

Topicalization vs. Left Dislocation of Sentential Arguments in German

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1 Overview

This paper defends the thesis that in German all sentential arguments occurring in sentence-initial position have undergone obligatory left dislocation. This implies that the Vorfeld is unable to be occupied by sentential arguments. The resumptive pronoun that immediately follows the left-dislocated phrase may be deleted in accordance with the conditions on Topic Drop that hold for German (cf. Oppenrieder 1991). The analysis, which is formulated in the framework of Lexical-Functional Grammar, accounts for the absence of sentential arguments in the Vorfeld as well as several related phenomena.

2 Basic Facts

Clauses in German can instantiate various types of arguments: not only subject and accusative case-marked object, but also genitive case-marked and prepositional object.¹ These sentential arguments (SA) can occur both sentence-finally (the preferred position) and sentence-initially. Their occurrence in medial positions within the sentence (the Mittelfeld, see section 3) is, if possible at all, extremely marked (see section 7.1).

When a SA is extraposed, it is always possible for a correlative pronoun to precede it within the sentence; but the pronoun is in general not obligatory.² In example (1) the SA stands for the subject, in (2) for an accusative object, in (3) for a genitive object, and in (4) for a prepositional object.

(1) Ihn hat (es) gewundert, daß die Erde rund ist
Him has it (NOM) surprised that the earth round is
'It surprised him that the earth is round'

(2) Er hat (es) nicht gewußt, daß die Erde rund ist
He has it (ACC) not known that the earth round is
'He didn't know that the earth is round'

¹Sentential arguments in the function of dative object are extremely rare, for reasons that remain to be elucidated.

²With verbs that are subcategorized for a prepositional object, the correlative pronoun (actually, a prepositional proform) is often required; e.g.

(i) Er bestand *(darauf), daß sie weiterarbeiteten
He insisted on-it that they further-worked
'He insisted that they keep working'

However, this is a lexical property of certain verbs, not a general constraint on the realization of SAs in the function of prepositional object.

- (3) Sie war sich (dessen) bewußt, daß die Erde rund ist
 He was himself it (GEN) aware that the earth round is
 ‘He was aware of that that the earth is round’
- (4) Sie hat sich (darüber) gewundert, daß die Erde rund ist
 She has herself about-it surprised that the earth round is
 ‘She was surprised that the earth is round’

While sentence-initial SA that function as subject or accusative object appear to occupy the immediate pre-finite-verb position (the Vorfeld, see section 3), SA in the function of genitive or prepositional object are obligatorily left-dislocated (cf. Altmann 1981:172).

- (5) Daß die Erde rund ist, hat ihn gewundert
 That the earth round is has him surprised
 ‘That the earth is round surprised him’
- (6) Daß die Erde rund ist, hat er nicht gewußt
 That the earth round is has he not known
 ‘That the earth is round, he didn’t know’
- (7) Daß die Erde rund ist, *(dessen) war sie sich bewußt
 That the earth round is, it (GEN) was she herself aware
 ‘That the earth is round, of that she wasn’t aware’
- (8) Daß die Erde rund ist, *(darüber) hat sie sich gewundert
 That the earth round is it-about has she herself be surprised
 ‘That the earth is round she was surprised about that’

3 Essentials of German Sentence Structure

In traditional grammar the German sentence is divided into three fields, the Vorfeld (VF), the Mittelfeld (MF) and the Nachfeld (NF), which are separated from each other by the so-called Satzklammer (the sentential bracket, which brackets the MF).

Left dislocation	Vorfeld	Satzklammer	Mittelfeld	Satzklammer	Nachfeld
XP	XP	finite verb complementizer	XP*	non-finite verb finite verb	XP*

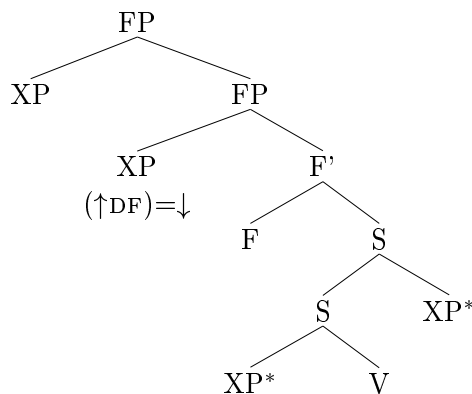
Only one constituent can occupy the VF. The first constituent in the Satzklammer is either a finite verb, in the case of a verb-second (V2) sentence, or a complementizer, in the case of a verb-final sentence. Arbitrarily many constituents can occupy the MF. The last constituent in the Satzklammer is either an infinitival verb or a separable verbal prefix, in

the case of a V2 sentence, or a finite verb, in the case of a verb-final sentence. The NF is occupied by various types of right-dislocated constituents, as well as extraposed sentences. Left-dislocated constituents occur to the left of the VF.

Bresnan (1996:Ch.5) proposes that c-structure observes either of two modes of organization, namely, endocentricity and lexocentricity. Constructions whose grammatical functions are associated with certain structural positions are endocentric: phrases are built up according to the X-bar schema, resulting in a hierarchically organized c-structure. Nonconfigurational languages, on the other hand, are lexocentric. In this structural type it is the morphological features borne by words themselves, e.g. case and agreement, through which grammatical functions are identified. This type of structure is represented by the nonprojecting exocentric category S.³

German exhibits both configurational properties (expletive elements in the VF, fixed verb position) and also nonconfigurational properties (free word-order, discontinuous constituents, a rich case system, no NP-movement operations). (For detailed discussion of the configurational and nonconfigurational properties of German, see e.g. Fanselow 1987). It is proposed here, within LFG, that the sentence structure of German contains an endocentric functional category projection FP, whose head is the V2/complementizer position and whose specifier is the position of the VF. The MF, on the other hand, is represented by the exocentric category S. A left-dislocated constituent is adjoined to FP, the constituents of the NF are right-adjoined to S.

German Sentence Structure:



Bresnan (1996:Ch.5) proposes the following universal principle of endocentric structure-function association: ‘Specifiers of functional categories are the syntacticized discourse functions.’ The discourse functions include TOP, FOC and SUBJ.

It follows that all grammatical functions in the VF except the subject must be marked as Topic or Focus.⁴ That this is plausible for the VF-position can be shown briefly by

³On the organization and constraints on c-structure see also Kroeger (1993), King (1995).

⁴Cf. Höhle (1982:148), Travis (1984:120ff.) und Buring (1995a:54). On the realization of Topic and Focus accents in German, see Féry (1992:39). It should be mentioned that this does not hold for adverbials: sentential adverbs in particular, and occasionally other adverbials, can also occur unaccented—i.e., not marked as Topic or Focus—in the VF.

the distribution of the personal pronoun ‘es’, a much-discussed aspect of German syntax. This pronoun realizes the third person singular neuter in both the nominative and the accusative. As an nominative pronoun, it can occur in the VF, but as a accusative pronoun it cannot:

(9) Es (das Brot) ist gut
It NOM (the bread) is good

(10) *Es (das Brot) mag ich
It ACC (the bread) like I

An idiosyncratic property of ‘es’ is that, unique among the pronouns of German, it is not capable of bearing phonological accent. Now, in the function of object, ‘es’ in the VF would, according to the present analysis, have to be marked either as Topic or as Focus; but this is incompatible with its being necessarily deaccented. In contrast, since the subject function is itself a discourse function, as subject ‘es’ can occur in the VF regardless of its lack of accent.

To complete this sketch of German sentence structure, it should be noted that I follow Haider’s (1993/1995) argument that the sentence structure of German contains only one type of functional projection. Haider (1993/1995) notes several facts that argue against additional functional projections. One is that German displays no subject/object asymmetries; for example, there is no Superiority effect:

(11) Warum wer nicht gekommen ist
Why who not come is
‘*Why who didn’t come’ = ‘Who didn’t come and why’

In addition, there are some finite verbs in German that can only occur sentence-finally (e.g. ‘uraufführen’ = ‘to premiere’); this fact leads Haider to conclude that, if German had a sentence-final functional category (i.e., I(nflection)) to which finite verbs move, there would be no independent principle excluding their further moving to the V2 position. (For details see Haider 1995:23).

4 The Syntactic Function of Finite Sentential Arguments

In Bresnan (1996:Ch.5) the syntactic functions are classified as argument, nonargument, discourse, and non-discourse functions. Comprising the argument functions are the functions SUBJ (the only one that is at the same time a discourse function), OBJ, OBJ- theta,⁵ OBL-theta,⁶ and COMPL. Bresnan does not explicitly say whether SA are associated with the syntactic function COMPL. (In Bresnan/Kaplan (1982) finite SA have the function SCOMP; in Bresnan (1982) the function is COMP, respectively.)

⁵This includes genitive objects.

⁶This includes prepositional objects.

Grimshaw (1982) notes an asymmetry in the distribution of nominal and sentential arguments in English: there are verbs that take a clausal but not a nominal object complement. In the subject function, in contrast, there is no such asymmetry: all verbs that semantically select a proposition as the subject argument can realize this argument either as an NP or as a sentence. Grimshaw cites as examples ‘hope’ and ‘pray’, for the object function, and ‘surprise’ for the subject (the examples are from Grimshaw (1982:47-48 (35)-(36))):

(12) John prayed that Reagan would resign (*and I prayed that too)

(13) That Reagan resigned surprised everyone

(14) Reagan resigned. That surprises me

To account for this asymmetry, Grimshaw proposes that both nominal and sentential phrases can be assigned the function SUBJ, but only noun phrases can be assigned the function OBJ; for sentential phrases Grimshaw introduces the function CLAUSE.

However, Grimshaw does not consider the possibility that SA may alternate with prepositional phrases.⁷

(15) John prayed that Reagan would resign and I prayed for that too

If it is assumed that the sentence embedded by ‘pray’ has the function of a prepositional object, then the contrast observed by Grimshaw would not require appealing to a CLAUSE function. The correct generalization would instead be that all SA, not just sentential subjects, can be instantiated by a proform. In the case of prepositional object sentences, the proform is prepositional, as in German, or occurs within a PP, as in English (English, unlike German, lacks the full range of prepositional proforms, having only adverbials such as ‘there’ and ‘thus’). There may be other, more convincing, reasons to differentiate formally between nominal and sentential arguments, e.g. to formulate constraints on extraction; cf. Bayer 1994.

It remains an open question what function SA in German have at f-structure. However, since I am assuming that the assignment of grammatical functions in German is triggered by morphological features of words (see section 3), there is no motivation for distinguishing between e.g. accusative and genitive object clauses, etc., since SA bear no case, i.e. they are morphologically indistinguishable. I therefore take the tentative position that, in the absence of morphological marking, all SA (including ‘subject’ sentences) are assigned the function COMPL. This immediately raises the question of how to account for the differential distribution of SA.

⁷This alternation was noted already by Rosenbaum (1967:81ff.).

5 Previous Analyses

5.1 Webelhuth (1992)

Webelhuth (1992) assumes that SA are base-generated in the NF. The verb theta-marks CPs to the right. If a SA is topicalized or occurs in the MF, then it must form a chain with an empty DP that is licensed by a lexical element. Webelhuth calls this the Sentence Trace Universal:

Sentences can only bind DP-traces, i.e. traces with the categorial specification [+N, -V] (Webelhuth 1992:94)

It follows from this principle that verbs such as ‘sich freuen’ and ‘sich ärgern’, which are not subcategorized for DP in addition to CP, do not permit their sentential complements to topicalize (the examples are from Webelhuth (1992:104f (118-120G))):

(16) Ich freue mich [daß Hans krank ist]
I am-happy Refl that Hans sick is

(17) *Ich freue mich [das]
I am-happy Refl that

(18) *[Daß Hans krank ist] freue ich mich [_{DP} e]
That Hans sick is am-happy I Refl

This stands in contrast to verbs such as ‘glauben’ and ‘wissen’, which can take either CP or DP:

(19) Er glaubt das nicht
He believes that not
‘He doesn’t believe that’

(20) [_{CP} Daß sie kommt], glaubt er nicht [_{DP} e]
That she comes believes he not

Webelhuth too, however, fails to take into consideration that the verbs he cites as taking CP but not DP also take PP:

(21) Ich freue mich über das/ darüber
I am-happy myself about that/ about-it

This raises the question, to which Webelhuth’s analysis provides no answer, of why a topicalized sentence can form a chain with a DP-trace but not with a PP-trace that is also licensed by the verb (cf. (8)). Moreover, this account provides no explanation for why SA related to a subcategorized genitive object position also cannot undergo topicalization (cf.

(7)), since the trace is evidently a DP.⁸ Finally, it would have to be explained why this restriction only holds for finite SA: nonfinite SA in these functions can readily undergo topicalization, as discussed in the next section.

5.2 Buring (1995b)

Buring (1995b) assumes that SA are base-generated to the left of the verb and can move into the NF. He proposes in their base position SA in the function of prepositional object are always embedded within an NP and a PP, even when the heads of both of these are phonetically empty:

... [_{VP} [_{PP} e [_{NP} [_N e] t₁]] gefreut] [_{CP} daß ...]₁ Buring (1995b:375)

Buring thus derives the restriction on topicalization of SA in the function of prepositional object from the fact that topicalization is subject to the same locality conditions as e.g. relativization and movement out of noun complements.

Nevertheless, this analysis raises several questions and problems:

- Why can't the PP be empty when the SA is not extraposed, i.e., remains in the MF?⁹ With a phonetically realized PP, the SA can remain in the MF:

(22) Ich habe mich [_{PP} darüber, [daß sie kommt,]] gefreut

- Why can't an empty PP containing the nonextraposed SA be topicalized?¹⁰ This would generate precisely the kind of sentences that Buring's analysis is intended to rule out, namely, topicalization of a prepositional object SA:

(23) * [_{PP} e [_{NP} [_N e] daß sie kommt]] habe ich mich gefreut

- On the other hand, why is it possible in just this case to topicalize a nonfinite SA (in contrast to a finite SA), since according to Buring's analysis infinitive SA should, like finite SA, be embedded under a PP and an NP and be subject to the same locality conditions?¹¹ In the following examples, the verbs take both a clausal argument and a PP:¹²

⁸Similarly, Bresnan's (1995) analysis of topicalization of SA in English, as well as the similar analysis proposed by Kaplan/Zaenen (1995) would not, if applied to German, account for the failure of prepositional and genitive object sentences to topicalize.

⁹Buring himself notes this unresolved problem of his analysis, cf. his footnote 5.

¹⁰Hubert Haider (p.c) drew my attention to this problem.

¹¹With verbs that take a prepositional object there are numerous properties that influence the occurrence of correlative pronouns, which also may depend on whether the SA is realized as a finite or a nonfinite sentence; for discussion see Breindl (1989) and Bayer (1994).

¹²It should be noted that these constructions involve so-called incoherent, i.e. fully clausal, infinitives. According to Haider (1993:251), building on Bech (1955/57), a coherent construction, is only possible if the infinitive is an internal, structural argument. Control verbs that take infinitive clauses in the position of a prepositional object do not exhibit the properties of optionally coherent infinitives (monosentential MF, verb complex). For example, preposing a pronoun to the Wackernagel position of the matrix sentence is not possible, unlike with a coherent construction:

- (24) Unser Versteck zu verraten werde ich mich hüten
 Our hideaway to reveal will I myself take care (not to)
 ‘I will be careful not to reveal our hideaway’
- (25) Daß ich unser Versteck verrate *(davor) werde ich mich hüten
 That I our hideaway reveal against-it will I myself take care (not to)
- (26) Zu kommen hat er sich verpflichtet
 To come has he himself committed
 ‘He committed himself to coming’
- (27) Daß er kommt *(dazu) hat er sich verpflichtet
 That he comes to-it has he himself committed

Moreover, Buring’s contention that prepositional object SA always constitute extraction islands is not correct, as the following examples show:

- (28) Wen bittet er uns, daß wir besuchen sollen?
 Who (ACC) requests he us that we visit should
 ‘Who is he asking us to visit?’
- (29) Wen hat man ihn gezwungen zu heiraten
 Who (ACC) has one him forced to-marry
 ‘Who was he forced to marry?’

They are islands precisely when a correlative prepositional proform occurs in the MF:¹³

- (30) *Wen bittet er uns darum, daß wir besuchen sollen?
 Who (ACC) asks he us about-it that we visit should
- (31) *Wen hat man ihn dazu gezwungen zu heiraten
 Who (ACC) has one him to-it forced to- marry

This contrast and the differential behavior of finite and nonfinite SA show that Buring’s proposal of obligatory embedding in a PP cannot be right.

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- (i) *weil ihr der Hans sich zu helfen verpflichtet
 because her the Hans himself to help committed
 ‘because Hans committed himself to helping her’
- (ii) *daß sie Max nicht wiederzusehen verzichtete - Example from Haider 1993:250, (55-c)
 that she Max not meet renounced
 ‘that she refrained from meeting Hans’

¹³Concerning the internal structure of these proforms, see Bayer 1994:27ff.

6 Sentential Arguments are Obligatorily Left-Dislocated

This section presents an analysis proposed by Oppenrieder (1991:291-295), based on Koster (1978a, 1978b).

6.1 Topic Drop

Consider first left-dislocated prepositional and genitive object SA:

(32) Daß die Erde rund ist, darüber hat sie sich gewundert

(33) Daß die Erde rund ist, dessen bin ich mir bewußt

The left-dislocated constituent occurs sentence-initially, and a resumptive pronoun in the function of prepositional or genitive object follows immediately in the VF position. It is noteworthy that left-dislocation in this case occurs not just colloquially, but is also obligatory in literary German; this suggests that left-dislocation of prepositional and genitive object SA need not exhibit the otherwise inherent pragmatic function of ‘thematization’ (cf. Oppenrieder 1991:293).

In this connection it is significant that German is a Topic Drop language; that is, a constituent in the VF— and only in the VF—that bears the discourse function of topic may be phonetically unrealized (see Huang 1984 and cf. Ross 1982, Oppenrieder 1991). The following examples are from Huang (1984:547 (49)-(50)):

(34) e hab ihn schon gesehen
have him already seen

(35) e hab ich schon gesehen
have I already seen

(36) *Ihn hab e schon gesehen

Crucially, Topic Drop is permitted only with subjects or accusative objects; prepositional, genitive, and dative topics cannot be dropped:

(37) *(Darüber) hab’ ich mich gewundert
About-it have I myself surprised
‘About that I was surprised’

(38) *(Dessen) rühmt er sich immer
It (GEN) is proud of he himself always
‘Of that he is always proud’

- (39) *(Mir) hilft keiner
Me (DAT) helps nobody

The conclusion is obvious: all sentence-initial SA are obligatorily left-dislocated. With SA related to the subject or object, the resumptive pronoun need not be present, in accordance with the conditions on Topic Drop (Oppenrieder 1991:292).

This analysis represents a restricted version of the hypothesis of Koster (1978a), according to which all root sentences have to be analyzed as left-dislocation structures, with deletion of the resumptive pronoun being obligatory or optional, depending on the language. One argument against Koster's analysis—namely, that not every type of constituent that can occur in the VF has a corresponding proform, which would be subject to deletion—is irrelevant on Oppenrieder's more restricted proposal. This is because all SA in German, including subject and (accusative) object SA, can be left-dislocated when the resumptive pronoun is present: its omission is essentially optional and in any case independently motivated by the phenomenon of Topic Drop:

- (40) Daß die Erde rund ist, (das/NOM) hat ihn gewundert

- (41) Daß die Erde rund ist, (das/ACC) hat er nicht gewußt

Further evidence for this analysis comes from the distribution of correlative pronouns, as discussed in the next section.

6.2 Resumptive vs. Correlative Pronouns

As we have seen, a correlative pronoun can occur when a clause is extraposed. However, if the clause is sentence-initial, then the occurrence of the correlative pronoun in the MF is ruled out:

- (42) Er hat es mir nicht gesagt, daß er kommen will
He has it me not told that he to- come wants
'He didn't tell me that he wanted to come'

- (43) *Daß er kommen will, hat er *(es) mir nicht gesagt

Assuming that the SA in (43) is left-dislocated, then the argument position is already occupied by the (dropped) resumptive pronoun; thus the occurrence of the correlative pronoun in the MF would violate the Coherence Condition. Significantly, the correlative pronoun not only can but must appear in the MF when the VF is occupied by another constituent:

- (44) Daß er heute kommen will, gestern hat er *(es) mir noch verschwiegen
That he today to-come want yesterday has he it me still withheld
'That he wants to come he withheld from me yesterday'

- (45) Daß er kommen will, wer hat es ihr gesagt?
That he to-come wants, who has it her told?

In this case a resumptive pronoun cannot occur in the (already occupied) VF, so that the argument position can only be filled within the MF.

In the next section it will be shown why it is quite plausible to assume that the VF is not an accessible position for SA.

7 The Vorfeld

7.1 Distribution of Arguments

Let us contrast the distribution of nominal and sentential arguments in the field structure of the German sentence. Nominal arguments can occur in both the VF and the MF. In the NF, however, they are, if possible at all, extremely marked:

- (46) *Er hat gesehen einen Hund
He has seen a dog

Sentential arguments, by contrast, occur readily in the NF but are generally impossible in the MF:

- (47) *Außerdem hat sie, daß sie sehr reich ist, gemeint
Furthermore has she that she very rich is thought

The prohibition on SA in the MF does not, however, apply to free relatives or infinitival SA:

- (48) Sie hat ihm, was er ihr erzählt hat, sofort geglaubt
She has him what he her told has immediately believed
'She immediately believed what he told her'

- (49) Sie hat ihn, nach Hause zu gehen, mehrmals aufgefordert
She has him to home to go several times asked
'She asked him several times to go home'

Free relatives have the essential properties of nominal arguments. For example, they can freely replace an NP- argument, without any stipulation to this effect being required in the subcategorization frame of the verb. And they are the only case-marked clausal constituents; in particular, the *wh*-word introducing the free relative must satisfy the case requirements not only of the embedding verb of the relative clause but also those of the main verb.¹⁴

¹⁴For exceptions to the case requirements, and a general treatment of free relatives in German, see Bausewein 1990:157ff.

The grammatical function they have in the matrix clause can thus be determined from the case borne by the *wh*-word.

Infinitival SA, on the other hand, are like finite clauses in bearing no case information.¹⁵ However, infinitives lack typical properties of finite clauses, such as a complementizer and agreement features; thus, according to the nominalization scale proposed by Lehmann (1982:76), they are ‘more nominal’ than finite clauses. Oppenrieder (1991:308), moreover, notes that infinitives are readily convertible into ordinary declinable nouns, and sees in this relative similarity to NPs an indication of why nonfinite SA are not strictly prohibited in the MF.

There is no restriction on the occurrence of free relatives or nonfinite SA in the VF; the optionality of left-dislocation with infinitives even in the function of prepositional or genitive object was already observed in section 5.2 examples (24)/(26) (cf. also Breindl 1989:248).

In short, the conditions on the licensing of arguments seem to be the same for both the VF and the MF. This raises the question of what distinguishes these two positions; in particular, is the VF a derived or a base-generated position?

7.2 The Vorfeld as a Base-generated Position

According to the principle of ‘economy of expression’ (Bresnan 1996:Ch. 5), empty categories are only present in a c-structure representation if they are required in order to satisfy the completeness and expressivity conditions. When they are present, they are able to influence the precedence relations of syntactic elements. An example of this is given by Bresnan (1994) with respect to operator binding in Hindi, drawing on work of Mahajan (1990).

Bresnan proposes that operator binding is subject to the following two conditions (1994:10 (18)-(19)):

a. Syntactic rank and operator binding:

The pronominal binding domain of an operator O is restricted to the set of f-structure elements that O outranks.

b. Linear order and operator binding

The pronominal binding domain of an operator O excludes all f-structure elements that f-precede O.¹⁶

Violation of either or both of these conditions (depending on the language) results in the so-called Weak-Crossover (WCO) effect. German need satisfy only one of the conditions in order to achieve operator binding. In the following example, the operator has a lower-ranked syntactic function than the pronoun it is coindexed with; nevertheless, binding succeeds, since the operator precedes the pronoun:¹⁷

¹⁵Stowell (1981) proposes an account of the differential distribution of finite and nonfinite SA in English within the GB framework, in terms of their case properties. He hypothesizes that nonfinite SA, but not finite SA, are inherently case-marked.

¹⁶Bresnan (1994:8) gives the following definition: f_1 f-precedes f_2 if and only if $\mu^{-1}(f_1)$ and $\mu^{-1}(f_2)$ are nonempty and all c_1 in $\mu^{-1}(f_1)$ precede some c_2 in $\mu^{-1}(f_2)$.

¹⁷For more data and an analysis of WCO in German in the GB framework, see Frey (1993).

- (50) Wen₁ liebt seine₁ Mutter (*t₁) nicht?
 who (ACC) love his mother (NOM) not
 ‘Who doesn’t his mother love’

If the wh-phrase in this example left a trace in its base position, then both conditions would be violated, falsely predicting a WCO effect. In addition, the assumption of a trace would undermine the hypothesis that sentence-internal grammatical functions in German are determined by morphological features, not by structural position.¹⁸

If the VF is base-generated and not related to the MF via a trace, the VF itself is subject to the conditions on canonical arguments. Both the VF and MF are located to the left of the verb. I propose that both the VF and the MF are canonical positions for nominal arguments (but not restricted to NPs). SA, however, are only licensed either when extraposed or when left-dislocated. In contrast, nonfinite SA, because they have more nominal properties, can occur both in the MF and the VF. Unlike finite SA, in sentence-initial position they must not be obligatorily left-dislocated.

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¹⁸On the other hand, with long-distance dependencies a trace is required in order to insure that the constituent moved at c-structure is assigned the correct function at f-structure. Consider the following example:

- (i) *Wen₁ sagte dir seine₁ Mutter, habe Maria t₁ gesehen
 Who (ACC) said to-you his mother (NOM), has (subjunctive) Maria (NOM) seen
 ‘Who did his mother tell you that Maria saw?’

The presence of the trace induces a violation of the linear order condition, and since the syntactic rank condition is also violated, the WCO effect is thereby accounted for.

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