

## Article

# Discourse and Form Constraints on Licensing Object-First Sentences in German

Markus Bader \*  and Yvonne Portele

Department of Linguistics, Goethe University Frankfurt, 60323 Frankfurt, Germany;  
portele@lingua.uni-frankfurt.de

\* Correspondence: bader@em.uni-frankfurt.de

**Abstract:** In German, the subject usually precedes the object (SO order), but, under certain discourse conditions, the object is allowed to precede the subject (OS order). This paper focuses on main clauses in which either the subject or a discourse-given object occurs in clause-initial position. Two acceptability experiments show that OS sentences with a given object are generally acceptable, but the precise degree of acceptability varies both with the object's referential form (demonstrative objects leading to higher acceptability than other types of objects) and with formal properties of the subject (pronominal subjects leading to higher acceptability than non-pronominal subjects). For SO sentences, acceptability was reduced when the object was a d-pronoun, which contrasts with the high acceptability of OS sentences with a d-pronoun object. This finding was explored in a third acceptability experiment comparing d-pronouns in subject and object function. This experiment provides evidence that a reduction in acceptability due to a prescriptive bias against d-pronouns is suspended when the d-pronoun occurs as object in the prefield. We discuss the experimental results with respect to theories of German clause structure that claim that OS sentences with different information-structural properties are derived by different types of movement.

**Keywords:** word order; givenness; topic; referential expression; German



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## 1. Introduction

Sentences with non-canonical word order occupy a central place in investigations of the relationship between discourse and syntax. A prime example of non-canonical word order is provided by sentences in which an object does not appear in its canonical position following the subject but is fronted to the sentence-initial position and thus precedes the subject. An example of object fronting in English is given in (1) (cited from Birner and Ward 2009, p. 1173).

- (1) Tico Feo was eighteen years old [...] and for two years had worked on a freighter in the Caribbean. As a child he'd gone to school with nuns, and he wore a gold crucifix around his neck. He had a rosary too. *The rosary he kept wrapped in a green silk scarf that also held three other treasures: ...*  
[‘A Diamond Guitar’, in Truman Capote, *Breakfast at Tiffany's and Three Stories*, Vintage Books 1993, p. 144]

Languages differ with regard to the discourse constraints they impose on object fronting. English object fronting has been claimed to be subject to two constraints (Birner and Ward 2009; Molnár and Winkler 2010). First, the referent of the fronted object must be hearer-old, which holds in (1) because the referent of the fronted NP *the rosary* has been introduced in the preceding sentence. Second, the object must receive a contrastive reading, which holds in (1) because the rosary contrasts with the gold crucifix mentioned

two sentences before.<sup>1</sup> A violation of the second constraint makes the following example of preposing unacceptable (from Birner and Ward 2009, p. 1173).

- (2) We have a new mail carrier. #To him, the dog runs every day.

In this example, the referent of the preposed phrase does not contrast with anything. When a contrast is added, the example becomes acceptable.<sup>2</sup>

- (3) We have a new mail carrier. To him, the dog runs every day, while it used to avoid the previous carrier.

Other languages are more liberal, including German, which is the language under investigation in this paper. In German, objects can be fronted even if they are non-contrastive, as illustrated by the following example. Here, fronting of an object given in the prior context fulfills a pure linking function.

- (4) In der B-Jugend habe ich noch mit Jungs trainiert, da hat mal einer gesagt,  
in the B-youth have I still with boys trained, there has once one said,  
ich solle mich lieber in die Küche stellen. **Den** habe ich dann  
I should me rather in the kitchen stand. **Him.ACC** have I.NOM then  
schön umgegrätscht ...  
beautifully tackled ...  
'While in B-youth, I still trained with boys. Once, one [of them] said, I should rather  
be standing in the kitchen. Later I tackled him intensely ...'  
[www.fupa.net/berichte/spvgg-erlangen-den-habe-ich-dann-schoen-umgegratscht-346540.html](http://www.fupa.net/berichte/spvgg-erlangen-den-habe-ich-dann-schoen-umgegratscht-346540.html) (accessed on 27 April 2021)

In written German, OS clauses are less frequent than SO clauses, but they still occur with some regularity. In a corpus study of German newspaper texts, Bader and Häussler (2010b, p. 727) found that main clauses with a subject and an accusative object, either of which occupied the clause-initial position, occurred with SO order in 86% of all cases and with OS order in the remaining 14%. Comparable quantitative data for spoken language are not available to our knowledge. Although the exact conditions under which clauses start with an object are still under discussion, progress has been made on this issue by concerted research in theoretical linguistics (e.g., Frey 2004b; Molnár and Winkler 2010; Fanselow and Lenertová 2011), corpus linguistics (e.g., Speyer 2008) and experimental linguistics (e.g., Weskott et al. 2011). This research has identified several discourse configurations in which OS sentences are as acceptable or even more acceptable than SO sentences. In this paper, we focus on cases as in (4) in which a given non-contrastive object has been preposed. We present three acceptability experiments that have investigated several factors modulating the acceptability of such sentences.

The organization of this paper is as follows. Section 2 reviews prior experimental research on the acceptability of SO and OS order. This section identifies several open questions which we address in our experiments. Section 3 discusses the syntactic analysis of sentences with OS order. The information structural properties of the sentences that are investigated in our experiments are introduced in Section 4. The experiments are presented in Sections 5–7. The paper concludes with a general discussion in Section 8.

## 2. The Acceptability of Object Fronting in German

When participants have to judge the acceptability of sentences without a preceding context, German OS sentences are usually rated less acceptable than corresponding SO sentences (e.g., Bader and Häussler 2010a), as expected given that OS sentences are felicitous only under discourse-pragmatic conditions that do not hold without context.

<sup>1</sup> Instead of the requirement that the object is contrastive, Birner and Ward claim that object preposing in English requires a salient open proposition. At least in the core cases, these two requirements seem to be equivalent.

<sup>2</sup> We are grateful to an anonymous reviewer for making this point and providing the extension to the original Example (2).

When appropriate contexts are provided, OS sentences can be as acceptable or even more acceptable than SO sentences, as shown by the experiments reviewed in this section. For reasons of space, the following review is restricted to research on main clauses with either the subject or the object in clause-initial position (for related research on clause-internal word order, see [Bornkessel and Schlesewsky 2006](#)). In research on German syntax, the first position of a main clause is known as the *prefield*. This term has its origin in the fact that German main clauses can be divided into so-called topological fields, with the position of the verbs serving as reference points, as shown in (5).

(5)

<i>prefield</i>	<i>left bracket</i>	<i>middle field</i>	<i>right bracket</i>	<i>final field</i>
Am Dienstag	muss	Peter einen Vortrag	halten,	der wichtig ist.
on Tuesday	must	Peter a talk	give	wich important is

‘Peter must give a talk which is important on Tuesday.’

[Fanselow et al. \(2008\)](#) showed that putting an object into the prefield eliminates the reduced acceptability of OS compared to SO sentences when the object is focused. Following object wh-questions as in (6), the authors found no significant difference in the ratings for subject (6a) vs. object initial (6b) sentences. They also found no significant influence of the referential form of the subject, with both pronominal and lexical subjects leading to high acceptance.

(6) Context: Wen wollte die Krankenschwester wegen Rick verlassen?  
 who.acc wanted the.nom nurse because-of Rick leave?  
 ‘Who did the nurse want to leave because of Rick?’

a. SO target:

Sie/Die Krankenschwester wollte den Medizinstudenten  
 wegen Rick verlassen  
 she/the nurse wanted the.acc student-of-medicine  
 because-of Rick leave

‘She/The nurse wanted to leave the student of medicine because of Rick.’

b. OS target: Den Medizinstudenten wollte sie/die Krankenschwester  
 wegen Rick verlassen.

[Weskott et al. \(2011\)](#) investigated short texts consisting of a context sentence followed by either a subject (7a) or object initial (7b) target sentence.

(7) Context: Peter hat den Wagen gewaschen.  
 Peter has the.ACC car washed.  
 ‘Peter has washed the car’

a. SO target: Er hat den Außenspiegel ausgelassen.  
 He.NOM has the.ACC side mirror left-out.  
 ‘He left the side mirror out.’

b. OS target: Den Außenspiegel hat er ausgelassen.

In Example (7), the object referents of the target sentence and the context—the side mirror and the car—stand in a part-whole relationship, which is a particular instance of a *poset* (*partially ordered set*) relation. In the acceptability judgment experiment of [Weskott et al. \(2011\)](#), OS sentences were rated significantly better in a part-whole compared to a null context. Furthermore, in part-whole contexts OS sentences were judged as even more acceptable than SO sentences (a case of *strong licensing* of OS order in the authors’ terminology). The authors attribute this finding to two aspects of their work that distinguish it from prior studies. On the one hand, the fronted object was linked by a poset relation to the preceding context. On the other hand, only the object was realized as a full NP, whereas the subject was pronominalized, as can be seen in (7).

Bader and Portele (2019) investigated short texts in which object fronting served a pure linking function. The texts investigated by Bader and Portele (2019) were similar to those tested by Weskott et al. (2011), as shown in (8).

- (8) Context: Ich habe gestern einen ehemaligen Kollegen getroffen.  
 I have yesterday a.ACC former colleague met.  
 'I met a former colleague yesterday.'
- a. SO target: Ich habe ihn/den/diesen Kollegen sofort wiedererkannt.  
 I.NOM have him/DEM.ACC/this colleague immediately recognized  
 'I recognized him immediately.'
- b. OS target: Ihn/Den/diesen Kollegen habe ich sofort wiedererkannt.

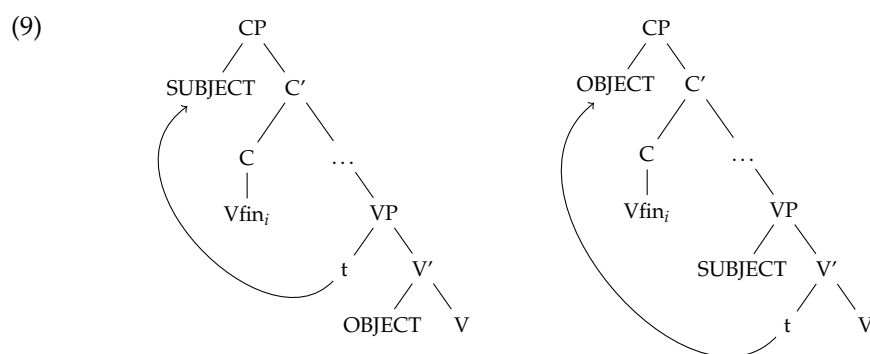
In the experiments of Bader and Portele (2019), the referent of the object NP in the target sentence was always mentioned in the context sentence and thus given. What was varied across conditions was the referential expression used for the object NP. This was either a personal pronoun (*ihn* 'him'), a d-pronoun (*den* lit. 'the') or a demonstrative NP (*diesen Kollegen* 'this colleague'). D-pronouns are one of several types of anaphoric demonstrative pronouns in German, the other major type being the demonstrative pronoun *dieser* ('this'). Formally, d-pronouns are identical to the definite article with few exceptions, but, semantically and pragmatically, they are similar to the demonstrative pronoun *dieser* (Patil et al. 2020). The main difference between these two types of anaphoric demonstratives seems to be a matter of register—whereas the d-pronoun *der* is more colloquial, the demonstrative *dieser* is more formal.

The results of Bader and Portele (2019) show a different relationship between SO and OS order for all three expressions. When the object was a personal pronoun, SO order was judged as more acceptable than OS order. For objects realized as demonstrative NPs, SO and OS order were judged as equally acceptable. When the object was a d-pronoun, OS sentences were judged as more acceptable than SO sentences. This preference for OS order with d-pronouns came about because SO sentences with a d-pronoun object were of reduced acceptability, whereas OS sentences with a d-pronoun object were judged as acceptable as SO or OS sentences with demonstrative NP objects.

In sum, prior research has established that in appropriate contexts OS sentences can be equally or even more acceptable as corresponding SO sentences. This holds for contrastive and given objects alike. Several factors that might contribute to the precise acceptability of OS sentences have not been fully explored so far, however. First, Bader and Portele (2019) tested only a small subset of the referential expressions that can be used for a discourse-given object. Second, only properties of the subject NP were varied by Fanselow et al. (2008) (pronominal versus non-pronominal subject), whereas all other investigations included pronouns as subjects. These two factors—referential expression of the object NP and properties of the subject NP—are investigated in the experiments below.

### 3. Deriving Object-Initial Sentences

According to widespread assumptions concerning the syntax of German (for an overview, see Haider 2010), a German main clause is derived by moving the finite verb to C<sup>0</sup> (the verb-second position) and one constituent in front of the finite verb to the specifier position of CP (the prefield; see also (5)). The latter movement is illustrated by the trees in (9) for both a sentence with SO order (left) and a sentence with OS order (right). We do not indicate verb movement in these trees because its implementation is a controversial issue to which we have nothing to contribute. Since the presence of further functional projections between VP and CP is a controversial issue as well, we include dots between VP and C'.



As for the order between subject and object within the VP, a common assumption is that it is determined on the basis of the verb's lexical meaning. For standard agentive verbs as used in our experiments, the subject NP precedes the object NP within the VP, as depicted in (9). This implies an important difference between SO and OS sentences: When the object is moved to SpecCP, it moves across the subject. The subject, in contrast, can move to SpecCP without crossing the object. Thus, whereas the subject is an intervener in the case of object movement, the object is not an intervener in the case of subject movement.

In the wake of the work by Bhatt (1999) on Kashmiri, several researchers have proposed that there are two types of movement to the prefield (Fanselow 2001; 2004; Müller 2004; Frey 2004b): movement for no other reason than to satisfy the verb-second requirement of German main clauses and movement for semantic/pragmatic reasons. Prototypical examples illustrating movement for semantic/pragmatic reasons were given above: movement of a focus phrase in (6b) and movement of a contrastive phrase in (7b). Two examples of sentences in which a phrase without any semantic/pragmatic properties that could license preposing has moved to the prefield are given in (10).

- (10) a. Es regnet seit Stunden.  
it rains since hours.  
'It is raining since hours.'
- b. Leider kann niemand von uns vorbeikommen  
unfortunately can none of us by-come  
'Unfortunately none of us can come by'

In (10a), a non-referential NP has been put into the prefield; in (10b), the prefield is filled by a sentence adverbial. The subject of a weather verb and a sentence adverbial do not have any semantic/pragmatic properties related to topichood or focus that would motivate their preposing to the prefield. Why are these phrases moved to the prefield nevertheless?

The answer to this question comes in two parts. First, due to the verb-second requirement on declarative main clauses in German, some phrase has to fill the prefield position. Second, as shown in (11), the phrases that appear sentence-initially in the main clauses in (10) also appear in the first position of the middle field when they do not occupy the prefield.

- (11) a. ... dass es seit Stunden regnet.  
that it since hours rains.  
'... that it is raining since hours.'
- b. ... dass leider niemand von uns vorbeikommen kann  
that unfortunately none of us by-come can  
'... that unfortunately none of us can come by.'

Taken together, this suggests that the left-most phrase within the middle field can move to the prefield even without semantic/pragmatic reasons in order to meet the verb-second constraint of German. This kind of movement is called *stylistic fronting* in Fanselow (2004) and *formal movement* in Frey (2004b). In the following, we use the term *Stylistic Movement* for this type of movement. Stylistic Movement targets the highest phrase within the middle field and moves it to SpecCP if no phrase with special semantic/pragmatic force claims the prefield position (as the wh-phrase in wh-questions).

Other phrases can be moved to SpecCP, too, if they have appropriate semantic/pragmatic properties. We call movement of this type SP (Semantic/Pragmatic) movement. Stylistic Movement accounts differ with regard to the properties of SP movement. According to Fanselow (2004), phrases bearing a wh, a focus or a topic feature can or must move to SpecCP. According to Frey (2004b), phrases that do not move by Stylistic fronting to the prefield must be contrastive, where the definition of contrastiveness used by Frey is given in (12).

- (12) If an expression  $\alpha$  in a declarative sentence S is contrastively interpreted, a set M of expressions,  $|M| \geq 2$ , is assumed to exist which contains  $\alpha$  and the expressions which denote salient alternatives to the denotation of  $\alpha$ .  
The utterance of a declarative clause S containing a contrastively interpreted expression  $\alpha$  has the implicature that S is not true if  $\alpha$  is replaced by any  $x \in M, x \neq \alpha$ . (Frey 2006, p. 246)

The object in an agentive sentence has its base position behind the subject. It must therefore cross the subject on its way to SpecCP. When applying SP movement, the object can reach the prefield in one fell swoop, as shown by the right tree in (9). According to Stylistic Movement accounts, this is only possible if the object has the appropriate semantic/pragmatic properties. If an object does not have these properties, it can reach SpecCP only by Stylistic Movement. As we argue in detail in the next section, the object in the OS sentences investigated by Bader and Portele (2019) (see (8b)) is neither a topic nor contrastive but merely given, which does not qualify it for SP movement according to the properties given by Fanselow (2004) and Frey (2004b). Because the object is base-generated below the subject in sentences with an agentive verb, it cannot be targeted directly by Stylistic Movement, which always applies to the first phrase in the middle field. Such an object can nevertheless reach the prefield, in one of two ways. First, the object may move middle field-internally across the subject, by an operation known as *scrambling*. This is illustrated in (13).

- (13) Gestern habe ich *einen ehemaligen Lehrer* besucht.  
Yesterday have I a former teacher visited  
'Yesterday, I visited a former teacher.'
- a. Hoffentlich hat **ein Mitschüler** *den* zu unserem Treffen eingeladen.  
hopefully has a class mate DEM.ACC to our meeting invited  
'Hopefully, a class mate invited him to our meeting.'
- b. Hoffentlich hat *den<sub>i</sub>* **ein Mitschüler** *t<sub>i</sub>* zu unserem Treffen  
hopefully has DEM.ACC a class mate to our meeting  
eingeladen.  
invited  
'Hopefully, a class mate invited him to our meeting.'

In most experiments summarized in Section 2, the subject was a personal pronoun. For OS sentences with a contrastive object, which are derived by SP movement, this is of no relevance, but for sentences with a non-contrastive object, a pronominal subject seems to prevent Stylistic Movement to apply. As shown in (14b), an object cannot scramble to the middle field-initial position when the subject is a pronoun.



- (14) **Peter** hat gestern *einen ehemaligen Kollegen* getroffen.  
 P. has yesterday a former colleague met  
 ‘Peter met a former colleague yesterday’
- a. Erstaunlicherweise hat **er** *diesen Kollegen* sofort  
 suprisingly has he.NOM this.ACC colleague immediately  
 erkannt.  
 recognized  
 ‘Suprisingly, He recognized this colleague immediately.’
- b. \*Erstaunlicherweise hat *diesen Kollegen* **er** sofort erkannt.
- c. *Diesen Kollegen* hat **er** erstaunlicherweise sofort erkannt.

The OS sentence in (14b) is ungrammatical because it violates the constraint that unstressed subject pronouns must immediately follow the finite verb, that is, they must obligatorily occur in the first position of the middle field. This condition is satisfied in the SO sentence in (14a). Frey accounts for this special property of subject pronouns by analyzing them as clitic-like elements which can optionally attach to the so-called *Wackernagel* position following the finite verb. If cliticized, subject pronouns no longer count as interveners for Formal Movement. The object then becomes the highest element within the middle field, allowing it to move to SpecCP without having special semantic/pragmatic properties, as in Sentence (14c).

In sum, Stylistic Movement accounts of German main clauses offer several routes for an object to reach the prefield, depending on semantic/pragmatic properties of the object as well as lexical properties of the subject. For two routes, experimental evidence has shown that OS sentences can be at least as acceptable as SO sentences when appropriate contexts are provided. OS sentences derived by SP movement were investigated by Fanselow et al. (2008) and Weskott et al. (2011) (see (6) and (7)). OS sentences derived by Stylistic Movement and a pronoun as subject were tested by Bader and Portele (2019). OS sentences derived by Stylistic Movement and a non-pronominal subject, as in (13), are the only case not addressed by experimental work so far. This issue is the topic of Experiment 2.

#### 4. Information Structural Properties of OS Sentences

Three information-structural notions are of central importance for understanding the relationship between discourse properties and object fronting—givenness, topichood and contrastiveness—but applying these notions to actual example sentences is not always straightforward, not least because these notions are used in somewhat different ways in the literature. We therefore discuss the relevant information-structural properties of the sentences investigated in the upcoming experiments in this section. By and large, our discussion follows the explication of information structure given in Krifka (2007).

Following Weskott et al. (2011) and Bader and Portele (2019), all three experiments reported below investigate short texts consisting of a context sentence and a target sentence, with the target sentence having either SO or OS word order. Thus, all texts are variants of the example given in (15).

- (15) Context: *Der Lehrer* hat gestern **einen ehemaligen Kollegen** getroffen.  
 the teacher has yesterday a.ACC former colleague met.  
 ‘The teacher met a former colleague yesterday.’
- a. SO target: *Er* hat **diesen Kollegen** sofort wiedererkannt.  
 he.NOM has this.ACC colleague immediately recognized  
 ‘He recognized this colleague immediately.’
- b. OS target: **Diesen Kollegen** hat *er* sofort wiedererkannt.  
 this.ACC colleague has he.NOM immediately recognized  
 ‘This colleague, he recognized immediately.’

In (15), the object of the target sentences refers to a referent explicitly mentioned in the preceding context sentence. The object's referent is thus discourse- and hearer-old, that is, *evoked* in the sense of Prince (1981) (see also Birner and Ward 2009). In the following, we use the term 'given' for evoked referents. Whereas the discourse status of the object as given seems to be uncontroversial, topichood and contrastiveness are not. We therefore discuss next which referent is the topic in examples such as (15), and whether the object is contrastive or not.

#### 4.1. Topichood

In agreement with much of the literature, we assume that the topic of a sentence is the referent about which the sentence makes a statement (cf. Reinhart 1981; Lambrecht 1996). For identifying the topic, we use the definition in (16), which closely follows Reinhart (1981, footnote 18) but is also in agreement with Lambrecht (1996) and Centering Theory (Grosz et al. 1995). Following Givón (1992) and Grosz et al. (1995), we tentatively assume that the rather coarse-grained syntactic function hierarchy in (16c) suffices for the purpose of topic identification.

- (16) The referent  $R$  of an NP  $\alpha$  in sentence  $s$  is the topic of  $s$  if
- $R$  has been referred to in the previous sentence.
  - The syntactic function of  $\alpha$  is higher on the syntactic function hierarchy than any other NP in  $s$  whose referent has been mentioned in the previous sentence.
  - Syntactic Function Hierarchy: Subject > Direct Object > Other

According to the definition above, the referent of the subject pronoun *er* is the topic in the second sentence of discourses as in (15).

A different result is obtained by a topic test proposed in Frey (2004a), according to which a middle field-internal topic phrase must appear in front of sentence adverbials. Applying this test to the sentences under consideration results in (17).

- (17) Gestern hat der Chef eine ehemalige Lehrerin getroffen.  
'The boss met a former teacher yesterday.'
- Zu Schulzeiten hat der Chef diese Lehrerin **leider** immer  
during school-years has the boss this teacher unfortunately always  
wieder enttäuscht.  
again disappointed  
'During his school years, the boss disappointed this teacher unfortunately time  
and again.'
  - ?Zu Schulzeiten hat der Chef **leider** diese Lehrerin immer wieder enttäuscht.
  - ??Zu Schulzeiten hat **leider** der Chef diese Lehrerin immer wieder enttäuscht.

A fully acceptable sentence results only if subject and object both precede the sentence adverbial. This could either mean that subject and object are both topics, or that the requirement to precede sentence adverbials does not hold for topic NPs in particular but for given NPs more generally.

Whether a sentence can contain more than a single topic NP is a controversial issue. According to Reinhart (1981), a sentence can have only a single topic, whereas Lambrecht (1996) argued that a sentence may have two topic NPs, which are not necessarily of equal status, however. While one topic is the main topic, the other one is a secondary topic. If we use passivization as a test for topichood, the subject emerges as primary topic. This is illustrated in (18). Although it seems possible to use either the subject or the object as the subject of a following passive clause, using the subject as in (18a) seems more natural to us than using the object as in (18b).



- (18) Gestern hat der Chef eine ehemalige Lehrerin getroffen.  
 'The boss met a former teacher yesterday.'
- a. Er wurde von ihr aber nicht erkannt.  
 he was by her but not recognized  
 'However, he was not recognized by her.'
  - b. ?Sie wurde von ihm aber nicht erkannt.  
 she was by him but not recognized  
 'However, she was not recognized by him.'
  - c. Sie wurde gerade von einer Journalistin interviewed.  
 she was just by a journalist interviewed  
 'She was just being interviewed by a journalist.'

This is not to say that an object cannot be taken up as the subject of a following passive clause. As shown by (18c), if the subject referent of the initial clause is not mentioned in the second clause at all and the object is the only and thus primary topic according to the definition in (16), the resulting passive clause is fully acceptable.

In summary, we conclude that, in discourses such as (15), either the subject is the only topic, or subject and object are both topics, but the subject is the primary topic.

#### 4.2. Contrastiveness

As discussed above, in the version of the Stylistic Movement account by Frey (2004b), any phrase can be brought to the prefield as long as the phrase gets a contrastive reading. Without a contrastive reading, a phrase can reach the prefield only by Stylistic Movement, which presupposes that the phrase occupies the middle field initial position. With regard to object fronting, a crucial question is thus whether a fronted object receives a contrastive reading or not.

In the sentences investigated by Weskott et al. (2011) (see (7)), the referent of the object NP is related by a poset relation to the preceding context. Since poset related NPs receive contrastive interpretations (see Speyer 2004), they must move to SpecCP by SP movement in the system of Frey. When the object referent is simply evoked in the prior context, it can be used without any implication of contrastiveness even if the object is located in SpecCP. For purposes of illustration, consider the example in (19).

- (19) S1 Als Student hat Peter eine Erstausgabe von Kafka gekauft.  
 as student has Peter a first-edition of Kafka bought  
 'As a student, Peter bought a rare first edition by Kafka.'
- S2 Die will er einmal seinen Kindern vererben.  
 she-DEM wants he one-day his children hand-down  
 'He wants to hand it down to his children one day.'
- S3 Außerdem will er ihnen seine Kunstdrucke vererben.  
 additionally wants he them his art prints hand-down  
 'In addition, he wants to hand his art prints down to them.'

Sentence S2 does not say anything about alternatives to the object referent, and, in particular, it neither implies nor implicates that Peter will leave his children nothing else than the first edition introduced in the first sentence S1. Fronting of the object thus does not lead to a contrastive reading but serves a pure linking function. A continuation as in S3 is therefore fully natural, without any sense of implicature canceling.

This conclusion is corroborated by the fact that the short discourses investigated in the upcoming experiments can always be continued in a way similar to (19). For Example (15), this is illustrated in (20).

- (20) Später hat er auch noch einige Schüler wiedergetroffen, und sogar diese hat er  
 later has he also yet some students again-met and even them has he  
 sofort wiedererkannt.  
 immediately recognized  
 ‘Later, he also met some students, and even them he recognized immediately.’

#### 4.3. Preview of Experiments

Experiment 1 investigates how the acceptability of SO and OS sentences is affected by the referential form of the object NP. Experiment 1 extends Bader and Portele (2019) by taking into account the five major referential expressions used for referring to a referent given in the preceding context. Experiment 2 addresses whether the acceptability of OS sentences depends on properties of the subject, which may be the case because the object has to move across the subject to reach the prefield. The two properties of the subject investigated in Experiment 2 are whether the subject is a pronoun or a full lexical NP, and whether the subject is referentially dependent on the prior context sentence or not. Experiment 3 finally explores the finding that SO sentences with a d-pronoun as object are less acceptable than SO sentences with other types of objects. To this end, Experiment 3 compares d-pronoun objects to d-pronoun subjects.

### 5. Experiment 1

Experiment 1 investigates how the referential form of the object NP affects the acceptability of sentences with either SO or OS order. All objects had the same discourse status—they were given in the preceding context—but differed in terms of referential form. Experiment 1 includes the five major types of referential expressions in German that can be used for referring to an evoked referent:

- a personal pronoun: *ihn* ‘him’
- a d-pronoun: *den* ‘him-DEM’
- a definite NP: *den Kapitän* ‘the captain’
- a demonstrative pronoun: *diesen* ‘that’
- a demonstrative NP: *diesen Kapitän* ‘that captain’

#### 5.1. Method

##### 5.1.1. Participants

Forty students from the Goethe University Frankfurt completed an online questionnaire for course credit. All participants were native speakers of German and naive with respect to the purpose of the experiment.

##### 5.1.2. Materials

Forty experimental items consisting of a context sentence followed by a target sentence were constructed for Experiment 1, with each item appearing in ten versions according to the two factors *Object* (p-pronoun versus d-pronoun versus definite NP versus demonstrative pronoun versus demonstrative NP) and *Word Order* (SO versus OS). A complete item is shown in Table 1 (see the Supplementary Materials for a list of all sentences). The context sentence always started with an adverbial phrase, followed by the finite verb, the subject, the object and the non-finite verb. In all context sentences, the subject was a definite NP and the object was an indefinite NP. The target sentence followed the context sentence and started either with the subject or the direct object. The remainder of the target sentence contained a finite verb and one or more non-finite verbs, the subject or direct object, as well as in some cases another object and/or one or more adverbial phrases. The subject of the target sentence was always the third-person pronoun *er* (‘him’). The direct object was either the third-person pronoun *ihn* (‘him’), the d-pronoun *den* (‘him-DEM’), a definite NP *den NOUN* (‘the NOUN’), the demonstrative pronoun *diesen* (‘that’), or a demonstrative NP *diesen NOUN* (‘that NOUN’). In the case of definite and demonstrative NPs, the noun was always identical to the noun of the object NP in the context sentence.

**Table 1.** Stimulus sentence from Experiment 1.

<b>Context sentence</b>	Heute morgen hat der Firmensprecher einen wichtigen Kunden angerufen. today morning has the company spokesman a important client called 'This morning, the company spokesman called an important client.'				
<b>Target sentence</b>	SO	Er hat	<i>NP-object</i>	von dem neuen Produkt überzeugt.	
		he has	of the new product	convinced	
	OS	<i>NP-object</i>	hat er von dem neuen Produkt überzeugt.		
		has he of the new product	convinced		
		'He convinced <i>NP-object</i> of the new product.'			
NP-object	=	P-pronoun: ihn 'him'			
		D-pronoun: den 'DEM'			
		Definite NP: den Kunden 'the client'			
		Demonstrative pronoun: diesen 'that'			
		Demonstrative NP: diesen Kunden 'that client'			

### 5.1.3. Procedure

Experiment 1 was run as a web experiment on Ibex Farm (Drummond et al. 2016). Participants saw each item on a separate browser page with the numbers 1–7 displayed beneath the item. They were asked to judge the acceptability of short texts consisting of two sentences by clicking on one of the numbers 1–7. A short instruction that appeared in the browser after starting the experiment told participants that 1 meant “totally unacceptable” and 7 meant “totally acceptable”. The instruction asked participants to judge the acceptability of both the individual sentences and the text as a whole. The instruction did not contain any example sentences. To ease the association between the numbers and their intended meaning, each trial included the label “totally unacceptable” to the left of the 1–7 scale and the label “totally acceptable” to the right. The experimental stimuli were combined with a set of 50 filler sentences and randomized individually for each participant. The presentation of the stimuli adhered to a Latin square design. Each participant saw only one version of each sentence and an equal number of sentences in each condition. Participants needed about 15–20 min to complete the questionnaire.

### 5.2. Results

All data presented in this paper were analyzed using the R statistics software (R Core Team 2020). To test for significant effects, we analyzed the results with cumulative link mixed effects models using the function `clmm()` in the ordinal package (Christensen 2019). Ordinal mixed effects models are more appropriate for Likert scale data than linear mixed effects models because the latter require that the data are measured at the interval level, which is questionable in the case of Likert scale data, and that the data are normally distributed. Application of the Shapiro–Wilk test showed that the normality assumption is not met by the data of Experiment 1. We entered the experimental factors and all interactions between them as fixed effects into the model, using effect coding, that is, the intercept represents the unweighted grand mean and fixed effects compare factor levels to each other. For the five-level factor *Object*, four pairwise contrasts were defined, comparing the level with the highest rating to the level with the second-highest rating, the level with the second-highest rating to the level with the third-highest level, and so on. In addition, we included random effects for items and subjects with maximal random slopes supported by the data, following the strategy proposed in Bates et al. (2015). Where necessary, simple contrasts were computed to compare mean values.

Figure 1 shows the mean acceptability ratings obtained in Experiment 1. The corresponding mixed-effects model is given in Table 2. The main effect of Order was not significant. Considering the main factor *Object*, the contrasts between p-pronoun and d-pronoun and between p-pronoun and definite NP were significant. These main effects have to be qualified by a significant interaction between Order and the contrast p-pronoun vs. d-pronoun. As can be seen in Figure 1, this interaction reflects the finding that SO order

was rated better than OS order for the p-pronoun, whereas OS is the higher rated order in the case of the d-pronoun.

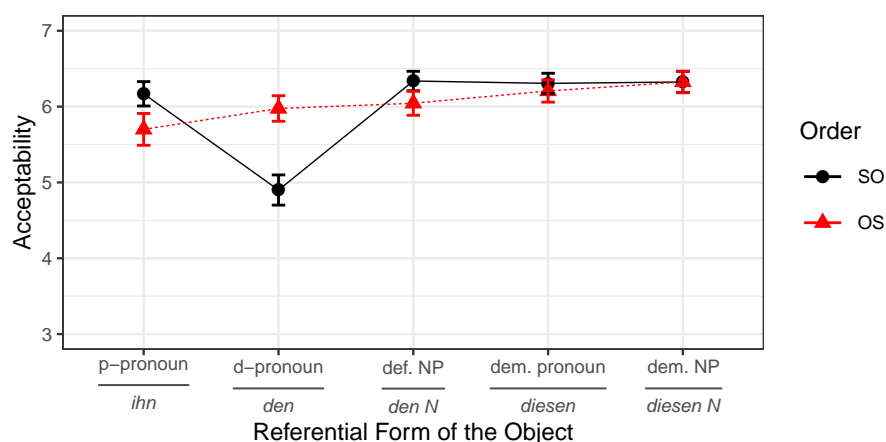


Figure 1. Mean acceptability in Experiment 1. Error bars show 95% confidence intervals.

Table 2. Ordinal mixed model for Experiment 1.

	Estimate	Std. Error	z value	Pr(>  t )
Object: <i>den-ihn</i>	1.06445	0.29623	3.593	<0.01
Object: <i>ihn-den N</i>	0.52277	0.26115	2.002	<0.05
Object: <i>den N-dies</i>	0.24856	0.25980	0.957	n.s.
Object: <i>dies-diesen N</i>	0.05745	0.25864	0.222	n.s.
Order	0.04516	0.14831	0.304	n.s.
Object: <i>den-ihn</i> × Order	−2.94761	0.35148	−8.386	<0.01
Object: <i>ihn-den N</i> × Order	0.58011	0.35429	1.637	n.s.
Object: <i>den N-dies</i> × Order	0.14245	0.36342	0.392	n.s.
Object: <i>dies-diesen N</i> × Order	0.33145	0.36673	0.904	n.s.

To explore the results more closely, several pairwise comparisons were computed. Order had a significant effect when the object was a p-pronoun or a definite NP, with SO being more acceptable than OS (p-pronoun: 6.2 vs. 5.7,  $z = 4.385$ ,  $p < 0.01$ ; definite NP: 6.3 vs. 6.0,  $z = 2.096$ ,  $p < 0.05$ ). Order also had a significant effect when the object was a d-pronoun, this time with OS being more acceptable than SO (4.9 vs. 6.0,  $z = 7.5$ ,  $p < 0.01$ ). For demonstrative objects (pronouns and NPs), SO and OS order did not differ significantly.

Considering SO sentences, acceptability was lower when the object was a d-pronoun than when it was a p-pronoun (4.9 vs. 6.2,  $z = 9.175$ ,  $p < 0.01$ ); for all remaining objects, no significant differences were found for SO sentences. For OS sentences, Figure 1 shows a continuous increase when going from left to right. However, when comparing adjacent mean values, only the pairwise comparison between sentences with a p-pronoun object and sentences with a d-pronoun object was significant (5.7 vs. 6.0,  $z = 2.449$ ,  $p < 0.05$ ). The further increase in acceptability from d-pronouns to demonstrative NPs was not reflected in any significant contrast between adjacent values, which is likely due to the fact that each stepwise increase was quite small, ranging from 0.07 to 0.16. Only the comparison between the two endpoints—d-pronoun OS sentences and demonstrative NP OS sentences—was significant (6.0 vs. 6.3,  $z = 2.729$ ,  $p < 0.01$ ). Because these statistical results do not allow firm conclusions concerning possible fine-grained differences between the different types of OS sentences, we must leave this issue as a task for future research.

### 5.3. Discussion

Experiment 1 yielded two major results. First, when the object was a d-pronoun, OS order was judged as more acceptable than SO order. In all other cases, SO order

was judged as more acceptable (p-pronoun and definite NP) or the two orders were judged as equally acceptable (demonstrative pronouns and demonstrative NPs). Second, the higher acceptability of OS order with d-pronouns was caused by the relatively low acceptability of SO sentences when compared to SO sentences with other types of objects, not by an increased acceptability of OS sentences, which in fact were even somewhat less acceptable than OS sentences with demonstrative objects. This contrasts with Experiment 2 of [Bader and Portele \(2019\)](#), where OS sentences with d-pronoun objects were as acceptable as OS sentences with demonstrative NPs. Otherwise, Experiment 1 replicates the finding of [Bader and Portele \(2019\)](#) for those referential expressions that were already included there.

Experiment 1 extends the findings of [Bader and Portele \(2019\)](#) to definite NPs and demonstrative pronouns. For definite NPs, SO was slightly more acceptable than OS order; for demonstrative pronouns, there was no significant difference between SO and OS order, which mirrors the results for demonstrative NPs. The overall picture that thus emerges is that, in sentences with a non-contrastive given object, demonstrative objects are particularly favorable for OS order. This holds for sentences with the more formal demonstrative pronoun *dieser*, either on its own or in combination with a noun, as well as for the more colloquial d-pronoun *der*. The latter differs from the other demonstrative pronouns mainly in the relatively low acceptability of SO sentences. A possible reason for this low acceptability is explored in Experiment 3.

## 6. Experiment 2

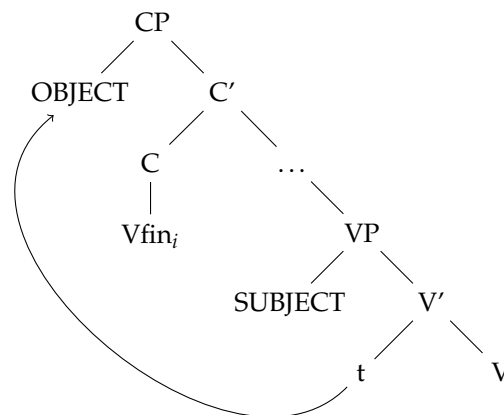
Most experiments that found that OS main clauses can be at least as acceptable as corresponding SO main clauses tested sentences in which the subject was a personal pronoun (Experiment 1 of the present study; [Weskott et al. 2011](#); [Bader and Portele 2019](#)). Only [Fanselow et al. \(2008\)](#) tested OS sentences with either lexical NPs or personal pronouns as subject and found no difference with regard to acceptability (see Example (6)).<sup>3</sup>

There are several, non-exclusive reasons why properties of the subject might affect the acceptability of OS sentences. Most of them are related to the basic premise that, when the object fills the prefield, it has moved there from a position below the subject. This is illustrated by the tree structure in (21), repeated from above.

Several theories—including syntactic theories and processing theories—predict that properties of the subject affect the acceptability of OS sentences because the subject separates the object in SpecCP both from the object’s base position and from the clause-final verb. To probe for effects of the intervening subject on the acceptability of OS order, Experiment 2 varies the subject in two dimensions. First, the subject NP is either a personal pronoun or a full NP. Second, the subject NP is referentially dependent on a NP of the preceding context sentence or not. The two sentences in (22) illustrate the case where the subject of the target sentence—a pronoun in (22a) and a definite NP in (22b)—is referentially dependent on an antecedent in the context sentence.

<sup>3</sup> [Fanselow et al. \(2008\)](#) and [Wierzba and Fanselow \(2020\)](#) tested sentences in which an object as part of a focused VP was fronted (partial VP fronting), finding effects of the intervening subject along the line of given versus new subjects. For reasons of space, we cannot discuss the relationship of these effects to our results.

(21)



- (22) Gestern hat **ein Mitschüler** *einen ehemaligen Lehrer* besucht.  
 Yesterday has a class mate a former teacher visited  
 'Yesterday, a class mate visited a former teacher.'
- a. Den hat **er** zu unserem Treffen eingeladen.  
 DEM.ACC has he to our meetings invited  
 'He invited him to our meeting.'
- b. Den hat **der Mitschüler** zu unserem Treffen eingeladen.  
 DEM.ACC has the class mate to our meeting invited  
 'The class mate invited him to our meeting.'

Sentences in which the subject of the target sentence is referentially independent of the context sentence are shown in (23). The subject of the target sentence is either a first person pronoun, which is not dependent on the preceding context sentence because the speaker/writer is always available as referent of a first-person pronoun, or an indefinite NP, which introduces a new referent.

- (23) Gestern habe **ich** *einen ehemaligen Lehrer* besucht.  
 Yesterday have I a former teacher visited  
 'Yesterday, I visited a former teacher.'
- a. Den habe **ich** zu unserem Treffen eingeladen.  
 DEM.ACC have I to our meetings invited  
 'I invited him to our meeting.'
- b. Den hat **ein Mitschüler** zu unserem Treffen eingeladen.  
 DEM.ACC has a class mate to our meeting invited  
 'A class mate invited him to our meeting.'

In all four target sentences in (22) and (23), the referent of the object NP is mentioned in the preceding context sentence and therefore given in the target sentence. With regard to their topic-comment structure, however, the four target sentences are not all equal. In the two target sentences in (22) and in target Sentence (23a), the referents of both subject and object are mentioned in the context sentence. Thus, according to the obliqueness criterion for topichood embedded within the definition in (16), the subject is the topic because its referent functions as subject in the context sentence. In (23b), in contrast, only the referent of the object is already mentioned in the context sentence, and this referent is therefore the topic, despite being associated with the object function in the context sentence.



### 6.1. Grammar-Based Intervention Effects

The Stylistic Movement accounts of German clause structure introduced in Section 3 offer several routes for an object to reach the prefield, depending both on semantic/pragmatic properties of the object and on what kind of subject intervenes between prefield and the object's base position. When the subject is a pronoun, it can optionally cliticize to the Wackernagel position, which makes it invisible for Stylistic Movement. In the target sentences of Experiment 2 that contain a pronominal subject, the object then becomes the first phrase within the middle field and Stylistic Movement can apply, moving the object to the prefield.

When the subject is not a pronoun but a full NP, as in (22b) and (23b), the object can still reach the prefield by means of Stylistic Fronting, but only if it first scrambles within the middle field in front of the subject. For the case of an indefinite subject, object scrambling is illustrated in (24). Following the context sentence in (24a), continuing with the SO sentence in (24b) seems to us to be as natural as continuing with the OS sentence in (24c).

- (24) a. Gestern habe ich *einen ehemaligen Lehrer* besucht.  
Yesterday have I a former teacher visited  
'Yesterday, I visited a former teacher.'
- b. Hoffentlich hat **ein Mitschüler** *den<sub>i</sub>* zu unserem Treffen eingeladen.  
hopefully has a class mate DEM.ACC to our meeting invited  
'Hopefully, a class mate invited him to our meeting.'
- c. Hoffentlich hat *den<sub>i</sub>* **ein Mitschüler** *t<sub>i</sub>* zu unserem Treffen  
hopefully has DEM.ACC a class mate to our meeting  
eingeladen.  
invited  
'Hopefully, a class mate invited him to our meeting.'

The exact conditions that license scrambling are a controversial issue (cf. Musan 2002; Struckmeier 2017), but a core case is provided by sentences in which a discourse-given topical object moves across a discourse-new subject. In (24b)/(24c), the object is given and also the topic, and the subject is new. This is thus the ideal configuration for scrambling. Although scrambling is an optional operation, as witnessed by the naturalness of (24b), scrambling seems to be fully natural in this case. From its middle field-initial position, the object can then move on to the prefield by Stylistic Movement.

The corresponding example with a definite NP as subject in the continuation sentence is shown in (25).

- (25) a. Gestern hat **ein Mitschüler** *einen ehemaligen Lehrer* besucht.  
Yesterday has a class mate a former teacher visited  
'Yesterday, a class mate visited a former teacher.'
- b. Hoffentlich hat **der Mitschüler** *den* zu unserem Treffen eingeladen.  
hopefully has the class mate DEM.ACC to our meeting invited  
'Hopefully, the class mate invited him to our meeting.'
- c. Hoffentlich hat *den<sub>i</sub>* **der Mitschüler** *t<sub>i</sub>* zu unserem Treffen  
hopefully has DEM.ACC the class mate to our meeting  
eingeladen.  
invited  
'Hopefully, the class mate invited him to our meeting.'

To us, it seems possible to continue the context Sentence (25a) with either the SO Sentence (25b) or the OS Sentence (25c), but we are not sure whether both continuations are of equal acceptability. Maybe they are, but in this case the SO sentence may as well be more acceptable than the corresponding OS sentence. This is clearly a point that needs to be resolved in future experimental research. From a theoretical point of view, the (relatively) high acceptability of the OS Sentence (25c) is surprising. In theories allowing for only one

topic per sentence (e.g., [Reinhart 1981](#)), the subject is the topic NP; in theories allowing for more than a single topic (e.g., [Lambrecht 1996](#)), the subject referent would be the primary topic and the object referent the secondary topic. Either way, there is no obvious reason for the object to scramble in front of the subject. Fronting of the object to the prefield by Stylistic Movement would then of course not be possible either. At this point, we simply note this problem and postpone a fuller discussion to the general discussion.

Thus far, we have only considered Stylistic Movement as a means for the object to reach the prefield in the target sentences of Experiment 2. As discussed in Section 3, SP Movement offers an alternative route to the prefield but only for objects with the appropriate semantic-pragmatic properties. For [Frey \(2004b\)](#), SP Movement can only apply to phrases with a contrastive reading. Since the object in the sentences under consideration is not contrastive, Stylistic Fronting is the only option in Frey's variant of the Stylistic Movement account. According to [Fanselow \(2004\)](#), topic is among the features that license the application of SP Movement. As discussed above, the object is the topic when the referent of the subject NP has not been introduced in the preceding context sentence, that is, when the subject is an indefinite NP, as in (23b). Thus, in this case, the object could move directly to the prefield in Fanselow's version of the Stylistic Movement account, without first being scrambled.

The final question is how to link the various ways to reach the prefield to measures of acceptability. One way to approach this question is provided by the Derivational Theory of Complexity (see [Fodor et al. 1974](#)), which claims that sentence complexity is proportional to the number of derivation steps needed to derive a sentence. If so, the following ranking can be established. First, least complex are OS sentences derived by SP Movement because only a single movement is needed to bring the object to the prefield. OS sentences derived by Stylistic Movement are derivationally more complex than OS sentences derived by SP Movement, whether the subject is a pronoun or a full NP. Under the additional assumption that cliticization, which is an instance of a very local head movement, is a less complex syntactic operation than scrambling, which is the movement of a full phrase across an intervening phrase, the two types of OS sentences derived by Stylistic Movement also differ in terms of complexity: OS sentences with a pronominal subject are less complex than OS sentences with a full DP subject.

## 6.2. Processing-Based Intervention Effects

Properties of the intervening subject phrase could affect the acceptability of OS sentences also for processing reasons. According to the Dependency Locality Theory (DLT) proposed in [Gibson \(2000\)](#), the complexity of parsing a sentence is partially determined by the processing cost necessary for forming syntactic dependencies. The cost of forming a dependency between two elements A and B—the so-called *integration cost*—increases with the amount of referential processing associated with phrases or words that intervene between A and B. In its basic form, the DLT only distinguishes between elements introducing a new discourse referent (nouns and verbs) and elements that do not (e.g. pronouns). Evidence for a more refined notion of referential processing cost was provided by [Warren and Gibson \(2002\)](#) (see also [Warren and Gibson 2005](#)). According to them, referential processing cost is a gradient property that increases along the line of the Givenness Hierarchy of [Gundel et al. \(1993\)](#). The relevant part of this hierarchy is shown in (26).

- (26) First person pronoun < third person pronoun < definite NP < indefinite NP

Applied to the sentences under consideration, the DLT makes the following predictions. First, properties of the subject should affect OS sentences but not SO sentences. Second, the acceptability of OS sentences should decrease with increasing processing cost of the subject, that is, from left-to-right in the hierarchy in (26).

### 6.3. Method

#### 6.3.1. Participants

Forty-six students from the Goethe University Frankfurt completed a printed questionnaire during a class session. All participants were native speakers of German and naive with respect to the purpose of the experiment. No participant had already participated in Experiment 1.

#### 6.3.2. Materials

To create the materials for Experiment 2, the 40 two-sentence texts investigated in Experiment 1 were modified in such a way that each text appeared in eight versions according to the three factors *Form of the Subject* (pronominal subject versus non-pronominal subject), *Referential Dependence of the Subject* (referentially independent versus referentially dependent) and *Word Order* (SO versus OS). A complete experimental item is shown in Table 3 (see the Supplementary Materials for a list of all sentences). As in the preceding experiment, the context sentence always introduced two referents. The subject referent was introduced by either the first-person pronoun *ich* 'I' or an indefinite NP. The object referent was always introduced by an indefinite NP. In each target sentence, the object referent of the context sentence was taken up again by a d-pronoun functioning as object. With the exception of one condition, the subject referent of the context sentence was also taken up again, always as subject but varying in its referential form. The subject of the target sentence was either a pronoun or a full NP. When it was a pronoun, the subject was the first-person pronoun *ich* 'I' in the condition 'independent reference' and the third-person pronoun *er* 'he' in the condition 'dependent reference'. When the subject was non-pronominal, it was an indefinite NP in the condition 'independent reference' and a definite NP in the condition 'dependent reference'. The factor Word Order varied whether the subject or the d-pronoun object occurred in the prefield.

**Table 3.** Stimulus sentence from Experiment 2.

Referential independent subject (context with first person subject)	
<b>Context</b>	Heute morgen habe ich einen wichtigen Kunden angerufen. today morning have I a important client called 'This morning, I called an important client.'
<b>Target</b>	SO Ich/Ein Kollege habe/hat den vor kurzem über das neue Produkt informiert. I/a colleague have/has him bevor shortly about the new product informed
	OS Den habe/hat ich/ein Kollege vor kurzem über das neue Produkt informiert. him have/has I/a colleague bevor shortly about the new product informed 'I/A colleague informed him shortly before about our new product.'
Referential dependent subject (context with indefinite subject)	
<b>Context</b>	Heute morgen hat ein Kollege einen wichtigen Kunden angerufen. today morning hat a colleague important client called 'This morning, a colleague called an important client.'
<b>Target</b>	SO Er/Der Kollege hat den vor kurzem über das neue Produkt informiert. he/the colleague has him bevor shortly about the new product informed
	OS Den hat er/der Kollege vor kurzem über das neue Produkt informiert. him has he/the colleague bevor shortly about the new product informed 'He/The colleague informed him shortly before about our new product.'

#### 6.3.3. Procedure

As in Experiment 1, Experiment 2 asked participants to judge the acceptability of sentences on a scale from 1 ("totally unacceptable") to 7 ("totally acceptable"). In contrast to Experiment 1, Experiment 2 was not a web-based experiment, but was run as part of a

regular class session.<sup>4</sup> To this end, eight paper-and-pencil questionnaires were constructed on the basis of the eight experimental lists. The experimental stimuli were randomized differently for each questionnaire. Participants completed the questionnaires as part of a class session by marking one of the numbers 1 to 7 printed beneath each sentence. Experiment 2 used the same instruction as Experiment 1. Participants needed about 15–20 min to complete the questionnaire.

#### 6.4. Results

The data analysis proceeded as for Experiment 1. Figure 2 shows the mean acceptability values obtained in Experiment 2. The corresponding mixed-effects model is given in Table 4. SO sentences were generally judged as less acceptable than OS sentences, resulting in a significant effect of Order. The difference between sentences with a pronominal subject and sentences with a full NP subject was larger for OS sentences (pronominal: 5.5 versus full NP: 5.2) than for SO sentences (pronominal: 5.5 versus full NP: 5.2), resulting in a significant Order by Subject Form interaction. In addition, there were significant main effects of Subject Form and Subject Reference and a significant three way-interaction. Pairwise comparisons showed that the effect of Subject Form depends on the combination of Order and Subject Reference. For SO sentences with a referentially independent subject, Subject Form had no effect (4.8 vs. 4.9,  $z = 0.625$ , n.s.), but a marginally significant effect for SO sentences with a referentially dependent subject (4.7 vs. 4.5,  $z = 1.926$ ,  $p = 0.054$ ). For OS sentences, Subject Form had a significant effect both when the subject was referentially independent (5.6 vs. 5.2,  $z = 3.941$ ,  $p < 0.01$ ) and when it was dependent (5.4 vs. 5.2,  $z = 2.427$ ,  $p < 0.05$ ).

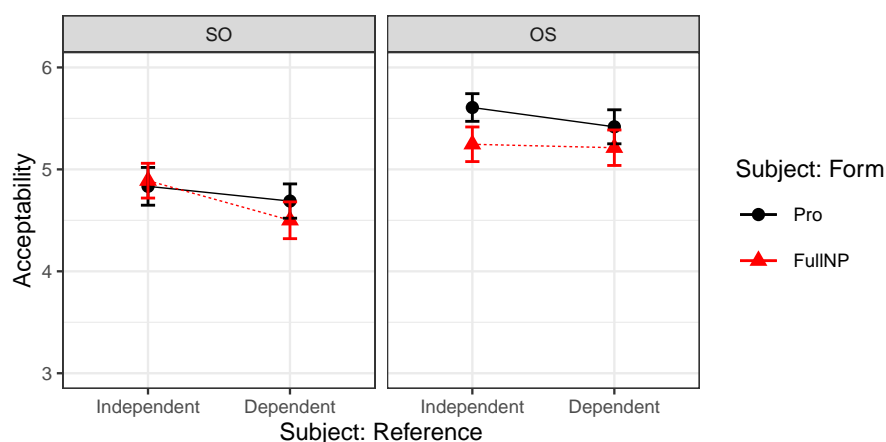


Figure 2. Mean acceptability in Experiment 2. Error bars show 95% confidence intervals.

Table 4. Ordinal mixed model for Experiment 2.

	Estimate	Std. Error	z Value	Pr(>  t )
Subject Form	−0.31689	0.10646	−2.976	< 0.01
Subject Reference	−0.30137	0.10849	−2.778	< 0.01
Order	1.07460	0.17213	6.243	< 0.001
Subject Form × Subject Reference	−0.07472	0.15852	−0.471	n.s.
Subject Form × Order	−0.44195	0.15930	−2.774	< 0.01
Subject Reference × Order	0.14785	0.15884	0.931	n.s.
Subject Form × Subject Reference × Order	0.65094	0.31699	2.054	< 0.05

<sup>4</sup> This difference between Experiment 1 and Experiment 2 had purely practical reasons. Participants of Experiment 1 obtained course credits for participating in the experiment, but they were not obliged to complete the questionnaire at a particular time; therefore, the questionnaire was distributed to them in the form of a web-based experiment. Participants of Experiment 2 completed the questionnaire simultaneously during a class session so that the results could be computed without much delay and be discussed in a following class session.

### 6.5. Discussion

The first major finding yielded by Experiment 2 is that for main clauses with a d-pronoun as object, OS order is preferred to SO order whether the subject is a pronoun or a lexical NP. The preference of d-pronoun objects to occur in the prefield, which was observed in [Bader and Portele \(2019\)](#) with a first-person pronoun as subject and in Experiment 1 with a third-person pronoun as subject, must therefore be attributed to properties of the object itself.

Although OS order was rated higher than SO order whether the subject was a pronoun or a definite NP, the difference between SO and OS order was smaller for sentences with a full NP subject. This is due to the second major finding of Experiment 2, namely that OS sentences with a pronominal subject were found to be more acceptable than OS sentences with a full NP as a subject. With a difference of 0.25 on a 1–7 scale, the distinction between pronominal and non-pronominal subject had only a small effect, however. This effect of the referential form of the subject was predicted by Gibson’s DLT. The more fine-grained prediction of the DLT—that integration cost increases when going from left to right on the Givenness Hierarchy in [\(26\)](#)—was not born out, although for pronominal subjects, a numerical effect in the expected direction was observed. For non-pronominal subjects, however, no difference showed up.

Under certain conditions, the higher acceptability of OS sentences with a pronominal subject in comparison to OS sentences with a full NP subject also follows from the Stylistic Movement account of German clause structure when combined with the Derivational Theory of Complexity. According to [Frey \(2004b\)](#), all OS sentences investigated in Experiment 2 have to be derived by Stylistic Movement because SP Movement is not applicable due to a lack of contrastiveness. In sentences with a pronominal subject, Stylistic Movement can apply after the subject pronoun has cliticized to the Wackernagel position. In sentences with a non-pronominal subject, the object has first to scramble across the subject within the middle field. While this clearly seems to be an option if the subject is an indefinite NP, it is less clear whether scrambling across a definite NP is possible (see discussion of Example [\(25\)](#)). Assuming that it is and that cliticization is computationally less complex than scrambling, as argued above, the acceptability difference found in Experiment 2 for OS sentences follows. This account would also explain why Experiment 2 revealed an effect on the acceptability of OS sentences depending on whether the subject was pronominal or non-pronominal, whereas [Fanselow et al. \(2008\)](#) did not. This difference between our experiment and that of [Fanselow et al. \(2008\)](#) follows from Frey’s account because focused objects, as investigated by [Fanselow et al. \(2008\)](#), are moved to the prefield by SP Movement, which is not affected by the referential expression used for the subject.

When the subject of the context sentence was the first-person pronoun *ich* and the target sentence contained an indefinite subject (condition independent reference/full NP), the object was the topic in the target sentence. OS sentences of this type were rated as equally acceptable as OS sentences in which the referent of the subject NP was given and therefore the topic. A difference depending on whether the object is the topic NP or not could have been expected under the version of the Stylistic Movement account proposed by [Fanselow \(2004\)](#). According to Fanselow, [+topic] is among the features that license the application of SP Movement. Thus, when the object is the topic NP, it can reach SpecCP without any further derivational steps such as cliticization or scrambling.

A final finding of Experiment 2 is that SO sentences with a definite NP subject (= topic) were somewhat less acceptable than SO sentences with an indefinite NP subject (= non-topic). A possible account of this finding is provided by Centering Theory ([Grosz et al. 1995](#)). According to Centering Theory, in a coherent discourse, the topic must be pronominalized if any non-topic is pronominalized. In the sentences under consideration, the subject (= the topic) is realized as a definite NP in the presence of a pronominal object (= a non-topic). However, because the object was a d-pronoun, it must be considered an



open question whether this condition on discourse coherence is violated in the case under consideration.<sup>5</sup>

### 7. Experiment 3

For sentences with a d-pronoun object, Experiment 1 found OS order to be more acceptable than SO order. Importantly, the higher acceptability of OS order resulted from a penalty for SO order and not from an advantage for OS order (see also [Bader and Portele 2019](#)). That is, in comparison to sentences containing other types of object NPs, SO sentences with d-pronoun objects were rated as less acceptable but OS sentences with d-pronoun objects were not rated as more acceptable.

In terms of topological fields, the object occurs in the prefield in OS sentences and in the middle field in SO sentences. The finding at issue can therefore be rephrased as showing that a d-pronoun object is less acceptable in the middle field than in the prefield. In principle, finding lower acceptability ratings for sentences with d-pronouns is not unexpected because d-pronouns are considered to be “impolite” when used to refer to human referents ([Dudenredaktion 1997](#)). [Vogel \(2019\)](#) included sentences as in (27) as an instance of a “grammatical taboo”, that is, a grammatical aspect of informal oral language that should not be used in formal written language according to prescriptive grammar (see [Vogel 2019](#), definition (6)).

- (27) Während Felix sprach, schaute ich den an.  
While F. spoke looked I DEM at  
'While Felix spoke, I looked at him.'

Sentences as in (27) received a mean rating of about 3.4, which is even lower than the ratings obtained in Experiments 1 and 2, even when looking only at cases where the d-pronoun was contained in the middle field. As in our experiments, the participants of Vogel's experiment were students, for whom a relatively high degree of adherence to the standard grammar can be assumed. The difference between our findings and those of Vogel therefore suggest that a general prescriptive bias against d-pronouns may well exist, but that the degree of deviance caused by d-pronouns is not uniform and instead depends on how well the use of a particular d-pronoun is grammatically licensed. D-pronouns prefer objects as antecedents ([Bosch et al. 2003](#); [Portele and Bader 2016](#)), a condition met in our experiments but not in the experiment of Vogel.

This still leaves us with the question of why d-pronoun objects were of clearly reduced acceptability only when they were part of the middle field but not when they were located in the prefield. Note that p-pronoun objects show the reverse picture—they are more acceptable in the middle field than in the prefield, probably because they are phonologically and syntactically too weak to occupy the prefield (see, among others, [Lenerz 1992](#) and [Cardinaletti and Starke 1994](#)). Given the complementary acceptability pattern of p- and d-pronoun objects, we hypothesize that the high acceptability of d-pronoun objects in the prefield is a repair phenomenon (for a recent overview, see [Murphy 2019](#)). That is, the prescriptive bias against d-pronouns is suspended, or at least reduced, for objects in the prefield. D-pronouns are neither phonologically nor syntactically deficient and thus can fill the gap that arises due to the ban of p-pronouns from the prefield. This is similar to do-support in modern German which is also prescriptively banned except when the sole verb in a main clause is fronted to the prefield. A finite form of *do* is acceptable in this case because otherwise a finite verb for filling C<sup>0</sup> would be missing (for do-support in German as a repair phenomenon, see [Bader and Schmid 2006](#) and [Weber 2018](#)).

In contrast to p-pronoun objects, p-pronoun subjects are fully acceptable in the prefield and in the middle field, as shown, for example, by the results for SO and OS sentences with demonstrative objects in Experiment 1. The prescriptive bias against d-pronouns should

<sup>5</sup> The slight drop in acceptability for sentences with a definite subject is also reminiscent of the repeated-name penalty observed by [Gordon et al. \(1993\)](#).



therefore be position-independent when d-pronouns act as subject: d-pronouns should be less acceptable than p-pronouns to the same degree in the pre- and the middle field. To test this prediction, Experiment 3 varies the referential form of both the object and the subject. For the case of the prefield, this is shown in (28). The prefield contains either a p- or a d-pronoun, whereas the second argument in each sentence is the first-person pronoun (*ich* 'I' or *mich* 'me').

- (28) Ich habe heute mit Peter telefoniert.  
 I have today with Peter phoned  
 'Today, I was on the phone with Peter.'
- a. Den/?Ihn werde ich morgen besuchen.  
 him-DEM/him will I tomorrow visit  
 'I will visit him tomorrow.'
- b. Der/Er wird mich morgen besuchen.  
 he-DEM/he will me tomorrow visit  
 'He will visit me tomorrow.'

If the subject and object in (28a) and (28b) were to switch position, the crucial d/p-pronoun would end up in the middle field and the first-person pronoun *ich* 'I' / *mich* 'me' in the prefield. Given the results of Experiment 1, sentences with the object pronoun *mich* in the prefield are expected to be of reduced acceptability independently of the acceptability of the items in the middle field. To avoid this problem, Experiment 3 includes sentences in which subject and object are both contained within the middle field. As shown in (29), this is achieved by putting an adverbial into the prefield so that both subject and object must remain in the middle field.

- (29) Ich habe heute mit Peter telefoniert.  
 I have today with Peter phoned  
 'Today, I was on the phone with Peter.'
- a. Morgen werde ich den/ihn besuchen.  
 Tomorrow will I him-DEM/him visit  
 'I will visit him tomorrow.'
- b. Morgen wird der/er mich besuchen.  
 Tomorrow will he-DEM/he me visit  
 'He will visit me tomorrow.'
- c. Morgen wird mich der/\*er besuchen.  
 Tomorrow will me he-DEM/he visit  
 'He will visit me tomorrow.'

When the subject is the first-person pronoun *ich*, as in (29a), SO order is mandatory (unless one puts heavy stress on *ich*, for which there is no reason in this case). When the object is the first-person pronoun *mich*, as in (29b) and (29c), only SO order is grammatical when the subject is the p-pronoun *er*, whereas the d-pronoun *der* allows both SO and OS order. Corpus data show, however, that SO order is the preferred option (Bader 2020b). Experiment 3 includes only sentences as in (29a) and (29b), so that all sentences with subject and object in the middle field occur with SO word order. Because this is either the only licit or at least the preferred order, word order can be excluded as a possible source of acceptability differences. Given the prescriptive bias against d-pronouns, the sentences in (29a)/(29b) should be less acceptable with a d-pronoun (*den/der*) than with a p-pronoun (*ihn/er*). Under the hypothesis that in the prefield d-pronouns in object function, but not in subject function, are a repair phenomenon, object d-pronouns should show a drop in acceptability when comparing pre- and middle field, whereas subject d-pronouns should not.

### 7.1. Method

#### 7.1.1. Participants

Forty-eight students from the Goethe University Frankfurt completed a printed questionnaire during a class session. All participants were native speakers of German and naive with respect to the purpose of the experiment. None of the participants had participated in either of the two preceding experiments.

#### 7.1.2. Materials

The materials for Experiment 3 consisted of 40 items each appearing in eight conditions according to the three factors *Pronoun* (p-pronoun versus d-pronoun), *Syntactic Function of the Pronoun* (Subject versus Object) and *Position of the Pronoun* (prefield versus middle field). An example illustrating all eight conditions is provided in Table 5 (see the Supplementary Materials for a list of all sentences). The 40 items for Experiment 3 were derived from the 40 items for Experiment 1 in the following way. First, the subject NP of the context sentences was replaced by the first-person pronoun *ich* 'I'. The context sentences therefore contained a pronoun as subject and an indefinite NP as object. In the condition 'P- or D-Pronoun = Subject', the indefinite NP was taken up in the target sentences as a subject pronoun (*er* or *der*) and the first person pronoun as object (*mich* 'me'). In the condition 'P- or D-Pronoun = Object', the indefinite NP was taken up in the target sentences as object (*ihn* or *den*) and the first person pronoun as subject (*ich* 'I'). In the condition 'prefield', the p- or d-pronoun co-referential with the indefinite NP of the context sentence appeared in the prefield of the target sentences and the first-person pronoun accordingly in the middle field. In the condition 'middle field', an adverbial filled the prefield and all pronouns occurred in the middle field, always with SO order. The adverbial that filled the prefield in the condition 'middle field' appeared in the middle field in the condition 'prefield'.

**Table 5.** Stimulus sentence from Experiment 3.

Context	Heute morgen habe ich einen wichtigen Kunden angerufen. today morning have I a important client called 'This morning, I called an important client.'									
Target	<b>P- or D-Pronoun = Subject</b>									
	Prefield	Er/Der	hat mich dabei	über ein neues Projekt	informiert.					
		he/DEM.NOM	has me at that	about the new project	informed					
	Middle field	Dabei hat er/der	mich über ein neues Projekt	informiert.						
		at that has he/DEM.NOM	me about the new project	informed						
		'In the process of this, he informed me about a new project.'								
	<b>P- or D-Pronoun = Object</b>									
	Prefield	Ihn/Den	habe ich dabei	über ein neues Projekt	informiert.					
		him/DEM.ACC	have I at that	about the new project	informed					
	Middle field	Dabei habe ich ihn/den	über ein neues Projekt	informiert.						
		at that have I him/DEM.ACC	about the new project	informed						
		'In the process of this, I informed him about a new project.'								

#### 7.1.3. Procedure

Experiment 3 used the same paper-based questionnaire procedure as Experiment 2.

### 7.2. Results

The data were analyzed in the same way as before. Figure 3 shows the mean acceptability values obtained in Experiment 3. The corresponding ordinal mixed-effects model is given in Table 6. The main factors Pronoun and Syntactic Function were significant, but they have to be qualified by several significant interactions, including a significant three-way interaction. For the factor Pronoun, pairwise comparisons show that p-pronouns were judged as more acceptable than d-pronouns in three of the four combinations of Position and Syntactic Function: as subject in the prefield (5.8 vs. 5.4,  $z = 4.02$ ,  $p < 0.01$ ), as

subject in the middle field (5.4 vs. 5.2,  $z = 2.18$ ,  $p < 0.05$ ) and as object in the middle field (5.7 vs. 4.9,  $z = 7.31$ ,  $p < 0.01$ ). As object in the prefield, d-pronouns were rated as more acceptable than p-pronouns, although only marginally so (5.4 vs. 5.1,  $z = 1.76$ ,  $p = 0.079$ ). Thus, sentences with d-pronouns in the middle field were judged as less acceptable than sentences with p-pronouns in the middle field, for both subjects and object. The difference was not the same, however, as revealed by Figure 2. A small difference for subjects of 0.24 contrasts with a relatively large difference of 0.87 for objects, leading to a significant two-way interaction between Syntactic Function and Pronoun when considering only sentences in the condition middle field ( $z = 3.32$ ,  $p < 0.01$ ).

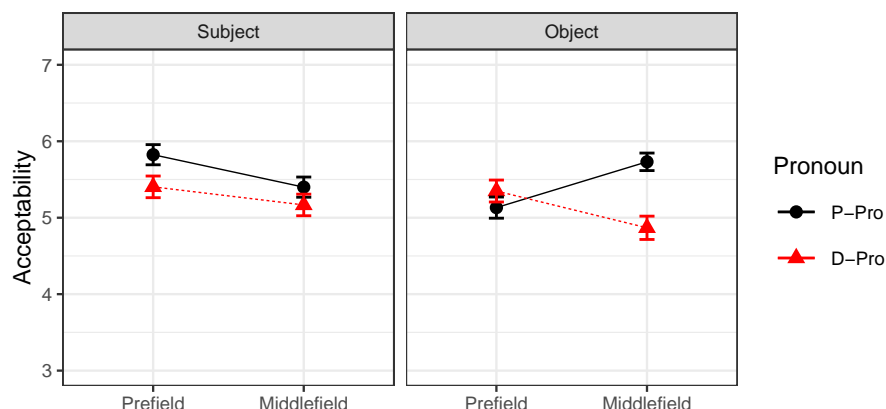


Figure 3. Mean acceptability in Experiment 3. Error bars show 95% confidence intervals.

Table 6. Ordinal mixed model for Experiment 3.

	Estimate	Std. Error	t Value	Pr(>  t )
Pronoun	−0.46943	0.07882	−5.956	<0.01
Syntactic Function	−0.24340	0.07846	−3.102	<0.01
Position	−0.09690	0.07825	−1.238	n.s.
Pronoun × Syntactic Function	0.04429	0.15664	0.283	n.s.
Pronoun × Position	−0.57004	0.15713	−3.628	<0.01
Syntactic Function × Position	0.54987	0.15665	3.510	<0.01
Pronoun × Syntactic Function × Position	−1.72589	0.31523	−5.475	<0.01

### 7.3. Discussion

The findings yielded by Experiment 3 confirm the predictions made above. As subjects, d-pronouns were less acceptable than p-pronouns in the prefield and the middle field to about the same extent. We attribute this difference between p- and d-pronouns to the prescriptive bias against using d-pronouns for persons. In addition, both p- and d-pronoun subjects were somewhat less acceptable in the middle field than in the prefield. This finding, which we did not anticipate, indicates that in our target sentences, the subject was somewhat higher valued as filler of the prefield than the adverbial that occupied the prefield when the subject was placed in the middle field. In principle, this finding could be interpreted in terms of the prefield hierarchy of [Speyer \(2004\)](#), but, because we used a variety of adverbials, determining the place of different adverbials on the prefield hierarchy is beyond the scope of the present paper.

In the function of objects, position affected p- and d-pronouns in opposite ways. In the prefield, p-pronoun objects were less acceptable than d-pronoun objects, as also found in Experiment 1. This finding is in line with the syntactic literature where it is often noted that p-pronouns are not fully acceptable when they occur as object of an agentive verb in the prefield. The relationship between the two pronoun types was reversed in the middle field. As expected, the acceptability of p-pronoun objects went up in the middle field. At the same time, the acceptability of d-pronoun objects in the middle field went down to about the same degree that the acceptability of p-pronouns went up, resulting in a relatively large difference between p-pronoun and d-pronoun objects in the middle field. Thus, p- and d-pronoun objects show a complementary pattern, in accordance with the hypothesis that object d-pronouns in the prefield are a repair phenomenon: D-pronoun objects are relatively unacceptable in the middle field, where they compete with p-pronouns, but quite acceptable in the prefield, where p-pronouns in object function are of reduced acceptability.

In sum, the results of Experiment 3 show that the acceptability of sentences with d-pronouns vary with the syntactic function and the clausal position of the d-pronoun. As discussed in the introduction to Experiment 3, the acceptability values for sentences containing a d-pronoun were higher in the current study than in Vogel's (2019) study of grammatical taboos. We hypothesize that the reason for this difference is that in our sentences, d-pronouns occurred with their most highly valued antecedents, namely indefinite object NPs, whereas a subject proper name served as antecedent in Vogel's experiment. Given that various syntactic and semantic factors affect the acceptability of d-pronouns, one may well wonder what role remains for the prescriptive ban against the use of d-pronouns when referring to persons. As pointed out by an anonymous reviewer, to clarify this issue, one may test the acceptability of d-pronouns by groups of participants differing with regard to their adherence to the norms of prescriptive grammar. We must leave this as a task for future research.

## 8. General Discussion

We present three experiments probing the acceptability of SO and OS sentences with an object that is not contrastive but merely given in the preceding context. A major finding of these experiments is that OS sentences with given objects are acceptable under a variety of conditions. Depending on the particular referential expression used for object and subject, acceptability varied to some degree, although the observed differences were small. With regard to the referential expression used for the object, Experiment 1 found that OS sentences with demonstrative objects—whether pronominal or non-pronominal—were at least as acceptable as corresponding SO sentences. With a personal pronoun or a definite NP, in contrast, SO order was more acceptable than OS order. With regard to properties of the subject, which is an intervener for the object in OS sentences, Experiment 2 found acceptability to be higher when the subject was a pronoun than when it was a full NP. In addition, Experiment 3 yielded new evidence on the acceptability of d-pronouns, which are considered as inappropriate by prescriptive grammars when referring to humans.

Overall, acceptability was relatively high in the experiments reported in this paper, and the observed differences were quite small. The mean acceptability values per condition ranged from 4.5 to 6.3 for SO sentences and from 4.8 to 6.3 for OS sentences. In the classification proposed by Vogel (2019), these values fall in the range typical for mildly marked sentences. Interestingly, the lowest mean acceptability values were observed for SO sentences with a d-pronoun object in the middle field. The mean acceptability for OS sentences, in contrast, was always greater than 4.8. Thus, the various contrasts that we found to be significant were all modulations of grammatical sentences. The observed significant differences were small, ranging from 0.2 to 1.3 across all three experiments.<sup>6</sup> However, even if the differences are small, this does not mean that they cannot have

<sup>6</sup> Technically speaking, the effect size of the significant differences found in Experiments 1–3 ranged from medium to negligible, whether computing effect size in terms of Cohen's or Cliff's delta.

observable effects. For example, when a choice has to be made between two alternative grammatical structures during language production, a small difference in acceptability can result in a substantial frequency difference because the relationship between acceptability and frequency is non-linear, as captured formally in frameworks making use of weighted constraints (e.g., Goldwater and Johnson 2003; Pater 2009; see Bader 2020a for an application to German). Thus, when deciding whether to use a sentence with SO or OS order, the acceptability differences observed in Experiments 1–3 may well tip the balance. If so, a range of challenging predictions arise that should be tested in future production experiments and corpus studies.

As a final point, let us consider the Stylistic Movement account of German clause structure in light of the results yielded by Experiments 1–3. The two versions of this account that we discussed in this paper—those of Fanselow (2004) and Frey (2004b)—agree that an object denoting a referent given in the prior context can reach the prefield only by Stylistic Movement if the object does not have a contrastive reading and is neither a focus nor a topic phrase. This characterization holds for almost all target sentences investigated in this paper (the exception being target sentences with an indefinite subject in Experiment 2, in which the object was the topic). Stylistic Movement, which puts the first phrase within the middle field to the prefield, can target the object of an agentive verb in one of two ways. Either a pronominal subject cliticizes to the Wackernagel position and thereby becomes “invisible” for Stylistic Movement, or the object is scrambled across a non-pronominal subject. Whereas movement of the object in the presence of a pronominal subject seems unproblematic, movement of the object in the presence of a non-pronominal subject raises non-trivial questions.

Setting object-initial main clauses with a pronominal subject aside, the major question is whether each acceptable object-initial main clause has an acceptable counterpart in which the object has been scrambled across the non-pronominal subject. All sentences with a non-pronominal subject investigated in this paper contained a demonstrative pronoun as object. As discussed above, scrambling of a demonstrative pronoun seems to be highly acceptable when the subject is an indefinite NP, as in (24). When the subject is a definite NP, as in (25), it is less clear whether scrambling of a demonstrative pronoun is equally acceptable. Furthermore, given that the subject is the topic and the object therefore non-topical, it is also unclear what should trigger scrambling in thus cases.

What we have not considered so far are sentences with non-pronominal subjects and full-NP objects. A relevant example is provided in (30).

- (30) Gestern hat **ein Mitschüler** einen ehemaligen Lehrer besucht.  
 Yesterday has a class mate a former teacher visited  
 ‘Yesterday, a class mate visited a former teacher.’
- a. Diesen Lehrer hat **der Mitschüler**  $t_i$  zu unserem Treffen eingeladen.  
 DEM.ACC teacher has the class mate to our meeting invited  
 ‘The class mate invited this teacher to our meeting.’
- b. Ich hoffe, dass diesen Lehrer **der Mitschüler**  $t_i$  zu unserem Treffen eingeladen hat.

Putting the object into the prefield seems to be highly acceptable in (30a). The corresponding scrambling sentence in (30b) sounds less acceptable to us. This is in agreement with the findings of Keller (2000) who obtained acceptability ratings for scrambling sentences in appropriate contexts and nevertheless found rather low ratings, even for sentences which should have been judged as acceptable according to the syntactic literature on scrambling.

To sum up, the above considerations suggest that the requirement that in the presence of a non-pronominal subject merely given objects can reach the prefield only by first scrambling to the left edge of the middle field may be too strong. This does not necessarily mean that the distinction between Stylistic Movement and SP Movement has to be given up. This distinction is well-motivated in our view, but the criteria for applying SP Movement provided by Fanselow (2004) and Frey (2004b) may be too narrow. Objects that are given but neither topics nor contrastive seem to be good candidates for filling the prefield, both when the subject is a pronoun and when it is a definite or indefinite full NP. It may thus well be worth considering the possibility that such objects can reach the prefield in one fell swoop, without the need to first scramble to the left edge of the middle field. In addition, more fine-grained notions of topichood, contrastiveness and emphasis should be taken into account as possible motivations for moving objects to the prefield (see Frascarelli and Hinterhölzl 2007; Frey 2010; Catasso 2015). The slightly lower acceptability observed in Experiment 2 for OS sentences with a non-pronominal subject in comparison to OS sentences with a pronominal subject could then no longer be explained in syntactic terms. We do not see this as a problem because Gibson's DLT provides an alternative account of this difference in term of processing.

Resolving the question of what is the most appropriate way to derive OS main clauses in German is beyond the scope of the present paper. To make progress on this question, it will be necessary to gather more data on the purported relationship between movement of the object to the left edge of the middle field and movement of the object to the prefield. In particular, further experiments are necessary to determine whether the acceptability of movement to the prefield mirrors the acceptability of movement within the middle field (i.e., scrambling). A positive answer to this question would strengthen the hypothesis that merely given objects can reach the prefield only by formal movement. Otherwise, it will be more plausible that objects can reach the prefield in a single step even if they are merely given.

**Supplementary Materials:** The following are available at <https://www.mdpi.com/2226-471X/6/2/82/s1>: Materials used in Experiments 1–3.

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