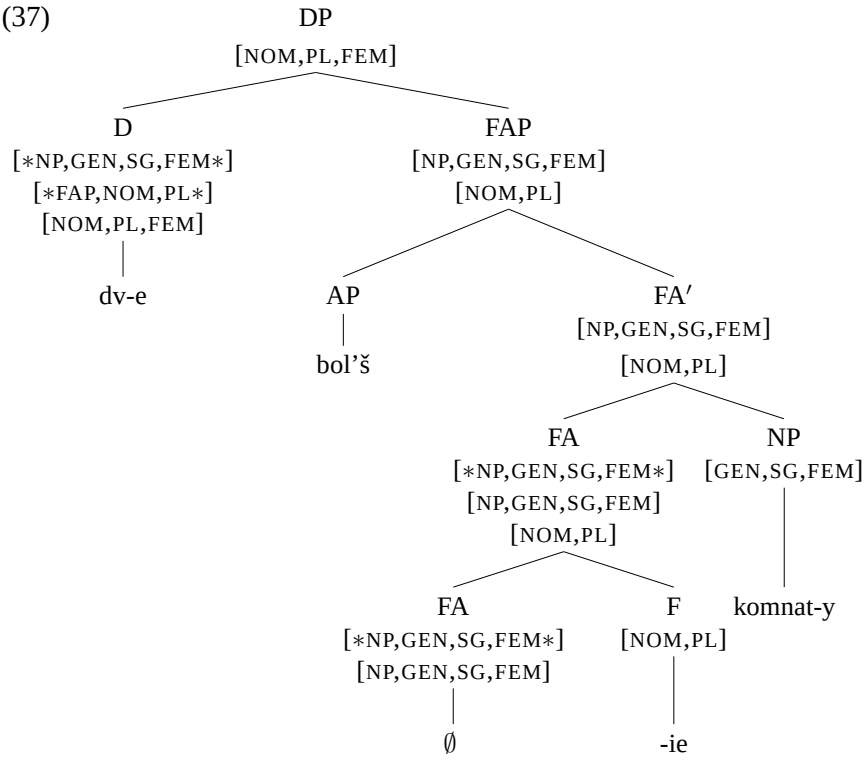
(35) dv-a bol'š-ix stol-a
two-nom big-gen,pl table-gen,sg

Given that the affixes have only one single specification for number, and given that a complement feature of an adjective should agree with its head feture, the problem arises how to account for the singular of N. It is plausible then to assume that a functional category like FA can host both pieces of information as specifier and complement features at a time, passing on these features to the relevant morphemes. Assuming that the above mentioned number expressions have the feature [∗NP,GEN,SG∗] it is clear that they must be passed on from FA to NP. At the same time, however, the determiner has the features [∗FAP,GEN,PL∗]. In addition, feminine DPs prefer a nominative marking on the adjective (instead of an equally grammatical genitive):

(36) dv-e bol'š-ie komnat-y
two-nom,fem big-nom,pl room-gen,sg

The following structure accounts for these requirements:

(37)



Note that in structures with more than one adjective, it is both the features of the FA head (which in earlier work I called AgrN) and the information in the F head which would have to be passed on to the subsequent FAP.

Further evidence in favor of functional A-projections comes from order restrictions between iterated APs, a matter discussed in Cinque (1995, p. 298). These properties can be captured as subcategorisation properties of FA-shells, a matter I will not discuss here any further.

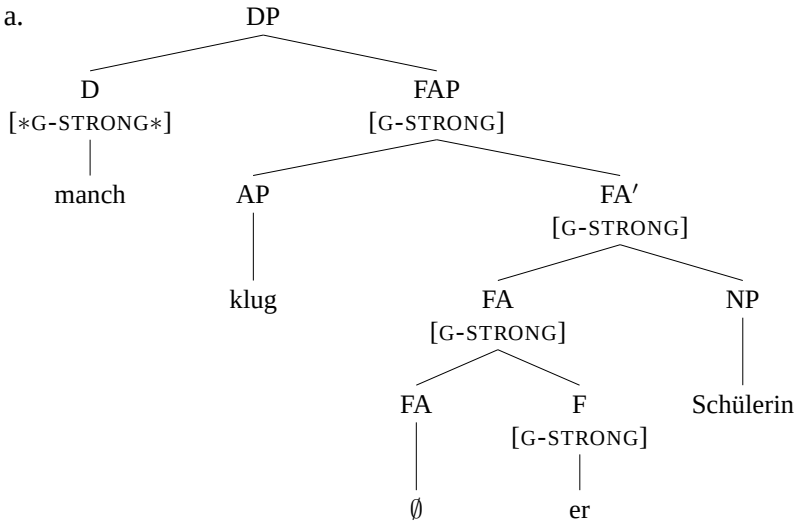
6 Implementing the Genitive Condition

Returning now to the distinction between the strong and weak genitive affixes, assume next that *-er* and *-es* have an optional feature [G-STRONG] that matches with a complement feature [∗G-STRONG∗]. As a formal way of implementing (23) I adopt the following lexical redundancy rule:

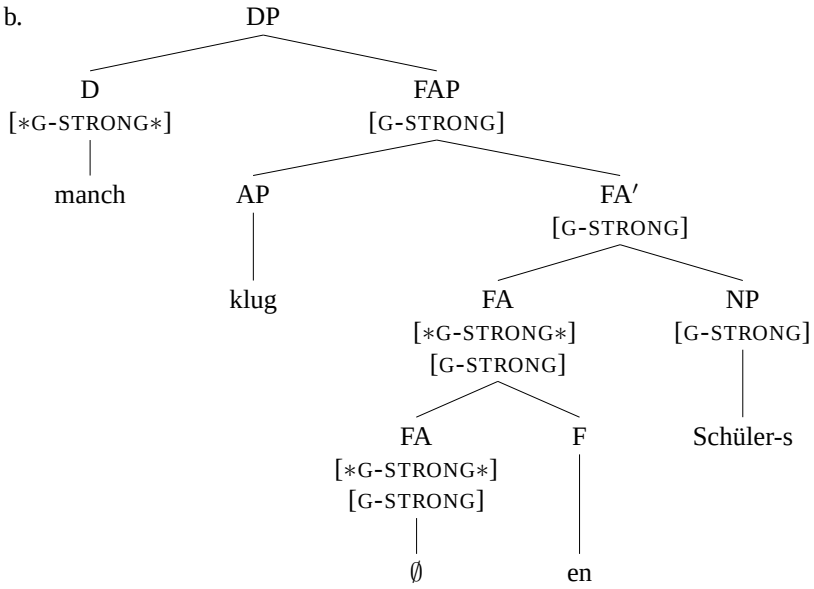
(38) Any genitive determiner which itself does not have strong genitive inflection has the complement feature [∗G-STRONG∗].

This feature must then either match with a strong adjectival inflection, as in (39-a), or go to the head of FAP. At FA it cannot be realized, but instead requires a complement feature of the same type, as in (39-b) (other features being omitted):

(39) a.



b.



This way, we can derive that at least one element of the DP has strong genitive inflection. It then remains to account for the contrast in (40).

(40) a. *der Geschmack [$_{DP}$ ∅ [$_{NP}$ Wein-es]]
the taste of-wine
b. der Geschmack [$_{DP}$ ∅ [$_{FAP}$ gut-en Wein-es]]
c. die Doppelmoral [$_{DP}$ manch [$_{NP}$ Arbeitgeber-s]]
d. der Traum [$_{DP}$ manch [$_{FAP}$ gut-en Schüler-s]]

Note that in (40-c) Gallmann's rule and the stronger agreement rule (24) are both violated; we therefore cannot directly implement the agreement condition as one would expect. Recall that we provisionally assumed that the empty determiner selects strong adjectival inflection, so that it now seems that this sort of selection would be obligatory in (40-a). As pointed out to me by Gereon M§ller (p.c.), however, it would seem arbitrary to say that an empty determiner selects strong inflection as a complement feature; doing so one would miss the generalization that strong inflection preferably occurs at the left edge of a DP. Observe also that the strong adjectival inflection does not have the same status as A_1 or A_2, because it does not necessarily agree with subsequent adjectives, cf.:

(41) gut-em$_{A_3}$ alt-en$_{A_2}$ Wein
good old wine

Most importantly, the A_3 paradigm is identical to the strong paradigm of strong determiners. Given that we already accepted affix movement for FA projections, it is now compelling to conclude that the strong inflection in (41) and (40) in fact originates from the inflection of a zero determiner, as shown in (42):

(42) [$_{DP}$ [$_{AP}$ gut][$_{D'}$ ∅-em [$_{FAP}$ [$_{AP}$ alt][$_{FA'}$ ∅-en [$_{NP}$ Wein]]]]]

Accordingly, the empty determiner actually has strong determiner inflection which can be realized morphologically only on the adjacent adjective.

In consequence, we have to assume that APs as well as possessive DPs can be specifiers of a zero determiner, implying a theory that allows for multiple specifiers, cf.:

(43) [$_{DP}$ [$_{DP}$ des Kaisers][$_{AP}$ neu][$_{D'}$ ∅-e [$_{NP}$ Kleider]]]]
of-the Emperor new clothes

Moreover, we have to assume that an uninflected determiner like *manch* can be expelled from its original position as an uninflecte determiner by an inflected zero determiner with an adjectival specifier, as illustrated in (44):

(44) [$_{DP}$ manch [$_{AP}$ gut][$_{D'}$ ∅-em [$_{FAP}$ [$_{AP}$ alt][$_{FA'}$ ∅-en [$_{NP}$ Wein]]]]]

It follows that *manch* has a dual status either as an uninflected determiner as in (40-c) or as a specifier with the same distribution as the prenominal possessive DP in (43).

Given this we may now say that the peculiarities of genitive DPs can be derived from two properties: We either have to look for g-strong inflection somewhere within the DP or we should find (g-strong) inflection at the zero determiner.

From these conditions we can derive two further consequences which cannot be captured by the agreement rule. First note that the genitive *-s* is grammatical without an agreeing prenominal element when following prepositions:

(45) a. wegen Meckern-s des Platzes verwiesen
because-of whingeing from-the place expelled
b. trotz Todesfall-s geöffnet
despite death open

We can easily account for (45) by assuming that the complement of the preposition is an NP rather than a DP: Since there is no D involved in these cases, there is no trigger with a [∗G-STRONG∗]-feature.

As a second consequence we can account for the data first mentioned in Schachtl (1989):

(46) a. *die Verarbeitung *lila* *(brasilianisch-en)* *Holz-es*
the manufacturing purple (Brasilian) wood
b. die Verarbeitung *lilafarben-en* *Holz-es*
the manufactoring purple-colored wood

The relevant observation is that adjectives like *lila* which cannot be inflected cannot occur at the left edge of a genitive DP.[12] This is directly captured by the assumption that the empty determiner is inflected. Uninflected determiners may occur at the left edge and do not seem to have an effect on uninflected adjectives, as shown in (47):

(47) a. der Traum *manch* *rosa Schwein-es*
the dream of-many-a pink pig

[12]Note that changing the order of the adjectives does not rule in the example, since there are independent order restrictions that keep *brasilianischen* adjacent to the noun, cf. Cinque (1995, p. 298).

b. der Traum *manch* *fett-en Schwein-es*
the dream of-many-a fat pig

In consequence, (47-a) confirms the dual status of uninflected *manch*: Only if *manch* can retain its status as a determiner we do not need to posit an empty determiner in (47-a) and in consequence we do not expect strong inflection on the adjective.

Summarizing so far, we derived the properties of genitive marking from two kinds of visibility conditions: a special condition on null determiners that makes them "'visible" via strong inflection, a more general condition that checks for a g-strong morphology.

7 Implementing the Agreement Condition

Given our checking mechanism for g-strong inflection, it is easy to see that an analogous procedure can account for the distribution of the *e*-affix. Assume that this inflection has a contextual feature [D-STRONG] that must somehow be checked. As a potential checking element, any other inflection will suffice, so that the required lexical redundancy rule is (48):

(48) Any F with the feature [DATIVE] can optionally acquire the feature [∗D-STRONG∗].

This explains the data in (2) as well as the judgment in (49): adjectives that cannot be inflected cannot bear an affix which could help to check the strong dative affix of N:

(49) *aus [$_{DP}$ ∅ [$_{FAP}$ lila ∅ [$_{NP}$ Holz-e]]]
made-of purple wood

Returning to the data in (1), repeated below, we already mentioned that judgments vary considerably.

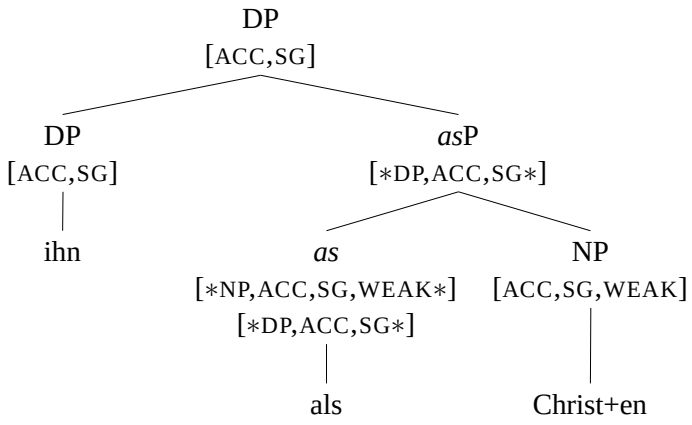
(50) a. ein Orchester ohne Dirigent
an orchestra without conductor
b. ein Orchester ohne jedwed-en Dirigent-en
an orchestra without any conductor
c. *ein Orchester ohne Dirigent-en *(singular!)*
d. *ein Orchester ohne jedwed-en/eigen-en Dirigent

Some speakers judge (50-c) as grammatical and (50-a) and (50-d) as ungrammatical, which would conform to a dialect where *Dirigent* still follows the P_6

paradigm. Others share the acceptability judgments in (50), commenting that (50-c) should nonetheless be considered grammatical but ambiguous between the singular and the plural form (which applies to all affixes in P_6, whereas the affixes of D and A are unambiguous), and that therefore Case-less forms are marked exceptions that can only be chosen in order to avoid the ambiguity. I will show below that this explanation is likely to be erroneous. Without further empirical investigations it is hard to decide what an accurate description of the data should build on.[13] At least for some idiolects (including my own), the contrast between (50-b) and (50-c) seems to be real and could reasonably be attributed to the agreement condition discussed above.

Assume, then, that dative and accusative weak N-inflection has a feature that must be checked in the same way we proposed for the dative *e*-morpheme. What about the exceptions to the agreement rule noted in (14)? Within the checking account there is an easy way to handle exceptions by stipulation: all we have to do is assume that the syntactic context may (exceptionally?) license the weak Case inflection, als shown in (51):

(51)



Case agreement is accounted for by the fact that [∗ACC∗] is both a head feature and a complement feature of *als*; the only additional assumption needed

[13] A possible explanation for the paradigm in (50) could be based on the fact that nouns in P_6 are animate and therefore should not occur without a determiner in the unmarked case. Thus, all sentences in (50) should be ungrammatical. However, prepositions allow such determinerless constructions, cf.:

(i) Er ging ohne Hut nach Hause
He went without hat home

One might speculate, then, that lack of Case and lack of a determiner are particular idiosyncrasies of this kind of construction.

is that *als* can check the weak Case feature of its complement.

Likewise, *manch* constructions seem to allow for another exception to the agreement rule, namely the lack of accompanying inflection in (52-a):

(52) a. Nach Tübingen verschlagen hat es schon manch Student-en
To Tuebingen brought has it already many-a student
'Many students have ended up in Tuebingen'

b. ??Nach Tübingen verschlagen hat es schon manch Student

Under the OT theory we would expect that (52-a) is ungrammatical, because Gallmann's agreement rule is stronger than lack of secondary Case. Within the checking approach, a simple way to rule in (52-a) is to say that *manch* exceptionally allows for the checking of weak inflection, perhaps as a residue of the inflected form *manchen Studenten*. Turning to the unacceptability of (52-b), this remains a mystery on both accounts. Note in passing that (52-b) is unambiguously singular, whereas (52-b) is as ambiguous as (50-c) with respect to number; nonetheless I strongly prefer (52-a) over (52-b). This implies that an explanation in terms of ambiguity avoidence is either on the wrong track, or that some additional property of (52) is relevant.[14]

Let us finally turn to an additional agreement problem in certain genitive constructions. Apart from the partitive genitive in (53), which obeys the agreement condition, there is also another construction, called appositive, which shows Case agreement as exemplified in (54):

(53) a. mit [$_{DAT}$ einem Glas [$_{GEN}$ kühl-en Wasser-s]]
with a glass cool water

b. *mit einem Glas Wassers

(54) a. mit [$_{DAT}$ einem Glas [$_{DAT}$ kühl-em Wasser]]

b. mit einem Glas Wasser

The construction becomes ambiguous when the higher DP is itself a genitive. The following data are taken from Gallmann (1998, p. 156):

[14]The conditions under which Case-less *manch* is acceptable have to be studied more carefully — a topic that is beyond the scope of the present paper. Let me only point out that a www-based search in the COSMAS corpus yielded the following result. Although I got 8990 hits for uninflected *manch*, only 937 were combinations of *manch* plus N. The vast majority of these Ns are nominalized adjectives, leaving only 376 Ns without adjectival inflection. Of these only few are inflected, and only a handful, namely *Auguren, Passanten, Interessenten, Klassenkollegen, Herrn,* and *Experten,* belong to P_6 and could reasonably be interpreted as being non-plural. AS a result I did not find a significant number of cases like (52-a), but I also did not find a single instance of an uninflected form as in (52-b). A Web-based seach for selected items like *manch Kunden*/**manch Kunde*("customer") corroborated this result.

(55) a. der Genuss [$_{\text{GEN}}$ eines Glases [$_{\text{GEN}}$ kühl-en Wasser-s]]
the consumption of a glass of cool water
b. der Genuss eines Glases Wassers
c. der Genuss eines Glases Wasser

Now, Gallmann judges (55-c) as grammatical, but (55-b) as ungrammatical. This contrasts sharply with many speakers who get the opposite judgments. The problem for Gallmann would be that the grammaticality of (55-b), if real, would contradict the agreement rule. But as we saw above, this seems to be possible in other appositive constructions like (51) as well. Again, within a checking theory, we might easily enlarge the grammatical contexts that allow for additional checking requirements: Given that the appositive construction is an agreement constuction parallel to the one in (51), we can assume that an empty head mediates between *Wassers* and *(eines) Glases*. Now, within a checking mechanism we only have to supply the empty head with construction-specific features, in particular one that select an NP. In consequence, lack of an empty determiner implies lack of a strongly inflected adjective, which is what we see in (55-b).

8 Background Assumptions

8.1 Sideward Movement

As is evident from the above the analysis crucially relies on the concept of affix movement. I will show in this section that this mechanism is not a PF rule but a genuine instance of *sideward movement*, a notion discussed by Epstein et al. (1998) and Nunes (2001).

Note that the NP/DP of comparative *als*-constructions in German either has nominative Case or it agrees with its correlate:

(56) a. das Wirken [$_{\text{DP}}$ Albert Schweitzers$_{GEN}$][als [$_{\text{NP}}$
the activity A. Sch. as
Tropenarzt$_{NOM}$]]
tropical doctor
b. das Wirken [$_{\text{DP}}$ Albert Schweitzers]$_{i}$[als [$_{\text{NP}}$ Tropenarztes$^{i}_{GEN}$
]] (DUDEN §1310)

Case agreement is handled informally here by co-superscription. The same kind of construction can also be found in prenominal participles, cf.:

(57) a. dem$_{DAT}$ als Kunde$_{NOM}$ getarnten$_{DAT}$ V-Mann
the as customer masked CIA-agent
b. dem$_{DAT}$ als Kunden$_{DAT}$ getarnten$_{DAT}$ V-Mann

Given that nominative Case can be assigned by *als* and that dative Case can be derived only by co-superscription, we must assume an empty subject in (57) which serves as the antecedent for Case:

(58) dem$_{DAT}$ [$_{\text{VP}}$ PRO$^{i}_{DAT}$ als Kunden$^{i}_{DAT}$ getarnten$_{DAT}$] V-Mann

But given the analysis of verbal participle constructions above, we expect to generate the structure shown in (59):

(59) [$_{\text{DP}}$ dem$_{DAT}$ [$_{\text{FA}}$ [$_{\text{VP}}$ PRO$^{i}_{???}$ als Kunden$^{i}_{???}$ getarnt] $\emptyset$-en$_{DAT}$ [$_{\text{NP}}$ V-Mann]]]

Whatever the details of Case checking of (empty) subjects are, it is clear that the relevant Case information in (59) is outside the VP that hosts the agreeing phrases. It thus follows that Case assignment to PRO (and therefore Case agreement with *als*) is possible only after the adjectival morphology has been incorporated into the verb. This shows that affix movement, although constrained by adjacency, cannot be purely a PF-phenomenon but must be a genuine instance of sideward movement. Only after having incorporated inflection into V is it possible to procede as in the case of nominative checking (which, given that German does not have an INFL-projection, cf. Sternefeld (in preparation), is handled VP internally) and check the Case of PRO by the same mechanism that account for the Case of overt nominative subjects.

8.2 Head Complement Agreement

Above we have tacitly assumed that if D has a head feature [α], and if the complement must be specified for the same type of feature, then D obligatorily has the feature [$*\alpha*$]. Likewise, if FA has Case, number and gender features, its complement also has these features and FA has the corresponding feature [$*\alpha*$]. This simply means that a functional head and its complement must agree. Whereas specifier head agreement is generally acknowledged, this type of agreement has not yet received particular attention, or its existence has been explicitly denied in theories that exclude complements from the "checking domain". In fact, however, whereas specifier head agreement within DP does not exist in the analysis we proposed, specifier complement agreement is the rule. We may generalize this observation and state the following head complement agreement rule:

(60) If a functional head X has a feature [α] and if X's complement must be specified for the feature dimension of [α], then X has the complement feature [$*\alpha*$].

Besides the cases mentioned above (60) has a number of further applications, some of which are the following:

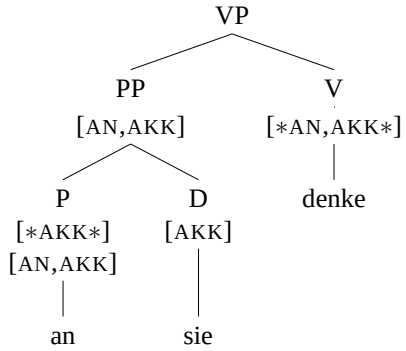
(61) *Case selection via functional prepositons:*

a. weil ich [$_{VP}$ [$_{PP}$ an [$_{DP}$ ihn]] denke]
because I of him$_{acc}$ think

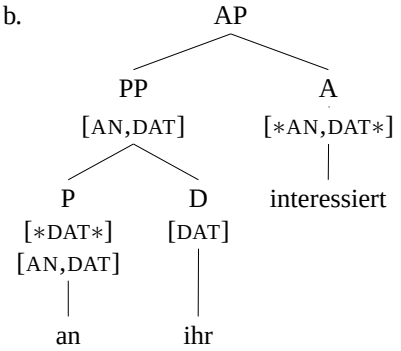
b. weil ich [$_{AP}$ [$_{PP}$ an [$_{DP}$ ihm]] interessiert] bin
because I in him$_{dat}$ interested am

Generally speaking, locative prepositions in German select a dative, while directional prepositions select an accusative. For occurrences of prepositions without lexical content, as those in (61), the Case selection cannot be predicted from properties of the preposition alone but is determined by the verb or adjective that selects the preposition. This is illustrated in (62) ("*think of her/interested in her*"):

(62) a.



b.



The relevant fact here is that the Case marking of the functional preposition (which cannot be realized morphologically on the preposition) automatically induces its complement Case feature.

Another case in point is the selection of clauses by verbs or nouns illustrated in (63):

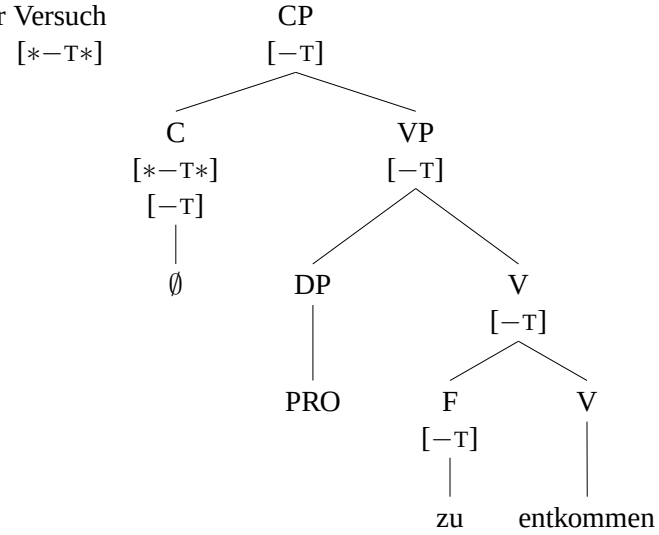
(63) a. der Versuch [$_{CP}$ PRO zu entkommen]
the attempt to escape

b. der Beweis [$_{CP}$ dass sie entkommen sind]
the proof that they escaped are

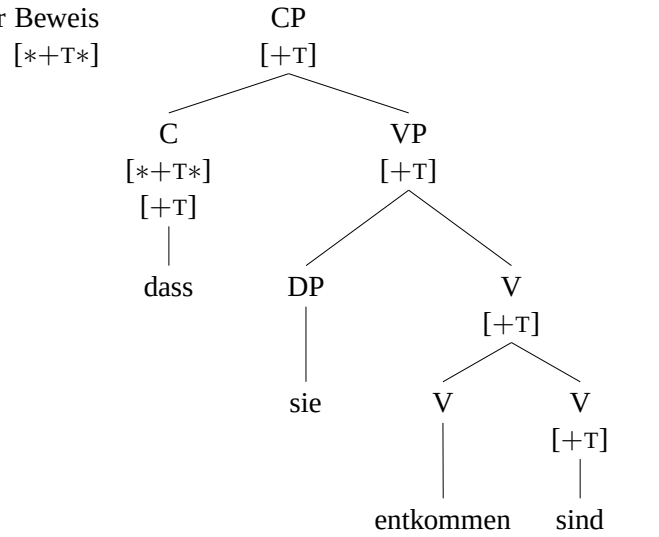
Verbs and nouns must be subcategorized for finite or non-finite complements, and this property is realized both in the complementizer head C and in the complement of the complementizer, which is either a finite verb or a the non-finite inflection *zu*:

(64) *Selection of the Complementizer:*

a. der Versuch



b. der Beweis



Again the feature of C is passed on to its complement.

A possible counter-example would be the feature [G-STRONG] of FA in (39-a) which does not require another feature [∗G-STRONG∗]. The solution

might be that this property does not define a *dimension* in the sense that all Ns or As are specified as [±G-STRONG]. Rather it reflects an idiosyncratic property of morphemes. It follows that the situation illustrated in (39-a) requires an additional descriptive redundancy rule which states that an empty FA-element with [G-STRONG] has an additional complement feature [∗G-STRONG∗].

The complement agreement rule, then, seems valid for all agreement phenomena of German. As a potential counterexample to the universal validity of (60), reconsider cases like (35) where the nominative head feature has no corresponding complement feature. On the other hand, given that the genitive is a historical residue of a partitive construction (as in *the two of them*), we can assume that the relevant Ds still behave more like Ns than Ds, which means that the number expressions do not belong to a fully *functional* category, as would be required by rule (60). It might then still be true that as a default rule (60) may claim to be universal.

9 Conclusion

The only rule of grammar used in the OT analysis discussed above is the agreement rule, which imposes a restriction on the occurences of secondary Case suffixes. If such an account is to be maintained it would be necessary to state plausible rules that can handle the counter-examples analysed above. These counter-examples are construction-specific, and we have shown that construction-specific properties can easily be built into the checking mechanism. On the other hand, construction-specific assumptions could also be used within OT to overrule the agreement rule and to account for the exceptions. The plausibility of such an account then rests on the question whether these additional assumptions are general enough to count as potentially universal constraint, so as to make an OT account more explanatory than a purely descriptive checking mechanism. At present I do not see how such additional rules could qualify as good candidates for reasonable OT-constraints.

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