

# Perspective-taking and protagonist prominence: An empirical approach to the role of local and global prominence

**Sara Meuser**

*Bergische Universität Wuppertal*

MEUSER@UNI-WUPPERTAL.DE

**Maximilian Hörl**

*Universität zu Köln*

MHÖRL1@UNI-KOELN.DE

**Stefan Hinterwimmer**

*Universität Hamburg*

STEFAN.HINTERWIMMER@UNI-HAMBURG.DE

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## Abstract

The choice of the perspectival center of a stretch of discourse is crucial for the interpretation of certain phenomena such as free indirect discourse. It has been argued that the protagonist that is most prominent compared to competing protagonists gets to be the perspectival center. In this paper we discuss grammatical function and referential expression as prominence-lending cues and their impact on perspective-taking. We take the anchoring of free indirect discourse as the indicator for a shift in perspective as free indirect discourse can only be processed correctly if the reader is able to ascribe the utterance or thought to a protagonist. Identifying the perspectival center is particularly crucial for the interpretation of a thought or utterance in free indirect discourse mode that can potentially be ascribed to different protagonists, since in contrast to direct or indirect discourse the respective speaker or thinker is not explicitly marked as such in free indirect discourse.

In a series of acceptability rating studies, we tested if anchoring of free indirect discourse to the less prominent of two competing referents is perceived to be unnatural in German. Further, we take a closer look at the role of subject and object as well as the choice of referential expression (proper name compared to indefinite noun phrase). We find that a protagonist referred to with a proper name in subject position is highly preferred as the anchor for free indirect discourse compared to a protagonist referred to with an indefinite noun phrase in object position.

Building on these findings, we present evidence that the prominence of the referent that is established in the sentence preceding a sentence in free indirect discourse mode can be overridden by discourse prominence. That is, a referent that is repeatedly mentioned in a short discourse is preferred as the perspectival center regardless of the prominence of a competing referent in the sentence preceding a sentence in free indirect discourse mode

**Keywords:** Perspective, Free Indirect Discourse, Prominence, Discourse, Subjecthood

## 1. Introduction

### 1.1 Perspective-taking in language

The choice of words in a spoken discourse or a narrative does not only depend on the intention and the knowledge that a speaker or narrator has but also on their perspective regarding location in space and time, their relation to other individuals etc. In particular expressions referring to places,

points in time or individuals, but also adverbs like *luckily* or *sadly* express an involvement in a given context from a certain point of view – for example, *my mother*, *my daughter* or *the minister of defense* may refer to the same person depending on the relation between the person uttering the expression and the person denoted by the expression. A coherent interpretation of a discourse thus requires the hearer or reader to ascribe context-sensitive utterances to the speaker or narrator or a certain protagonist. A change in perspective in a narration as well as in spoken discourse can simply be indicated by means of direct or indirect speech or thought representation; e.g., the minister of defense can be denoted by the expression *my mother* if the speaker signals that he or she is citing a child of the minister of defense – or if the speaker is a child of the minister of defense. In fiction a certain perspective can also be indicated by narrative mode. A first-person narrator for example usually reports or recounts events from his or her fixed point of view. A narration from a third-person perspective, in contrast, may allow for sporadic shifts in perspective for example in Free Indirect Discourse (FID) or other kinds of perspective-taking such as Viewpoint Shifting (Hinterwimmer, 2017) or Protagonist Projection (Holton, 1997; Stokke, 2013; Abrusán, 2020). FID is a form of thought representation where context-sensitive expressions such as deictic expressions or evaluative terms are interpreted with respect to the perspective of a certain protagonist, while at the same time the narrative mode of the third-person narrator remains unchanged, as shown in (1a): The second sentence in (1a) is intuitively interpreted as a thought of Maria, with the deictic adverb *tomorrow* being interpreted with respect to Maria’s context, i.e. as referring to the day following the day on which Maria has the thought. At the same time, Maria is referred to by a third- rather than a first-person pronoun, and the present rather than the past tense form of the auxiliary *will* is used. View Point Shifting and Protagonist Projection, in contrast, do not render conscious thoughts of protagonists but rather render the contents of their perceptions in a way that is compatible with their belief state at the time of perceiving, as shown in (1b): The main clause in (1b), for example, on its most plausible interpretation does not describe an event that is happening in the story world, but rather a temporary illusion that Mary has a consequence of her sense of balance having been disturbed by the boat trip.

- (1) a. Mary smiled. Tomorrow she would reveal her true identity at the press conference.  
(Hinterwimmer, 2019: 79, ex. (1c))  
b. When Mary stepped out of the boat, the ground was shaking beneath her feet for a couple of seconds.  
(Hinterwimmer, 2017: 291, ex. (14))

When we approach perspective-taking in language, we have to consider that the common understanding of the term perspective refers to a visual experience that is limited according to the observer’s position. The term perspective is metaphorically applied to narration and may be defined as the linguistic and extralinguistic choices that are limited with respect to a certain point of view (see Friedman, 1955; Stanzel, 1984). A narration from a certain protagonist’s perspective can thus only convey information this particular protagonist has according to his or her position in a given narrative. In spoken language, the speaker is usually the perspectival center of the utterance – unless he or she indicates a change in perspective, e.g., by quoting another person. Written discourse does not allow for such a straightforward ascription of the perspectival center as it is not always as trivial to pinpoint who is telling the story. In narration, it is not the author who writes down his or her story, shares memories or perceives a situation, but a narrating instance that is created by an author and that may be far more abstract than an actual individual and have many properties (such

as omniscience, for instance) that no actual individual has (see, e.g. Zeman, 2020 for discussion).<sup>1</sup> In the tradition of literary studies we will therefore never refer to the author’s perspective but to the narrator’s perspective.

In this paper, we will give a short overview of perspective-taking in narratives before we discuss the conditions under which perspective shifts from neutral narration to FID are possible. We will follow the argumentation outlined in Hinterwimmer (2019) (also Hinterwimmer and Meuser, 2019; Meuser, 2022) and show that the availability of a protagonist as a possible perspective holder depends on his or her prominence status (see Wiebe, 1990, 1994 for an early discussion of this issue in a computational framework and Abrusán, 2021 for a sketch of a unified proposal that integrates the insights of Wiebe, 1990, 1994 and Hinterwimmer, 2019). In Section 2 we report acceptability rating studies (see also Meuser, 2022) investigating the hypothesis that a prominent referent is more likely to be the perspectival center of a text segment compared to a competing, less prominent referent. In our experiments we asked participants to rate the naturalness of German text segments in which sentences in FID must be interpreted with regard to two discourse referents and found that FID anchored to the more prominent protagonists received higher ratings.<sup>2</sup> The first experiment (n=75) presented in Section 2.1 will investigate the following hypothesis:

H1: A protagonist that is more prominent in terms of referential expression and grammatical function is more easily available as the anchor for FID than a competing referent.

In Section 2.2 we will present a follow-up experiment (n=119) that will provide a first attempt to disentangle the prominence-lending cues grammatical function and referential expression by testing the following hypotheses:

H2: Protagonists functioning as subjects are more available as anchors for FID than protagonists functioning as objects.

H3: Protagonists referred to with a proper name are more available as anchors for FID than protagonists introduced by an indefinite NP.

Furthermore, we will compare the effect investigated with respect to H2 and H3 so that we can draw conclusions regarding the hierarchies of the two prominence-lending cues. For that purpose, we raised the rather exploratory question (Q1): *Does the type of referential expression play a bigger role than the grammatical function with respect to the anchoring of FID?* A second question (Q2) that calls for an exploratory investigation is whether the competition of the two protagonists has an impact on the anchoring preference, i.e., *is the effect stronger when the competing referent is minimally prominent in terms of referential expression?*

We conclude that although FID, in contrast to direct and indirect discourse, does not require formal marking, the correct ascription of FID depends on the availability of a protagonist as the anchor for the thought or utterance. Identifying the perspectival center is of particular importance whenever several protagonists are potentially available to be the anchor for an utterance. Our findings

1. This approach is mostly limited to fictional texts. Imagine a note on the refrigerator saying “I ate the cake”. Here it is to be assumed that the author of the note ate the cake. An interpretation in which a narrator who is not the author ate the cake would be absurd.

2. Although the experimental evidence is based on German stimuli rated by German native speakers, we want to argue that FID follows the same patterns in English. We decided to present English examples in the theoretical part of this paper to illustrate the issue. All examples were carefully checked to evoke the same effect by English native speakers.

suggest that the anchoring of FID to a protagonist depends on his or her prominence status and that grammatical function is a crucial indicator for the availability as a perspectival center while the referential expression is less important as a prominence-lending cue.

Based on these findings we conducted a third acceptability rating study (n=116) where we test the effects found in the first two experiments in larger discourse. In particular, we wanted to test if a referent that is established as the most prominent in terms of grammatical function in a local context, i.e., the sentence preceding the FID, is still preferred as the perspectival center when a competing referent is more prominent in the global context, i.e. throughout a short discourse. We investigate two hypotheses:

- H4: Protagonists that are highly activated in a discourse in terms of being repeatedly mentioned in subject position are just as available as anchors for FID as protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID.
- H5: Protagonists that are highly activated in a discourse in terms of being established as the discourse topic in a topic-establishing sentence, repeatedly mentioned in subject position, and mentioned in a title are more available as anchors for FID than protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID.

## 1.2 Perspective-taking in narratives

We want to approach the term perspective and its connection to fiction by taking a look at how narrative modes set a certain perspective and allow for changes in perspective.

The most obvious classification of narrating instances holds between the first-person narrator who tells a story from his or her point of view and a third-person narrator. A second relevant distinction is the one between homodiegetic and heterodiegetic narrators: Homodiegetic narrators are part of the story world, while heterodiegetic narrators are not. Consequently, the perspective of a homodiegetic first-person narrator is much more restricted than the perspective of a heterodiegetic first-person narrator: Since the former is by definition also a protagonist of the story, they perceive or tell a story they witnessed from a fixed, i.e. their own perspective, and only have access to their own thoughts and feelings. By contrast, a heterodiegetic narrator has more or less knowledge about the ongoing story, the past and the future of the story world as well as insights into different protagonists' thoughts with varying degrees of omniscience. This holds not only of third-person, but also of first-person heterodiegetic narrators, which are, however, much rarer than third-person heterodiegetic narrators, at least in modern fiction (see Saure et al. 2023 for discussion of the differences between homo- and heterodiegetic as well as first and third-person narrators with respect to perspective-taking).

Furthermore, literary scholars have done more fine-grained classifications such as the distinction between *first-person*, *authorial* and *figural narrators* (Stanzel, 1984), *between editorial*, *neutral*, *selective* and *multiple selective omniscience* (Friedman, 1955) or between *zero focalization*, *external focalization* and *internal focalization* (Genette, 2010). The three latter terms, which have been very influential in literary studies of narration, refer to modes of narration where the narrator either has access to the thoughts, feelings and perceptions of all protagonists (zero focalization) or just one particular, highly prominent protagonist (internal focalization), or where the narrator does not have access to the thoughts, feelings and perceptions of any protagonist and just describes observable

events, actions and situations.

In spite of using different terminology, all mentioned approaches describe narrators that may allow for shifts in perspective, i.e., they are not restricted to one perspective but they may temporally report a protagonist's point of view without indicating the shift in perspective by the use of direct or indirect discourse.

With many terms for perspective-taking in narratives we deal with a phenomenon that is well described in literary studies, yet with little attention<sup>3</sup> drawn to the restrictions of perspective shift (with the notable exception of Wiebe, 1990, 1994; see Abrusán, 2021 for discussion) or, as formulated in Hinterwimmer (2019), the answer to the question: under what conditions do protagonists become available as perspectival centers?

With these descriptive approaches in mind, we want to point out that narration with a high degree of focalization does not only require the reader to identify the perspective holder in a given discourse and to be able to follow a shift in perspective from a narrating instance to a protagonist's point of view, and vice versa, but also to be able to "integrate confronting perspectives" (Zeman, 2019). While actual physical perspective-taking usually<sup>4</sup> limits the observer to only one location from where a view may be directed, the concept of perspective in language we investigate naturally allows for multiple points of view. We will briefly elaborate on this idea taking an example from Zeman that illustrates how the use of propositional attitude verbs commonly licenses (at least) dual perspectivization.

- (2) Little Red Riding Hood believes that the wolf is her grandmother.

In (2) the reader is confronted with a proposition that requires the accommodation of an external and an internal reading. Here, the information that Little Red Riding Hood believes the creature in her grandmother's bed to be her grandmother has to be updated with the external viewpoint that provides the information that it is in fact the wolf who took the grandmother's position in bed (i.e., the definite description *the wolf* is interpreted *de re*). In other words, without the integration of multiple perspectives we are limited to either Little Red Riding Hood's point of view (as paraphrased in (3a) or the narrator's point of view (as paraphrased in (3b)).

- (3) a. Little Red Riding Hood believes she sees her grandmother.  
b. The wolf pretends to be Little Red Riding Hood's grandmother.

We propose a similar multiple perspective reading including the external perspective of the narrator and the internal perspective of the protagonist for the examples of FID we discuss as indicators of a perspective shift.

Also, traditionally, in narratology it has been recognized that instances of selective omniscience or internal focalization are rather two overlapping or mixed perspectives – the one of the narrator

3. Genette considers alterations in focalization as isolated violations that may occur as long as the coherence of the whole is given (Genette, 2010). However, he does not elaborate to what extent focalization may alter in order for the text to be coherent and if all protagonists are possible perspective holders.

4. Mirrors and cameras may allow for multiple perspectives.

and the one of the protagonist (see Pascal 1977 for the “dual voice” discussion). The terminology *shift of perspective* used in our discussion may therefore falsely indicate that one perspective is neglected for the sake of another – that is not the case. For reasons of simplicity, however, we will continue to talk about *shifts* in perspective – keep in mind that it is rather a *shift in narrative mode* from authorial, omniscient or zero focalized narration (henceforth: neutral perspective) to a figural, multiple omniscient or internally focalized narration (henceforth: protagonist’s perspective).

### 1.3 Free Indirect Discourse

Although the issue of perspective-taking is well studied in linguistics (for an overview see Eckardt, 2014) one question remains almost untackled: What restricts the choice of the perspectival center in a given discourse when different protagonists are available as perspectival centers, i.e., are shifts to the perspective of a certain protagonist that is part of a given discourse always coherent or do they sometimes lead to incoherence?

This question is particularly interesting with regard to the limitations of FID. Unlike direct or indirect discourse FID renders the thought of a protagonist without using quotation marks or embedding it under a propositional attitude verb such as *say* or *think*. A sentence in FID can thus only be interpreted correctly if the reader is able to take on the perspective of the protagonist whose thoughts or utterances are reported. Characteristics of FID are, for example, interjections, judgmental statements, exclamatives, discourse particles, rhetorical questions and a partial shift in deixis (Steube, 1985; Banfield, 1982).

- (4) a. Thomas looked at the calendar. He thought: “Tomorrow I will finally see Mommy again.”
- b. Thomas looked at the calendar. He thought that he was going to see his mother again the next day.
- c. Thomas looked at the calendar. Tomorrow he would finally see his Mommy again.<sup>5</sup>

Especially the use of deictic expressions, i.e., expressions that depend on a fixed context such as *I*, *here* and *now*, is notable. In (4a) and (4b) we find a shift from the first-person personal pronoun (henceforth: PPro) *I* to the third-person PPro *he*, the informal expression *mommy* changes to the possessive determiner phrase *his mother* and the adverbial *tomorrow* shifts to the anaphoric adverbial *the next day*, which refers to the day following the day including the reference time set in the first sentence, i.e., the time when Thomas looked at the calendar. In (4c), on the other hand, the use of deictic expressions seems inconsistent. Here the third-person PPro *he* as well as the possessive determiner *his* indicate a neutral perspective. The temporal adverbial *tomorrow* contradicts the use of past tense in the preceding sentence and thus has to be interpreted with regard to Thomas’ perspective just as the informal address *mommy*, which likewise expresses Thomas’ perspective. In order to account for this partial shift, Eckardt (2014) (see also Schlenker, 2004 and Sharvit, 2008 for closely related proposals built on the same basic idea) proposes to take two contexts into consideration: the narrator’s context *C* and the protagonist’s context *c*, where *c* is only introduced in

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5. We want to add that this example could be read as a case of objective future-in-the past (see Eckardt, 2017 for the terminology) if we paraphrase the utterance in the following way:

*Unbeknownst to him, he would finally see Mommy again tomorrow.*

While this reading is coherent, it is rather odd that the narrator refers to Thomas’ mother as *Mommy*. We want to clarify at this point that many utterances in FID mode may receive an objective reading by adding “but he/she was not aware of it”. We designed all items cautiously to make a future-in-the past reading strikingly odd.

cases of FID. While the spatial and temporal setting of a narrative usually depends on  $C$ , all context sensitive expressions with the exception of pronouns and tenses have to be interpreted with respect to  $c$  whenever  $c$  is available. Pronouns and tenses, in contrast, are always interpreted with respect to  $C$ . Crucially, whenever  $c$  is introduced, the proposition denoted by a sentence interpreted with respect to  $c$  as well as  $C$  is not interpreted as true with respect to the worlds compatible with the narration (the story worlds), but only as true in the worlds compatible with the beliefs of the respective protagonist (Eckardt, 2014). Example (5) can thus be paraphrased as:

- (5) There is an event  $e$  of Thomas looking at the calendar that is located in the past with respect to the time of  $C$  (= the narration time) and in all worlds that are compatible with the beliefs of the author of  $c$  (= Thomas) at the time of  $c$  (= the time of  $e$ ) there is an event  $e'$  of Thomas seeing his mother again that is located in the past with respect to the time of  $C$  (= the narration time) and in the future with respect to the time of  $c$  and that takes place on the day that follows the day including the time of  $c$  (= the time of  $e$ ).

Maier (2017), on the other hand, postulates that FID is a special form of mixed quotation in which everything except pronouns and tenses are quoted – i.e. the latter are systematically unquoted – , as shown in (6) for our example in (4)  $c^6$ :

- (6) Thomas looked at the calendar. “Tomorrow” he would “finally see” his “Mommy again”.

We will leave open the question of which of the two lines of analysis just sketched is the correct one, as it is not directly relevant for our purposes in this paper. Our concern is not so much how the perspective of the narrator interacts with the perspective of a single protagonist, but rather what the conditions are under which protagonists become available as perspectival centers – a question which becomes particularly pressing as soon as examples are considered in which several protagonists interact.

#### 1.4 Prominence and perspective

While the interpretation of perspective-sensitive constructions such as FID as a thought of a protagonist has been studied extensively in linguistics and narratology, a common concern is whether it is justified to completely neglect a narrator-oriented interpretation in such cases and ascribe the propositions to the protagonist, i.e. whether FID represents just the protagonist’s, or both the narrator’s and the protagonist’s perspective. This issue was first tackled empirically by Harris and Potts (2009), who investigated if epithets and appositives can receive a non-speaker/non-narrator interpretation even in contexts where an overt first-person narrator is competing with a protagonist as perspectival center. In a series of forced-choice studies they found evidence that epithets and appositives can be interpreted from the perspective of a contextually prominent protagonist despite the overt narrator, and in the presence of certain contextual clues even favor such an interpretation. In line with the research of Harris and Potts, Kaiser (2015) confirms that epithets and appositives can receive non-speaker/non-narrator interpretations especially when they are interpreted as FID. Kaiser also tested if FID cues – evaluative epithets and adverbs of possibility – trigger the perspective of the grammatical subject of the preceding sentence rather than a speaker- or narrator-oriented perspective. She found that in a sequence of two sentences (*Mary looked woefully at Elizabeth. [Poor*

6. Note that since it is not possible to unquote the verb without the tense, the whole finite verb is unquoted in (6).

*girl;] she was sick.*) the presence of FID cues increases the likelihood that the personal pronoun in the second sentence refers to the object of the first sentence – despite the well-known preference of personal pronouns for the subjects of preceding sentences (see, e.g., Crawley and Stevenson, 1990; Gernsbacher, 1990; Gordon et al., 1993; Stevenson et al., 1994 for discussion). The most plausible interpretation of this result is that the second sentence is interpreting as expressing Mary’s rather than the narrator’s perspective.

Kaiser’s approach gives valuable insights on the anchoring of FID. However, her research focusses on the distinction between speaker/narrator and protagonist perspective without taking into account the possibility that multiple protagonists might be available as perspectival centers.

Before we get to our experimental approach to the limitations of perspective shifts, we want to elaborate on the anchoring of FID in contexts where two protagonists are in principle available as perspectival center. The discussion is based on our intuitions and the argumentation proposed in Hinterwimmer (2019) regarding different prominence-based accounts as well as a coherence-based account.

Let us consider a discourse free of any contextual presuppositions or emotional involvement beyond the two sentences presented in (7) that could act in favor of one perspective or the other. Free of any background assumptions regarding the two referents Tina and Mike and without any other contextual information we intuitively find differences in the availability of certain protagonists as anchors for FID:

- (7) a. Tina was yelling at Mike. Tonight, that jerk really pushed it too far.
- b. Tina was yelling at Mike. Tonight, that bitch really pushed it too far.

While the second sentence in (7a) is most plausibly understood as a thought of Tina about Mike, the epithet in (7b) can only refer to a female protagonist and thus the FID in (7b) can only be interpreted as a thought of Mike about Tina. Even though the context provided by the first sentence in which Mike is being yelled at by Tina gives perfect reason for Mike to have negative thoughts about Tina the second sentence conveys the impression that it is rather a comment by the narrator than FID anchored to Mike. Another, presumably rather far-fetched, reading of (7b) would suggest that the second sentence is a thought by Tina and the female referent *that bitch* refers to some unmentioned female person. Regardless of which option is chosen, the second example is harder to interpret than the first. The uncertainty about the ascription of the second sentence in (7b) illustrates the issue: linguistic cues in the sentences preceding FID increase or decrease the availability of referents as perspectival centers and thus anchors for FID.

Hinterwimmer (2019) suggests that it is the most prominent protagonist that is by default the perspectival center. Let us narrow down the linguistic notion of prominence with respect to the availability of referents as the perspectival center of a sentence or short text segment.

In example (7) both Tina and Mike are referred to with a rather common proper name and we assume that the reader does not have any reason to favor neither Tina nor Mike. Still, Tina can be regarded as more prominent than Mike on at least two different prominence scales: First, while Tina is the subject of the first sentence, Mike is the prepositional object. According to the hierarchy of grammatical functions a subject is more prominent than a direct object, a direct object is more prominent than an indirect object and so forth (see Himmelmann and Primus, 2015 for an overview



of prominence hierarchies and von Heusinger and Schumacher, 2019 on prominence in discourse). Second, regarding the hierarchy of semantic roles, Tina is the agent, which is more prominent than the patient, Mike (ibid.). Although the FID in (7b) can be regarded as a possible thought of Mike, who is mad at Tina for yelling at him, Mike is less easily available as perspectival center than Tina in (7a) and thus a thought anchored to Mike seems at least slightly odd and unexpected.<sup>7</sup>

Having mentioned coherence as one restricting factor for perspective shifts (see Kehler et al., 2008 and Kehler and Rohde, 2019 for an analysis of pronoun resolution in which coherence plays a crucial role)<sup>8</sup>, we want to point out that coherence alone does not account for the ascription of FID (but see Abrusán, 2021 for observations showing that coherence relations can have an influence on protagonists' availability as perspectival centers). In example (7a), the second sentence can be linked to the first by providing an explanation – the fact that Mike had done or said something that had pushed it too far is the reason for Tina to yell at him. In contrast, (7b) leaves room for different more or less coherent interpretations. One reading suggests that Tina's *yelling* is the reason for Mike to have the thought rendered in FID. In that sense the first sentence may provide the cause for the second one. Another interpretation may be that Tina has done something else, unmentioned, *that night that had pushed it too far*. The sequence of the two sentences in (7b) could then simply be understood to be a linear order of narrative elements. A third interpretation in which the sentence in FID expresses a thought of Tina and the epithet refers to someone else provides an explanation for the yelling in the first place similar to (7a), yet this reading seems rather absurd without any context. Still, there are at least two ways available to link the proposition denoted by the sentence in FID coherently to the proposition denoted by the preceding sentence, the first one according to which Tina's yelling at Mike causes Mike to have the thought rendered in FID being no less plausible than the one linking the two sentences in (7a) via providing an explanation. Consequently, the contrast between (7a) and (7b) cannot be accounted for in terms of coherence exclusively. Rather, the availability of a referent as the perspectival center crucially depends on its prominence status (cf. (Piwek and Krahmer, 2000) on the interaction of salience, on the one hand, and plausibility/coherence, on the other, as factors contributing to the resolution of anaphora and presuppositions)<sup>9</sup>.

While it seems tempting to draw conclusions on the anchoring of FID from pronoun resolution, Hinterwimmer (2019) points out that pronoun resolution, although it may indicate tendencies for the availability of perspectival centers, works differently from FID-anchoring. We do not want to elaborate on the similarities and differences between pronoun resolution and FID-anchoring at this point. For the investigation presented in this paper, however, it is important to note that preferences with respect to pronoun resolution do not always coincide with preferences regarding the anchoring of FID, i.e., the referent that may be preferred as the antecedent of a potentially ambiguous pronoun is not necessarily preferred as the perspectival center as illustrated in (8).

- (8) The new girl<sub>i</sub> delighted Jane<sub>j</sub>.  
 a. She<sub>i</sub> was just so gorgeous! (pronoun: i, perspective: j)

7. We have consulted two native English speakers, who shared our intuitions, but the contrast is admittedly quite subtle and there might be individual differences between speakers.

8. We can only take linguistic approaches to coherence into account as there is no elaboration on coherence as it is used in literary studies.

9. We are grateful to an anonymous reviewer for pointing us to this work.

- b. At least, she<sub>i</sub> hadn't put on her best dress for nothing. (pronoun: i, perspective: i)
- c. But how could she<sub>j</sub> start a conversation? (pronoun: j, perspective: j)

In line with the classification by Garvey and Caramazza (1974) who classify the verb *to delight* as yielding an NP1-bias with respect to the resolution of personal pronouns it seems to be more expected to pick up *the new girl* rather than *Jane* with the personal pronoun *she*. At the same time, there seems to be a clear preference to pick up the perspective of the second referent, i.e., *Jane*, in (8a) as compared to (8b). Additionally, despite the general preference for *the new girl* to be picked up with a pronoun in a subsequent sentence, an utterance in FID mode anchored to *Jane* as in (8c) with the pronoun picking up *Jane* seems to be more acceptable than (8b), where the utterance has to be anchored to *the new girl* and the pronoun is resolved to *the new girl* as well.

With this in mind, let us now continue our discussion of prominence and perspective. The importance of prominence becomes more evident the more unevenly the prominence-lending features are distributed. In the following example the female protagonist is not only referred to with a proper name whereas the second referent is introduced with an indefinite article but she is also picked up by a pronoun.

- (9) a. When Lisa was playing in the schoolyard, a boy pushed her into the stinging nettles. *Ouch, that itched!*
- b. When Lisa was playing in the schoolyard, she pushed a boy into the stinging nettles. *Ouch, that itched!*

Here not only the qualitative measures such as type of referring expression but also quantitative measures such as number of mentions add to the availability of the referents as perspectival centers. In example (9b) an interpretation in which the boy's thought is reported is coherent. However, according to the authors' intuitions it is slightly awkward and unexpected to take on the boy's perspective, although by no means impossible. In an attempt to anchor the FID this example offers another possible reading in which Lisa takes on the boy's perspective and empathically assumes that it must itch *for the boy*. This recursive reading again shows that it is the most prominent referent that is by default the perspectival center.

Intuitively in example (9) Lisa seems to be more prominent than the boy resulting in a strong preference for (9a) as opposed to (9b). This intuition may best be captured by the notion of topicality. Following Reinhart (1981), we may regard Lisa as the aboutness topic of the first sentence. If we assume that every sentence is the answer to an implicit question (van Kuppevelt, 1995; Roberts, 1996; Ginzburg, 2012), example (9) can plausibly be interpreted as the answer to the question *what did Lisa do/experience in the schoolyard?*, i.e., the answer to a question about Lisa. A context in which example (8) is to be understood to answer a question about some boy, i.e., a question such as *what did a boy do/experience in the schoolyard?*, on the other hand is rather absurd. This may be explained by the choice of referring expression. While Lisa is introduced by a proper name, the boy is introduced with an indefinite description, which indicates that the boy is unknown or at least not explicitly identifiable amongst other boys on the schoolyard. An implicit question about the boy is thus rather implausible as a discourse move.

While the assumption that Lisa is the topic in (9) goes well together with our claim that Lisa is

the most prominent protagonist and consequently the only available perspectival center, we will not rely on the notion of topicality as it does not lend itself directly to a more fine-grained investigation of linguistic cues that impact the availability as the perspectival center. For our purpose the notion of prominence seems more appropriate as it comprises a wide range of linguistic cues and suggests hierarchies within those cues. Furthermore, the notion of topicality on the level of the sentence it may not serve well with respect to larger discourse. This becomes more obvious when we make some syntactic changes to example (9) without affecting the content of our story.

- (10) Lisa was playing in the schoolyard. A boy pushed her into the stinging nettles. Ouch, that itched!

In (10) we still prefer Lisa as the perspectival center, when it is actually the boy who is the subject and the agent of the sentence preceding the FID while Lisa is the object and the patient. While the concept of discourse topicality may serve as an indicator for perspectivehood, the notion of discourse topicality lacks a clear definition with respect to individual linguistic markers that are crucial for an empirical investigation (but see van Dijk, 1977 and Roberts, 2012 for relevant discussion). Here we want to suggest that it is *global prominence* that favors Lisa as the perspectival center. Lisa's prominence features clearly outweigh the features of the boy: She is the subject and agent of the first sentence, first mentioned, introduced with a proper name, picked up with a personal pronoun – consequently mentioned twice –, while the boy is only the subject and agent of the second sentence.

For the sake of completeness, we want to elaborate briefly on the aspect of *competition* between possible perspectival centers. As mentioned above, prominence features as we investigate them only differentiate between two possible anchors. If FID is preceded by a sentence with only one protagonist, that protagonist is highly available as the anchor for FID, as in (11) where *the little boy* is neither the subject nor referred to with a proper name. Despite presumably low prominence the FID must be anchored to the protagonist mentioned in the preceding sentence.

- (11) The ball hit the little boy right in the face. Ouch, that hurt!

Competition of potential anchors for an utterance in FID may also play a role with respect to preceding sentences with two interacting protagonists, as in (12). While in (12a) Martin is naturally perceived to be the perspectival center, in (12b) the subject's prominence status is raised so that the availability of Martin as the perspectival center is weakened. Consequently, it is slightly awkward and unexpected (though by no means impossible) to interpret the second sentence in (12b) as a thought of Martin rendered via FID. In other words, the competition of Lilly, now outweighing the prominence status of Martin, has an impact on the availability of a referent as the perspectival center.

- (12) a. A young lady asked Martin for the way to the station.  
       Hmm, didn't she see the sign?  
       b. Lilly asked Martin for the way to the station.  
       Hmm, didn't she see the sign?

Before we close our discussion of the availability of protagonists as anchors for FID, we want to consider an example with protagonists of equal prominence. In (13) neither a nor b seem to

be appropriate. We tentatively suggest an explanation along the following lines: In order to be available as perspectival center, a single protagonist has to be prominent. In the case of (13), neither Tina nor Mike is prominent – rather, it is just the plurality referred to by the NP *Tina and Mike*. Consequently, both (13a) and (13b) are awkward, since in either case the FID has to be ascribed to a protagonist that is not maximally prominent.

- (13) Tina and Mike were fighting all night.  
 a. Tonight that jerk had pushed it too far.  
 b. Tonight that bitch had pushed it too far.

Summarizing the discussion so far, we see that a referent must either be locally prominent in the sentence preceding the utterance in FID mode, e.g., with regard to the grammatical function, the thematic role or the type of referential expression, or be globally prominent in a context where at least two protagonists compete. So far, we have shown that a prominence-based account provides promising insights in this regard. At the same time, prominence-lending cues comprise a wide range of linguistic markers – either in the sentence immediately preceding an utterance in FID mode or in a stretch of discourse – that promote a referent to be the perspectival center. The prominence-lending cues elaborated above are by no means exhaustive. Yet, in order to gain a better understanding of how prominence and perspectival centers are related we will present a first attempt at answering that question by investigating how grammatical function and type of referential expression contribute to a referent’s potential to serve as the anchor for an utterance in FID mode. While the first experiment presented in the next section will give preliminary insights that suggest a maximally prominent referent – in terms of grammatical function, type of referential expression and number of mentions – is preferred as the anchor for a sentence in FID mode, the experiment presented in Section 2.2 will investigate the impact of grammatical function and referential expression and their interaction. Finally, in section 2.3 we test these findings in larger contexts providing first empirical evidence for Hinterwimmer’s (2019) assumption (see also Abrusán, 2021 for discussion) that locally established prominence interacts with globally established prominence.

## 2. The experimental studies

### 2.1 Experiment 1

In our first acceptability rating tasks we asked participants to rate the naturalness of short text segments such as (14) and (15) in which two utterances in FID mode or a neutral sentence must be interpreted with regard to the context provided in the first two sentences.

- (14) Als die Hochzeit von Prinz William und Kate im Fernsehen übertragen wurde, konnte Robert seine eigene Hochzeit kaum erwarten.  
 Auch er hatte seiner Freundin einen Antrag gemacht.  
 a. FID<sub>preferred</sub>: Schon morgen würde er mit seiner Liebsten vor den Altar treten.  
 b. FID<sub>dispreferred</sub>: Schon morgen würde sie mit ihrem Liebsten vor den Altar treten.  
 c. Neutral: Sie wollte mit ihm vor den Altar treten.

When the wedding of Prince William and Kate was broadcast on TV, Robert could hardly wait for his own wedding.

He, too, had proposed to his girlfriend.

- a. FID<sub>preferred</sub>: Soon he would walk down the aisle with his darling.
- b. FID<sub>dispreferred</sub>: Soon she would walk down the aisle with her darling.
- c. Neutral: She wanted to walk down the aisle with him.

- (15) Als der letzte Band von "Harry Potter" erschien, kramte Luisa ihr Taschengeld zusammen. Sofort sagte sie ihrem besten Freund Bescheid.
- a. FID<sub>preferred</sub>: Morgen schon würde sie mit diesem Bücherwurm die Buchhandlung stürmen.
  - b. FID<sub>dispreferred</sub>: Morgen schon würde er mit dieser Leserratte die Buchhandlung stürmen.
  - c. Neutral: Er wollte mit ihr am nächsten Tag in die Buchhandlung gehen.

When the last Harry Potter book was published, Luisa scraped up her money.  
She told her best friend male right away.

- a. FID<sub>preferred</sub>: Tomorrow she would hit the bookstore with that bookworm male.
- b. FID<sub>dispreferred</sub>: Tomorrow he would hit the bookstore with that bookworm female.
- c. Neutral: He wanted to go to the bookstore with her the next day.

In our experiment, we will collect evidence for the hypothesis that follows the discussion presented above:

- H1: A protagonist that is more prominent in terms of referential expression and grammatical function is more available as the anchor for FID than a competing referent.

In order to determine the influence of prominence on the acceptability of FID we distinguished our two referents by means of maximal and minimal prominence in terms of grammatical function, the number of occurrences and the type of referring expression. We predict that FID anchored to the more prominent referent, i.e., the agent in subject position, introduced by a proper name and picked up by a personal pronoun (compare (14a)/(15a)) will more likely be accepted as the perspectival center of a sentence in FID than the competing referent mentioned only once in object position (compare (14b)/(15b)). The neutral condition (compare (14c)/(15c)) is similar to the dispreferred condition where the less prominent referent is the subject of the target sentence. The neutral condition serves as a control condition: If the neutral condition is rated significantly better than the dispreferred FID condition we may conclude that the low acceptability of the dispreferred condition is at least partly due to a low acceptability of the FID regardless of the change of the subject (another relevant factor might be the presence of rather unusual terms such as bookworm in the FID conditions as opposed to the neutral condition)<sup>10</sup>.

### 2.1.1 MATERIAL

We constructed 22 short stories similar to examples (14) and (15) in 3 conditions. All stories consisted of 3 sentences. The first sentence introduced one referent (R1) in subject position with a proper name. Also, the first sentence set the context to a specific event in the past (e.g., *when Germany won the World Championship, last Valentine's day*). We used an explicit reference to the past in order to emphasize the contrast of the narrative context and the deictic expression used in the FID, which in all cases refers to the present (*now, today*) or an immediate or close future (*soon, tomorrow*). In the second sentence the referent was picked up by a personal pronoun in subject

10. We are grateful to an anonymous reviewer for pointing this out to us.

position<sup>11</sup> interacting with a second referent (R2) introduced by a noun phrase anchored to the first referent with a possessive pronoun (e.g., *his friend*) in object position. The two referents differ in gender in order to prevent ambiguity of the target sentence<sup>12</sup>.

The two FID conditions in the third sentence feature at least 3 indicators of FID: a temporal deictic expression, a verb in subjunctive II mood (German *würde*) and kinship, family terms or qualitative nouns (e.g., *her/his darling*). In our FID conditions the target sentence varied with respect to R1 and R2. In the first condition the FID can only be anchored to R1, i.e., the referent introduced in the first sentence by a proper name, by the choice of the respective male or female pronoun and a qualitative noun phrase matching the gender of the second referent (compare 14a: *he [...] his darling*). The second condition features FID anchored to R2, the referent introduced in the second sentence, by the choice of a pronoun that matches the second protagonist's gender whereas the qualitative expression must refer to the protagonist introduced in the first sentence (compare (14) b: *she [...] her darling*). We paid particular attention to the fact that the FID can equally plausibly be linked to either one of two referents, i.e., the fiancée is just as likely to think the thought regarding their wedding plans as Robert is. A third, neutral condition (compare (14c)/(15c)) does not feature any indicators of FID, but it matches the second condition, i.e., R2 is in subject position.

### 2.1.2 PROCEDURE

We randomly distributed 22 items across 3 lists. Unfortunately, this led to an unbalanced distribution of the three conditions across the lists – per participant 7 responses for two conditions and 8 for the third<sup>13</sup>. The 22 items were randomly mixed with 44 fillers on a paper-pencil questionnaire. Fillers were similar to the items in length, syntax and the number of referents mentioned. In order to mask our manipulation, we constructed fillers deliberately violating constraints of demonstrative and personal pronouns resulting in odd, but nevertheless grammatical references to yield low acceptability. The task was to judge naturalness of the third sentence in the context of the first two on a scale from 1, entirely unnatural, to 7, entirely natural. In order to prevent participants from judging according to grammatical acceptability or plausibility of the scenario the instructions stressed that all sentences are well-formed and the stories are plausible. Participants were encouraged to use the entire scale from 1 to 7 according to their subjective intuitions and fill in the number in a bracket behind each item<sup>14</sup>.

In April 2017, 89 students of the University of Cologne, participated voluntarily in our experiment. 14 Participants got excluded from analysis as they were not monolingual speakers of German or did not complete the entire questionnaire.

11. We are aware that subjecthood coincides with first mention. However, we decided to keep the design simple and neglected a potential OVS condition, especially as the OVS syntax is highly marked. Testing an OVS condition may lead to unintended confounds. We need to point out that the effect that we attribute to subjecthood throughout the paper may also be the result of first mention – or potentially the interaction of subjecthood and first mention.

12. Gender of the prominent protagonist was equally balanced. Nevertheless, gender stereotypes were avoided in order to prevent preferences of one referent as anchor for the FID depending on gender.

13. Although this was not an ideal distribution, since we used linear mixed-effects modeling for analyzing the data, we relied on the robustness of mixed-effects modeling to handle missing data (Baayen et al., 2008) and assume that the "missing" one response per participant had negligible influence on our effects.

14. In our analysis we treated the scale as an interval scale as the scale was not further labeled, we assume that participants used the scale continuously.

### 2.1.3 DATA ANALYSIS AND RESULTS

Ratings from 75 questionnaires were considered in the analysis. Acceptability judgements were elicited for 21 items in 3 conditions. In our experiment we tested 22 items, one of which had to be excluded due to the implausibility of the scenario attentive participants commented on<sup>15</sup>. This resulted in a total of 1575 observations. In order to test differences between conditions we modeled the data using Bayesian mixed effects models<sup>16</sup> estimated in R<sup>17</sup> (R Core Team, 2015). We used a model with acceptability scores as outcome and condition as the sole predictor with random intercept and random slopes for condition, for participants and items<sup>18</sup>. Analogously to frequentist statistics we considered effects to be significant if the 95%-credible interval does not include 0<sup>19</sup>. The model estimate for the FID<sub>preferred</sub> condition was 4.64 whereas the model estimate for the FID<sub>dispreferred</sub> condition was 3.63. The model revealed a significant difference of 1.01 points (SE = 0.16, CI: [0.69;1.33]). For the neutral condition the model estimate was 5.04. It served as a control condition in order to test whether a lower acceptability of the FID<sub>dispreferred</sub> version is due to a change in subject. The comparisons revealed that participants rated the neutral version significantly better than the FID<sub>dispreferred</sub> condition (estimate = 1.40; SE = 0.18; CI: [1.06;1.75]). In our experiment, we tested the claim that FID is more likely to be anchored to a maximally prominent referent than to a competing referent with rather low prominence (Hinterwimmer, 2019). The significant difference in the ratings of FID in our preferred condition in comparison to our FID<sub>dispreferred</sub> condition indicates that the hypothesis that all referents are equally available as the perspectival center as long as the interpretation of the FID is plausible can be rejected.

The comparison of the two FID conditions supports the hypothesis that the maximally prominent referent is preferred as perspectival center. However, the mediocre ratings,  $-0.49$  below average, of the FID<sub>dispreferred</sub> condition show that the interpretation of the FID as a thought of the second referent is not entirely impossible while the significant difference indicates a clear preference.

Although we did not test this contrast, the difference of the neutral and the preferred condition suggests that both our FID conditions are not as acceptable as neutral story continuations. Lower ratings in the sample of the FID<sub>preferred</sub> condition in which the FID is anchored to the prominent referent compared to the neutral condition supports concerns that FID in such short stories is rather unnatural for presumably two – not necessarily unrelated – reasons: FID is a phenomenon typically

15. Participants reported implausibility orally and/or left a comment on the questionnaire, i.e., it was falsely claimed that the *Rock am Ring* festival takes place in February not in early summer.

16. In Hinterwimmer and Meuser (2019) we presented the results of this experiment using a non-Bayesian linear mixed effects models with the lmer function from the lme4 package. With the data of experiment 2 however, this prohibited the use of a maximal random effects structure as convergence issues occurred. In line with Barr et al. (2013) we decided to keep the maximal random effects structure by opting for a Bayesian analysis. Contrary to frequentist mixed models Bayesian mixed models are more stable in the sense that they almost always converge even with complex random effects structures. We therefore decided to use Bayesian mixed models for the whole analysis to keep it consistent and maintain the use of a maximal random effects structure in experiment 2. For an introduction to Bayesian mixed models see: <https://www.sciencedirect.com/science/article/abs/pii/S0095447017302310>.

17. Using the brms package (Bürkner, 2017). We used weakly informative priors, e.g., for the condition coefficients we used a normally distributed prior with mean 0 and sd 5.

18. We used treatment contrasts with FID<sub>dispreferred</sub> as the reference category. We specified the model as follows: "acceptability ~ 1 + condition + (1 + condition|participant) + (1 + condition|item)"

19. If 0 is not included in the 95%-credible interval, then 0 is not included in the range of 95% of the most plausible values. This means that the posterior probability of the effect being 0 (or less extreme) is maximally 5%.

found in narratives and can thus possibly not be perceived to sound entirely natural in 3-sentence stories. Second, if the acceptability of FID depends on prominence, the prominence of a referent must be sufficiently established. The latter assumption will be subject to further research.

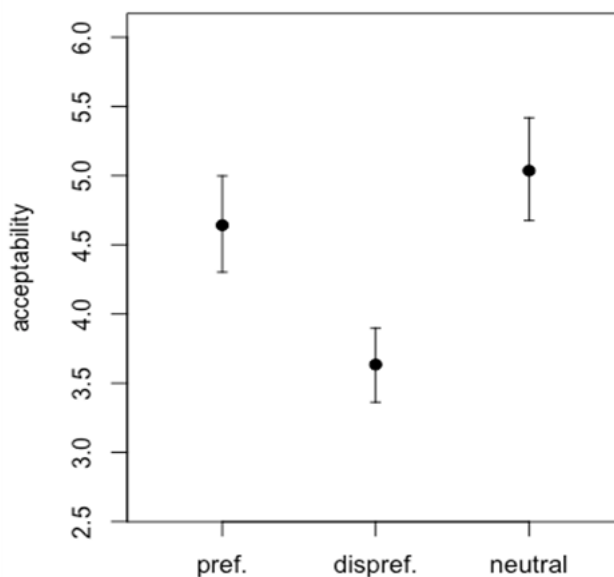


Figure 1: Experiment 1: Acceptability ratings (model estimate and 95%-credible interval)

#### 2.1.4 DISCUSSION

A shortcoming of our acceptability study concerns the comparability of the test items we used. The task explicitly stated that the third sentence has to be judged with regard to the first two sentences, although it is possible that participants rated the acceptability of just the third sentence and those differed across conditions. In order to anchor the FID to one of the two referents we used kinship, family terms or qualitative nouns that match only one of the two referents in terms of gender. In cases where we compare minimal pairs such as *Liebster* (*male darling*) to *Liebste* (*female darling*) – both commonly used to refer to a loved one – that should not make a difference. However, there are only few such perfect minimal pairs so that in most cases we ended up comparing *Bücherwurm* (*m.*, bookworm) with *Leserratte* (*f.*, bookworm, literally a reading rat), *Schleckermaul* (*n.*, sweet tooth literally a yummy mouth) with *Naschkatze* (*f.*, again a sweet tooth, literally a nibble cat) and *Tratschtante* (*f.*, gossip aunt) with *Lästermaul* (*n.*, gossip mouth) for which we do not have any predictions regarding their overall acceptability. In order to make sure that results were not related to the potentially lower acceptability of the expressions used in the FID<sub>dispreferred</sub> condition in our follow-up we improved the comparability of the target sentence.



## 2.2 Experiment 2

We regard the significant contrasts found between the FID conditions in the first study presented above as indicators that acceptability judgements indicate anchoring preferences of FID. In the previous experiments acceptability varied with respect to the naturalness of FID anchored to a maximally prominent protagonist compared to FID anchored to a minimally prominent protagonist<sup>20</sup>. Now, in our second experiment, the same methodology was used to measure the differing anchoring potential of referents depending on their prominence status. Prominence-lending cues we investigated were grammatical function as well as type of referential expression. In an acceptability rating study items similar to (16) were tested. Again, a short story was followed by an utterance in FID mode that can only be anchored to one of the two referents in terms of gender.

- (16) a. Lynn sprach Pablo auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.  
 b. Pablo sprach Lynn auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.
- c. Eine Reisende sprach Pablo auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.  
 d. Ein Reisender sprach Lynn auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.
- e. Eine Reisende sprach einen Reisenden auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.  
 f. Ein Reisender sprach eine Reisende auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.
- g. Lynn sprach einen Reisenden auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.  
 h. Pablo sprach eine Reisende auf den nächsten Zug an, als eine Durchsage Verspätungen aller Züge aufgrund starken Schneefalls verkündete.

FID: Oh Mann, jetzt würde sie bestimmt ihren Anschlusszug verpassen.

- a) Lynn asked Pablo about the train when severe delays due to heavy snowfall were announced.  
 b. Pablo asked Lynn about the train when severe delays due to heavy snowfall were announced.
- c. A traveler<sub>f</sub> asked Pablo about the train when severe delays due to heavy snowfall were announced.  
 d. A traveler<sub>m</sub> asked Lynn about the train when severe delays due to heavy snowfall were announced.

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20. We will refer to a protagonist referred to with a proper name in subject position as maximally prominent while a protagonist in object position referred to with an indefinite is minimally prominent.

- e. A traveler<sub>f</sub> asked a traveler<sub>m</sub> about the train when severe delays due to heavy snowfall were announced.
- f. A traveler<sub>m</sub> asked a traveler<sub>f</sub> about the train when severe delays due to heavy snowfall were announced.
- g. Lynn asked a traveler<sub>m</sub> about the train when severe delays due to heavy snowfall were announced.
- h. Pablo asked a traveler<sub>f</sub> about the train when severe delays due to heavy snowfall were announced.

FID: Oh man, now she would miss her connecting train!

In line with the argumentation presented in Section 1.4, the study investigates two main hypotheses:

- H2: Protagonists functioning as subjects are more available as anchors for FID than protagonists functioning as objects.
- H3: Protagonists referred to with a proper name are more available as anchors for FID than protagonists introduced by an indefinite NP.

In the hypotheses we make claims with respect to the two prominence-lending cues, i.e., grammatical function and the type of referential expression, in isolation. However, as a referent holds both prominence-lending cues at the same time, i.e., the referent is referred to in a certain way and the expression has a certain grammatical function, it is worthwhile to explore the question of how these different prominence-lending cues interact (Q1): *Does the type of referential expression play a bigger role than the grammatical function with respect to the anchoring of FID?* Based on the discussion presented in Section 1.4, a second question that calls for an exploratory investigation is whether the competition of the two protagonists has an impact on the anchoring preference. A similar effect as the one presented in example (11) ("A young lady asked Martin/ Lilly asked Martin..."), where the prominence status of the object changes as the subject gets more prominent, shall be investigated by considering the effect of the expression used to refer to the second referent. The second question of interest (Q2) may thus be phrased as *Is it more acceptable to anchor FID to a referent when the competing referent is less prominent in terms of the expression by which she or he is referred to?*

### 2.2.1 MATERIAL

For this experiment we constructed 48 test items similar to (16) in 8 conditions. Items consisted of two sentences. In the first sentence (S1) two referents (R1 & R2), one male and one female, were introduced as subject and object, respectively. In the second sentence (S2) an utterance in FID mode was presented that could only be anchored to R1 in terms of gender<sup>21</sup>. Unlike the first experiment we varied the gender features of the two referents in the context so that the target sentence would

21. A reading in which the referent who is not referred to with the pronoun is the anchor of the FID, i.e., *Pablo thinks about that poor traveler that she would miss her connecting train*, is in theory possible. However, that reading should yield equally low results as it is rather absurd. If a reader accepts the dispreferred conditions as a recursive reading, i.e., *Pablo thinks that she thinks*, that reading is again in line with the hypothesis: the FID is anchored to the more prominent referent even if that results in a rather absurd interpretation.

Condition label	Subject-Object	Ref.-ex R1	Ref.-ex R2
A: R1 <sub>name</sub> – R2 <sub>name</sub>	R1-R2	name	name
B: R2 <sub>name</sub> – R1 <sub>name</sub>	R2-R1	name	name
C: R1 <sub>indef.</sub> – R2 <sub>name</sub>	R1-R2	indef.	name
D: R2 <sub>indef.</sub> – R1 <sub>name</sub>	R2-R1	name	indef.
E: R1 <sub>indef.</sub> – R2 <sub>indef.</sub>	R1-R2	indef.	indef.
F: R2 <sub>indef.</sub> – R1 <sub>indef.</sub>	R2-R1	indef.	indef.
G: R1 <sub>name</sub> – R2 <sub>indef.</sub>	R1-R2	name	indef.
H: R2 <sub>name</sub> – R1 <sub>indef.</sub>	R2-R1	indef.	name

Table 1: Experimental conditions in Experiment 2

remain exactly the same throughout conditions and yet varies with respect to the two referents. The referents were either referred to with a proper name or with an indefinite noun phrase (NP) and functioned as subjects or objects in S1 resulting in 8 possible combinations presented in Table 1. We will refer to the different conditions with respect to the subject in S1 and the object in S1. For half of the items we chose a male referent for R1 while the other half were female in order to prevent gender biases. In all items the utterance in FID mode featured an interjection, a temporal deictic expression and a verb in subjunctive II mood (German *würde*).

To be able to check if participants attentively read the items 16 filler items were included that were designed to yield low rating while another 16 filler items should be unproblematic and yield high ratings<sup>22</sup>. Participants that rate the deliberately bad items better than the good ones will be excluded from the analyses.

### 2.2.2 PROCEDURE

All test items were equally distributed across 8 lists so that each participant saw each item in only one condition. Items were randomized for each participant and mixed with 64 filler items. Fillers are similar to the test items in terms of length. Due to the rather large number of items – 112 in total – a 3-minute break was enforced after half of the items were presented.

Participants were asked to rate the naturalness of the item on a 7-point likert scale – 1, entirely unnatural, to 7, entirely natural. Participants were recruited in class and participated for course credit. The experiment was programmed using PCibex (Zehr and Schwarz, 2018). In December 2021, ratings from 129 participants were recorded. Results from 7 participants had to be excluded from the analysis as they were not native speakers of German. Further, we excluded the results from 3 participants as they rated the fillers that were deliberately designed to trigger low acceptability better than a set of deliberately good filler items.

22. Example for a good filler item: *Marleen und Laurin kochen beide gerne. Marleen mag die argentinische Küche und Laurin mag auch südamerikanisches Essen.* (Engl. Marleen und Laurin both love to cook. Marleen likes the Argentinian cuisine and Laurin also likes South American food.) Example for a bad filler item: *Melina und Thomas haben beide schöne Haare. Melina hat schwarze Haare und Thomas hat auch blonde Haare.* (Engl. Melina and Thomas both have beautiful hair. Melina has black hair and Thomas also has blond hair.)

### 2.2.3 DATA ANALYSIS AND RESULTS

Ratings from 119 questionnaires were considered in the analysis. Acceptability judgements were elicited for 48 items in 8 conditions. Acceptability judgements were submitted to a Bayesian mixed effects model. We used a full set of interactions of the factors grammatical function and referential expression of R1 and R2. We also included maximal random effects structure for subjects and items<sup>23</sup>.

There is a significant main effect of grammatical function of 0.57 (SE = 0.07, CI: [0.43;0.72]). This means that sentences with R1, i.e., the anchor for the utterance in FID mode, in subject position were rated better than sentences with R1 in object position. Additionally, there is a significant main effect of the referential expression used for R1 (estimate = -0.62, SE = 0.07, CI: [-0.75; -0.49]) indicating that referents referred to with a proper name are more acceptable as anchors for FID than referents referred to with an indefinite NP. There is also a significant main effect of the referential form of R2 (estimate = 0.37, SE = 0.06, CI: [0.26; 0.47], see Figure 2), i.e., sentences received higher ratings when R2, the referent that cannot be the anchor for the utterance in FID mode, was referred to with an indefinite than with a proper name. There was a significant two-way interaction of the referential form of R1 and R2 (estimate = 0.18, SE = 0.08, CI: [0.03; 0.34], see Figure 2). This suggest that the effect of R2 depends on the referential expression used to refer to R1, that is that R2 plays a bigger role if R1 is referred with an indefinite NP. However, an investigation of the three-way interaction of the referential form of R1 and R2 and the grammatical function reveals a more nuanced interplay of these factors. The interaction effect of the referential expressions of R1 and R2 varies significantly depending on the grammatical function (estimate = 0.64, SE = 0.18, CI: [0.29; 1.01]). More specifically, the difference of the effect of R2 between  $R1_{name}$  and  $R1_{indef.}$  is higher when R1 is in subject position (compared to R1 in object position). When relating this to Figure 2, it becomes clear that 'higher' here means that the effect of R2 seems to differ between  $R1_{name}$  and  $R1_{indef.}$  to a noteworthy extent only when R1 is in subject position ((G-A) ; (E-C)). In the case where R1 is in object position the effect of R2 does not seem to differ much between  $R1_{name}$  and  $R1_{indef.}$  ((D-B)  $\approx$  (F-H)).

This implies that the two-way interaction between the referential form of R1 and R2 which was described earlier can be somewhat misleading, because it is (almost exclusively) driven by the effect of R2 when R1 is in subject position. Therefore, the effect of R2 does not seem to generally depend on R1 but only when R1 is in subject position. Here, the role of R2 is high(er) when R1 is referred to with an indefinite NP (E-C) and almost negligible when R1 is referred to with a proper name (G-A).

23. We specified the model as follows:  $acceptability \sim 1 + gramfunc * R1reftype * R2reftype + (1 + gramfunc * R1reftype * R2reftype | participant) + (1 + gramfunc * R1reftype * R2reftype | item)$ . In order to interpret the lower order effects as main effects we used deviation coding for all 3 factors (0.5/+0.5).

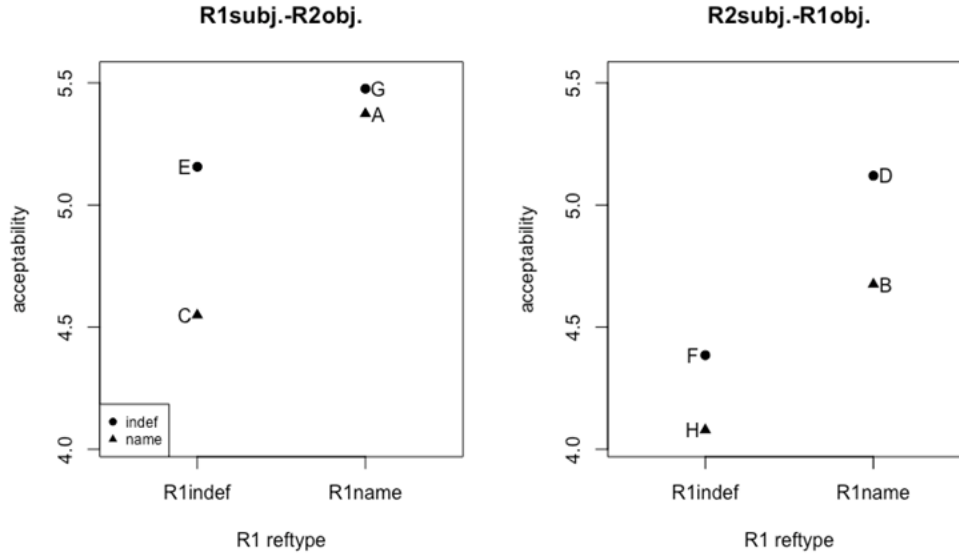


Figure 2: Experiment 2: Acceptability ratings

Condition	Model estimate	CI
A: R1 <sub>name</sub> – R2 <sub>name</sub>	5.37	[5.15 ; 5.61]
B: R2 <sub>name</sub> – R1 <sub>name</sub>	4.68	[4.44 ; 4.91]
C: R1 <sub>indef.</sub> – R2 <sub>name</sub>	4.55	[4.31 ; 4.79]
D: R2 <sub>indef.</sub> – R1 <sub>name</sub>	5.12	[4.90 ; 5.36]
E: R1 <sub>indef.</sub> – R2 <sub>indef.</sub>	5.16	[4.93 ; 5.38]
F: R2 <sub>indef.</sub> – R1 <sub>indef.</sub>	4.39	[4.14 ; 4.64]
G: R1 <sub>name</sub> – R2 <sub>indef.</sub>	5.48	[5.25 ; 5.72]
H: R2 <sub>name</sub> – R1 <sub>indef.</sub>	4.08	[3.81 ; 4.33]

Table 2: Experiment 2: Acceptability ratings (model estimate and 95%-credible interval)

#### 2.2.4 DISCUSSION

The significant main effect of grammatical function indicates that protagonists in subject position are more available as anchors for FID than protagonists in object position (H2). Regarding these results we thus conclude that grammatical function can be considered a prominence-lending cue with respect to establishing the perspectival center that serves as the anchor for an utterance in FID mode.

Recall that R1 is the referent that the utterance in FID has to be anchored to in terms of gender. The significant main effect of referential expression of R1 indicates that protagonists referred to with a proper name are more available as anchors for FID than protagonists introduced by an indefinite NP (H3).

As both factors add to the referent's prominence status, as discussed in Section 1.4, we also investigated the impact of each factor and how the two prominence-lending cues interact. The estimates

for grammatical function and referential expression indicate that the role of subjecthood is nearly similar to that of the type of referential expression.

We therefore want to make the following claim with respect to Q1: *Grammatical function affects the anchoring of FID just as much as type of referential expression.*

While the main effect of the referential expression of R1 indicates that R1 is more available if it is referred to with a proper name, the main effect of R2 counteracts in a similar way: Just as R1 becomes more or less available as the referential expression increases or decreases its prominence status, so does R2. Now, if R2 becomes more prominent in virtue of the referential expression, it becomes more available as the perspectival center and therefore both protagonists compete. With respect to Q2 we may thus conclude that *a high prominence status of the competing referent (R2) makes the anchoring of FID to R1 particularly difficult.*

While we found a main effect for the referential expression, we must also point out that in our sample the effect of referential expression of R2 does not show in the case of R1 being in subject position and referred to with a proper name. Conditions A and G received rather similar high ratings (compared to the oppositional pairs E&C, F&H and D&B). Therefore, we want to suggest the following: A referent that is maximally prominent in virtue of being referred to with a proper name in subject position is the default anchor for an utterance in FID mode regardless of the type of referential expression used to refer to the competing referent.

Complementary to the reporting of the main and interaction effects we would like to provide a matching interpretation from a slightly different perspective. That is, the three factors increase the acceptability of R1 as anchor for the FID expression: A proper name as referential form of R1, subject position of R1 and an indefinite expression that refers to the competing referent R2 enhance the availability of R1 to serve as the perspectival center. If we now sort the conditions with respect to the number of these features we get the following pattern: Condition H with no such enhancing features yielded the lowest acceptability (4.08). Conditions B, C and F with one enhancing feature have a slightly higher acceptability (from 4.39 to 4.67). Conditions with two features, namely A, D and E, are even more acceptable (from 5.11 to 5.37) while condition G with all three features has the highest acceptability (5.47). Figure 3 illustrates this.

Before we forge ahead to the investigation of prominence in larger discourse, we briefly want to recall the first experiment presented in this chapter and point out how the main effects found in the second experiment explain the contrast found in the first experiment. In our first experiment we presented an attempt to verify our intuitions that referents that are prominent with respect to referential expression and grammatical function are more easily available as perspectival centers than competing referents, aiming to find a contrast between maximally and minimally prominent protagonists. Contrasts found for the FID<sub>preferred</sub> conditions and the FID<sub>dispreferred</sub> conditions are parallel to the contrasts found between the conditions G and H in the second experiment (see (17)). Here again, the referent that serves as the anchor for the FID is maximally prominent in terms of referential expression and grammatical function in condition G and minimally prominent in condition H.

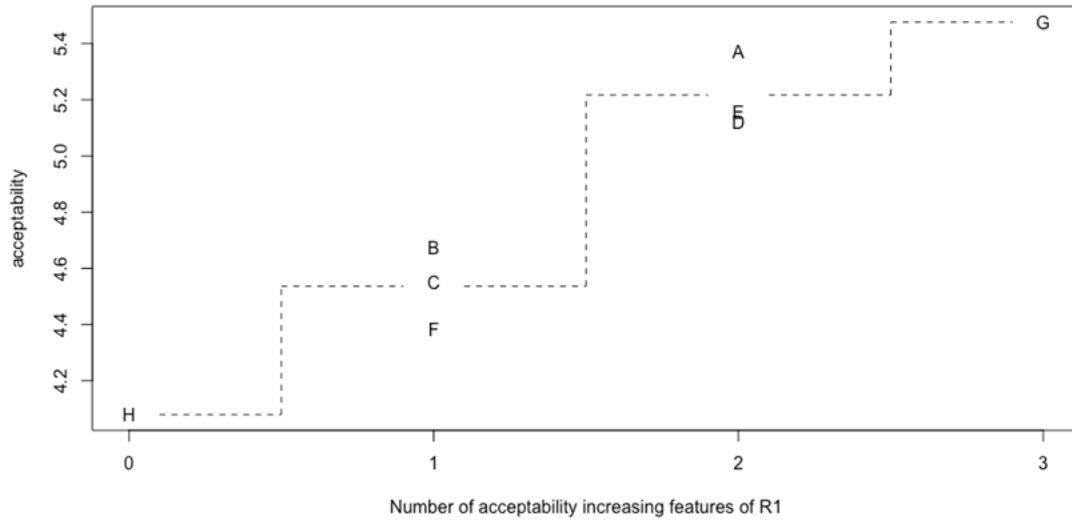


Figure 3: Experiment 2: Acceptability ratings depending on the number of prominence-enhancing features

(17) Exp.1:

When the wedding of Prince William and Kate was broadcast on TV, Robert could hardly wait for his own wedding.

He, too, had proposed to his girlfriend.

FID<sub>preferred</sub>: Soon he would walk down the aisle with his darling.

FID<sub>dispreferred</sub>: Soon she would walk down the aisle with her darling.

Exp. 2:

G: R1<sub>name</sub> – R2<sub>indef.</sub>: Lynn asked a travelerm about the train when severe delays due to heavy snowfall were announced.

H: R2<sub>name</sub> – R1<sub>indef.</sub>: Pablo asked a travelerf about the train when severe delays due to heavy snowfall were announced.

Oh man, now she would miss her connecting train!

The strong contrast between the acceptability judgements of condition G and H (1.39 points) as well as the contrasts found for the FID<sub>preferred</sub> conditions and the FID<sub>dispreferred</sub> conditions (1.02 points) may be explained by the main effects reported above: A protagonist is more available as the anchor for an utterance in FID mode if it is *in subject position and referred to with a proper name* than when it is referred to with an indefinite NP and *the competing referent is referred to with an indefinite NP* instead of a proper name. The results thus support the intuitions outlined in chapter 1.4 that lead to the item construction (repeated in (17)), i.e., it feels more natural to anchor an utterance in FID mode to Robert than to the girlfriend (exp.1) and to Lynn rather than to the traveler (exp.2).

### 2.3 Experiment 3

Building on the evidence we found in experiment 1 and 2, which suggests that locally prominent referents are preferred as perspectival centers, the effect of local prominence in larger discourse is investigated in Experiment 3. In particular, we want to test if the effect of local prominence prevails in a context where a competing referent is globally prominent. Recall the discussion presented in Section 1.4 where it was claimed that a referent that serves as the discourse topic serves as the perspectival center regardless of any reference to a competing referent in a sentence preceding the FID, as in (10) (repeated in (18)).

- (18) Lisa was playing in the schoolyard. A boy pushed her into the stinging nettles.  
Ouch, that itched!

Even though the boy is the subject and the agent of the sentence preceding the FID we have no difficulties anchoring the FID to Lisa, who is the object and the patient. For this example, however, it may be claimed that the preference for Lisa is the result of multiple prominence lending cues: Lisa is the subject of the first sentence, she is introduced with a proper name and she is picked up with a personal pronoun in the second sentence, i.e., she is mentioned twice – unlike the competitor, who is only referred to once with an indefinite NP.

In order to investigate the effect of global as opposed to local prominence more systematically, we conducted an experiment where two referents are introduced with a proper name. However, they vary with respect to how often they are mentioned as well as with respect to their grammatical function in the sentence preceding the FID.

In a third acceptability rating study, we presented larger contexts similar to (19). Again, participants ( $n = 116$ ) were asked to rate the naturalness of a target sentence in FID mode with respect to the context.

- (19) A: Kein Feierabend in Sicht  
(S1) Im Büro gehörten Überstunden zum Alltag. (S2) Da musste ein ruhiger Kopf bewahrt werden. (S3) Eine gute Arbeitsteilung war notwendig, um alles zu erledigen.  
(S4) Trotz des hohen Zeitdrucks duldete das Management keine Verzögerungen.  
(S5) Fred gab Caroline die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.

- B: Kein Feierabend in Sicht  
(S1) Im Büro gehörten Überstunden zum Alltag. (S2) Da musste ein ruhiger Kopf bewahrt werden. (S3) Eine gute Arbeitsteilung war notwendig, um alles zu erledigen.  
(S4) Trotz des hohen Zeitdrucks duldete das Management keine Verzögerungen.  
(S5) Caroline gab Fred die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.

- C: Kein Feierabend in Sicht  
(S1) Im Büro gehörten Überstunden zum Alltag. (S2) Caroline atmete einmal tief durch. (S3) In der Frühstückspause hatte sie Fred um Unterstützung gebeten.  
(S4) Sie wusste, dass das Management keine weiteren Verzögerungen mehr tolerieren würde.  
(S5) Fred gab Caroline die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.



D: Kein Feierabend in Sicht

(S1) Im Büro gehörten Überstunden zum Alltag. (S2) Fred atmete einmal tief durch. (S3) In der Frühstückspause hatte er Caroline um Unterstützung gebeten.  
 (S4) Er wusste, dass das Management keine weiteren Verzögerungen mehr tolerieren würde.  
 (S5) Caroline gab Fred die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.

E: Kein Feierabend für Caroline

(S1) Caroline hatte einen langen Arbeitstag vor sich. (S2) Sie atmete einmal tief durch. (S3) In der Frühstückspause hatte sie Fred um Unterstützung gebeten.  
 (S4) Sie wusste, dass das Management keine weiteren Verzögerungen mehr tolerieren würde.  
 (S5) Fred gab Caroline die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.

F: Kein Feierabend für Fred

(S1) Fred hatte einen langen Arbeitstag vor sich. (S2) Er atmete einmal tief durch. (S3) In der Frühstückspause hatte er Caroline um Unterstützung gebeten.  
 (S4) Er wusste, dass das Management keine weiteren Verzögerungen mehr tolerieren würde.  
 (S5) Caroline gab Fred die Akten. (S6) Wehe, wenn die ihn heute hängen lassen würde.

A: *More work to do*

(S1) *In the office, working overtime was not unusual. (S2) Keeping a clear head was important. (S3) Also dividing work was crucial to get everything done.*  
*(S4) Despite the tremendous time pressure, the management did not tolerate delays.*  
*(S5) Fred handed Caroline the papers. (S6) She better not let him down today.*

B: *More work to do*

(S1) *In the office, working overtime was not unusual. (S2) Keeping a clear head was important. (S3) Also dividing work was crucial to get everything done.*  
*(S4) Despite the tremendous time pressure, the management did not tolerate delays.*  
*(S5) Caroline handed Fred the papers. (S6) She better not let him down today.*

C: *More work to do*

(S1) *In the office, working overtime was not unusual. (S2) Caroline took a deep breath. (S3) During the morning break she had asked Fred for help.*  
*(S4) She knew that the management did not tolerate delays.*  
*(S5) Fred handed Caroline the papers. (S6) She better not let him down today.*

D: *More work to do*

(S1) *In the office, working overtime was not unusual. (S2) Fred took a deep breath. (S3) During the morning break he had asked Caroline for help.*  
*(S4) He knew that the management did not tolerate delays.*  
*(S5) Caroline handed Fred the papers. (S6) She better not let him down today.*

E: *No end of work for Caroline*

(S1) *Caroline was facing a long day at work. (S2) She took a deep breath. (S3) During the morning break she had asked Fred for help.*  
*(S4) She knew that the management did not tolerate delays.*  
*(S5) Fred handed Caroline the papers. (S6) She better not let him down today.*

*F: No end of work for Fred*

*(S1) Fred was facing a long day at work. (S2) He took a deep breath. (S3) During the morning break he had asked Caroline for help.*

*(S4) He knew that the management did not tolerate delays. (S5) Caroline handed Fred the papers. (S6) She better not let him down today.*

The first two conditions serve as a baseline. Based on the results presented above we expect them to yield results in accordance with H2.

H2: Protagonists functioning as subjects are more available as anchors for FID than protagonists functioning as objects – if there is no competing referent activated in the context.

For the items similar to condition C and D we expect to find an effect of global prominence, i.e., the referent that is mentioned in the context should also be available as the perspectival center.

H4: Protagonists that are highly activated in a discourse in terms of being repeatedly mentioned in subject position are just as available as anchors for FID as protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID.

For items similar to (19E) and (19F) we expect to find an even stronger effect, i.e., they are expected to be preferred as perspectival centers over the locally prominent referent.

H5: Protagonists that are highly activated in a discourse in terms of being established as the discourse topic in a topic-establishing sentence, repeatedly mentioned in subject position, and mentioned in a title are more available as anchors for FID than protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID.

### 2.3.1 MATERIAL

For our third experiment we constructed 18 experimental items similar to (19). All items consist of six-sentence stories. The first four sentences established a neutral context or one where one referent was (weakly or strongly) activated. The last two sentences should be interpreted as part of a main storyline. In Sentence 5, the two referents interact, and Sentence 6 can only be interpreted as a thought from the perspective of one of the two referents (due to the gender of the pronoun it contains) rendered as FID. Again, we manipulated the gender of the two referents in the context so that the target sentence in FID mode remains the same in all conditions.

In condition A and B the referents only get introduced in S5, i.e., in the sentence preceding the FID. In condition C, D, E and F both referents are mentioned in the context, yet they differ in the number of references. That is, in conditions C and D the globally prominent referent is mentioned in S2, S3 and S4, while the competitor is mentioned once in S3. In conditions E and F the globally prominent referent is additionally mentioned in the title and in S1 (see example (18) or Table 3).

Condition	Competitor (not the local subject)	Local subject	FID
A: X – X – R1	none	R1	R1
B: X – X – R2	none	R2	R1
C: X – R2 – R1	weak activation	R1	R1
D: X – R1 – R2	weak activation	R2	R1
E: R2 – R2 – R1	strong activation	R1	R1
F: R1 – R1 – R2	strong activation	R2	R1

Table 3: Experimental conditions in Experiment 3

### 2.3.2 PROCEDURE

All conditions were distributed over six lists so that each participant saw each item in only one condition. The 18 experimental items were randomly mixed with 28 fillers (similar to the experimental items in terms of content, style, and length). In order to assure that participants carefully read the entire story, rather than just the target sentence, comprehension questions randomly asked for information presented in the fillers.

As in experiment 1 and 2, participants' task was to rate the naturalness of the last sentence in the context of the preceding sentences on a scale from 1 (entirely unnatural), to 7 (entirely natural). The experiment was conducted on Qualtrics<sup>24</sup>. In May 2020, 122 undergraduate students of the University of Cologne participated in the experiment for course credit.

### 2.3.3 DATA ANALYSIS AND RESULTS

Data from six participants had to be excluded from the analysis as they performed poorly on the comprehension questions (8 or fewer out of 12, mean accuracy = 11.19).

The remainder of the data (n=116) was analyzed using Bayesian mixed effects models estimated in R (R Core Team, 2015).

The model used acceptability ratings as the outcome and the two factors of local subject and reference in the context as predictors with random intercept and random slopes for condition, participants, and items<sup>25,26,27</sup>. Comparisons of individual conditions were calculated using the emmeans package (?).

24. <https://www.qualtrics.com>

25. Treatment contrasts were used with condition A (no competitor/R1) as the reference category. The model was specified as follows: ( *competitor \* local* + (1 + *competitor \* local*|*item*) + (1 + *competitor \* local*|*participant*)

26. The raw data and the script are available online: <https://osf.io/wegtn/>

27. Analogously to frequentist statistics, effects were considered to be significant if the 95%-credible interval did not include 0. If 0 is not included in the 95%-credible interval, then 0 is not included in the range of 95% of the most plausible values. This means that the posterior probability of the effect being 0 (or less extreme) is maximally 5%.

Condition	Model estimate	95%-CI
A: X – X – R1	4.76	[4.35; 5.22]
B: X – X – R2	4.16	[3.71; 4.59]
C: X – R2 – R1	4.49	[4.03; 4.95]
D: X – R1 – R2	4.73	[4.27; 5.19]
E: R2 – R2 – R1	4.53	[4.09; 4.98]
F: R1 – R1 – R2	4.87	[4.42; 5.34]

Table 4: Experiment 3: Acceptability ratings (model estimates and 95%-credible interval)

A comparison of condition A and B confirms H2 and thus replicates the results of Experiments 1 and 2 (*Protagonists functioning as subjects are more available as anchors for FID than protagonists functioning as objects – if there is no competing referent activated in the context*). That is, the model difference of -0.60 points (SE = 0.13, CI: [-0.86; -0.35]) indicates that items with R1 in subject position in S5 were rated significantly higher than items with R2 in subject position.

H4 (i.e., *protagonists that are highly activated in a discourse in terms of being repeatedly mentioned in subject position are more available as anchors for FID than protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID*) was tested in terms of, first, the interaction of conditions A & B and C & D, and, second, the comparison of the model estimates for condition C and D.

The difference of A and B compared to the difference of C and D reveals a significant two-way interaction (estimate = 0.83, SE = 0.17, CI: [0.49; 1.17]). This indicates that repeatedly mentioning a referent in the context overrides the subject preference that shows up in the effect observed for A and B. While conditions C & D reverse the effect in A & B, the comparison of the estimates for conditions C and D was not significant (estimate = 0.23, SE = 0.13, CI: [-0.04; 0.48]). That is, the globally prominent referent was not preferred significantly in comparison to the locally prominent referent in conditions C and D where the globally referent was weakly activated (compare Table 3).

Likewise, H5 (i.e., *Protagonists that are highly activated in a discourse in terms of being established as the discourse topic in a topic-establishing sentence, repeatedly mentioned in subject position, and mentioned in a title are more available as anchors for FID than protagonists that are less often referred to in a discourse but in subject position in the sentence preceding the FID*) was tested in terms of a comparison of the differences of condition A & B and E & F and a pairwise comparison of conditions E and F.

Again, the two-way interaction between the difference of condition A & B compared to the difference of E & F is significant (estimate = 0.94, SE = 0.17, CI: [0.60; 1.29]). Just as for condition C and D, the presence of a competitor overrides the effect of the local subject.

Unlike the pairwise comparison of condition C and D, with model estimates of 4.49 and 4.73, the difference between condition E and F, with model estimates of 4.53 and 4.87, is significant (estimate = 0.34, SE = 0.13, CI: [0.08; 0.60]).

## 2.3.4 DISCUSSION

Higher acceptability ratings for condition A compared to condition B once again indicate a preference for the locally prominent referent as the perspectival center, in particular a preference for the referent that is the subject of the sentence preceding the FID – if there is no competing referent activated in the context.

These findings do not only replicate the effect local prominence has on perspective-taking, rather they serve as a baseline for the manipulation of the context. That is, without any competing referent the target sentence was preferably anchored to the subject of the preceding sentence. This preference was overridden when the object of the preceding sentence was prominent in the context, i.e., globally prominent (compare Figure 4).

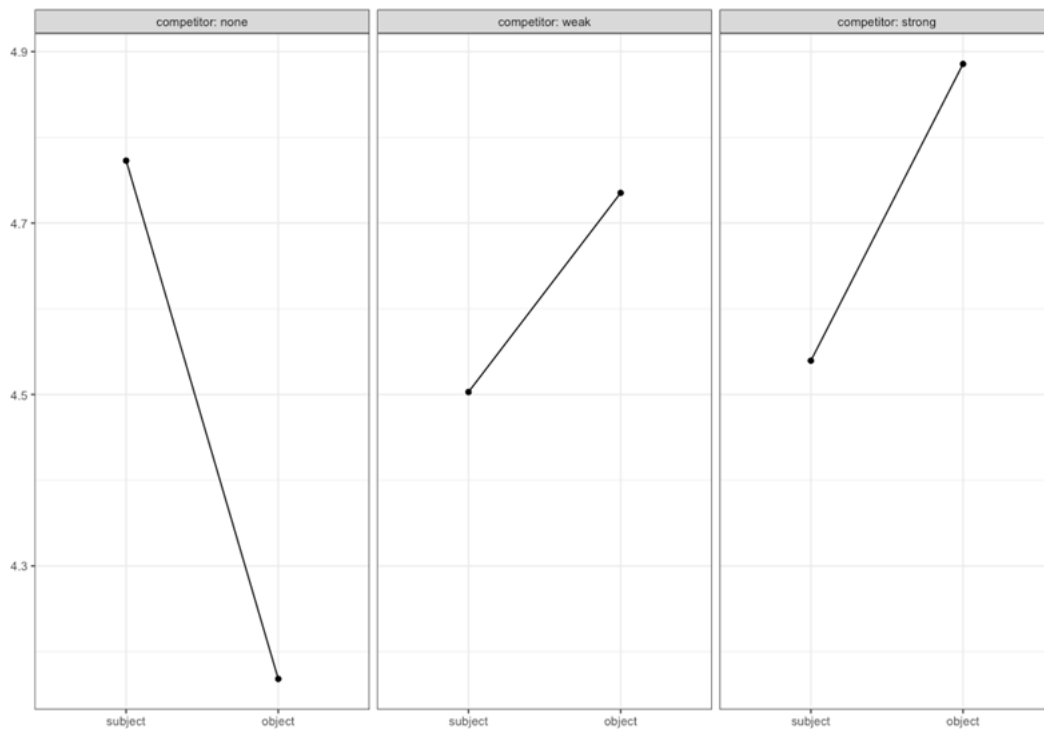


Figure 4: The impact of weak and strong globally prominent competitors on local prominence

While the effect of the locally prominent referent is canceled when the competing referent is prominent in the context, as indicated by the difference between condition C & D and A & B, there is no significant preference for the globally prominent referent, that is, condition D is rated better yet not significantly higher than condition C. That is, a weak prominence, i.e., three references in the context does not suffice to promote a referent to be the perspectival center when competing with a locally prominent referent. Note that the higher activation in the context, in terms of five references in the context and in the title as in condition E and F, override the preference for the locally prominent referent.

This allows to conclude that generally the preference for a locally prominent referent as the per-

spectival center can be overridden by the presence of a globally prominent referent. However, the globally prominent referent is only preferred as the perspectival center when it is highly activated in terms of repeated mentioning.

The difference between weak (cond. C and D) and strong (cond. E and F) global prominence calls for further investigation. That is, the question of whether it was merely the higher number of references or if being mentioned in the title leads to an increase of the acceptability ratings remains an open question

### 3. Conclusion

In this paper we have discussed the role of different prominence-lending cues for the anchoring of sentences in FID mode. While the formal properties distinguishing FID from other forms of speech or thought representation and its interpretative characteristics have been thoroughly investigated from a narratological as well as from a linguistic point of view, the question of how protagonists become available as implicit thinkers or speakers for the anchoring of FID has scarcely been addressed in previous research. This question becomes particularly pressing in cases where more than one protagonist is in principle available as perspectival center, a situation that is hardly uncommon in literary texts. In principle, it is conceivable that the anchoring of FID is resolved on the basis of content exclusively. Consequently, whenever it makes sense to interpret a sentence in FID mode as a thought or utterance of a protagonist that has been made available by the preceding linguistic context, that protagonist should be available as an anchor.

Since antecedent prominence has been shown to play an important role in pronoun resolution, a competing assumption is that a protagonist's availability as perspectival center is tied to that protagonist's prominence status. Given that not only reference tracking but also the management of perspective-taking is integral for the comprehension of narrative texts, a detailed and fine-grained understanding of how perspectival centers are identified is as important for our understanding of the processes underlying the comprehension of narrative texts as a detailed and fine-grained understanding of how pronoun resolution works. The experimental results reported in this paper constitute a first step in this direction.

In Section 1.4 we outlined our intuitions with respect to anchoring preferences of FID. We showed that in short text segments where two protagonists are presented one is usually preferred as the anchor for a following sentence in FID mode. We argued that the referent that is more prominent with respect to different prominence-lending cues is preferred as the perspectival center. In the series of experiments presented in Section 2 we aimed to test these intuitions empirically. Our results summarized in Section 2.2.4 now support the contrast between example (9a) and (9b) (repeated here as (20)).

- (20) a. When Lisa was playing in the schoolyard, a boy pushed her into the stinging nettles.  
Ouch, that itched!  
b. When Lisa was playing in the schoolyard, she pushed a boy into the stinging nettles.  
Ouch, that itched!

Based on these results, we suggest that the establishment of a referent as the anchor for FID is the result of the interaction of various prominence-lending cues that add to a referent's prominence status. In order to narrow down the role of different linguistic cues that are involved we provided empirical evidence that, first, allows us to conclude that a sentence in FID mode is perceived as more natural when it is anchored to the more prominent referent and less natural when it is anchored to the less prominent of two competing referents, irrespective of how plausible it is to interpret the sentence as a thought or utterance of the respective protagonist. As discussed in Section 1.4, an utterance in FID mode as presented in example (20b) sounds odd or at least surprising. Though the utterance must be anchored to the physical sensation of the boy on the level of content, linguistic cues press the reader to step back and ascribe the utterance to a narrating instance – or possibly an act of recursive perspective-taking, i.e., Lisa thinks that *it must itch for the boy*.

Secondly, we have shown that locally established prominence can be overridden by the presence of a globally prominent referent. The third experiment does not only replicate the findings that the local subject is preferred as the perspectival center by default. Rather, the results of Experiment 3 reveal the impact of global prominence on local prominence. That is, FID anchored to the subject of the preceding sentence is perceived to be less natural when the competitor was activated in the context.

This observation allows for at least two explanations, which do not necessarily exclude each other. Rather, it may well be that both are needed since the results of Experiment 3 turn out to be the combined effect of two principles that are relevant for protagonists' perspective taking in narrative discourse. First, perspectival centers may be established in the discourse. Locally established prominence only comes into play whenever there is no previous activation of any referent that can serve as the perspectival center. An approach along these lines calls for further investigation of the role of discourse phenomena such as discourse topicality in perspective taking.

According to the second principle, the availability of a protagonist as the perspectival center is determined by the sum of prominence-lending cues. That is, if subjecthood promotes a referent to be the perspectival center, consequently, the referent that occurs more often in subject position is preferred over the one that occurs less often subject position. The assumption that prominence is the result of the number of prominence-lending cues adding up is also supported by the results of Experiment 2, which revealed a correlation between the number of prominence-enhancing features and the acceptability of a discourse referent as the perspectival center (see Figure 4).

In the research reported in this paper we have relied on acceptability studies exclusively. While being very useful for testing the empirical validity of linguistic hypotheses in a relatively simple and straightforward way, it is a general shortcoming of this method that it is rather far removed from the actual interpretative processes investigated since it cannot be controlled whether participants reflect consciously on the respective task. In future research on perspective taking in narratives, it would therefore be fruitful to employ online methods such as reading time measurements or the tracking of eye movements.

Also, it would be very insightful to look at corpus data on the issue. This approach has not been perused in depth as – to the best of our knowledge – there is no suitable corpus that includes a

sufficient number of examples that match our hypothesis, i.e. annotated instances of FID and two referents that are mentioned in the preceding sentence.

A final point worth noting is that it has been pointed out in Abrusán (2021) that the preference for locally prominent protagonists as anchors for FID only holds if the content of the sentence in FID mode stands in a subordinating discourse relation such as explanation or elaboration (see Asher and Vieu, 2005 for an overview over subordinating and coordinating discourse relations) to the content of the preceding sentence. In general, it is very hard to interpret a sentence as FID that is linked to the preceding sentence via a discourse relation such as narration or result. If such a reading is available at all, however, Abrusán (2021) claims that the less prominent of two competing referents is preferred as perspectival center. Her reasoning is based on examples like the one in (21).

- (21) Sam threatened Justin with a knife. He had to defend himself!  
(Abrusán, 2021: 335, ex. (18))

On the most likely reading, the second sentence is interpreted as reporting a thought of Sam via FID that provides an explanation for Sam's action reported by the first sentence. Since Sam is locally more prominent than Justin, this is as expected. As observed by Abrusán (2021), however, a second reading is at least marginally available on which the second sentence reports a thought of Justin rather than Sam (via FID). On this reading, the reported thought is interpreted as resulting from Sam's action rather than explaining it, i.e. Justin thinks that he has to defend himself as a consequence of his being threatened by Sam with a knife. Since Justin is locally less prominent than Sam and since there is no global context available that could overwrite Sam's local prominence, this is unexpected. Abrusán (2021) notes, however, that her observations might actually be compatible with the analysis of Hinterwimmer (2019): While sentences that are linked via subordinating discourse relations usually have the same topic, sentences linked via coordinating discourse relations move the story forward and hence have the potential to introduce new topics. In the experiments reported in this paper, test items consisted of sentences linked via subordinating discourse relations exclusively. It would be fruitful to empirically test Abrusán's (2021) claims and to investigate how the potential for coordinating discourse relations to shift the topic interacts with global prominence in relation to determining the anchor for FID. We have to leave this as a topic for future research, however.

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