

# Unscrambling German parasitic gaps

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## Abstract

Parasitic gaps are discussed by Fanselow (2001) in the context of diagnosing movement properties of scrambling in German. Although this is not what most readers will remember the paper for, the relevant two pages offer a rather unique and easily mischaracterized idea for the treatment of what is (not) to be considered a parasitic gap. Touching on my own experimental work, I flesh out the idea implied by Fanselow that there are two types of parasitic gaps in German: genuine ones licensed by canonical cases of  $\bar{A}$ -movement, and pseudoparasitic ones arising alongside scrambling.

## 1. Parasitic gaps in a nutshell

Engdahl (1983) defines a parasitic gap as “a gap that is dependent on the existence of another gap [...] in the same sentence” (Engdahl 1983: 5). She further specifies that a gap is an empty node controlled by a lexical phrase somewhere in the sentence, and that a parasitic gap will thus only occur if the sentence contains a filler-gap dependency. Parasitic gaps are also often defined as gaps that void island violations in the adjunct clauses they appear in. Both properties are illustrated by the examples below:

- (1) a. \*Here is the paper that John read his mail [before filing \_\_\_]
- b. Here is the paper that John read \_\_\_ [before filing pg]
- c. Here is the paper that John read \_\_\_ [before filing his mail]

(Engdahl 1983: 14)

A-movement does not license parasitic gaps, whereas  $\bar{A}$ -movement does. The most prominent (but by no means only) approach to derive parasitic gaps is via asymmetrical extraction from the licensing gap, and either empty operator movement from the parasitic site to the left edge of the adjunct clause, or,

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\*I thank the audience of the workshop on Gisbert Fanselow’s Contributions to Syntactic Theory for helpful comments and a vigorous discussion.

roughly speaking, assuming a silent element of another kind occupying the parasitic gap site (i.e. Assmann 2012, Chomsky 1982, 1986, Cinque 1990, Felix 1985, Nissenbaum 2000). Empirically, the literature on German parasitic gaps is dominated by data drawn from scrambling. Theories have analyzed scrambling either as strictly A-movement (Fanselow 1987) or  $\bar{A}$ -movement (Müller 1993); as two separate operations, i.e. A-scrambling and  $\bar{A}$ -scrambling depending on the distance at which it applies (Déprez 1989, Mahajan 1990); a third independent type of movement (Webelhuth 1989) or base generation (Fanselow 1993, 2001). More recently, the idea emerged that it is the features triggering movement, not the landing site, that are responsible for A,  $\bar{A}$  or mixed properties (van Urk 2015). The observation that scrambling licenses an unexpected gap highlights its similarity to  $\bar{A}$ -movement:

- (2) a. dass sie Hans<sub>i</sub> [<sub>CP</sub> ohne *pg*<sub>i</sub> zu umarmen] \_\_\_<sub>i</sub> begrüßt hat.  
 that she Hans without to hug greeted has  
 ‘that she greeted Hans without hugging (him).’  
 b. \*dass sie [<sub>CP</sub> ohne *pg*<sub>i</sub> zu umarmen] Hans<sub>i</sub> begrüßt hat  
 that he without to hug Hans greeted has  
 Intended: ‘that she greeted Hans without hugging (him).’

(cf. Fanselow 2001: 411)

In (2-a), the object *Hans* scrambles to a higher position preceding the adjunct clause and supposedly licenses a parasitic gap by doing so. In (2-b), the object stays in its base position, and thus no parasitic gap is licensed. Now, since Fanselow (2001) makes the case that scrambling is base generation, this appears to be problematic at first. Further inspection reveals, however, that these additional gaps can be licensed by the scrambling of elements that standardly cannot license parasitic gaps, i.e. nonreferential DPs and inherent reflexive pronouns (Cinque 1990, Postal 1994):

- (3) dass er sich anstatt (sich) um Maria zu kümmern mit Büchern  
 that he REFL instead REFL of Maria to care with books  
 beschäftigte  
 occupied  
 ‘that he occupied himself with books instead of caring for Maria’

(Fanselow 2001: 412)

Fanselow goes on to argue that we are dealing with an entirely unrelated construction in these cases, essentially a type of hidden variability: what appears to be a parasitic gap at first sight is actually an instance of forward deletion in a coordinate structure (cf. Wilder 1997). Support for this claim comes from the observation that the properties problematic for a canonical parasitic gap analysis are also found in conjunct reduction:

- (4) a. dass er sich [[um Maria kümmert] und [mit Büchern  
that he REFL of Maria cares and with books  
beschäftigt]]  
occupies  
'that he cares for Maria and occupies himself with books'
- b. dass er [[Maria kennt] [und [Maria liebt]]]  
that he Maria knows and Maria loves  
'that he knows and loves Maria'

(Fanselow 2001: 412)

The necessary condition enabling PF-deletion is that the heads intervening between the antecedent A and the identical, deletable constituent B be coordinating conjunctions, and that they c-command B but not A. This prerequisite only holds if the element introducing the adjunct clause, i.e. *ohne* 'without' (and likewise *anstatt* 'instead') behaves like a coordinating conjunction in the syntactic sense. This assumption is supported by the fact that the complementizer *dass* 'that' can combine with the conjunctions, a trait that only applies to coordinating but not subordinating ones:

- (5) a. Es regnet ohne dass es schneit.  
it rains without that it snows  
'It rains without snowing.'
- b. Er sagt, dass es regnet und dass es schneit.  
he says that it rains and that it snows  
'He says that it rains and that it snows.'
- c. Es regnet bevor (\*dass) es schneit.  
it rains before that it snows  
Intended: 'It rains before snowing.'

(Fanselow 2001: 413)

Crucially, Fanselow's aim is to show that the apparent parasitic gaps licensed

by scrambling differ from the typical cases licensed by, for example, *wh*-movement. He does so by providing evidence for their parallel behaviour to conjunct reduction. The account does not claim that parasitic gaps in German do not exist per se. Actually, there are no claims made about parasitic gaps in German at all, since the inspected gaps are argued to have nothing to do with them. Postal (1994) introduced the term pseudoparasitic gap for gaps that resemble proper parasitic gaps on the surface, but lack the crucial property of being licensed by  $\bar{A}$ -movement. I suggest that the gaps arising alongside scrambling in German are such pseudoparasitic gaps.<sup>1</sup>

Typically, the gaps identified as pseudoparasitic here are treated on a par with canonical parasitic gaps arising via *wh*-movement (Felix 1985, Kathol 2001, Assmann 2010, 2012, Himmelreich 2017). One could make the conceptual argument that in order to get to the core of how parasitic gaps work in German, the inspected data has to be restricted to cases where the licensing condition, i.e. the involvement of  $\bar{A}$ -movement, is undisputed. On the one hand, this will allow us to establish what the core properties of parasitic gaps in German are in the first place, allowing for potential expansions if necessary. On the other hand, it will allow for clearer cross-linguistic comparisons. Many languages have parasitic gaps but do not allow for scrambling. Arguments about German having particularly odd parasitic gaps or no parasitic gaps to begin with boil down to comparing pseudoparasitic gaps with canonical parasitic gaps in other languages (Kathol 2001). Fanselow (2001) argues that the parasitic-gap-argument for the  $\bar{A}$ -properties of scrambling should be discarded altogether, and from the opposite perspective, I would like to argue that the gaps co-occurring with scrambling should not be the principal evidence when determining the properties of parasitic gaps.

To summarize, we can predict that parasitic gaps in languages without scrambling should differ from the German gaps arising alongside scrambling at least as much as these two gap types differ within German – the starting point is acknowledging these differences within German in order to yield a more straightforward cross-linguistic comparison. Strictly speaking, examining parasitic gaps that are licensed by cross-linguistically available types of  $\bar{A}$ -movement is the only method that enables us to make reliable claims about their distribution.

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<sup>1</sup>Kathol (2001) exclusively deals with gaps co-occurring with scrambling and, based on this, generalizes that all parasitic gap candidates in German are merely pseudoparasitic.

## 2. The role of extraposition

Parasitic gaps are often reported to be marginal, sensitive to the type of adjunct clause they are hosted in, and overall subject to vast inter-speaker variability (Felix 1985, Kathol 2001, Assmann 2010). The reports are based on individual judgments given by the native speaker authors and are therefore difficult to generalize. So far, there is no larger scale study on the acceptability of parasitic gaps in German, which is why debates about the status of the construction are often difficult to evaluate objectively. I ran an acceptability judgment experiment comparing genuine parasitic gaps in extraposed and non-extraposed adjunct clauses introduced by ‘ohne’ *without*. The study had a 2x2 Latin Square design, i.e. the two factors were fully crossed, yielding four conditions. A total of 80 native speakers of German participated. Each participant saw 12 experimental and 36 distractor items. Participants were randomly assigned one out of the four conditions per item, yielding three observations for each condition per participant. I found a tendency for speakers to accept parasitic gaps in non-extraposed adjunct clauses more than those in extraposed adjunct clauses, but no evidence of extraposition inducing outright unacceptability. Interestingly, the opposite pattern holds for adjunct clauses where, instead of a gap, there is a pronoun coreferent with the extracted element.<sup>2</sup>

- (6) a. Susi hat erzählt, welches Fahrrad<sub>i</sub> Lars  
 Susi have-PST-3SG tell-PST-3SG which bicycle Lars  
**[ohne *pg<sub>i</sub>* zu reparieren]** verkauft hat \_\_\_\_<sub>i</sub>.  
 without to fix sell-PTCP have-PST-3SG  
 ‘Susi told (us) which bicycle Lars sold without fixing *pg*.’
- b. Susi hat erzählt, welches Fahrrad<sub>i</sub> Lars  
 Susi have-PST-3SG tell-PST-3SG which bicycle Lars  
**[ohne *es<sub>i</sub>* zu reparieren]** verkauft hat \_\_\_\_<sub>i</sub>.  
 without it to fix sell-PTCP have-PST-3SG  
 ‘Susi told (us) which bicycle Lars sold without fixing it.’

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<sup>2</sup>The mean ratings per condition were as follows: 5.49 (standard error 0.085) for the condition illustrated by (6-d); 4.95 (standard error 0.098) for items like (6-b); 4.25 (standard error 0.110) for (6-a); and 3.86 (standard error 0.110) for (6-c).

- c. Susi hat erzählt, welches Fahrrad<sub>i</sub> Lars  
 Susi have-PST-3SG tell-PST-3SG which bicycle Lars  
 verkauft hat \_\_\_<sub>i</sub> [**ohne pg<sub>i</sub> zu reparieren**].  
 sell-PTCP have-PST-3SG without to fix  
 ‘Susi told (us) which bicycle Lars sold without fixing pg.’
- d. Susi hat erzählt, welches Fahrrad<sub>i</sub> Lars  
 Susi have-PST-3SG tell-PST-3SG which bicycle Lars  
 verkauft hat \_\_\_<sub>i</sub> [**ohne es<sub>i</sub> zu reparieren**].  
 sell-PTCP have-PST-3SG without it to fix  
 ‘Susi told (us) which bicycle Lars sold without fixing it.’

That is, (6-a) is more acceptable than (6-c), but (6-d) is more acceptable than (6-b). Based on the Active Filler Hypothesis, the reasons for this pattern may be related to general constraints on how filler-gap-dependencies are processed (Frazier 1987, Clifton and Frazier 1989, McElree and Griffith 1998, Ness and Meltzer-Asscher 2017). Due to its optionality, the speaker cannot clearly predict that the sentence contains a parasitic gap, and furthermore, the construction, by its nature, violates the strict one-to-one mapping found in syntactic dependencies.

A significant main effect of the factor TYPE (parasitic gap or pronoun) supports the view that parasitic gaps are generally disfavored. What is relevant for the matters raised by Fanselow (2001) is that the parasitic gaps parallel to the typical English examples, though the least preferred variant, are not rendered unacceptable by extraposing the adjunct clause. Notice, however, that speakers’ judgments vary immensely, emphasizing the need for experiments. Based on the experiment, there are two claims from the literature that we can challenge, if not eliminate entirely. First, the claim that German parasitic gaps do not exist at all is unsolicited (Kathol 2001). This conclusion was reached based on the study of the gaps arising via scrambling and the observation that they are subject to different licensing conditions than English parasitic gaps. What was not discussed is that they differ from German genuine parasitic gaps just as much (for a complete evaluation of the evidence presented by Kathol, see Assmann 2010). Second, the assumption that the gaps arising via scrambling are derived by the same mechanism as typical parasitic gaps is severely challenged by the fact that the latter are not ruled out if the adjunct clause is extraposed. None of the existing derivations proposed for genuine

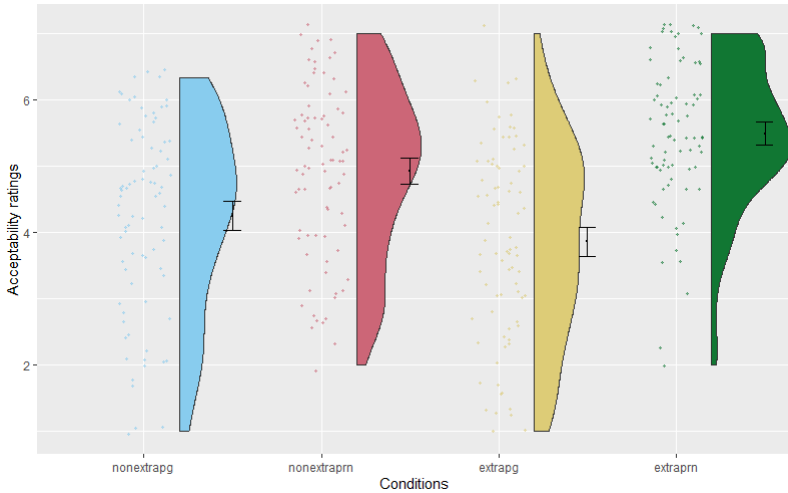


Figure 1: Inter-speaker variability by condition. Individual dots to the left represent mean ratings per participant for all items in the respective condition, plots to the right indicate density of mean ratings.

parasitic gaps predict such restrictions. On the other hand, Fanselow (2001) argues that the apparent gaps licensed by scrambling are not part of any kind of extraction dependency, but a result of PF-deletion – if pseudoparasitic gaps indeed originate from a post-syntactic operation rather than a proper syntactic one like genuine parasitic gaps, this difference straightforwardly follows:

- (7) a. dass sie Hans [ohne Hans zu umarmen] begrüßt hat  
 that she Hans without Hans to.hug greeted has  
 ‘that she greeted Hans without hugging (him)  
 b. \*dass sie Hans begrüßt hat [ohne Hans zu umarmen]  
 that she Hans greeted has without Hans to.hug  
 Intended: ‘that she greeted Hans without hugging (him)’

(cf. Fanselow 2001: 412)

The non-coordinating head *begrüßt* ‘greeted’ intervenes between the two instances of *Hans* in (7-b), thus the occurrence in the adjunct clause cannot be deleted. The reportedly unacceptable construction in (7-b) becomes acceptable if we swap scrambling for *wh*-movement, as in (8):

- (8) Wen<sub>i</sub> hat sie begrüßt \_\_\_<sub>i</sub> [ohne *pg<sub>i</sub>* zu umarmen]?  
 whom has she greeted without to hug  
 ‘Whom did she greet without hugging?’

(cf. Kathol 2001: 320)

Now, in order for PF-deletion to be applicable, the adjunct clause must be underlyingly coordinated with the matrix clause. The acceptability of a gap appears to be directly tied to the type of adjunct clause hosting it. Though this is widely discussed and acknowledged, there appears to be no proper explanation as to why this is the case. Notice that *um* ‘(in order) to’ does not allow for pseudoparasitic gaps. However, the construction improves if the sentence comes with a *wh*-dependency:<sup>3</sup>

- (9) a. \*dass sie Hans [um zu begrüßen] umarmt hat  
 that she Hans in.order.to to greet hugged has  
 b. ?Wen<sub>i</sub> hat sie [um *pg<sub>i</sub>* zu begrüßen] umarmt?  
 whom has she in.order.to to greet hugged  
 ‘Whom did she hug in order to greet?’  
 c. ?Wen<sub>i</sub> hat sie umarmt [um *pg<sub>i</sub>* zu begrüßen]?  
 whom has she hugged in.order.to to greet  
 ‘Whom did she hug in order to greet?’

This follows from the forward deletion account if *um* does not behave like a coordinate head, since this is merely a prerequisite for pseudoparasitic but not proper parasitic gaps. Indeed, we find that unlike *anstatt* and *ohne*, it cannot combine with a complementizer:

- (10) a. \*Es regnet um dass es schneit.  
 it rains to that it snows  
 b. Es regnet ohne/anstatt dass es schneit.  
 it rains without/instead that it snows  
 ‘It is raining without/instead of snowing.’

We have seen multiple pieces of evidence suggesting that the gaps in scrambled constructions are merely pseudoparasitic and underlyingly coordinate. To start, they cannot be extraposed. Based on Fanselow (2001), this follows because

<sup>3</sup>These judgments are my own and need to be verified.



PF-deletion cannot apply once the number of intervening heads is increased through extraposition. Further, only parasitic, but not pseudoparasitic gaps are allowed in adjunct clauses introduced by *um*. That is, the derivation of pseudoparasitic gaps seems to make reference to a certain property of the preposition that the derivation of parasitic gaps does not make reference to. This is shown on the basis of (9-a) compared to both (9-b) and (9-c). Following the assessment by Fanselow (2001), the relevant property could be whether the preposition can act as a coordinate head. As shown previously, its ability to combine with a complementizer correlates with its ability to host pseudoparasitic gaps in the clause it introduces. The preposition *um*, which cannot combine with a complementizer, does not allow for pseudoparasitic gaps, while *ohne* and *anstatt* do both.

The evidence in favor of distinguishing pseudoparasitic and parasitic gaps in German requires us to reassess previous claims made jointly about both gap types. Such are the conclusion that German does not allow for parasitic gaps to begin with due to generalizations drawn from pseudoparasitic cases only (Kathol 2001), and generally, approaches subsuming pseudoparasitic gaps under genuine parasitic gaps (Assmann 2012, Felix 1985, Kathol 2001). I conclude that there is no convincing evidence against the assumption that there exist parasitic gaps in German, but that the empirical data suggests the parallel existence of pseudoparasitic gaps.

### 3. (Pseudo-)parasitic gaps and coordination

Fanselow's coordinate approach to pseudoparasitic gaps has some overlaps with approaches aiming to conflate proper parasitic gaps and ATB-movement (Huybregts and van Riemsdijk 1985, Williams 1990, Kathol 2001). There are a number of conceptual arguments against these approaches, let alone empirical ones revealing asymmetries between the licensing and the parasitic gap that are not found in ATB-movement (for a coherent summary of these asymmetries, see Nissenbaum 2000). Nevertheless, most arguments against coordinate analyses of proper parasitic gaps do not apply to Fanselow's treatment of pseudoparasitic gaps. The central problem of coordinate approaches in general is that they assume parallel extraction from both the licensing and the parasitic gap site. Williams (1990), for example, argues that parallel extraction is a natural consequence of the Coordinate Structure Constraint (CSC, Ross

1967). Since (sub-)extraction from a coordinate structure must symmetrically target all conjuncts, the occurrence of the parasitic gap straightforwardly follows if the matrix clause containing the licensing gap and the adjunct clause containing the parasitic gap are coordinated. This idea is problematic due to the fact that parasitic gaps appear in islands, notably ‘repairing’ violations thereof, and further because they are optional. Fanselow (2001) does not face this problem due to not assuming extraction at all, following not only from the analysis of scrambling as base generation, but also from relocating the origin of the gap to PF. Because PF-deletion is an optional process itself, the derivation does not pose an issue for optionality either. Another problem that coordinate approaches face is that of ‘coordinate construal’, i.e. justifying that a structure with a non-coordinate head is supposed to behave like a coordinate structure. Though not obviating this problem entirely, Fanselow (2001) at least shows that the prepositions resemble coordinate heads in German with respect to their ability to combine with a complementizer.

#### **4. Conclusion**

Based on the assessment by Fanselow (2001) that the gaps licensed by scrambling are not proper parasitic gaps and should therefore not be used to argue for scrambling being  $\bar{A}$ -movement, I attempted to develop the idea that we need to distinguish pseudoparasitic from genuine parasitic gaps in German. The two constructions have been conflated in all analyses of parasitic gaps for German, which based on the diverging properties examined here, I have argued to be inaccurate. The two constructions may in fact have nothing to do with one another and must be treated separately if we want to make cross-linguistically relevant statements about parasitic gaps in German. The two constructions have been shown to differ with respect to extraposition and the types of adjunct clauses they appear in. The experimental evidence for the acceptability of genuine parasitic gaps revealed a vast amount of inter-speaker variability. In sum, there is a need to reissue the study of parasitic gaps in German in a more systematic fashion, particularly with experimental evidence to combat the variability found in the data.

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