

The Cataphoric Potential of Indefinites in German

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Abstract. Not only do indefinite noun phrases introduce new discourse referents, they also equip them with a cataphoric (or forward-looking) potential, i.e. with a certain degree of activation which is mirrored in discourse effects such as the frequency of anaphoric references back to the referent in the subsequent discourse. Comparing the two German indefinite determiners *ein* ‘a(n)’ and indefinite demonstrative *dieser* ‘this’, we claim that the degree of the cataphoric potential of an indefinite noun phrase (i) correlates with specificity and (ii) a second parameter independent of specificity.

Keywords: Discourse structure, referent tracking, referentiality, specificity, cataphoric potential

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1 Introduction

In this paper we present new empirical evidence based on two pilot studies and an original analysis with respect to the referential and discourse properties of the demonstrative determiner *dieser* ‘this’ in its indefinite interpretation in German and compare the results with the discourse properties of the ordinary indefinite article *ein* ‘a(n)’. We show that indefinite *dieser*, in contrast to *ein*, behaves like a specific expression according to the standard tests for specificity. Indefinite *dieser* also shows a high cataphoric potential, which can be described by two measurable parameters (i) referential persistence and (ii) topic shift potential. The results of our first story continuation task suggest that specificity closely correlates with the discourse property of cataphoric potential, since indefinite *dieser* is specific and exhibits a higher degree of cataphoric potential than *ein*, which is in its prominent reading non-specific. Thus, we assume that specificity is one parameter which triggers an increase in cataphoric potential. In a follow up pilot study we separated specificity from the form of the indefinite expression, in order to test if the differences between *dieser* and *ein* with respect to the cataphoric potential can be explained by specificity alone.

In the first pilot study we assumed that indefinite *dieser* is always specific and that *ein* is prominently non-specific. In the second pilot study we constructed contexts which forced the participants to understand both forms as either specific or non-specific. While it was unproblematic to create these contexts for the indefinite article *ein*, it was difficult to trigger non-specific readings for the indefinite demonstrative *dieser*. This design allowed us to distinguish between the influence of specificity and other additional parameters which have not been investigated so far. First results of this second story continuation task strongly suggest that (i) specificity is a crucial parameter determining the cataphoric potential of indefinite expressions and (ii) that it is not the only parameter. There must be additional parameters that underlie the high cataphoric potential of indefinite *dieser*, since it shows much higher values compared to the indefinite article, even if non-specific.

Section 2 gives an overview about the referential and discourse properties of indefinite *dieser*, presenting the results of the first story continuation study in its latter part. After a discussion of the results of the first pilot study in section 3, section 4 describes the follow-up pilot study. A summary of the overall results is given in section 5.

2 Indefinite Demonstrative *dieser*

The indefinite demonstrative *this* in English is intensively studied. There is a general consensus in the literature indefinite *this* (i) is a specific or referential indefinite determiner (Prince 1981, Ionin 2006), passing the classic tests for indefiniteness and specificity (Fodor & Sag 1982), (ii) introduces a discourse- and addressee-new referent into the discourse and (iii) is highly relevant for the discourse and referred to frequently in the subsequent discourse (Wright & Givón 1987). Ionin (2006:184) claims that it is felicitously used only, if its referent has an interesting or ‘noteworthy’

property. Prince (1981) argues that the function of indefinite *this* is to signal to the hearer that ‘more information about the introduced referent is coming.’

- (1) There is **this man who** lives upstairs from me **who** is driving me mad because **he** jumps rope at 2 a.m. every night. (Maclaran 1982: 85)
- (2) ...A few years ago, there was **this hippie**, long-haired, slovenly... **He** confronted me... (Policeman; Terkel, 1974) (Prince 1981: 233)

We argue that the German equivalent expression indefinite *dieser* has very similar functions as English indefinite *this*, even though indefinite *dieser* is only rarely investigated in the literature. The discourse referent associated with the noun phrase preceded by *dieser* also seems to have the discourse function described in (iii) above. Example (3) shows, that it is odd to introduce a referent with indefinite *dieser* without mentioning it again in the subsequent context:

- (3) Gestern im Kino hat mich **dieser Fremde** angesprochen.
‘Yesterday in the movies this stranger talked to me.’
 - a. **Er** war sehr nett.
‘He was very nice.’
 - b. ??Dann bin ich nach Hause gegangen und habe ein Buch gelesen.
??‘Then I went home and read a book.’

2.1 Referential Properties: Specificity of Indefinite *dieser*

As English indefinite *this*, indefinite *dieser* exhibits typical properties of specific indefinites, which can be tested by the classical tests for referential (4), scopal (5) and epistemic specificity (6) (see von Heusinger 2011 for an overview):

- (4) a. Eva will **diesen Film** über Eliade sehen.
‘Eva wants to watch this movie about Eliade.’ [only 1 movie]
b. Eva will **einen Film** über Eliade sehen.
‘Eva wants to watch a movie about Eliade.’ [several movies possible]
- (5) a. Jeder meiner Kollegen hat **dieses Buch** von Eliade gelesen
‘Each of my colleagues read this book by Eliade.’ [only 1 book]
b. Jeder meiner Kollegen hat **ein Buch** von Eliade gelesen
‘Each of my colleagues read a book by Eliade.’ [several books possible]
- (6) a. Peter gab das Buch **diesem Studenten**.
Peter gave the book to this student.
 - (i) ^{ok}Er heisst Hans und ist in meinem Englischseminar.
^{ok}His name is Hans and he is in my English class.
 - (ii) *Ich weiss nicht wer es ist.
*I don’t know who it is.’

- b. Peter gab das Buch **einem Studenten**.
 ‘Peter gave the book to a student.’
- (i) ^{ok}Er heisst Hans und ist in meinem Englischseminar.
^{ok}His name is Hans and he is in my English class.
- (ii) ^{ok}Ich weiss nicht wer es ist.
^{ok}I don’t know who it is.’

The indefinite article *ein* in the complement of a verb of propositional attitudes (4) allows for a referential and a non-referential reading, whereas the use of indefinite *dieser* is only compatible with a referential reading (see for exceptions section 4). The indefinite article in (5) signals a preference for a narrow scope interpretation, whereas indefinite *dieser* always indicates wide scope. The indefinite article in (6) allows for both a specific and a non-specific reading, whereas indefinite *dieser* (disregarding the exceptions in section 4) only allows for the (epistemic) specific reading.

2.3 Pilot Study 1: Discourse Properties of Indefinite *dieser*

As exemplified in (1) and (2) above, the literature on English indefinite *this* claims that the referents introduced are of a greater importance with respect to the following discourse. The same seems to hold for German indefinite *dieser*. We offer experimental evidence that the referents of German indefinite *dieser* are highly relevant for the subsequent discourse after their introduction and we label this discourse property ‘cataphoric potential’ (see Chiriacescu & von Heusinger 2011 and Chiriacescu 2011 for the related concept of *discourse structuring potential*).

Discourse-based studies (Givón 1983, Gundel, Hedberg & Zacharski 1993, Kehler et al. 2008, Arnold 2010) dealing with accessibility and discourse prominence already introduced several factors that can make a referent more accessible or prominent. However, these accounts are mainly concerned with the licensing of anaphora resolution. In order to make the cataphoric or forward-looking potential of the referents introduced with indefinite *dieser* a measurable concept we adopted the following two parameters following the definition in Chiriacescu & von Heusinger (2010): (i) *referential persistence* (Givón 1983, Ariel 1988, Gernsbacher & Shroyer 1989, Arnold 2010) or the number of anaphoric expressions which are used to refer back to the discourse referent and (ii) *topic shift potential* (modeled after Givón’s topic continuity (1983)) or the probability with which a referent is mentioned again as a topic. Topics are defined as aboutness topics in the sense of Reinhart (1981) and Roberts (2011). For reasons of simplicity and traceability in the first study we equalized topics with grammatical subjects, since topics preferably occur in syntactic subject position in German. This general preference was confirmed by the data of the pilot study in which we found a strong correlation between aboutness topics and subjects.

Assuming a correlation between specificity and the cataphoric potential, the following predictions concerning the discourse effects of German indefinite *dieser* and *ein* with respect to their cataphoric potential are made:

Prediction 1 (referential persistence): The referential persistence of the *dieser*-marked referents will exceed the referential persistence of their counterparts marked

with the indefinite article *ein*.

Prediction 2 (topic shift potential): In comparison to their *ein*-marked counterparts, *dieser*-marked referents will be more likely to become a topic in the subsequent discourse.

2.3.1 Methodology and Experimental Design

A small sentence continuation task (between-subject design) based on two- to four-sentence stories was designed, including two target stories and two distracting filler stories. The first one or two sentences in each test item set the context for the story and contained reference to the first person speaker *ich* 'I'. The next sentence contained the target referent realized as an indefinite NP. The character introduced first (*ich* 'I') was the clearly established topic constituent of the story (mentioned at least once in subject position). We manipulated the realization form of the indefinite target referents in the target sentences (*dieser*-marked referents vs. *ein*-marked referents). Remember that the simple indefinite article *ein* generally allows for both a specific and a non-specific interpretation. (7) gives an example target story with both *dieser* and *ein*:

- (7) Das Essen in dem Restaurant war wirklich total lecker, aber ziemlich teuer. Als ich nach fünf Gängen beim Dessert war, hab' ich gesehen, wie **dieser/ein Mann** Sekt bestellte.
'The food in the restaurant was really delicious, but pretty expensive. When I had dessert, after five courses, I saw how **this/a man** ordered champagne.'

20 native speakers of German participated, 10 participants for the *dieser*-condition and 10 participants for the *ein*-condition. The participants were asked to read the given stimulus items and to write down five natural-sounding, logical continuation sentences. The respective 5 continuation sentences were coded with respect to the two parameters *referential persistence* and *topic shift potential* introduced in section 2.3. Referential persistence was measured by counting the anaphoric references by sentence and also as the sum of all anaphoric items up to S5 (cumulative). In order to account for the topic shift potential we checked if the *dieser*- or *ein*-marked referent became a topic in one of the subsequent 5 sentences. Whether this change was maintained in the subsequent discourse was of no relevance. In other words, we measured if and when a referent was taken up as a topic in the subsequent discourse for the first time after its introduction. Recall that in this pilot study we equalized 'topic' with 'subject' for reasons of simplicity.

2.3.2 Results

Figure 1 exemplifies the results for referential persistence of both indefinite forms in the test item in (7).

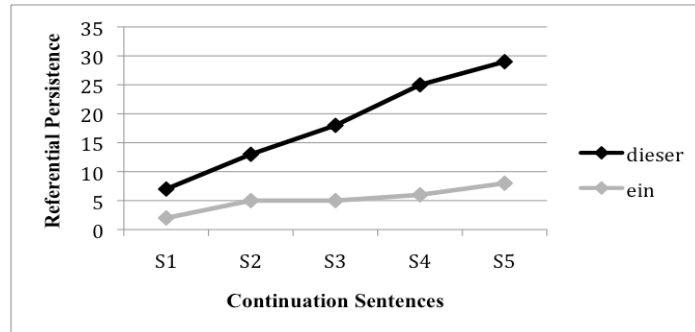


Fig. 1. Referential persistence (cumulative) of *dieser/ein Mann* in (7)

The sum of all items referring back to the indefinite in the five sentences provided by the 10 subjects is 29 for indefinite *dieser* and only 8 for the indefinite article *ein*. This clearly indicates a stark difference with respect to the discourse function between indefinite *dieser* and *ein*.

Figure 2 provides the results for the topic shift potential for the test item in (7). In this short fragment, the first person singular *ich* 'I' is established as the discourse topic and as an aboutness topic in the test item before the indefinite *dieser Mann* ('this man') introduces a new referent with a high cataphoric potential.

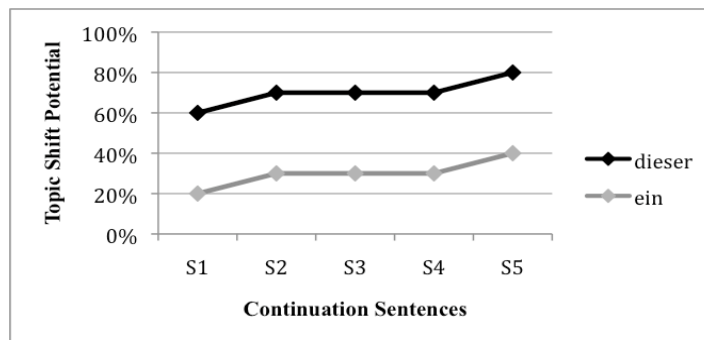


Fig. 2. Topic shift potential (cumulative) of *dieser/ein Mann* in (7).

Figure 2 shows a remarkable difference in the topic shift potential between indefinites introduced by the indefinite article and those introduced by indefinite *dieser*: 80% of the 10 test persons shifted the discourse referent introduced with indefinite *dieser* to the topic at some point in the discourse after its introduction. For *ein*, this only happened in 40% of the cases, indicating a much lower topic shift potential.

In the test item in (7), with respect to both referential persistence and topic shift potential, the values for *dieser* are always higher compared to the values for *ein*. This confirms the hypothesis that there is a strong correlation between the sentence semantics of the two determiners (specificity) and their discourse behavior in terms of cataphoric potential.

3 Discussion

The results of the story continuation task in section 2 clearly indicate that indefinite expressions have cataphoric potential and that indefinite *dieser* has a much higher cataphoric potential than the indefinite article *ein*. The results also allow the assumption of a correlation between the cataphoric potential and specificity. We can hypothesize that specificity is the underlying parameter that determines the cataphoric potential of indefinite expressions in a discourse. In order to provide more evidence for this hypothesis we designed a second story continuation task in which we cross-classified specificity and the (lexical) type of expression (indefinite *dies* vs. indefinite article *ein*).

In the first pilot study we assumed that indefinite *dieser* is always specific (as it is reported in the literature on English indefinite *this* (Prince 1981, Fodor & Sag 1982, Ionin 2006)). The indefinite article is ambiguous, with a preference for non-specific interpretations. The design of the first pilot study did not allow a distinction between the lexical form of the indefinite demonstrative *dieser* and the semantic feature [+specific] that is attached to the form, presumably. Furthermore, for the indefinite article we were not able to clearly distinguish between specific or non-specific interpretations, thus weakening the hypothesis. Therefore, in the second pilot study we developed a design in which we forced either specific or non-specific readings for both indefinite *dieser* and *ein*, in order to be able to clearly differentiate specific and non-specific readings of *ein* and *dieser*. Our goal was a more detailed investigation of the presumed correlation of standard types of specificity with the cataphoric potential. Furthermore, we wanted to test if specificity can exhaustively explain the observed effects or if additional parameters might be at work as well.

4 Pilot Study 2: Discourse Effects of Specific Indefinite *dieser* vs. Specific *ein*

In order to provide more evidence for the hypothesis that specificity is a crucial factor determining the cataphoric potential of indefinites and in order to test if it is the only factor involved, we developed a further story continuation task similar to the one in section 2.3. In this follow-up pilot study we tried to separate specificity from the form of the indefinite expression and thus cross-classified specificity and the type of expression (indefinite *dies* vs. indefinite article *ein*). In other words, we measured the discourse effects of the two indefinite determiners in either forced specific or forced non-specific readings in the test items (TI) containing the respective referents.

Table 1. Cross classification of parameters.

	Specificity	
Determiner	+ specific	- specific
indef. <i>dieser</i>	TI1 - TI4	TI5 + TI6
<i>ein</i>	TI1 - TI4	TI5 + TI6

Test items 1 through 4 showed typical specificity contexts in form of forced wide scope readings under propositional attitude verbs (test item 1 and 2) exemplified in (8) and forced wide scope readings under semantic operators such as the universal quantifier (test item 3 and 4), exemplified in (9). The forced specific interpretations of the critical referents were guaranteed by direct anaphoric reference (realized by an object pronoun) to the critical referent in a subsequent sentence after its introduction (Karttunen 1969/1976) (Please note that the test items were presented all in plain – bold and italics are only used in this article to emphasize the structure of the example):

- (8) TI1: Peter will nächste Woche **eine/diese Spanierin** besuchen. Er hat **sie** letztes Jahr in Barcelona kennengelernt.
 ‘Peter wants to marry **a/this Spaniard** next week. He met **her** last year in Barcelona.’
- (9) TI3: Die Party gestern war wirklich sehr lustig. Jede Frau hat **einen/diesen Franzosen** angehimmelt. Alle haben **ihn** total umschwärmt.
 ‘The party yesterday was really funny. Every woman adored **a/this French guy**. They all totally idolized **him**.’

Test item 5 and 6, on the other hand, were designed to force non-specific interpretations for both *ein* and *dieser*. The first sentence of each test item contained the critical referent, which was introduced under a propositional attitude verb (parallel to the [+specific] test items 1 and 2). Then, in order to force the desired non-specific readings, the critical referents were picked up again by an anaphoric pronoun under another operator, which is an instance of modal subordination. Karttunen (1969/1976) shows that non-specific referents introduced in the complement of a modal verb can only be referred to again, if the anaphoric expression is in the complement of a modal verb as well, i.e. if the anaphoric expression is in the same mode as its antecedent (10a). He concludes that ‘non-specific indefinites do not establish discourse referents when they appear in a complement of a modal verb,’ and thus cannot be taken up by an anaphoric expression in the non-modal context, as in (10b):

- (10) a. John *wants* to catch **a fish**. He *would* like to eat **it** for supper.
 b. *Do you see the fish over there?

The design of non-specific test items including *ein* was upproblematic: after their introduction the critical referents were mentioned again in the test items using *er sollte* ‘he should’, which guaranteed the continuation of the modal mode and thus the non-specificity of the critical referents. The design of the analog examples for indefinite *dieser*, however, was a problem at first glance. There is a consensus in the literature that indefinite demonstratives, like indexicals, always refer rigidly to individuals in the actual world and are not affected by embedding (Ionin 2006: 189, Schlenker 2003). This explains that they behave as if they were exclusively specific (see standard tests in section 2.2). From what we learned about indefinite *dieser* in section 2.2, we would expect the referents of indefinite *dieser* to refuse embedding under a modal operator.

However, there is a small group of contexts, in which the interpretation of indefinite demonstratives can be affected by embedding. Embedding is possible, if they are in the complement of a propositional attitude verb (11). These non-specific readings for indefinite demonstratives are clearly marked, however perfectly acceptable in German as well. Thus, designing test items in which the non-specific *dieser* was introduced under a propositional attitude verb and then taken up modally embedded, we were able to create the desired non-specific readings for indefinite *dieser*.

- (11) John dreamt that he was in **this Eskimo restaurant**. (Prince 1981: 241)

Dieser, in these contexts, does not pass the standard tests for specificity (in terms of exclusive wide-scope behavior, see section 2.2). In one interpretation of (11) the speaker is clearly not intending to talk about a particular Eskimo restaurant that exists in the world of utterance and (11) doesn't even entail that the speaker believes that Eskimo restaurants do exist at all. Using propositional attitude verbs in test items 5 and 6 thus enabled us to design the desired test items for the non-specific condition for *dieser*. An example of a test item for *dieser* and *ein* in the non-specific reading is given below in (12): the critical referent is introduced under a propositional attitude verb (*sie hofft* 'she hopes') and then taken up modally embedded, continuing the mode in which the referent was introduced in the first place.

- (12) TI 5: Jenny ist immer noch Single. Sie *hofft* darauf, dass irgendwann **ein/dieser Märchenprinz** vorbei kommt. **Er sollte** gutaussehend und charmant sein.
'Jenny is still single. She *hopes* to meet **a/this fairytale prince** at one point. **He should** be good looking and charming.'

4.1 Methodology, Experimental Design

As in the first pilot study, the participants ($n=28$) were asked to read test items which, again, were small stories (6 overall and 4 distracting filler stories) containing the target referents. The realization form of the target referents was manipulated and varied between *ein* and *dieser*-marked referents in either forced specific (test items 1 – 4) or forced non-specific (test item 5 – 6) readings. In the specific readings, test items 1 and 2 included propositional attitude verbs and test item 3 and 4 used the universal quantifier.

The target referents were exclusively human direct objects. The participants were asked to read the test items and to provide 6 natural-sounding continuation sentences. This time, inter-subject variation between the participants was used.

An example response of one participant in pilot study 2 for *dieser* in its non-specific reading is given in (13). Note that the critical referent is continued in the same mode in which it was introduced in the test item. In S1 and S5 the referent is under a modal verb (*soll, würde*), and in S6 under the modal adverb *am besten* 'it would be best'.

(13) **TI1:** Jenny ist immer noch Single. Sie *hofft* darauf, dass irgendwann **dieser Märchenprinz₁** vorbei kommt. **Er₁** *sollte* gutaussehend und charmant sein. TI1: 'Jenny is still single. She *hopes* to meet **this fairytale prince₁** at one point. **He₁** *should* be good looking and charming.'

- S1:** Am besten *soll* **er₁** auch noch reich sein.
'**He₁** *should* be rich as well.'
- S2:** Die hat vielleicht Vorstellungen.
'She has lots of fantasies.'
- S3:** Und anstatt sich mal auf die Suche zu machen, hockt sie nur zu Hause.
'And she always just sits at home, instead of looking for somebody.'
- S4:** Sie geht ja auch nie weg, in Discos oder so.
'And she never goes out, to clubs or the like.'
- S5:** Als *würde* **der₁** auf einmal vor ihrer Tür stehen.
'As if **he₁** stood in front of her door one day.'
- S6:** *Am besten hat* **er₁** noch einen Schimmel. Haha.
'It *would* be best if **he₁** *had* a white horse as well. Haha.'

The 6 continuation sentences given by the participants for each test items were coded with respect to referential persistence and topic shift potential. In this paper, however, we are only able to report the results with respect to referential persistence.

4.2 Results

Figure 3 repeats the results of pilot study 1 for referential persistence and shows the results for referential persistence of both indefinite *dieser* and *ein* in both specific (test item 1-4) and non-specific (test item 5+6) readings in pilot study 2. The numbers represent the mean values per sentence with which the critical referents were picked up after their introduction. That is, the total numbers for referential persistence, e.g. 29 for *dieser* in pilot study 1, were divided by the number of participants (10 in pilot study 1) and by the number of sentences provided per person (5 in pilot study 1). Thus, the value 29 for *dieser* in pilot study 1 is mirrored in the value 0,58 in the figure below. That is, *dieser* in pilot study 1, was mentioned again 0,58 times per sentence on an average.

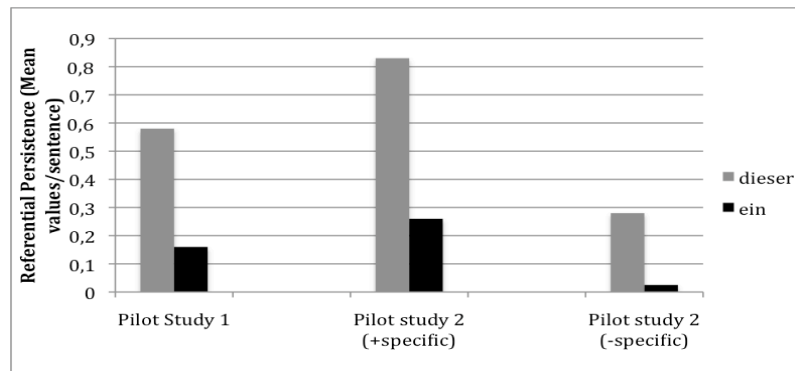


Fig. 3. Referential persistence of *dieser* and *ein*: mean values per sentence in pilot study 1 and 2.

Pilot study 2 has three main results, which are summarized below:

1. Comparing the results of pilot study 1 with the results of the [+specific] cases in pilot study 2, we find that in both pilot studies the values for *dieser* show a much stronger preference to be referred to again in the subsequent discourse, compared to the values for *ein*. As figure 3 depicts, the values in pilot study 2 are higher for both *dieser* (0,82) and *ein* (0,28), compared to pilot study 1 (*dieser* 0,58, *ein* 0,16). This increase of the values in the [+specific] condition in pilot study 2, however, was expected. Remember that the critical referents were referred to again one more time by an object pronoun in the test items in pilot study 2 already. This was not the case in pilot study 1. Thus, the critical referents were of greater salience in the test items in pilot study 2, what can explain the general tendency of the participants to pick up both referents (*ein* and *dieser*) more often in the [+specific] cases in pilot study 2.

2. Comparing the values for *dieser* and *ein* within the either [+specific] or [-specific] conditions in pilot study 2, we find that *dieser* still receives higher values compared to *ein*. In the [+specific] readings *dieser* is referred to again 0,82 times on an average per sentence, whereas *ein* only receives the value 0,26. The same holds for the [-specific] readings where *dieser* reaches 0,28 and *ein* only 0,025. In both the [+specific] and the [-specific] readings *dieser* receives higher values for referential persistence than *ein*. That is, independent of specificity, the cataphoric potential of *dieser* in terms of referential persistence is much higher compared to the one of *ein*, even in the non-specific readings. This means that some additional parameter besides specificity must be a determining factor for the cataphoric potential of indefinite expressions as well.

3. Comparing between the [+specific] and the [-specific] conditions within each lexical form of pilot study 2, we see that the values for referential persistence of specific *dieser* (0,82) and non-specific *dieser* (0,28) in pilot study 2 differ as well. Specific indefinite *dieser* is much more likely to be referred to again in the subsequent discourse than non-specific indefinite *dieser*. The same holds for specific *ein* (0,26) and non-specific *ein* (0,025): specific *ein* is much more likely to be referred to in the subsequent discourse than non-specific *ein*. This difference between specific and non-specific readings of both *dieser* and *ein* strongly suggests that specificity is a

determining factor with respect to the force of the expression's cataphoric potential in terms of referential persistence.

5 Conclusions

Asking a general question about the means available for referents to provide information with respect to the upcoming discourse structure we investigated the indefinite demonstrative determiner *dieser* and the indefinite article *ein* in German. After showing that *dieser*, as far as its sentence semantics are concerned, usually behaves like a specific expression we came up with quantifiable means to prove that indefinite *dieser* introduces new discourse referents and equips them with a higher degree of cataphoric potential compared to *ein*. The cataphoric potential was measured as (i) referential persistence and (ii) topic shift potential. The results of our first story continuation study showed that indefinite *dieser* has a higher cataphoric potential compared to *ein*. This suggested that specificity closely correlates with the discourse property of cataphoric potential of indefinites. An interim conclusion was that specificity can account for the differences in cataphoric potential between indefinite *dieser* and *ein*. The results of a follow-up study supported the findings of the first pilot study, confirming that specificity is a determining factor increasing the cataphoric potential of indefinites. But the results of the second study also showed that specificity can not be the only parameter underlying the cataphoric potential, since we still found differences with respect to the cataphoric potential of *ein* and *dieser* within unambiguously [+specific] and [-specific] interpretations. Thus, the results allow the assumption that the cataphoric potential of indefinites also highly depends on additional factors which most probably might be related to the indexical nature of demonstratives.

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