Anaphoric reference by demonstrative pronouns in German

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The Plan
1. Initial hypothesis for DPro vs. PPro
2. Empirical evidence
3. Initial hypothesis amended
4. More evidence
5. Remaining problems

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The English personal pronoun has two equivalents in German: personal and demonstrative pronouns.

Peter wanted to play tennis with Paul. But he was sick.
Peter wollte mit Paul Tennis spielen. Doch er war krank.

Initial observations on DPro vs. PPro

PPro
DPro

frequently substitutable with no appreciable effect

but sometimes substitution leads to differences in reference

PPro
DPro

Why only preference? Why not 100 p.c.?

Pronoun interpretation results from an interaction of linguistic knowledge and other cognitive factors.
- One of them is mundane plausibility.

classic example:
Could you take the vase off the table, please, and put it on the window sill?
Could you take the vase off the table, please, and push it into the corner?

so perhaps our corpus data are influenced by this factor too?

Corpus Study: Difference in antecedent preferences

DPro prefer non-subject antecedents
PPro prefer subject antecedents
Reading time study & completion task

How strong are the preferences when plausibility interferes?

**method:** reading time + completion task

**materials:**
1. Der Chefarzt untersucht den Patienten. Der ist nämlich Herzspezialist.
   [The head physician is examining the patient. He is a heart specialist.]

world knowledge prefers: Der -> Chefarzt (subject bias of predication)
pronoun type prefers: Der -> Patient (non-subject bias of pronoun)

**prediction:** (1) Conflict leads to longer reading time

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Reading Time - Stimulus Materials

headline
Im Krankenhaus [In hospital]

introduction of two antecedents
(2) (i) Der Chefarzt untersucht den Patienten.
   [The head physician is examining the patient.]

**target sentence**
(2) (a) (Er / Der) ist nämlich Herzspezialist. 
   [Because he is a heart specialist.]
(b) (Er / Der) muß sofort operiert werden.
   [He must be operated on immediately.]
(c) (Er / Der) ist gerade erst gekommen.
   [He has just arrived.]

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Completion Task - Stimulus Materials

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Im Krankenhaus [In hospital]

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So far: Nice Agreement on DPro

Something roughly similar to a preference of DPro for objects and PPro for subjects has been suggested by Zifonun e.a. (1997), Abraham (2002), Winter (2003), for German

and by Comrie (1997), Kaiser & Trueswell (2004) for Dutch

But there is good reason to doubt this conclusion:

theoretically it makes no sense that the grammatical role of an antecedent should have any direct influence on the referential options of a pronoun in the following sentence.

Take another look at some data...
Although DPro generally reject subject antecedents, they may also accept subject antecedents, at least when alternatives are excluded by lack of person or gender agreement:

(1c) Woher ich, das weiß? Peter, hat es mir, gesagt. (Der / Er,) war gerade hier.
[How do I know? Peter, told me. He (DProi /PProi) has just been here.]

(2c) Woher Maria, das weiß? Peter, hat es ihr, gesagt. (Der / Er,) war gerade hier.
[How does Maria know? Peter, told her. He (DProi /PProi) has just been here.]

Hard exceptions to subject avoidance

Although DPro generally reject subject antecedents, they may also accept subject antecedents, and may even exclude a non-subject antecedent,

(3c) Woher Karl, das weiß? Peter, hat es ihm, gesagt. (Derk / Eri,k) war gerade hier.
[How does Karl know? Peter, told him. He (DProi /PProi) has just been here.]

Topic avoidance instead of subject avoidance

Intermediate conclusion:

Our generalization in terms of grammatical role of the antecedent, i.e., subject avoidance, may be a fair corpus generalization, and was well supported experimentally, but cannot be the relevant parameter.

The next best option, and compatible with all observations so far, is a generalization in terms of the information-structural status of antecedent: topic avoidance

DPro avoid discourse topics

If this new hypothesis is correct, then it follows that the earlier generalization in terms of grammatical roles had to be roughly correct: Subjects typically refer to discourse topics.

This covers directly our corpus results, and our experimental results are indifferent to this change of hypothesis: in the stimulus materials all topics were subjects and all non-topics were non-subjects.

Another experimental paradigm

What is still unclear is the interaction of the two factors in DPro interpretation that we looked at – lexical preferences of pronouns vs. plausibility of predication.

In corpus counts, intuitive judgements on the interpretations of sentences, and also in self-paced reading times and in error rates in completion tasks we could only see the results of comprehension processes, but we had no evidence about the process itself.

Visual World Eye Tracking can tap the process online.
Eye tracking experiment 1

Eine Verwarnung. Der Polizist redet gerade mit dem Autofahrer über das falsch geparkte Auto.

A traffic fine. The policeman is talking to the driver about the illegally parked car.

Der ist mit der Verwarnung nicht einverstanden und regt sich fürchterlich auf.

He does not agree with the fine and is getting terribly annoyed.

Er will 20 Euro für Falschparken kassieren und regt sich fürchterlich auf.

He wants a €20 fine and is getting terribly annoyed.

Er ist ziemlich unhöflich, schreit ganz laut herum und regt sich fürchterlich auf.

He is rather impolite, starts shouting, and is getting terribly annoyed.

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Initial DPro preference overruled by plausibility bias

Timecourse of the last 500ms for condition 1 summed over all images and all participants

Initial PPro preference overruled by plausibility bias

Timecourse of the last 500ms for condition 2 summed over all images and all participants

Driver bias

Police bias
supports previous evidence about the different preferences of DPro and PPro.

- additionally we could tease apart the separate effects of pronoun preference and plausibility bias in the course of the comprehension process:

  - **pronoun preference** shows up at the onset of the pronoun
  - **plausibility effect** comes in only later, when the relevant information has become available.

**Subject avoidance vs. topic avoidance**

Unfortunately, in the stimulus materials all **subjects** are **topics** and all non-subjects are non-topics.

Aficionados of grammatical relations will thus remain unconvinced.

A follow-up experiment crosses the subject-object and topic-focus distinctions – and supports the generalisation that DPro avoid topics.

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**Eye tracking experiment 1**

A. Siehst du den Polizisten mit der Kelle?
   Er redet gerade mit dem Autofahrer über das falsch geparkt Auto.
   Der ist ziemlich unhöflich, schreit ganz laut herum und regt sich fürchterlich auf.

---

**Eye tracking experiment 2**

A. Siehst du den Polizisten mit der Kelle?
   **Er** redet gerade mit dem Autofahrer über das falsch geparkt Auto.

---

**Eye tracking experiment 2**

B. Siehst du den Autofahrer mit der braunen Weste?
   Der Polizist redet gerade mit ihm über das falsch geparkt Auto.
   Der ist ziemlich unhöflich, schreit ganz laut herum und regt sich fürchterlich auf.

---

**Eye tracking experiment 2 - Results**

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>Der</strong></td>
<td>topic/subject avoided</td>
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Eye tracking experiment 2

- supports the hypothesis of **topic avoidance** of DPro and falsifies the hypothesis of **subject avoidance**
- supports the hypothesis that DPro are **insensitive to the grammatical status** of their antecedents.

Intermediate sum-up

Can we now safely conclude that **DPro avoid discourse topics?**

Not quite. There are (at least) two problems left:

1. A class of apparent counter examples 
   Sometimes a DPro picks an antecedent that clearly refers to a discourse topic.

2. A conceptual problem with topicality
   When the antecedent is in the same sentence, or there is no explicit antecedent, the definition of discourse topic fails.

Problem 1: DPro with topic antecedents

1. (1) Gestern habe ich Karl getroffen. Er arbeitet jetzt bei IBM. Den sollten wir mal einladen*.
   
   ![Example sentence](https://example.com/example1.png)

   Karl is a clear case of a **discourse topic**:
   - repeated previous reference,
   - last reference by an unstressed anaphoric PPro, 
   but still naturally accessible to DPro!
   - Note that a PPro would here also be possible.

   *example due to Hans Martin Gärtner, p.c.

Problem 1: DPro with topic antecedents


   ![Example sentence](https://example.com/example2.png)

   The watch is a clear case of a **discourse topic**.
   - still naturally accessible to DPro,
   - and also here a PPro would be possible.

Problem 1: DPro with topic antecedents

These cases of DPro with topic antecedents differ from those we had focussed on before:

- DPro is here in free variation with a PPro
- there is only one suitable referent available; DPro does not disambiguate between different referents;

If we formulate our rule for DPro not (as we had done) as **a rule of topic avoidance**, but as **a rule of preference for non-topics**, the rule is not contradicted by cases with only one antecedent.

**Amended generalization:**

**DPro prefer a non-topical referent whenever there is more than one suitable referent available.**

Problem 2a: antecedentless DPro

**Antecedentless DPro, not covered by the topic avoidance hypothesis, trivially fit in with the new generalization.**

5. (5) [watching someone trying to move a bookcase full of books:] Wenn Du die Bücher nicht rausnimmst, kriegst Du den nie von der Stelle.

   ![Example sentence](https://example.com/example3.png)

   [if you won't take the books out, you'll never be able to move it.]

6. (6) [two people are watching a little boy rolling in the mud; one of them says:] Der wird Ärger kriegen, wenn er nach Hause kommt.

   ![Example sentence](https://example.com/example4.png)

   [He will get into trouble when he gets home.]
Problem 2b: sentence-internal antecedents

There is a problem, however, when DPro have to choose among several referents and the antecedents are in the same sentence as the DPro.

(8)a. Wenn [einem Schäferhund] [ein Wolf] begegnet, greift er, den, an.
   [If an Alsatian [dat] meets a wolf [nom], it attacks it.]

(8)b. Wenn [einem Schäferhund] [ein Wolf] begegnet, greift der, ihn, an.
   [If an Alsatian [dat] meets a wolf [nom], it attacks it.]

We would like to say that the Alsatian is the topic of both (a) and (b).

But we can’t: Discourse topic is undefined when there is no discourse.

Aboutness instead of discourse topic

The aboutness topic (Reinhart 1981, Bosch 1980) of an utterance is what this utterance is about – a reconstruction of "logical subject".

A rough and ready test for whether a sentence $S$ can be about $X$ is whether or not it can be coherently embedded in another sentence of the form

Somebody claimed about $X$ that $S$.

The sentences in (8) are more easily construed as being about Alsatians than about wolves, cf. (9 a,a’), both embedding (8 a):

   a’. Jemand behauptete von Alsatianen, dass wenn [einem Schäferhund] [ein Wolf] begegne, er sofort angreife.

> (8a) is about Alsatians & DPro avoids the Alsatian

Aboutness instead of discourse topic

The sentences in (8) are more easily construed as being about Alsatians than about wolves, cf. (9 b,b’), both embedding (8 b):


> (8b) is about Alsatians & DPro avoids the Alsatian.

Aboutness

The notion of aboutness topic solves the immediate problem of incomplete definition of topicality for anaphoric reference within single sentences.

It imposes an aboutness structure on utterances, which is equivalent to a class of occurrences of the corresponding sentence in discourses, and reflects (part of) the discourse-semantic structure of sentences. [But that is a separate topic. Also the issue of how discourse topic and aboutness topic interact.]

I can now conclude with my claims on DPro.

DPro

The current generalization then is this:

In contexts that provide only one grammatically suitable referent for the pronoun, DPro and PPro occur in free variation, and without any semantic difference.

Whenever a DPro must choose among several grammatically suitable referents, it avoids the current topic.
Intuitions about why this should be so

There is this intuitive notion that

* demonstration is a form of pointing.*

Pointing is a way of bringing something into the focus of attention – and DPro are devices for exactly this purpose.

This fits in with the notion of *preference for non-topics:* There is no point in pointing at something that is topical already, and is, in this sense, in the focus of attention.

This is, however, a *pragmatic rule,* which may be violated for stylistic or rhetorical effect – as long as this does not interfere with the basic referential function, i.e., only when the reference is unambiguous.

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Rhetorical or stylistic effects

Here are a couple of examples:

- to express an implicit contrast
  
  Where was Peter? Nobody had seen him. HE was supposed to be the next to give a talk.

- to say that an already familiar predicate applies to the current, already topical, referent (characterizing the referent)
  
  Peter was late. Everyone had to wait for him. HE was always late.

*But these effects are a topic for another occasion.*

---

I could stop here…

but I would like to mention another problem and thereby add another perspective – related to the theory of pronouns more generally.

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Problem 3: Bound DPro

The general assumption so far, explicit in Wiltschko (1999), has been that DPro can only occur referentially – unlike PPro, which may also be bound.

(10) Niemand glaubt, dass {eri /*deri } einen Marathon in unter zwei Stunden laufen kann.

[Nobody believes that he can run a Marathon in under two hours.]

---

Problem 3: Bound DPro

Hinterwimmer (to app.), however, observed that DPro may have matrix object DPs as *c-commanding antecedents* while *c-commanding subjects* could *not* be antecedents of DPro:

(11) a. [Jeder Prüfer] hat Klaus, mindestens eine Frage gestellt, die {eri / deri } für schwierig hielt.

[Each examiner put at least one question to Klaus that he regarded as difficult.]

b. Klaus, hat [jedem Prüfer], mindestens eine Frage gestellt, die {eri / deri } für schwierig hielt.

[Klaus put at least one question to each examiner that he regarded as difficult.]

---

Problem 3: Bound DPro

and it seems that also the *c-commanding subject restriction* can be violated, when there is strong plausibility support for the corresponding reading


[No landlord] would commit himself that he, won't raise the rent for five years.]


[My landlord] committed himself that he, would have the roof repaired.]
Problem 3: Bound DPro

and it seems that also the c-commanding subject restriction can be violated, when there is strong plausibility support for the corresponding reading
- even when there is a competing antecedent.

(13) a. [Kein Vermieter]i würde sich [einem Mieter]k gegenüber verpflichten, dass {eri/*deri} die Miete fünf Jahre lang nicht erhöht.
[No landlord] would commit himself to [a tenant] that he, won't raise the rent for five years.

b. [Unser Vermieter], hat sich gegenüber Klaus, verpflichtet, dass {eri/*deri} das Dach reparieren lässt.
[Our landlord] committed himself to Klaus, that he would have the roof repaired.

References

Hinterwimmer, Stefan (to app.) A unified account of the properties of German demonstrative pronouns. [To appear in a volume for the Workshop on Pronouns at the 4th Conference of the North Eastern Linguistic Society, NELS 40 (held Nov. 2009). Edited by Patrick Grosz, Irene Heim, Pitty Patel, Igor Yakubchik. GLSA Publications, University of Massachusetts. Amherst]

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