DP-internal double agreement is not double Agree: Consequences of Agree-based case assignment within DP☆

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ABSTRACT

The German possessor doubling construction is remarkable in that there is double agreement: the possessive pronoun agrees both with the possessor as well as the possessee in phi-features. We will argue that double agreement is not to be interpreted as resulting from two syntactic Agree operations: Positing two such operations involving the possessive pronoun leads to insurmountable technical problems; rather, we will introduce novel empirical evidence showing that the agreement between possessor and possessive pronoun is anaphoric rather than grammatical in nature. While this solves the double agreement problem, the dative case on the possessor still needs to be accounted for. We will propose that dative case does not come from the possessive pronoun or from a preposition as in the Predicate Inversion approach, but rather from N. This not only avoids an overgeneration problem resulting in case assignment to the wrong goal, but also opens up the possibility to unify case assignment in Germanic with possessor agreement in languages like Turkish.

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1. Introduction: double agreement in the possessor doubling construction

There are four ways of expressing possession within the German DP: The possessor can appear postnominally, either governed by the preposition *von* 'of' (cf. (1-a)) or in genitive case (cf. (1-b)). Prenominally, possessors can occur with an ending -*s*, which is to be distinguished from genitive case (cf. footnote 21). This construction is restricted to proper names (cf. (1-c)).

(1)   a.   das Haus von Maria
               DEF house of   Mary.DAT
               'the house of Mary'
        b.   das Haus der   Maria
               DEF house DEF.GEN Mary.GEN
               'the house of Mary'

c.   Maria-s   Haus
    Mary-POSS house
    'Mary's house'

The focus of this paper is another construction where the possessor appears prenominally, the so-called *possessor doubling construction* (PDC). It involves a DP-internal possessor preceding both a possessive pronoun and the possessee:

(2)   *PDC in German: dative possessor > possessive pronoun > possessee*

a.   dem   Hans   sein Haus
    DEF.DAT John.DAT his house
    'John's house'

b.   der   Maria   ihre Tasche
    DEF.DAT Mary.DAT her bag
    'Mary's bag'

The construction has been described for a variety of Germanic languages including West-Jutlandic dialects of Danish, (Colloquial) German, German dialects, Dutch, Middle Dutch, Dutch dialects, West Flemish, Frisian, Middle English, and Norwegian (Olsen, 1989, 1996; Corver, 1990; Authier, 1992; Haider, 1992; Lindauer, 1995; Löbel, 1996; Delsing, 1998; Weiß, 1998; Kappus, 1999; Weerman and De Wit, 1999; Zifonun, 2003; Haegeman, 2003, 2004; Strunk, 2004, 2005; de Vries, 2006; Sternefeld, 2006; Alexiadou et al., 2007; Heck and Müller, 2007; Weiß, 2008; Corver and Van Koppen, 2010). The PDC also occurs outside of Germanic, e.g. in Old Irish and in Ossetic and other East Iranian languages, cf. Koptjevskaja-Tamm (2003).

The construction is particularly interesting in German, West Flemish and Norwegian where the possessive pronoun is morphologically complex and varies according to the features of possessor and possessee.[1] In the rest of this article we will be concerned with German. The following examples show that the stem of the possessive pronoun varies according to the phi-features (gender, number) of the possessor (*sein* for masculine and neuter singular, *ihr* for feminine singular and for plural, where there are no gender distinctions) while the suffix agrees in phi-features (gender, number) with the possessee (on case agreement between the suffix and the possessee see Section 2.1):

(3)   *Alternation of the stem (DP in nominative case)*:

a.   dem Mann   sein   Haus
    DEF.DAT man(MASC).DAT POSS.SG.MASC house
    'the man's house'

b.   der Schwester   ihr   Haus
    DEF.DAT sister(FEM).DAT POSS.SG.FEM house
    'the sister's house'

c.   dem Kind   sein   Haus
    DEF.DAT child(NEUT).DAT POSS.SG.NEUT house
    'the child's house'

d.   den   Männern / Schwestern / Kindern   ihr   Haus
    DEF.PL.DAT men.DAT / sisters.DAT / children.DAT POSS.PL house
    'the men's/sisters'/children's house'

(4)   *Alternation of the suffix (DP in nominative case)*:

a.   dem Mann   sein-Ø   Bruder
    DEF.DAT man.DAT his-SG.MASC   brother(MASC)
    'the man's brother'

b.   dem Mann   sein-e   Schwester
    DEF.DAT man.DAT his-SG.FEM sister(FEM)
    'the man's sister'

c.   dem Mann   sein-Ø   Kind
    DEF.DAT man.DAT his-SG.NEUT child(NEUT)
    'the man's child'

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[1] While in Standard Dutch there is only agreement between the pronoun and the possessor but not between the pronoun and the possessee, many Dutch dialects feature such agreement and thus also instantiate double agreement, cf. Corver and Van Koppen (2010).

	d.	dem	Mann	sein-e Brüder	/ Schwestern / Kinder
		DEF.DAT	man.DAT	his-PL brothers	/ sisters / children
		'the man's brothers/sisters/children'			

Importantly, only the features of the possessee are visible on the DP: If the PDC functions as the subject of a clause, the verb agrees in person and number with the possessee and not with the possessor.

(5) a. [Dem Mann sein-e Häuser] sind/*ist schön.
   [DEF.SG.DAT man.SG.DAT his-PL house.PL] be.3PL/*be.3SG nice
   'The man's houses are nice.'

b. [Den Männern ihr-Ø Haus] *sind/ist schön.
   [DEF.PL.DAT man.PL.DAT their-SG.NEUT house.SG] *be.3PL/be.3SG nice
   'The men's house is nice.'

These facts have long been known, but except for Heck and Müller (2007), no one has addressed the double agreement issue from a syntactic point of view. Before we tackle double agreement, we will briefly provide some basic information about the PDC in Section 2. In Section 3, we will show that double agreement should not be analyzed as involving two syntactic Agree operations. Section 4 discusses previous accounts of case assignment in PDC and argues against case assignment by D. In Section 5, we will present a new analysis that is crucially based on an Agree relationship between N and the possessor. Section 6 provides a comparison with the Predicate Inversion approach by den Dikken (1998). Section 7 concludes the paper.

2. Background

In this section we will present a number of largely uncontested assumptions about the PDC as they can be found in the literature.

2.1. Case

In varieties of German the possessor usually bears the morphologically most oblique case of a given variety. In colloquial German, this is dative case. However, as Weiß (2008:383) has pointed out, one also finds examples with genitive case. Furthermore, there are varieties without dative so that the possessor appears in accusative or in the unmarked (nominative) case.[2]

(6) *Possessor with different cases* (Weiß, 2008:383, 385):
   a. mein-s Voda-s sa(n) lustigha Bou
      my-GEN father-GEN his funny boy
      'my father's funny boy' *North Bavarian*
   b. unen bfara saena hüne
      our.ACC priest.ACC his hens
      'our priest's hens' *Thuringian*
   c. rik Lüd ehr Döchter und arm Lüd ehr Kalwer
      rich.NOM people.NOM their daughters and poor.NOM people.NOM their calves
      'rich people's daughters and poor people's calves' *Low German*

We analyze the case on the possessor as a structural case because it is not restricted to a specific thematic role. In addition to expressing normal possession, it can also realize the agent or patient role of thematic nouns in the PDC:

(7) a. dem Edison seine Erfindung von der Glühlampe
      the.DAT Edison.DAT his discovery of the light.bulb
      'Edison's discovery of the light bulb' *agent*

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[2] Van Riemsdijk (1983) subsumes the dative case on the possessor under the more general possibility of default (i.e. non-assigned) dative case, for which there is indeed some evidence in Standard German. But given that cases other than dative are possible in the PDC, such a solution is insufficient. While the unmarked case could be argued to be a default case in the respective variety, this seems implausible for genitive and accusative in the varieties in (6) to our knowledge.

b. Dem Hans seine Abwahl hat alle überrascht.
the.DAT John.DAT his recall has everyone surprised
'John's recall surprised everyone.' *patient*

Note that the case of the doubled possessor behaves in this respect like the DP-internal genitive, which is generally classified as structural (cf. e.g. Lindauer, 1995; Sternefeld, 2006).

The suffix of the pronoun and the possessee including its modifiers bear the case assigned to the entire DP:[3]

(8) a. [Dem Hans sein-Ø alt-er Vater] kennt mich.
[DEF.DAT John.DAT his-NOM old-NOM father.NOM] knows me
'John's old father knows me.' *Nom*

b. Ich habe [dem Hans sein-en alt-en Vater] gesehen.
I have [DEF.DAT John.DAT his-ACC old-ACC father.ACC] seen
'I saw John's old father.' *Acc*

c. Ich habe [dem Hans sein-em alt-en Vater] geholfen.
I have [DEF.DAT John.DAT his-DAT old-DAT father.DAT] helped
'I helped John's old father.' *Dat*

2.2. The category of the possessive pronoun

It has sometimes been claimed that the possessive pronoun is an adjective, cf. e.g. Lindauer (1995), Löbel (1996), Leu (2008). The majority view, however, is that possessive pronouns belong to the category D. We will briefly reproduce some of the arguments found in the literature: First, the pronoun inflects like a determiner and not like an adjective (Demske, 2001; Sternefeld, 2006), cf. (9): it inflects like *kein* 'no' and *ein* 'a'; in particular, the genitive case suffix *-es* of the pronoun corresponds to the suffix of these determiners, but not to the genitive case form *-en* of an adjective. Second, the possessive pronoun determines the inflection of a following adjective: the weak form of the adjective occurs after the definite article and the (strong form of the) possessive pronoun, cf. (10). Finally, the possessive pronoun is in complementary distribution with other determiners, cf. (11).

(9) a. sein-Ø Freund – ein-Ø Freund
his-SG.NOM.MASC friend(MASC).NOM INDEF-SG.NOM.MASC friend(MASC).NOM
'his friend' – 'a friend'

b. sein-es Freund-es – ein-es Freund-es
his-SG.GEN.MASC friend(MASC)-SG.GEN INDEF-SG.GEN.MASC friend(MASC)-SG.GEN
'(of) his friend' – '(of) a friend'

c. das Trinken gut-en/*gut-es Wein-es
DEF drinking good-SG.GEN.MASC wine(MASC)-SG.GEN
'the drinking of good wine'

(10) a. gut-em/*gut-en Wein
good-SG.DAT.MASC(STRONG)/(*WEAK) wine(MASC).DAT
'(to) good wine'

b. dem *gut-em/gut-en Wein
DEF.SG.DAT good-SG.DAT.MASC(*STRONG)/(WEAK) wine(MASC).DAT
'(to) the good wine'

c. sein-em *gut-em/gut-en Wein
his-SG.DAT.MASC good-SG.DAT.MASC(*STRONG)/(WEAK) wine(MASC).DAT
'(to) his good wine'

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[3] The construction becomes degraded if the DP bears genitive case. This is probably not a grammatical effect but rather due to the fact that the genitive is not used in colloquial German. The postnominal PP-possessor and the PDC generally replace the constructions in (1-b) and (1-c).

(11)   *der mein Freund
          DEF my   friend
          lit.: 'the my friend'

2.3. The constituency of the PDC

Two types of surface constituency structures have been proposed for the PDC. The possessive pronoun either forms a constituent with the possessor or the possessee:

(12)   a.   [[poss [pron]] [N]]
          b.   [poss [pron [N]]]

While some earlier approaches (Lindauer, 1995; Olsen, 1996; Löbel, 1996) argued for the structure in (12-a), it is by now widely accepted that the structure in (12-b) is the correct one, cf. e.g. Corver (1990), Haider (1992), Delsing (1998), Haegeman (2004), Sternefeld (2006), de Vries (2006), Weiß (2008). We will briefly list a number of arguments from the literature. First, the possessor can bind a reflexive in the complement of N, showing that it c-commands N, cf. (13). Second, the possessor can be extracted, cf. (14-a) and (14-b) (this was first noted for Norwegian in Fiva, 1987) while extraction of [possessor+pronoun] is ungrammatical, cf. (14-c). For reasons that are unclear, extraction is best from predicate NPs, but the contrast remains if extraction takes place from a complement. Third, a theory-internal argument, under the assumption that for reasons of θ-role assignment the possessor originates within a projection of N (and is later moved to Spec, DP, cf. Delsing, 1998; de Vries, 2006; Weiß, 2008), only the structure in (12-b) is compatible with the Extension Condition.[4]

(13)   [dem   Hans$_i$ [seine [Freude [über sich$_i$]]]]
          [DEF.DAT John.DAT$_i$ [his   [joy   [about REFL$_i$]]]]
          'John's$_i$ joy about himself$_i$'

(14)   a.   Wem   ist das sein Auto?
                  who.DAT is this his car
                  'Whose car is this?'   *Colloquial German*
          b.   Wëmm   esch   daas si Häntsche?
                  who.DAT is   this his glove
                  'Whose glove is this?'   *Lucerne German* (Fischer, 1960:321)
          c.   *Wem   sein ist das Auto?
                  who.DAT his   is this car
                  'Whose car is this?'

To avoid the problem with the extension condition one could assume (following a suggestion by an anonymous reviewer) that the possessive pronoun is merged first with the possessor, i.e. takes it as its complement, and then the entire DP would be merged as an argument of N: [$_{NP}$ N [$_{DP}$ Poss D]]. Later, the DP comprising possessor and possessive pronoun would be moved to Spec, DP: [$_{DP}$ [$_{DP}$ Poss D]$_i$ D [$_{NP}$ N___$_i$]]. However, this would imply that the pronoun is the argument of N, not the possessor, an assumption that strikes us as undesirable (and which seems particularly implausible in the light of examples (30) and (31) below where the possessor occurs without a possessive pronoun). Furthermore, given the *Condition on Extraction Domains* (CED, Huang, 1982), this would predict the possessor to be frozen for extraction, in conflict with (14-a) and (14-b). Finally, it would remain unclear why the possessive pronoun agrees with N and bears the case assigned to the entire DP (Sections 1 and 2.1) if it is a complement of N. The only alternative to account for the case and agreement properties of the possessive pronoun would be to treat it as an adjective in concord with N, but this has already been shown to be incorrect in Section 2.2.

The correct surface structure for the examples in (2) above is thus the following (we assume that for reasons of θ-role assignment the possessor is base-generated as an argument of the possessee, cf. Section 5 below):

(15)   *Surface structure of the PDC*:
          a.   [$_{DP}$ dem   Hans   [$_{D'}$ sein [$_{NP}$ Haus]]]
                       DEF.DAT John.DAT   his   house
                  'John's house'

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[4] Coordination tests for constituency are inconclusive, cf. Zifonun (2003).

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b.   [$_{DP}$ der   Maria   [$_{D'}$ ihre [$_{NP}$ Tasche]]]
          DEF.DAT Mary.DAT   her   bag
   'Mary's bag'

3. Against double Agree

3.1. Technical problems with a double probe on D

It is often assumed that the possessor case comes from the possessive pronoun, which occupies a functional head within DP such as D, Poss, Infl, etc., – in what follows we will refer to it as D – cf. Delsing (1998), Haegeman (2004), Heck and Müller (2007), Weiß (2008) (in the Predicate Inversion account by den Dikken, 1998 and in de Vries, 2006 it is assigned by a preposition, cf. Section 6).[5] Since D (or rather the stem of D) also agrees with the possessor in phi-features, it seems straightforward to assume an Agree relationship between D and the possessor. Additionally, the fact that D (or rather the suffix) agrees with N in case and ϕ-features can be captured with a second Agree operation between D and N; this second operation will only lead to feature sharing with respect to case (cf. Frampton and Gutman, 2006); the case value will be provided when the DP agrees with an outside probe (see Schoorlemmer, 2009 for detailed discussion of feature-sharing within DP). We thus have two probes on D. The two following structures then serve as a starting point: (16) is the structure for an example like (13) where N takes an argument in addition to the possessor; in (17) the possessor is the only argument of N (as e.g in (15)). In the former case, the possessor is merged as a specifier of N, in the latter case it is introduced as a complement of N (the dative assigning probe is on the first line, the one leading to case agreement with N is on the second line):[6]

(16)   *Double probe on D, N has a PP argument*:
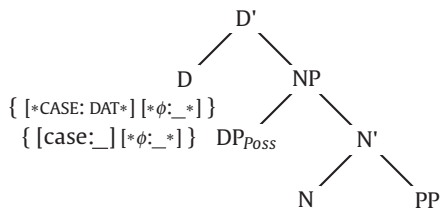
(17)   *Double probe on D, N has no PP argument*:
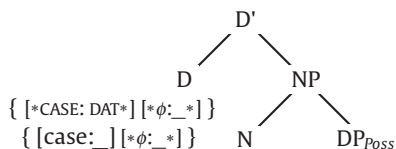
The notation [∗X∗] stands for a probe feature that triggers Agree (cf. Sternefeld, 2006; Heck and Müller, 2007). We adopt the following definition of Agree (based on Chomsky, 2000; Richards, 2008; Heck and Richards, 2010):

(18)   Agree between a probe P and a goal G obtains if
           a.   P c-commands G
           b.   G is the closest goal to P (i.e. there is no other goal H which asymmetrically c-commands G)
           c.   G is active (G has an unvalued case feature)
           d.   P bears at least one unvalued probe feature and thereby seeks the value of a matching feature of G
                    . . . with the result that . . .
           e.   G values P (ϕ-features) and P values G (case)

We take Agree to be feature-sharing (cf. Frampton and Gutman, 2006). This means that if the probe P does not provide a value for G, P and G share the unvalued feature. This feature is valued on P and G later in the derivation by a probe P' which is specified for a value.

The desired result is that dative case is assigned to the possessor while there is case-feature sharing between D and N. Positing two probes on D, however, leads to an indeterminacy concerning case assignment: First, the order of operations is

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[5] In fact, in many approaches the issue of case assignment is ignored or remains vague.
[6] We will not posit any functional structure (such as nP/PossP or Infl etc.) between N and D because the structures in (16) and (17) are sufficient to accommodate the facts discussed here. Nor will we make a structural distinction between alienable and inalienable possessors; the two behave the same with respect to the PDC in German.

Table 1
Potential derivations.

1st probe	Dative probe		Feature sharing probe			
1st goal	Possessor	NP	Possessor		NP	
Case						
Possessor	Dative	Sharing w. D	Sharing w. D	Dative	From outside	Dative
NP	Sharing w. D	Dative	Dative	No case	Dative	Sharing w. D
Convergence	Yes	Yes	Yes	No	Yes	Yes
Correct	Yes	No	No	No	No	Yes
Number	1	2	3	4	5	6

unclear: Which probe of D searches first? The one assigning dative or the one leading to case-feature sharing? Second, in the two possible structural configurations in (16) and (17) neither goal (NP or possessor DP) is closer to the probes on D than the other if closeness is based on asymmetric c-command, as is standard: In (17) there is no asymmetric c-command between the possessor and any of the projections of N. Assuming projection of inherent features (or, equivalently, a Bare Phrase Structure approach), N′ and the possessor in (16) are equally close to the probe on D.[7]

To see that one cannot rule out the wrong result with dative being assigned to N/NP while there is only feature sharing with the possessor, we will go through the possible derivations.

Suppose that the dative probe comes first: In one derivation, dative is correctly assigned to the possessor, which deactivates the possessor. The second Agree operation leads to feature-sharing between D and N. In a later step, DP (and, via feature sharing, N/NP) will be assigned case by an outside probe (e.g. v or T). This is the desired result, and the derivation leading to it indeed converges (cf. derivation 1 in Table 1). However, nothing in the structures (16) and (17) rules out assigning dative case to N/NP since it is equally close to D as the possessor. This deactivates N/NP and the second Agree operation will lead to feature-sharing between D and the possessor with respect to case, and the possessor will eventually receive the case that DP is assigned by an external probe (e.g. v or T). Such a derivation converges as well, but leads to the wrong result (cf. derivation 2 in Table 1).

Suppose then that Agree leading to feature sharing applies first. Given that neither goal is closer than the other, feature sharing between D and the possessor is possible. In the second step, dative is assigned. Since both goals are still active (the possessor shares the case with D, but since it has not received a case value yet, it is still active), there are two options both of which lead to the wrong result: Dative can be assigned to N/NP, and the possessor will get the case assigned to DP by an outside probe (cf. derivation 3 in Table 1). Alternatively, dative can be assigned to the possessor; since there is feature sharing between D and the possessor, we get the unusual result that D will receive from its goal the case it assigned to it; furthermore, N/NP may then end up without a valued case feature: Since it cannot get its case via D (there is no Agree relationship between the two in this derivation) it depends on an outside probe. But it is far from clear whether it is accessible to an outside probe. If, as is often assumed, DPs constitute phases (cf. Svenonius, 2004; Heck and Zimmermann, 2004), only D and its specifier, but not N/NP, will be accessible when DP is merged with an outside probe. This undesirable derivation will in all likelyhood crash (cf. derivation 4 in Table 1).

The second possibility when Agree leading to feature sharing applies first is that there is Agree between D and N/NP. Dative case is then assigned in the second step. Since both goals are still active after the first Agree operation, there are two possibilities: Dative case can be assigned to N/NP and via feature-sharing to D. D thus receives the case it assigns itself. In that derivation, the possessor will depend on an outside probe for its case value. Since it is in the specifier of D and thus accessible, it can receive its case value from v/T. This derivation thus converges, but it leads to the wrong result (cf. derivation 5 in Table 1). If, on the other hand, dative case is assigned to the possessor, N/NP will receive its case value from an outside probe via D; this derivation converges and leads to the right result (cf. derivation 6 in Table 1).

We thus have 6 derivations in total of which 5 converge but only 2 lead to the desired result. Table 1 provides an overview.

Employing a checking approach instead of a feature-sharing approach does not solve the problem: The indeterminacy with respect to case assignment (which probe searches first and which is the closest goal) remains. While derivations 4 and 5 are no longer possible (because the first goal will be deactivated after the first Agree operation), there are still four converging derivations of which only two produce the desired result. See also footnote 25 for conceptual arguments against a checking approach to concord within DP.

We cannot think of a non-stipulative way to modify the present system (or a slightly different one adhering to the principles of Agree) so that only the correct derivations would converge.

There is one additional problem concerning the morphological realization of the two probes: It is unclear how to guarantee that the probe agreeing with the possessor is realized as the stem and that the other probe is realized as the suffix.

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[7] One might object that if the possessor is base-generated in the projection of a functional head above NP, e.g. nP/PossP, then the possessor will always be closer than the possessees. This is not obvious, though: If nP is an extended projection of N (and there is N-to-n movement), it will in all likelihood share features with N, e.g. phi-and case-features. But then the same indeterminacy as in the text arises.

To summarize, then, a double Agree approach with two probes on D leads to insurmountable technical problems such that it must be discarded.[8]

3.2. Problems with double Agree if D is split into two probes

One obvious alternative to the approach just sketched is to take the morphological complexity of the possessive pronoun seriously: Instead of postulating one head with a double probe, one can postulate two syntactically independent elements with one probe each. An approach along these lines is proposed in Heck and Müller (2007).[9] Root and inflection/suffix are independent syntactic elements with their own features. They assume that the inflection probes first (given the structure of the pronoun in (19)). Since closeness is based on a path condition where dominance is crucial, NP is closer to D than the possessor.[10] As a consequence, there is Agree and thus feature sharing between inflection and NP. The root probe of D comes second and is assumed to Agree with and assign dative case to the possessor.

(19) $[_{DP} [_D [_D \text{ root D}] \text{ inflection}] [_{NP} \text{ N possessor}]]$

Since the inflection is the head of D and D is the head of the entire PDC, this structure accounts for the fact that only the features of the possessee are visible on DP (cf. example (5)). However, since NP still has an unvalued case feature after Agree with D_{infl}, it is still active and thus a possible – and given a definition of closeness based on dominance – closer goal for the dative case probe on D_{root}. The approach thus runs into similar overgeneration problems like the double-probe approach. A still different approach is conceivable where inflection and root are independent syntactic heads. The structure then might look as follows:

(20) $[_{DP} D_{infl} [_{XP} D_{root} [_{NP} \text{ N possessor}]]]$

In such a structure, D_{root} (equipped with a dative case probe) would probe first. But here again, the problems noted above for the double-probe approach obtain (cf. derivation 2 in Table 1 above): It is unclear how to avoid that dative case is assigned to NP and that later on, when D_{infl} probes, there is feature sharing between D_{infl} and the possessor. Reversing the order of heads does not help either; one would not only run into the same difficulties listed above for the double probe approach (with feature sharing applying first, cf. derivations 3–6 in Table 1 above); one would also fail to account for the agreement facts in (5).

We can therefore summarize: While distributing the probes of D over two independent syntactic heads solves the indeterminacy w.r.t the order of operations and possibly the agreement facts in (5), the same indeterminacy regarding the distribution of cases as in the double probe approach obtains. This double Agree approach thus fails as well.

3.3. Empirical evidence against double Agree

The previous subsections have shown that analyzing the double agreement pattern by means of two Agree operations initiated by D fails. In this subsection we will provide novel evidence suggesting that the agreement between D and the possessor is not the result of Agree. We should point out here that there are a few isolated remarks in the literature concerning the features of the root of the possessive pronoun: Löbel (1996), Demske (2001:180ff.) and Sternefeld (2006:234) have argued that these features are only semantic and play no role in syntax. Demske (2001:181) explicitly speaks of anaphoric agreement. None of these approaches, however, makes explicit what is precisely meant by this. The intuition seems to be that the relationship between the possessor and the possessive pronoun can be assimilated to anaphoric dependencies like the following:

(21)   Peter$_i$ lachte,   als   er$_i$ Maria sah.
        Peter laughed when he Mary saw
        'Peter$_i$ laughed when he$_i$ saw Mary.'

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[8] A brute force solution could restrict the case probes to certain categories, i.e. the dative to DPs and the case to be shared between D and N to NPs. This would indeed lead to the right distribution of cases: dative goes to the possessor and since in (16) and (17) N′ c-commands the NP within the DP-possessor while the reverse does not hold, the possessee would be the closest goal for the case linked to NP. However, this would basically be a restatement of the observational facts and therefore not a particularly explanatory solution.

[9] Heck and Müller (2007) are not concerned with case-agreement between D and N. In what follows we will add this to their system to allow for comparison.

[10] Their definition of closeness reads as follows:

(i)   *Closeness* (Heck and Müller, 2007:173):
      δ is closer to α than β if the path from δ to α is shorter than the path from β to α.

(ii) *Path* (Heck and Müller, 2007:173):
      The path from X to Y is the set of categories Z such that (a) and (b) hold:
      (a) Z is reflexively dominated by the minimal XP that dominates both X and Y.
      (b) Z dominates X or Y.
      The length of a path is determined by its cardinality.

We submit that it is indeed correct to view the relationship between possessor and possessive pronoun as an anaphoric dependency. And we will now provide new empirical evidence for that claim.

In (21) there is agreement in grammatical (phi-)features between the antecedent *Peter* and the pronoun *er*, but given that they are separated by a strong island, it is unlikely that their relation is established by means of an Agree operation. What is crucial in the present context is the fact that in anaphoric dependencies German allows semantic agreement (i.e. agreement *ad sensum*) in addition to grammatical agreement. This can be shown by means of gender mismatches in anaphoric dependencies if a DP is human but grammatically neuter: The neuter noun *Mädchen* 'girl' can (optionally) be referred to by means of feminine pronouns:[11]

(22) a. Das Mädchen aus der Nachbarschaft stand auf der Straße. Es/sie   weinte.
          DEF girl(NEUT) from DEF neighbourhood stood on DEF street. it(NEUT)/she(FEM) cried
          'The girl from the neighbourhood stood on the street. She cried.'

      b. Das Mädchen hat seine/ihre   Schuhe verloren.
          DEF girl(NEUT) has its(NEUT)/her(FEM) shoes   lost
          'The girl lost her shoes.'

While semantic agreement is a possibility in anaphoric dependencies in German, it is strictly ruled out in configurations where Agree is involved, e.g. in subject verb agreement. German differs in this respect from (British) English where semantic agreement is possible in that case, compare (23-a) vs. (23-b):

(23) a. Die Regierung   ist/*sind zerstritten.
          DEF government is/are   divided
          'The government are devided.'

      b. The government are divided.

The crucial point is that semantic agreement is a possibility in the PDC:

(24) [Dem Mädchen seine/ihre   Schuhe] sind schmutzig.
      DEF.DAT girl(NEUT) its(NEUT)/her(FEM) shoes   are dirty
      'The girl's shoes are dirty.'

Together with the observation that semantic agreement in German is restricted to anaphoric dependencies this implies that the relation between the possessor and the possessive pronoun is not established by means of an Agree operation. Rather, the relationship is anaphoric in nature.[12]

We still need to refine the notion of anaphoric dependency because the term is (on some uses) neutral between coreference and binding. The PDC is sometimes indeed analyzed as an instance of coreference, perhaps akin to

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[11] We are very grateful to Milan Řezáč for suggesting to explore this.
[12] Semantic agreement of relative pronouns is usually regarded as ungrammatical in German:

(i). das Mädchen, das/*die   ich gestern   geküsst habe
      DEF girl(NEUT) who.NEUT/who.FEM I   yesterday kissed have
      'the girl who I kissed yesterday'

If the impossibility of semantic agreement is an indication for the presence of syntactic Agree, this would have implications for the analysis of German relative clauses, i.e. it would argue against the traditional adjunction analysis.

As pointed out by an anonymous reviewer, Dutch differs from German in that it requires semantic agreement in the contexts (22-b), (24) and allows it in relative clauses (even though semantic agreement is prescriptively considered incorrect in relative clauses).

(ii) a. Dat meisje heeft haar/*zijn schoenen verloren.
          that girl   has   her/his   shoes   lost.
          'That girl lost her shoes.'

      b. Dat meisje haar/*zijn schoenen zijn kwijtgeraakt.
          that girl   her/his   shoes   are lost
          'That girl's shoes are lost.'

      c. het meisje dat/?die   ik gezien heb
          the girl   who.NEUT/who.FEM I seen   have
          'the girl who I saw'

Importantly, Dutch patterns with German in contexts like (23-b). The Dutch facts thus provide additional evidence for analyzing the relationship between possessor and possessive pronoun as anaphoric.

left-dislocation (Demske, 2001:262; de Vries, 2006:3). This cannot be correct, though, since the possessor can be indefinite and even negatively quantified (cf. Haegeman, 2004:229 for the same observation for West Flemish):

(25)   a.   Das ist sicher   einem Mann sein Auto.
                this is certainly a.DAT   man his car
                'This is certainly a man's car.'
     b.   Das ist niemandem sein Koffer.
                this is nobody.DAT his suitcase
                'This is nobody's suitcase.'

This rules out coreference and leaves us with (anaphoric) binding. This is in fact what is proposed in Weiß (1998, 2008): He argues that the possessive pronoun is an anaphor that requires a local binder, viz. the possessor. We will briefly summarize his arguments: In other Germanic languages with PDC, the possessive pronoun is a reflexive (cf. Koptjevskaja-Tamm, 2003:669):

(26)   a.   æ mand sin hat
                DEF man   REFL hat
                'the man's hat'   (*Western Jutish*)
     b.   Maria sit hus
                Maria REFL house
                'Maria's house'   (*Norwegian*)

Norwegian has a separate possessive reflexive form that is to be distinguished from the disjunct possessive pronoun *hans* (cf. Latin *eius* vs. *suus*):

(27)   Henry$_i$ tar   sykkelen sin$_i$/hans$_j$
           Henry$_i$ takes bicycle   his$_i$/his$_j$
           'Henry$_i$ is taking his$_{i/j}$ bicycle.'   (Strandskogen, 1999:110)

There is no such distinction in Standard German and many German dialects in that *sein* is used in both contexts. But at least in (older varieties of) Bavarian (and possibly Swiss German, cf. Idiotikon, 1913:1016) traces of this contrast can be found: Weiß (1998:79) points out that when used in the PDC, the possessive pronoun *sei* does not agree with the possessor in gender:[13]

(28)   am   Sepp / da   Mare sei Haus
           DEF.DAT John   DEF.DAT Mary his house
           'John's/Mary's house'

However, in sentential contexts, the gender distinction is marked: *sei* or *iar* has to be used:

(29)   a.   da Sepp hod **sei** Haus verkaft
                DEF John has his house sold
                'John has sold his house.'
     b.   d   Mare hod **iar** Haus verkaft
                DEF Mary has her house sold
                'Mary has sold her house.'

This could indicate that there are two *sei* in Bavarian, an invariant possessive anaphor (as in (28) and as in Norwegian) and a possessive pronoun that varies according to the gender of the binder (cf. (29)). Note that this contrast makes sense from a historical perspective: While *sein* goes back to the reflexive pronoun, *ihr* is derived from the genitive of the 3rd person feminine personal pronoun, cf. (Demske, 2001:139).

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[13] Similar examples can be found in the data collected by Hannes Scheutz, cf. the (http://www.argealp.org/fileadmin/www.argealp.org/atlas/index.html) *ArgeAlp Dialektatlas*. According to Weerman and De Wit (1999:1173f.), this pattern was also found in Middle Dutch and Middle English; Marjo van Koppen has informed us that it also occurs in certain Dutch dialects.

In German varieties where there is no such distinction as in (28) and (29) one could also posit two *sein* (anaphor and pronoun), but the anaphor would differ from the one in Bavarian in agreeing with the binder. Additionally, one has to assume that *ihr*, which used to be a possessive pronoun only, now also exists as an anaphor.[14]

4. Against dative case assignment by D

Perhaps many of the previous approaches have implicitly assumed that the agreement between the possessor and the pronoun is just anaphoric and thus not the result of Agree. But what many seem to agree on is that dative case is assigned by the possessive pronoun in D or in some other functional head like Poss/Infl, cf. Delsing (1998), Haegeman (2004), Weiß (2008), Heck and Müller (2007) (things are different in the Predicate Inversion approach by den Dikken, 1998 and in de Vries, 2006, cf. Section 6 below). In such a system there would thus only be Agree between D and N. While such a solution is not a priori impossible, it would not be in the spirit of the Agree system where case assignment is seen as a reflex of Agree (Chomsky, 2000): if there is no Agree between D and the possessor, it is unclear how dative is assigned to Poss. And even if case assignment without Agree were adopted, one would be confronted with the same indeterminacy problem noted in Section 3.1 above: It is unclear whether dative case assignment or Agree between D and N applies first and which is the first goal. As above one cannot rule out that dative goes to the NP while the possessor receives the case from an external probe via D.

There are additional, empirical arguments against assuming that possessive pronouns assign dative case. In some Swiss dialects the dative possessor can occur without a possessive pronoun: In some cases, it occurs with a definite article:

(30)   em   Peter de (lieb) Vatter
        DEF.DAT Peter DEF nice   father
        'Peter's nice father'   *Lucerne German* (Fischer, 1960:323 fn.1)

This construction is also attested in the dialects of Uri (Clauss, 1929:193) and Bern (Marti, 1985:101); according to Marjo van Koppen (p.c.), it is also found in some Dutch dialects. In the dialect spoken in Fribourg (and in parts of Bernese, cf. Hodler, 1969:393f.), the dative possessor occurs with a possessive clitic *-s* (*-sch* after *r*), similar to English "'s":

(31)   a.   dum   Tokter-sch Wägeli
               DEF.DAT doctor-POSS coach
               'the doctor's coach'

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[14] The PDC in German (but also in other languages) is subject to a person restriction: The possessor has to be 3rd person:

(i)   a   *mir   mein Haus
            me.DAT my   house
            'my house'

       b   *dir   dein Haus
            you.DAT your house
            'your house'

       c   dem   Hans/ihm   sein Haus
            DEF.DAT John.DAT/him.DAT his house
            'John's/his house'

The fact that *sein* goes back to a reflexive pronoun whereas all other possessive pronouns are historically derived from personal pronouns (Demske, 2001:139) allows us to give an explanation of these facts in terms of binding (cf. Weiß 2008:394f.). We argued that *sein* is a reflexive pronoun and thus subject to Principle A of the Binding Theory. Hence, it must be locally bound by the possessor. We propose that 1st and 2nd person possessive pronouns, going back to personal pronouns, are subject to Principle B and must not be locally bound. This condition is violated if they are c-commanded by a possessor and hence, the examples in (i-a) and (i-b) are ungrammatical.

Note that it is possible in some dialects to have a 1st or 2nd person possessor: Weiß (2008:393) provides examples from Berlin German where a 1st or 2nd person singular (possessive) pronoun can cooccur with a 3rd person possessive pronoun (a similar construction seems to be found in Western Norwegian dialects, cf. Delsing, 1998:106 fn.11):

(ii)   meiner/deiner + seiner
        mine/yours   + his
        'mine/yours'

Interestingly, the possessive pronoun does not match the person value of the local person possessor as in the Standard German PDC, but instead, the masculine 3rd person pronoun has to be used. This is expected under our analysis, given that *sein* is an anaphor which can be locally bound. A matching 1st or 2nd person possessive pronoun would be ruled out by Principle B.

Note finally that the 3rd person feminine pronoun *ihr* cannot cooccur with a pronominal possessor:

(iii)   *ihr   ihr Haus
         her.DAT her house
         'her house'

We suspect that this is a phonological haplology effect.

    b.   minum Miitli-s Maa
            my.DAT girl-POSS husband
            'my daughter's husband'

    c.   mina   Buebe-s Frowe
            my.PL.DAT boy.PL-POSS wives
            'my sons' wives'   (Henzen, 1927:179, 199)

Even though the marker *-s* is probably historically derived from the genitive, it cannot be analyzed as such synchronically since, as shown in (31-c), it also attaches to plural nouns (which never took *-s*).[15] Such examples thus clearly show that dative case is not linked to the possessive pronoun.

One can, of course, argue that case assignment is generally linked to the category D. In the default case, D would assign genitive (if N takes a nominal complement); if D is a possessive pronoun (or, in the varieties in (30) and (31), a definite article or *-s*), it would assign dative case. While consonant with the empirical facts, such a solution would still be confronted with the conceptual problems noted at the beginning of this section. Additionally, there may be independent reasons to link case in the German DP to N. As observed in Lindauer (1995) and Sternefeld (2006:213f), the DP-internal genitive has to be right-adjacent to N:

(32)   a.   die Vorbereitung der   Kinder   auf das Fest
              DEF preparation   DEF.GEN children.GEN on DEF party
              'the children's preparation for the party'

    b   *die Vorbereitung auf das Fest   der   Kinder
              DEF preparation   on DEF party DEF.GEN children.GEN

    c.   *die der   Kinder   Vorbereitung auf das Fest
              DEF DEF.GEN children.GEN preparation   on DEF party

The base-structure of such examples must be as in (33) because the genitive c-commands the PP as in (34):

(33)   [$_{NP}$ genitive [$_{N'}$ N PP]]

(34)   die Vorbereitung jedes   Kindes$_i$ auf sein$_i$ Geburtstagsfest
           DEF preparation   each.GEN child.GEN on his   birthday party
           '[each child's]$_i$ preparation for his$_i$ birthday party'

While the sequence in (32-b) is arguably independently ruled out by the hierarchy of thematic roles, the deviance of (32-c) is difficult to account for if genitive case is assigned by D: (32-c) is directly based on the underlying structure in (33) and the D head c-commands the genitive DP. If instead, genitive is assigned by N and has to be assigned to the right (for whatever reason), the pattern in (32) can be explained: (32-c) is ungrammatical because genitive is not assigned to the right. (32-a) is derived as follows: Since neither N nor N′ can assign genitive to the right in the underlying structure (33), a repair operation applies which moves N to a position from where it can assign genitive to the right (perhaps implemented as reprojection-style movement, cf. Surányi, 2005).

(35)   [$_{DP}$ D [$_{NP}$ N$_i$ [$_{NP}$ genitive [$_{N'}$ __$_i$ PP]]]]

This movement can only be motivated if case is assigned by N but not if it is assigned by D. In the latter case, there is no trigger for the movement.

We can thus conclude that DP-internal genitive, a structural case, is assigned by N. Since we have argued in Section 2.1 that the dative in the PDC is also structural and given that the dative takes over the function of the genitive in Colloquial German, we will consequently assume that it is assigned by N as well. This leads to a unification of structural case assignment within DP and as the following section will show, this assumption has advantages for the derivation of the PDC.[16]

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[15] For arguments against classifying Dutch prenominal possessors with an s-ending like *Jans huis* 'John's house' as genitives, cf. Weerman and De Wit (1999:20ff.). These arguments also apply to Standard German. The data in (31) probably represent a further stage in the development towards a determiner clitic as in the English Saxon Genitive because *-s* can attach to DPs that are internally inflected. In fact the construction in (31) seems to correspond to stage 2 in the development of the Swedish genitive from a word-based case-marker (stage 1) via a phrase marking genitive (stage 2) towards a clitic (stage 3), cf. Norde (2006).

[16] For reasons of space we will skirt the controversial issue of how to analyze prenominal s-possessors in German. See Sternefeld (2006:209ff.) for some discussion and also fn. 21 below.

5. A new analysis

5.1. The derivation

We will now provide a step-by-step derivation of the possessor doubling construction. The crucial components that set our approach apart from the previous ones is that dative case is assigned by N and that the relationship between the possessor and D is anaphoric.

5.1.1. Structure building

We assume that Merge is triggered by structure building/subcategorization features [●F●] (the notation is taken from Sternefeld (2006), Heck and Müller (2007)). We assume that all features of a head (including structure building features) project and are successively discharged under c-command. In the following example we have listed the structure building features of a noun taking a PP complement and a possessor DP.

(36)   N: {[●P●] ≻ [●D●]}

5.1.2. Agree N-possessor

Recall that according to the definition in (18) case assignment is a by-product of Agree (Chomsky, 2001). This means that if N assigns case to the possessor, N must be a probe which enters into Agree with the possessor.[17] In addition to (18) we have made the assumption that Agree is feature-sharing (Frampton and Gutman, 2006).

Possessor and N thus have the following features:

(37)   a.   N: { [ϕ: a] [case: ___] }, { [∗ϕ:___∗] [∗CASE: DAT∗] }
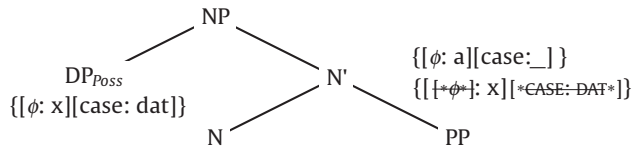   b.   DP$_{Poss}$: { [ϕ: x] [case: ___] }

These entries are to be read as follows: N has two feature bundles, a set of inherent features and a set of probe features. The inherent phi-features are valued (indicated by means of Roman letters) while the inherent case feature is not yet valued. Additionally, N has a phi-probe feature [∗ϕ: ___ ∗] and a case probe feature [∗CASE: DAT∗] which is checked when the phi-probe is valued.[18] The possessor has inherent (and thus valued) phi-features and an unvalued case-feature. Agree occurs once the possessor is merged with N or N'. N probes, finds the possessor, assigns dative case to it and is valued by the phi-features of the possessor. This happens either directly upon Merge in (38) or after the probe features of N have projected to N', cf. (39). The following tree structures illustrate the Agree operation:

(38)   *Agree N-Poss under sisterhood*:

Footnotes
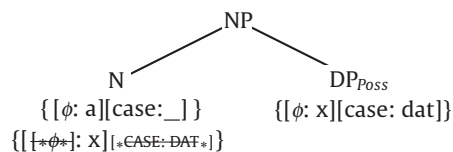
[17] As pointed out by an anonymous reviewer, it may seem unusual that a lexical category functions as a probe. There are, however, a number of proposals to this effect: (a) c-selection, which often involves lexical categories, is executed via feature checking in e.g. Svenonius (1994); (b) theta-role assignment is implemented as feature checking in Hornstein (1999); (c) if agreement within the DP is to be handled via Agree, modifiers like A will function as a probe, cf. e.g. Schoorlemmer (2009). In what follows, we could, of course, posit a functional head n above N that would function as a probe. This would not affect our analysis, but in the absence of independent evidence, we consider our solution more economical.

[18] One of the reviewers asks whether i) having more than one feature bundle on a single head occurs elsewhere in the grammar, ii) how the bundles are ordered and iii) how it can be prevented that the probe feature on N values [case:___] on N. As for the first issue, it should be noted that the situation would be the same if case were assigned by D. Similar constellations may obtain on v, which has both a probe feature [∗ϕ∗] and an inherent categorial feature *iv* which is targeted by T (in case there is Agree and/or v-to-T movement, cf. Roberts (2010)). Concerning the ordering of the features, no extrinsic order is necessary because their order of application simply follows from the derivation under the assumption that a feature is discharged as soon as possible: the probe feature is discharged first, once the possessor is merged; the unvalued case-feature of N is valued once an external probe is merged and agrees with D (which in turn agrees with N, see below). As for the last point, since the two feature bundles are located on the same head, and since Agree requires c-command in our approach, they cannot enter into an Agree relationship with each other.

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(39)   *Agree N'-Poss*:

NP
DP$_{Poss}$
{[ϕ: x][case: dat]}

N'   {[ϕ: a][case:_] }
     {[[*ϕ*]: x][*CASE: DAT*]}

N   PP

Importantly, the possessor becomes inactive as a consequence of this Agree operation because its case feature is valued, cf. (18).

5.1.3. Agree D-N

Next the possessive pronoun is merged with the NP. To ensure that the possessive pronoun only combines with an NP containing a dative possessor (and not with a genitive or PP possessor), we propose the following subcategorization restrictions on D:
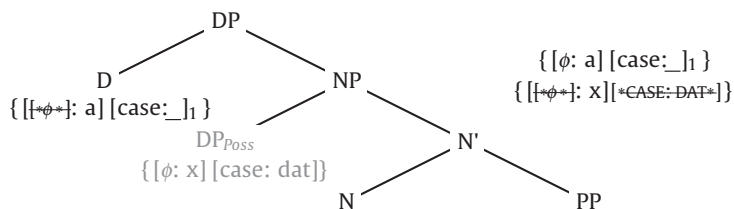
(40)   a.   D {[●N$_{[-CASE]}$●]}
         b.   D {[●N$_{[*GEN*]}$●]}
         c.   D$_{Poss,+anaph}${[●N$_{[*DAT*]}$●] ≻ [●EPP●]}

(40-a) represents the default case. It states that D selects an N which does not have any case assigning properties, hence does not take a DP-complement. This covers cases like *dieses Buch* 'this book' or *das Buch von Hans* 'the book of John'. (40-b) is the default case when N selects a DP-complement. In that case, genitive is assigned. This covers postnominal genitives like *das Buch des Mannes* 'the man's book'. (40-c) finally is the specific case that is relevant for the PDC. It states that a possessive pronoun, which is an anaphor, selects an N that always assigns dative.[19] Furthermore, D in (40-c) has an EPP-feature indicating that it requires its specifier to be filled, see Section 5.1.4 below (recall that the bullet notation indicates structure building features that trigger internal or external Merge).[20, 21]

Agree between the possessive pronoun and the possessee is next. The relevant lexical items look as follows:

(41)   a.   N: { [ϕ: a] [case: __] } { [ϕ: x] [*CASE: DAT*]] }
         b.   D: { [*ϕ: __*] [case: __] }

D is a probe and agrees with NP. Its phi-features are valued by those of N.[22] Both D and N still have an unvalued case feature. As a result of Agree D and N share an unvalued case feature, which we indicate by identical subscripts. The following tree structure illustrates the Agree operation:

(42)   *Agree D-N/N'*:

DP
D   NP   { [ϕ: a] [case:_]$_1$ }
{ [[*ϕ*]: a] [case:_]$_1$ }   { [[*ϕ*]: x][*CASE: DAT*]}

         DP$_{Poss}$
         { [ϕ: x] [case: dat]}   N'

              N   PP

---

[19] We assume that the feature [*CASE: GEN*]/[*CASE: DAT*] on N is still accessible to D for subcategorization purposes even though the probe feature has already been discharged by Agree between N and the possessor. This assumption is arguably generally necessary; it is, for instance, required in case a verb selects for a CP-complement with [+wh] on C, a feature that has already been checked in the subordinate clause.

[20] In case a possessive pronoun occurs without an overt possessor, we will assume that a silent pro is projected within NP (and later moved to Spec, DP), cf. Haider (1992), Authier (1992), Delsing (1998), Haegeman (2003, 2004), de Vries (2006), Sternefeld (2006). Alternatively, if such cases indicate that the pronoun is not an anaphor in that use (cf. the Bavarian facts in (29) above), it will not be subject to (40-c), which only holds for possessive pronouns that are anaphors; instead, possessive pronouns that are not anaphors simply subcategorize for an N that does not take a possessor.

[21] The postulation of an EPP feature is an implementation of the empirical observation that dative possessors are always prenominal and never postnominal:

(i)   *sein/das Buch dem Hans

        his/DEF   book DEF John

        'John's book'

If possessors with an 's (e.g. *Peters Buch*, 'Peter's book') as in (1-c) are also dative possessors as argued by Krause (1999), cf. footnote 26, one can explain why they are only marginally acceptable and archaic or even judged ungrammatical nowadays in postnominal position (e.g. ??*das Buch Peters*, 'Peter's book').

In the varieties of German where obligatorily prenominal dative possessors in the PDC can cooccur with D-elements other than the possessive pronoun as in (30) and (31) the subcategorization restriction (40-c) must be generalized to these elements as well.

[22] D is valued by the inherent features of N, not by those acquired through Agree (N, Poss). This is because only the former are associated with an unvalued case feature and thus remain active.

Note that the possessor (set in grey) is not a possible goal since it is no longer active. There are thus no indeterminacies concerning Agree.[23]

5.1.4. Continuation of the derivation

The rest of the derivation is straightforward. We assume that the possessive pronoun has an EPP-feature (more precisely a [•D•] feature to avoid attraction of NP), thus requiring its specifier to be filled, cf. (40-c). This will attract the possessor to Spec, DP (note that this is Agree-less EPP movement as e.g. in English Predicate Inversion and Locative Inversion, cf. den Dikken, 2006; for technical discussion cf. Richards, 2009):[24]

(43) *Possessor movement*:
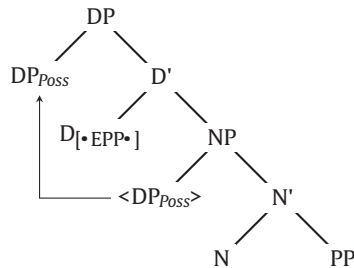
D (and, via feature sharing, N) still has an unvalued case-feature. This will be valued by an outside probe, e.g. v or T:[25]

(44) *Agree with an outside probe*:
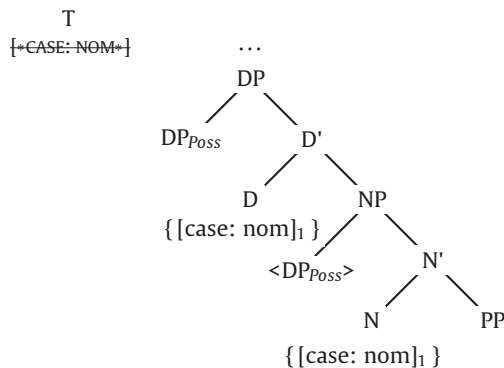
All features of and within the DP are now valued and the derivation has produced the correct result.

5.2. Advantages of the new analysis

Our analysis has the following advantages:

1. There are no indeterminacies concerning case assignment: Dative case can only go to the possessor, and since the possessor is deactivated very early in the derivation, N/NP is the only potential goal for D. D only enters into a single Agree relation so that no ordering of operations is necessary.
2. Since case assignment in the PDC is always linked to an Agree operation, it fully conforms to the Agree model of Chomsky (2000) et seq.; no special assumptions such as case assignment without Agree are necessary.

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[23] If there is a modifier of N in the structure, the derivation runs as follows: First, N and the modifier agree and then, D and the modifier agree. Both operations lead to feature sharing between the elements that are involved. Afterwards, the derivation continues exactly as described in the following section.

[24] Binding occurs after possessor movement. Note that since the possessor has become inactive through case assignment by N, we are committed to an analysis of binding that does not involve Agree (as is sometimes assumed, cf. Reuland, 2001; Chomsky, 2008; Rooryck and Van den Wyngaerd, 2011; Schäfer, to appear). Given the possibility of semantic agreement in (24), this seems to be a desirable result. Since the possessive pronoun does not receive a theta-role under our analysis, the binding relation we have proposed may be similar to that found with inherently reflexive verbs.

[25] Note that nothing in our approach hinges on feature sharing between D and N; the same results obtain if prespecified case values and a more traditional checking approach are adopted: One would have to assume that N has a prespecified inherent case value, e.g. nominative [CASE: NOM]; T has a probe feature [*CASE: NOM*] and all agreeing heads in between like D have a both a probe feature [*CASE: NOM*] and a prespecified inherent value [CASE: NOM]. The probe feature checks the case of N, the prespecified feature is checked by T. A checking approach thus requires duplication of features on D (and more generally on all DP-internal probes) and additionally has to stipulate that the two case values on these heads are the same. While feasible, we believe that our feature sharing approach is more economical and more directly captures concord within DP.

3. Case assignment within the (German) DP is uniform: Case is always assigned by N (dative and genitive; for postnominal genitives, this has been proposed before, cf. Lindauer, 1995; Sternefeld, 2006).[26, 27]

4. Variation between (German) dialects obtains through variation in the case N assigns (cf. (6)) and whether dative is available without possessive pronouns, cf. (30) and (31).

Before closing, we would like to add one further piece of evidence in favor of our approach: Since we posit an Agree relation between N and the possessor, the phi-features of the possessor will be copied onto N. This may seem surprising since in German, this Agree relation is marked solely by means of case on the dependent element, i.e. the possessor (an instance of dependent-marking). However, if our approach is on the right track, we expect the features of the possessor to be morphologically realized on N in some languages (an instance of head-marking). This is indeed borne out e.g. in Turkish and in the Uralic languages (cf. the possessive declension in Uralic Abondolo, 1988):

(45)   _Turkish_ (Kornfilt, 1997:185,230):

  a. ben-im kitab-ım

     I-GEN book-1SG

     'my book'

  b. (sen) [(biz-im) kitab-ımız] -ı oku-du-n mu?

     you we-GEN book-1PL.POS -ACC read-PST-2SG Q

     'Have you read our book?'

  b. (ben) [Hasan-ın kitab-ın] -ın oku-du-m

     I   Hasan-GEN book-3SG -ACC read-PST-1SG

     'I read Hasan's book.'

In Turkish, we find genitive case on the possessor and agreement in person and number with the possessor on N (thus actually an instance of double-marking). The derivation basically proceeds as in German: The possessor is merged as a complement of N. Agree between N and the possessor applies, resulting in case assignment to the possessor (genitive) and copying of the possessor's phi-features onto the noun; the copied phi-features are then realized by means of agreement suffixes on the possessed noun. Later on the possessor is moved to a higher functional projection, presumably Spec, DP: the following examples show that the possessor precedes demonstratives and adjectives (Lewis, 1967:43):

(46) a. mahkeme-nin bu karar-ı

     court-GEN   this decision-3SG.POSS

     'this decision of the court'

  b. Istanbul-un tarihî cami-ler-i

     Istanbul-GEN historic mosque-PL-3SG.POSS

     'the historic mosques of Istanbul'

---

[26] If, following Krause (1999) prenominal genitives like _Peter-s Buch_ 'Peter's book' are actually datives with a morphophonological variant of the possessive pronoun, the analysis proposed here can be extended to all prenominal DP-possessors in German. Similarly, if the English Saxon Genitive is derived from a possessor doubling structure (Weerman and De Wit, 1999:1173ff.), our analysis also covers Modern English.

[27] In the variant of the PDC in (i), there is no overt possessee and the possessive pronoun is replaced by a determiner which is followed by a possessive adjective.

(i) dem Hans die seine

  DEF.DAT John DEF his

  'John's'

The question is which element assigns dative to the possessor in such cases. Under our analysis, dative can still be assigned by the possessed noun if we assume that the noun is simply elided, which is supported by examples like those in (ii) from Bavarian (cf. Weiß 2008:386), in which determiner and possessive adjective are followed by an overt possessed noun:

(ii) am Schloßbauer-n a seinige Tochta

  DEF.DAT Schloßbauer-DAT INDEF his daughter

  'Schloßbauer's daughter'

Whereas we only have to assume that the noun is elided, proponents of the hypothesis that dative case in the PDC is assigned by a possessive element have to extend the class of dative assigning elements in the PDC to possessive adjectives to account for cases like those in (i) and (ii) because there is no possessive pronoun in the structure.

The following tree structure represents the derivation of example (46-a) (for reasons of simplicity we ignore possible Agree relations between D and N).[28]

(47)   *Derivation of a Turkish DP including a possessor*:
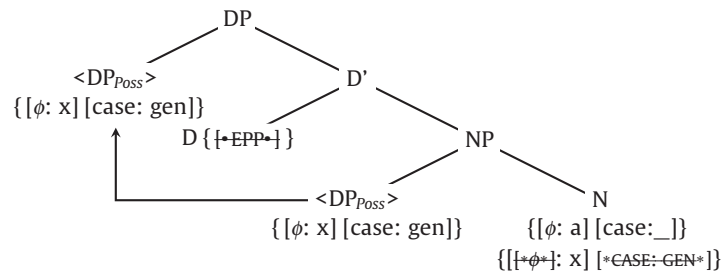
Our analysis thus unifies possessor agreement with the PDC.

6. A comparison with predicate inversion

In this section we will compare our approach with the Predicate Inversion account by den Dikken (1998, 2006). Since that approach has led to interesting results in other possessive constructions, it is instructive to see how it fares in the PDC. Note that since den Dikken's work is primarily concerned with different phenomena and does not explicitly address the PDC, certain assumptions (especially about agreement) remain underspecified. Therefore, it is not always fully clear what the predictions of this approach would be for the PDC. As a consequence, one often cannot conclusively show whether a given phenomenon constitutes a problem or not.

The basic idea of the Predicate Inversion approach is that possession in the noun phrase is linked to possession at the clausal level where possession is analyzed as a predication relation between the possessee (subject) and a PP (predicate) which contains the possessor and a silent preposition (compare French *le livre est à Jean* 'John has a book'). They start out in a small clause (XP is referred to as *Relator Phrase* in den Dikken, 2006): [$_{XP}$ possessee [$_{X'}$ X [$_{PP}$ P possessor]]]. Since the possessor, the predicate, ends up as the subject of the clause in a sentence like *John has a book*, it is assumed that there is Predicate Inversion whereby the possessor is A-moved across the possessee. More concretely, the PP raises into the specifier of the functional head F (called *Linker* in den Dikken, 2006) above the small clause. To ensure equidistance between the possessee and the PP to Spec,FP, the head of the small clause (together with the incorporated abstract preposition) is incorporated into F. The F+X+P-complex, which is taken to be a copula, is then spelled out as *have*:

(48)   *Predicate Inversion* (den Dikken, 1998:195):
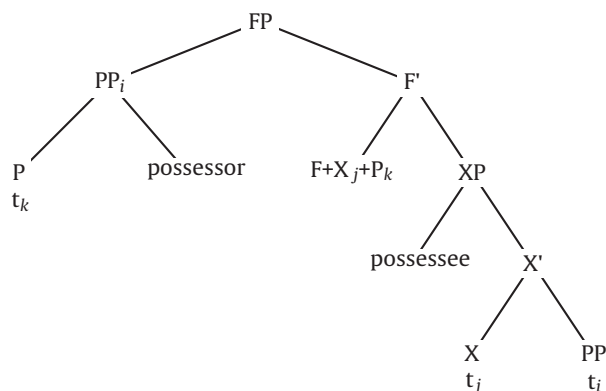
Basically the same happens in the noun phrase, the major difference being the realization of the complex head. In the English Saxon Genitive, for instance, it is realized as *'s* as in *John's book*. The same would hold for the PDC, the only difference being that the preposition assigns dative to the possessor and the complex head is realized as a possessive pronoun:[29]

(49)   a.   dem   Hans   sein Buch

---

[28] Possessor agreement in Hungarian (e.g. Szabolsci, 1994; den Dikken, 1999; Kiss, 2002) also suggests that there is Agree between N and the possessor. However, the Hungarian possessor construction involves additional complexities (anti-agreement, different cases, differences between pronominal and lexical possessors) a full discussion of which would be beyond the scope of this paper.

[29] Alternatively, if *sein* is generated in D, the copula would be realized as zero; the article remains silent about this.

DEF.DAT John.DAT his   book

'John's book'

b. $[_{DP}$ Spec $[_{D'}$ D $[_{FP}$ $[t_k$ dem Hans$]_i$ $[_{F'}$ F+X$_j$+P$_k$ (= *sein*) $[_{XP}$ possessee $[_{X'}$ t$_j$ t$_i$]]]]]]]

An advantage which this approach shares with ours is that there is no indeterminacy concerning case assignment: Since case is assigned to the possessor by the preposition early in the derivation, the possessor will not interfere with possible later Agree operations. Furthermore, the approach is compatible with the constituency facts discussed in Section 2.3. There are a number of areas, though, where we believe that our account is simpler and more precise and confronted with fewer difficulties:

We will begin with agreement. The features of the possessee have to be visible on the DP (recall (5)). This requires Agree between D and N. This is presumably possible in structure (49-b) since the possessor is no longer active and therefore cannot intervene. However, there are intervening projections (XP and FP), and since it is not specified what features they have, it cannot be determined whether they might intervene or not.[30] What additionally has to be posited is movement of the copula to D to account for the complementary distribution with determiners (see (11)). Furthermore, the possessor has to move on to Spec,DP to obtain the correct surface order. In our approach there are no intervening projections/phase heads so that Agree between D and N is unproblematic. Since the possessive pronoun is of category D (see Section 2.2), the complementary distribution in (11) trivially follows without any movement operations.

The agreement between the possessor and D cannot result from Agree because the possessor is already inactive after the first step of the derivation. Given our arguments in Section 3.3, this is not necessarily problematic. The alternative option left is that agreement results from binding (as in our approach). However, since the possessor is embedded within a PP, this does not seem to be possible. In den Dikken (1998:210 fn.23) it is suggested that the possessor is actually base-generated in Spec, DP and binds a silent *pro* which has undergone Predicate Inversion and lands in Spec,FP:

(50) $[_{DP}$ $[_{PP}$ P dem Hans] $[_{D'}$ D $[_{FP}$ $[pro]_i$ $[_{F'}$ F+X$_j$ (= *sein*) $[_{XP}$ possessee $[_{X'}$ t$_j$ t$_i$]]]]]]]

If this *pro*-possessor is inside a PP, it will not be able to bind the possessive pronoun (i.e. the F+X-complex) due to lack of c-command. If it is just a DP as in (50), binding of the possessive pronoun will be possible, but since the base-generated possessor is contained in a PP it will not be able to bind the *pro* in Spec,FP. Furthermore, if the silent *pro* is a DP, it is unclear whether such a derivation would still be compatible with Predicate Inversion since as far as we understand the preposition is crucial for the predication relation. In our approach the possessor is a DP such that binding is possible under c-command.

Another point of concern are the various realizations of the copula. In the PDC, it is realized as a possessive pronoun, with postnominal PP-possessors it is realized as *von* as in *das Buch von Hans* 'the book of John', with postnominal genitive possessors *das Buch des Mannes* 'the man's book' it is realized as zero. den Dikken (1998) relates the various forms of the copula to the categorial properties of the element in the specifier of the head containing the copula. In the PDC, the PP possessor would determine the realization of the copula as a possessive pronoun. Things are less clear with postnominal possessors because they arguably have the same structure but the realization of the copula can still differ. In that case it seems inevitable to posit two different silent Ps that are responsible for the variable realizations of the copula: one that assigns dative and is realized as *von*, one that assigns genitive and is realized as zero. Additionally, for examples like (30) one has to assume that the complex head is sometimes realized as a definite article. This strikes us as undesirable. Related to this is the question which heads realize which parts of the possessive pronoun. It is bi-morphemic, but there are four heads involved (P, X, F, D). In our approach the various constructions result from the selectional properties of N ([•D•] vs. [•P•]) and D (see (40)). While it is undisputed that lexical categories can have several selectional properties (e.g. some Vs can select either a DP or a CP), postulating complex silent elements that lead to different surface realizations without any visible relationship between the heads involved and the surface form seems to us to be very powerful and raises concerns about overgeneration.

A number of issues arise with respect to the derivation: There are no clear triggers for the head-incorporations and movement of the possessor to Spec,FP. It is stated that head incorporation takes place to make Predicate Inversion possible, a case of look-ahead. Furthermore, it is left open why these operations are obligatory within the DP while they are optional at the clausal level. Given the possibility of non-inverted predications at the TP-level, one would expect the possessee to be able to move to Spec,FP as well, contrary to fact. In our approach there are explicit triggers for all operations (probe features for Agree, structure building features for internal/external Merge), there is no look-ahead in the derivation, and fewer operations are needed.

Finally, the treatment of postnominal possessors like *the picture of John* requires an even more complex derivation involving A′-remnant movement of the small clause containing the possessee to Spec,DP (den Dikken, 1998:199; note that what is labeled DP here cannot be a DP because there has to be a DP above since the definite article precedes the possessee):

(51) $[_{DP}$ $[_{XP}$ possessee $[_{X'}$ t$_j$ t$_i$]]$]_{XP}$ $[_{D'}$ D+[F+X$_j$+P$_k$ (= *von*)$]_z$ $[_{FP}$ $[t_k$ dem Hans$]_i$ $[_{F'}$ t$_z$ t$_{XP}$]]]]]

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[30] This issue is particularly delicate given the discussion on *Phase Extension* in den Dikken (2007a,b). In this analysis XP is a phase and movement of X to F extends the phase to FP. Unless F+X+P is moved to D, D cannot agree with the possessee since it will be trapped inside the FP-phase.

Since the possessee is part of the A′-moved small clause, this wrongly predicts extraction from the possessee to be blocked (cf. Schmellentin, 2006 for PP-extraction from DP):

(52)　　　　[Über die Liebe]$_i$ hat er　ein Buch t$_i$ von Goethe　gelesen.

　　　　　　about the love　　has he a　　book　　by　Goethe　read

　　　　　　'He read a book about love by Goethe.'

In our approach, the structure of pre- and postnominal possessors is essentially the same, the differences resulting from c-selectional properties of N and its case assignment properties, which has implications for the choice of D (and thus the presence/absence of an EPP), cf. (40).

We would like to emphasize that we do not want to claim that the Predicate Inversion approach cannot solve these difficulties. Nor is it our intention to dispute the virtues of the Predicate Inversion approach, which has led to important insights at the clausal level and also at the DP-level where it provides interesting solutions to issues we do not discuss here. But we do think that our approach is more explicit and simpler for the phenomenon at hand (fewer functional projections, no untriggered movements, no look-ahead problems, a unified account of pre- and postnominal possessors) and therefore represents a viable alternative.[31]

7. Conclusion

We started out with the observation that the possessive pronoun in the PDC in German agrees with both the possessor and the possessee. We have argued that double agreement in the possessor doubling construction does not result from two Agree operations: The agreement in phi-features between D and the possessor can be shown to result from an anaphoric relation (binding) rather than from an Agree operation. Together with the assumption that dative case is assigned by N, our analysis avoids the indeterminacy problem with respect to case assignment that obtains under the double Agree approach. In the resulting system case assignment is always linked to Agree so that it fully conforms to the Agree model. Furthermore, case assignment within the German DP is now uniform: it is always assigned by N. Finally, as a consequence of this, the PDC can be unified with possessor agreement in languages like Turkish.

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[31] De Vries' (2006) approach shares certain similarities with den Dikken's approach: The possessor is introduced as a complement of N, governed by a silent preposition. The preposition assigns case to the possessor and is subsequently incorporated into D, the P+D-complex is spelt out as a possessive pronoun. Finally, the possessor PP is moved to SpecDP, triggered by a strong topic feature on D:

(i)　[$_{DP1}$ [$_{PP}$ t$_P$ DP$_{Poss}$] P+D [$_{NP1}$ N t$_{PP}$]]

The agreement between the possessor and the possessive pronoun is analyzed as anaphoric (between topic and resuming pronoun). This approach also avoids the indeterminacy with respect to case assignment. Additionally, since it involves fewer projections, the agreement facts can be derived straightforwardly.

Apart from the fact that the possessor cannot be analyzed as a topic (recall example 25), the major weakness of that approach in our view is the derivation of the possessive pronoun: it requires the postulation of both a silent preposition, a (silent?) D with unclear properties and an untriggered incorporation operation (according to de Vries, the silent preposition does not always incorporate, it does not, for instance, with postnominal genitives). Furthermore, it is far from obvious why the combination of P + D should result in a possessive pronoun. Even if the preposition is taken to be a silent counterpart of *von* (a state of affairs that is independently unsatisfactory) so that it is related to possession, it is unclear why the result will be a possessive pronoun or, more precisely, the stem of the possessive pronoun. Furthermore, it is unclear how the various stems come about if it is always the same preposition that is incorporated. This implies, of course, that it remains unclear how the anaphoric agreement between possessor and possessive pronoun can be established.

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