There are several options to express possessive relations in German, one of them is the construction using a possessor introduced by the preposition von (‘of’). In non-standard German, these possessive PPs may occur before or after the possessee. However, this is not the case with possessees in dative case or after prepositions. In this case, the possessee obligatorily precedes its possessive PPs. In this paper, we will show that a feature-driven movement approach can derive the restrictions imposed on this construction by assuming a [\*P*] on D. This feature can be checked either by merging a higher P or by moving a lower PP. The general constraint Merge-over-Move prefers the former whenever possible. Thus, the construction becomes sensitive to PPs as well as dative DPs, which both block movement to SpecDP.

### Keywords: German; possession; movement; syntax; constraint

#### 1 Introduction

German allows the inversion of possessive PPs, as seen in (1a). It has previously been observed by Gallmann & Lindauer (1994) that this inversion is banned inside the complement of PPs (see (1b)). We collected reliable data that show that this inversion is ungrammatical in dative contexts, too (see (2)). These restrictions contrast prepositional possessors with other kinds of possessors in German which can be inversed in these contexts (see (1c) or (2c)).

(1) a. Von Conny der Hund heißt Motte. of Conny the.NOM dog is.named Motte ‘Conny’s dog is called Motte.’
   b. *Ohne von Conny den Hund ist es langweilig. without of Conny the.ACC dog is it boring intended: ‘It is boring without Conny’s dog.’
   c. Ohne Conny-s Hund ist es langweilig. without Conny-GEN dog is it boring ‘It is boring without Conny’s dog.’

(2) a. *Von Conny dem Hund gefällt das nicht. of Conny the.DAT dog is.pleased that not intended: ‘Conny’s dog is not pleased about that.’
   b. Dem Hund von Conny gefällt das nicht. the.DAT dog of Conny is.pleased that not ‘Conny’s dog is not pleased about that.’
   c. Conny-GEN Hund gefällt das nicht. Conny-GEN dog.DAT is.pleased that not ‘Conny’s dog is not pleased about that.’
In the following paper, we will show that this restriction follows directly in an analysis based on feature-driven Merge in a Minimalist framework. As the wide-spread constraint Merge-before-Move (Castillo et al. 1999; Frampton & Gutmann 1999; Chomsky 2000; Müller & Sternefeld; Hornstein 2001; 2009; Boeckx et al. 2010; Drummond 2011; Weisser 2015) enforces the higher P head to check the structure-building [+P+] feature, movement of the possessive PP is blocked. This paper is structured as follows. The relevant data is presented in Section 2. In Section 3, we propose a new analysis. Before concluding in Section 5, we discuss further issues of our proposal in Section 4.

2 Prepositional possession in German

In German, there are four different constructions that encode possession (Georgi & Salzmann 2011): The possessor may appear in genitive case, as in (3a). Furthermore, there is the prenominal genitive construction in (3b) and the double possessive construction in (3c). In this paper, however, we will focus on the construction in (3d) including a possessor preceded by the preposition von (‘of').

(3) a. das Auto meines Vater-s the car my.GEN father-GEN
   ‘the car of my father'

   b. Peter-s Auto
      Peter-GEN car
      ‘Peter's car'

   c. mein-em Vater sein Auto
      my-DAT father his car
      ‘my father's car'

   d. das Auto von meinem Vater
      the car of my father
      ‘the car of my father'

In non-standard German, the construction allows possessee and possessive PP to swap their positions, as seen in (4). The order of possessee and von-possessor in (4a) is the standard word order, which is widely accepted among German native speakers. In (4b), however, the constituents appear in reverse order.

(4) a. Die Frau von Max hat einen Film gesehen.
      the.NOM wife of Max has a movie seen

   b. Von Max die Frau hat einen Film gesehen.
      of Max the.NOM wife has a movie seen
      ‘Max' wife has seen a movie.’

Gallmann & Lindauer (1994) observed that the inversion cannot take place if the DP is inside a PP, as seen in (5b).¹

¹ Note that the ungrammaticality in (5b) does not simply arise from a general ban against preposition clusters. As pointed out by an anonymous reviewer, prepositions may indeed follow other prepositions if both prepositions are base-merged, as seen in (i). This supports our claim that the ungrammaticality arises due to the interaction of Merge and Move.

(i) Messi traf von hinter dem Tor.
    Messi scored from behind the goal
    lit. ‘Messi scored from behind the goal.’
without the.ACC wife of Max am I to cinema gone

b. *Ohne von Max die Frau bin ich ins Kino gegangen.  
without of Max the.ACC wife am I to cinema gone

intended: 'I went to the cinema without Max' wife.'

A small-scale grammaticality judgment task in which we asked 49 native speakers of German to rate sentences from 1 (perfectly grammatical) to 6 (ungrammatical) showed that the inverse order is ungrammatical in dative contexts, too. While the construction allows the possesse to bear accusative case (see (6a)), dative possessees lead to ungrammaticality, as seen in (6b)–(6d). Note that this restriction is independent of the position of the constituent (prefield in (6c) vs. midfield in (6d)) or the status of the dative (lexical dative in (6b) vs. structural dative in (6c)).

(6) a.  Ich habe von Maria den Freund im Kino getroffen.  
I have of Mary the.ACC friend in cinema met

‘I met Mary's boyfriend in cinema.’

of Hans the.DAT wife have I helped

intended: 'I helped Hans' wife.'

of Hans the.DAT wife have I my car lent

intended: 'I have lent my car to Hans' wife.'

d. *Ich habe von Hans der Frau mein Auto geliehen.  
I have of Hans the.DAT wife my car lent

intended: 'I have lent my car to Hans' wife.'

An anonymous reviewer pointed out that the grammaticality of (6b) increases when Hans is heavily stressed. Assuming that stress correlates with focus, we follow Fanselow (2002); Frey (2006) and Frey (2010) that the stressed PP has been moved to a designated focus position. Thus, the example in (7a) is structurally different from the example in (6b) as the possessive PP in (7a) has been scrambled out of the DP giving rise to the grammaticality of split DPs in (7b). In contrast, the possessor in (6b) in SpecDP remains in the DP.

Note that inversion is also ungrammatical in genitive contexts, as shown in (ii). However, we specifically decided not to focus on genitive constructions in this paper since the empirical basis of this construction is somewhat unclear as genitive case is part of a high register in German while our construction is restricted to non-standard German.

(ii) *Wir wollen heute von meiner Frau des Bruders gedenken.  
we want today of my wife the.GEN brother remember

intended: 'Today we want to remember the brother of my wife.'

As a reviewer points out, in some cases the quantifier all(e) can intervene between the preposed PP and the rest of the DP. Intriguingly, no material can intervene between the quantifier and the determiner head. This is expected, if the quantifier forms a complex head with the determiner, cf. Pafel (1994).

(iii) [von Peter [ [, all die] Freunde]]  
of Peter all the friends

‘all of Peter’s friends’

This assumption might seem controversial due to the fact that German is considered to be a V2 language. However, Müller (2005); Winkler (2014) and Wiese & Müller (2018) show that the German prefield may be filled by two constituents under certain conditions. The question whether these conditions are met in the case of (7) is beyond the main scope and focus of this paper which is why we would like to leave this question open for further research.
(7)  a. Von HANS der Frau habe ich geholfen.  
   of Hans the wife have I helped  
   I helped Hans' wife.'

b. Von HANS habe ich der Frau geholfen.  
   of Hans have I the wife helped  
   'I helped Hans' wife.'

Moreover, the following examples show that other possessive constructions are not subject to these blocking effects and may be used with datives (see (8)) and after prepositions ((9)).

(8)  a. Dem Auto meine-s Vater-s fehlt ein Reifen.  
    the.DAT car my-GEN father-GEN lacks a tire  
    'Peter's car lacks a tire.'

b. Peter-s Auto fehlt ein Reifen.  
   Peter-GEN car lacks a tire  
   'Peter's car lacks a tire.'

c. Meine-m Vater seine-m Auto fehlt ein Reifen.  
   my-DAT father his-DAT car lacks a tire  
   'I went to Berlin with Peter's car.'

(9)  a. Mit dem Auto meine-s Vater-s bin ich nach Berlin gefahren.  
    with the.DAT car my-GEN father-GEN am I to Berlin gone  
    'I went to Berlin with Peter's car.'

b. Mit Peter-s Auto bin ich nach Berlin gefahren.  
   with Peter-GEN car am I to Berlin gone  
   'I went to Berlin with Peter's car.'

c. Mit meine-m Vater seine-m Auto bin ich nach Berlin gefahren.  
   with my-DAT father his-DAT car am I to Berlin gone  
   'I went to Berlin with Peter's car.'

From the data we have seen in this section, we can draw the generalization that the inversion of prepositional modifiers is ungrammatical PP-internally, as previously observed by Gallmann & Lindauer (1994), as well as in dative contexts. As already pointed out by Gallmann & Lindauer (1994), these restrictions are not captured by previous analyses of this phenomenon, such as Bhatt (1990) or Fortmann (1996). Even though they suggest movement analyses within a Government and Binding framework, they fail to derive the blocking effect in the complement of PPs since the trigger for movement within G&B does not arise from features but from the relation of a moved XP and its trace. Hence, the goal of this paper is to present an analysis of German PP-inversion that can account for the restrictions that this construction is imposed on. In the following section, we will show that our proposal analyzes the ban on PP-internal PP-movement as an instance of a more general constraint on movement, the Internal Inversion Constraint, which arises from the constraint known as Merge-before-Move.

3 Proposal

For the following analysis, we will adopt a Minimalist framework with feature-driven Merge, i.e. Merge and Move (or: base-Merge and re-Merge) can only take place if they are triggered by a structure-building feature [\( \bullet \)] (Heck & Müller 2003; 2007). This assumption is based on the last resort condition given in (10).

(10)  **Last Resort** (Abels 2003)  
A constituent \( \alpha \) may only be merged, i.e. base-merge or re-merged, if that leads to the immediate satisfaction of a previously unsatisfiable feature.
Another assumption made here, is that the inversion is triggered by an **optional** feature \([\bullet P \bullet]\) which is the lowest feature in an ordered feature bundle as proposed by Georgi & Müller (2010). In this analysis, this feature bundle is on D, such that D has the featural specification \([\bullet N \bullet \succ \bullet P \bullet]\).\(^5\) The feature introduces a prepositional modifier and triggers movement of a PP to SpecDP. If the DP is not embedded in a PP, the derivation thus proceeds as follows. In the first step, D satisfies its \([\bullet N \bullet]\) feature by merging with the NP. At this point of the derivation (see (6-a)), the remaining \([\bullet P \bullet]\) feature on D has not been satisfied. This can now be achieved **only** by moving the possessive PP to SpecDP, as seen in (11).

(11) Inversion of possessive PPs

\[
\begin{align*}
\text{a.} & \quad \text{DP} \\
& \quad \text{D} \quad \text{NP} \quad \text{PP}_{\text{poss}} \\
& \quad \text{[\bullet N \bullet]} \\
& \quad \text{[\bullet P \bullet]} \\
\text{b.} & \quad \text{DP} \\
& \quad \text{D} \quad \text{NP} \quad \text{PP}_{\text{poss}} \\
& \quad \text{[\bullet P \bullet]} \\
& \quad \text{N} \quad t_{\text{poss}}
\end{align*}
\]

In the next step, we will see that this inversion cannot take place in the complement of PPs. Let us assume that we are at the point of the derivation where a complex NP has been merged with D. The next feature to be satisfied is the \([\bullet P \bullet]\) feature on D. If the next head in the numeration is also a P head, \([\bullet P \bullet]\) on D can be satisfied **either** by moving the possessive PP to SpecDP **or** by merging the next head in the numeration.\(^6\) Due to the constraint **Merge-before-Move** in (12) (Castillo et al. 1999; Frampton & Gutmann 1999; Chomsky 2000; Müller & Sternefeld 2001; Hornstein 2001; 2009; Boeckx et al. 2010; Drummond 2011; Weisser 2015), the next head of the numeration is merged which blocks the movement of the possessive PP to SpecDP as the movement trigger has already been checked.\(^7\)

(12) **Merge before Move**

Suppose that the derivation has reached stage \(\Sigma_n\), and \(\Sigma_{n+1}'\) is a legitimate instance of Merge, and \(\Sigma_{n+1}'\) is a legitimate instance of Move. Then, \(\Sigma_{n+1}'\) is to be preferred over \(\Sigma_{n+1}\).

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\(^5\) As an anonymous reviewer points out, optionality of PP fronting requires optionality of the \([\bullet P \bullet]\) on D. This can be achieved by including two versions of each D head in the lexicon. This would predict languages, where some determiners only occur with either a dominating preposition or an inverted PP in their complement. We are not sure if such a language is attested and to the best of our knowledge, this has not yet been thoroughly investigated. Nevertheless, nothing hinges on this choice in our account.

\(^6\) This assumption requires that D has access to the head in the numeration. This is not possible under the assumption that the DPs are phases and numerations are phase-based. As pointed out by an anonymous reviewer, giving up the phasehood of the DP is not an innocent assumption, even though it has been proposed earlier by Matushansky (2005). Rather, we would like to question the assumption of phase-sized subnumerations as its original motivation by Chomsky (1995) has already been disputed by Abels (2012), among others.

\(^7\) An anonymous reviewer pointed out that the derivation in (11) results in a DP while the derivation in (13) results in a PP. However, the resulting phrases never compete for the same position in the clause since the differences result from different syntactic numerations, i.e. the derivation in (13) results in a PP because the next head in the numeration is P while the next head in (11) can be any other head apart from P. Thus, different numerations lead to different syntactic derivations making our analysis in fact trans-derivational.
The constraint on movement that is responsible for the PP-internal blocking effect is summarized in (14) as the \textit{Internal Inversion Constraint}. This constraint does not need to be stipulated, since it follows from the more general Merge-over-Move constraint.

\begin{enumerate}
  \item Movement of an XP into SpecYP is banned if
  \begin{enumerate}
    \item this YP is selected by another X head and
    \item X and XP are of the same category.
  \end{enumerate}
\end{enumerate}

Meinunger (2000); Bayer et al. (2001); McFadden (2004); Rezac (2008), among others, have previously shown that datives and PPs form a natural class which has lead to the assumption that datives are actually PPs with a silent P head. Bayer et al. (2001), for instance, argue that all datives in German are actually embedded in a larger KasP which may be headed by a silent element or an overt P. One of their arguments comes from topic drop, where neither datives nor PPs can be dropped while nominatives and accusatives can, as seen in (15).

\begin{enumerate}
  \item *[] denke ich die ganze Zeit.  
    \begin{tabular}{l}
      think I the whole time  
      intended: ‘I am thinking about [] the whole time’ 
    \end{tabular}  
    \begin{tabular}{l}
      [] = \(_{PP}\text{an}\) 
    \end{tabular}
  
  \item *[] würde ich nicht vertrauen.  
    \begin{tabular}{l}
      would I not trust  
      intended: ‘I wouldn’t trust [].’ 
    \end{tabular}  
    \begin{tabular}{l}
      [] = DAT 
    \end{tabular}
  
  \item [] hab ich gestern im Park getroffen.  
    \begin{tabular}{l}
      have I yesterday in park met  
      ‘I met [] yesterday in the park.’ 
    \end{tabular}  
    \begin{tabular}{l}
      [] = ACC 
    \end{tabular}
\end{enumerate}

We have seen that our approach makes reference to categorial features, in contrast to previous analyses by Bhatt (1990); Fortmann (1996) and Georgi & Müller (2010). Hence, our analysis automatically covers the fact that prepositional modifiers show case restrictions (see the data (16), repeated from Section 2) under the assumption that datives are actually PPs. This being the case, it is \textbf{logical consequence} that both datives and PPs are subject to the \textit{Internal Inversion Constraint}.

\begin{enumerate}
  \item Von Maria den Bruder habe ich in der Stadt gesehen.  
    \begin{tabular}{l}
      of Mary the.ACC brother have I in the town seen  
      ‘I saw my Mary’s brother in town.’ 
    \end{tabular}
\end{enumerate}
   of Hans the.DAT wife have I helped
   intended: 'I helped Hans' wife.'

   of Hans the.DAT wife have I my car lent
   intended: 'I have lent my car to Hans' wife.'

Moreover, the fact that the **Internal Inversion Constraint** is sensitive to categorial features predicts that the blocking effect should arise not only with possessives PPs but with other prepositional modifiers, as well. As seen in (17), this prediction is borne out.

(17) a. Mit dem Hund die Frau sitzt im Gefängnis.
   with the dog the.NOM woman sits in jail
   ‘The woman with the dog is in jail.’

b. *Mit dem Hund der Frau ist der Ausbruch gelungen.
   with the dog the.DAT woman is the escape succeeded
   intended: 'The woman with the dog succeeded in escaping.'

In this section, we have seen that the restrictions of prenominal possessive PPs follow automatically from a \([*P • ]\) feature on D and the constraint **Merge-before-Move**. Moreover, it can easily be explained why only prepositional modifiers are subject to this restriction. The competition between the embedded PP and the next head in the numeration only arises as they are of the same lexical category. Since other kinds of possessors are non-prepositional, no blocking effect is expected.

4 Outlook

In this section, we will discuss some open questions and challenges for our account, before providing two putative examples from Archi nominalizations and Swiss German embedded V1 clauses. These could be seen as more general consequences of the proposed Internal Inversion Constraint.

At this point, we want to discuss a rather unconventional issue of the otherwise simple account that we put forward in this paper. As the D head bears a \([*P • ]\) feature and the next higher P head bears a \([*D • ]\) feature, our approach presupposes reciprocal subcategorization. This automatically leads to the question which of the two heads projects. Chomsky (2013) proposes a Labeling algorithm (see (18)) that allows a head to project if it merges with a phrase. In his view, a head is not defined as a constituent that subcategorizes but negatively as a syntactic object that is **not** the result of Merge. In our analysis, it thus follows that P would still be the projecting head which clearly solves the problem of reciprocal subcategorization.\(^8\)

(18) **Labeling algorithm (LA)** (Chomsky 2013)

a. Suppose a syntactic object \(SO = \{H, XP\}\), H is a head and XP is not a head.
   Then LA will select H as a label.

b. A head is a syntactic object that is not of the form \(\{X, Y\}\) and thus not constructed by Merge.

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\(^8\) Reciprocal subcategorization is not unheard of in Germanic linguistics. Sternefeld (2006) discusses auxiliary selection as a potential example of reciprocal subcategorization. The auxiliary selects for the morphological form of the verb, namely the participle, while the verb has idiosyncratic lexical information about the auxiliary that is selected.
In section 3, we proposed the Internal Inversion Constraint that follows directly from the basic assumptions of feature-driven syntax and Merge-before-Move. If the Internal Inversion Constraint holds for all categories, we should expect similar blocking phenomena in other languages. Even though the distribution of similar blocking effects exceeds the scope of this article, we want to mention two possible instances of the Internal Inversion Constraint in other languages.

As Lötscher (1997) and Dürscheid & Hefti (2006) point out, one remarkable property of Swiss German syntax are embedded V1-clauses usually being headed by predicative adjectives or nouns (see (19)). The frequency of V1-clauses headed by verbs remains unclear in the literature, however, Lötscher (1997) mentions that the acceptability of V1-clauses strongly increases if they are headed by adjectives. This can be explained by means of the Internal Inversion Constraint such that V-to-C movement is blocked in clauses that are embedded under verbs but not under adjectives and nouns.

(19) Lötscher (1997)
S’isch schaad, isch es scho Friitig.
it.is unfortunate is it already Friday
lit: ‘It is unfortunate that it is already Friday.’

Another possible instance of the Internal Inversion Constraint is found in Archi (Nakh-Dagestanian, Russia). In this language, scrambling is allowed in main clauses, but not in nominalized clauses (Bond et al. 2016). They note that in nominalized clauses “[t]he genitive possessor […] can appear only in the very beginning or the very end of the clause, but not between the absolutive and the verb (whereas the ergative can take this position).” (Bond et al. 2016, 66). This blocking effect can be explained in terms of the Internal Inversion Constraint under the assumption that nominalized clauses are headed by a silent D head which blocks movement of a DP to a higher position.

5 Conclusion
In this paper, we have clarified and extended the empirical base of prepositional possessors in German. We have proposed an analysis of the inversion of prepositional modifiers in German. We have shown that the restriction against PP-internal PP-inversion follows from two basic assumptions of feature-driven syntax, namely the Last Resort condition and Merge-before-Move. If a head in the numeration and a lower phrase in the structure compete to check a structure-building feature, Merge will always be preferred, which leads to a blocking effect. This effect can be generalized as the Internal Inversion Constraint which makes clear and falsifiable predictions for other domains in syntax.

Abbreviations
ACC = accusative, GEN = genitive, NOM = nominative, DAT = dative

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9 As pointed out by an anonymous reviewer, this blocking effect may also result from the observation that nominalized clauses are smaller than independent clauses and may therefore lack landing sites that are crucial for scrambling (see Lefebvre & Muysken 1988 for examples from Quechua).
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**Competing Interests**
The authors have no competing interests to declare.

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