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A Unified Account of the Properties of German Demonstrative Pronouns

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Aim of this paper: a unified account of the properties of **German demonstrative pronouns** (henceforth: **D-pronouns** or *DEM*) like *der* and *die* in

(a) sentences where they receive a **coreferential interpretation** and

(b) sentences where they receive a **covarying interpretation** because they are in some way dependent on the interpretation of a quantificational expression.

Claim: In both cases **aboutness topicality** is the key to understanding the behavior of D-pronouns.

D-pronouns have two properties that have so far only been discussed independently of each other:

(I.) they can only be resolved to antecedents that are not maximally salient in the preceding sentence

(II.) they often cannot be interpreted as syntactically bound variables, while they can rather easily function as E-Type pronouns.

I. Coreferential Interpretations

German D-pronouns have a strong bias against antecedents that are the subject of the preceding sentence:

(1) Paul wollte mit Peter laufen gehen. Aber {er/der}war erkältet.
[Paul wanted to go running with Peter. But {he/DEM} had a cold]
(from Bosch et al. 2003)

The personal pronoun *er* has a preference for the subject *Paul*, but can in principle also be resolved to the object of the preposition, *Peter*. The D-pronoun *der*, in contrast, can only be resolved to the object, *Peter*.

In (2), the D-pronoun, in contrast to the personal pronoun, can only be resolved to the object, *the patient*.

Resolution to the subject *the head doctor* would be preferable in terms of plausibility, though.

(2) [Der Chefarzt]$_i$ untersucht [den Patienten]$_k$. {Er$_{i,k}$/Der$_k$} ist nämlich Herzspezialist.
[[The head doctor]$_i$ is examining [the patient]$_k$.{He$_{i,k}$/DEM$_k$} is a heart specialist.]

Effect: reading times that are significantly longer than in sequences where no such contrast arises (Bosch et al. (2003)).

Bosch and Umbach (2006): not the grammatical role of the antecedent is decisive, but its status as the current **discourse-topic**.

Idea: D-pronouns avoid antecedents that are discourse topics.

Reasons for this assumption:

(a) In the reading time study above reading times were significantly longer only when the subject was in canonical position, not when it was preceded by the object.

(b) D-pronouns *can* pick up subject-antecedents if the context ensures that the subject is not the current discourse topic.

Ad (a):

In (3), where the subject *der Chefarzt* (‘the head doctor’) is preceded by the object der Patient (‘the patient’), it seems to be easier for the D-pronoun to pick up the subject-antecedent.

(3) $[_{DO}$ Den Patienten$]_i$ untersucht $[_{SU}$ der Chefarzt$]_k$. Der_k ist nämlich Herzspezialist.
[[The patient$]_i$ was examined by [the head doctor$]_k$. DEM_k is a heart specialist.]

Ad (b):

In cases like (4) the D-pronoun can only be understood as picking up the subject-antecedent.

Reason: *Karl* has been established as the discourse topic. Hence, the D-pronoun cannot be resolved to Karl, but only to the subject, *Peter*.

(4) Woher Karl_i das weiß? $[_{SU}\ \text{Peter}]_k$ has $[_{DO}\ \text{es}]$ $[_{IO}\ \text{ihm}]_i$ gesagt. $\{\text{Der}_k/\text{Er}_{i,k}\}$ war gerade hier.
[How does Karl_i know? Peter_k told him_i. He $\{\text{DEM}_k/\text{Ppro}_{i,k}\}$ has just been here].

Following Prince (1992), Bosch and Umbach assume that discourse topics are referents that are *discourse-old*:

They were introduced into the discourse before, but not as new referents in the immediately preceding sentence.

According to Bosch and Umbach, the assumption that D-pronouns avoid discourse topics accounts for all the examples discussed above, since in the default case subjects are discourse topics by default, at least if they occur in canonical position.

II. Covarying Interpretations
II.I The Basic Observations

Wiltschko (1999):

D-pronouns are subject to Principle C of the Binding Theory, and they cannot be interpreted as bound variables:

(5) a. Peter$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Peter believes that he/DEM is strong.]
b. [Jeder Mann]$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Every man believes that he/DEM is strong.]

Wiltschko explains the contrast between D-pronouns and personal pronouns as follows:

(a) D-pronouns are full DPs consisting of an overt determiner (D-pronouns are homophonous with the various forms of the definite determiner in German) and a covert NP, i.e. they contain a range.

(b) that operator-variable chains are constrained by a principle that prevents variables from containing a range.

(6) Wenn ein Bauer einen Esel hat, dann schlägt er ihn/den.
[If a farmer owns a donkey, then he beats it/DEM.]

Wiltschko (1999): the acceptability of sentences such as (6) in both variants shows that donkey anaphora are neither interpreted as unselectively (Kamp 1981, Heim 1982) nor as dynamically (Groenendijk and Stokhof 1990) bound variables.

Rather, they are interpreted as definite descriptions in disguise (Evans 1980, Heim 1990, Elbourne 2005).

Crucially, however, the example in (7) in contrast to the one in (6) is rather strange.

(6) Wenn [ein Bauer]$_i$ [einen Esel]$_k$ hat, dann schlägt er$_i$ ihn$_k$/den$_k$.
[If [a farmer]$_i$ owns [a donkey]$_k$, then he$_i$ beats it$_k$/DEM$_k$.]

(7) Wenn [ein Bauer]$_i$ [einen Esel]$_k$ besitzt, schlägt der$_k$ ihn$_i$.
[If [a farmer]$_i$ owns [a donkey]$_k$, DEM$_k$ beats him$_i$.]

Reason: world knowledge would favor an interpretation where the D-pronoun picks up the discourse referent introduced by the subject indefinite. DEM can only be understood as picking up the one introduced by the object indefinite, however.

The example in (8), where no such conflict arises, is fine again:

(8) Wenn [ein Bauer]$_i$ [einen Esel]$_k$ besitzt, tritt der$_k$ ihn$_i$.
[If [a farmer]$_i$ owns [a donkey]$_k$, DEM$_k$ kicks him$_i$.]

This contrast between personal pronouns and D-pronouns is in no way expected for E-type approaches, since not only D-pronouns, but also personal pronouns (at least in donkey sentences) are treated as definite descriptions in disguise.

Not even a mixed analysis, according to which only D-pronouns are definite descriptions in disguise, while personal pronouns are, for example, dynamically bound variables, would explain the contrast under discussion.

Reason: definite descriptions may well pick up discourse referents introduced by subject indefinites.

(9) Wenn ein Bauer einen Esel besitzt, schlägt der Bauer ihn/den Esel.
[If a farmer owns a donkey, the farmer beats it/the donkey.]

On the other hand, the pattern in (7) – (9) is highly reminiscent of the facts reported in **I.**

The parallelism is further strengthened by (10) and (11):

(10) Wenn [$_{IO}$ einem Hund] [$_{SU}$ ein WOLF] begegnet,
If a-DAT dog a-NOM wolf encounters
bellt er den an.
barks he-NOM DEM-ACC PART
'If [a dog]$_i$ encounters [a wolf]$_j$, it$_i$ barks at it$_j$'.

(11) Wenn [$_{IO}$ einem Hund] [$_{SU}$ ein WOLF] begegnet,
If a-DAT dog a-NOM wolf encounters,
greift der ihn sofort an.
attacks DEM-NOM he-ACC immediately PART

'If [a dog]$_i$ encounters [a wolf]$_j$, it$_j$ attacks it$_i$ immediately'.

Problem: the concept of **discourse topicality** introduced above does not apply to these examples.

Reason: indefinites are by definition neither referring expressions nor ‘discourse old’.

Alternative concept of topicality that can be invoked to account for the facts in **I.** as well as for those in **II.**:

Aboutness topicality in the sense of Reinhart (1981).

II.II A Re-Evaluation of the Claim that D-Pronouns are Subject to Principle C of the Binding Theory and Cannot be Bound by Quantifiers

Recall the ungrammatical examples from above:

(5) a. Peter$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Peter believes that he/DEM is strong.]
b. [Jeder Mann]$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Every man believes that he/DEM is strong.]

A bound-variable interpretation is available, however, in examples like those in (12) – (14), where the quantificational DP binding the D-pronoun is not the subject, but rather

(a) the direct object,
(b) embedded in a PP, or
(c) the indirect object.

Direct Object:

(12) Peter$_i$ lädt [jeden Syntaktiker]$_j$ zum Abendessen
Peter invites every-ACC syntactician for dinner
ein, wenn der$_j$ ihm$_i$ versichert, dass er$_j$
PART if DEM-NOM him-DAT assures that he
Montague gelesen hat.
Montague read has

‘Peter$_i$ invites [every syntactician]$_j$ for dinner if he$_j$ assures him$_i$ that he$_j$ has read Montague’.

Embedded in a PP:

(13) Peter$_i$ glaubt von [jedem Kollegen]$_j$, dass
Peter believes of every-DAT colleague that
der$_j$ klüger ist als er$_i$.
DEM-NOM smarter is than he

‘Peter$_i$ believes of [every colleague]$_j$ that he$_j$ is smarter than him$_i$.

Indirect Object:

(14) Peter stellte [jedem Studenten]$_j$ mindestens eine
Peter posed every-DAT student-DAT at-least one
Frage, die der$_j$ nicht beantworten konnte.
Question REL DEM-NOM not answer could
'Peter asked [every student]$_j$ at least one question that he$_j$ couldn't answer'.

All the examples in (12) – (14) show that D-pronouns can be bound by quantifiers.

In (12) and (13) the quantificational DP presumably does not c-command the D-pronoun at the surface, but only at LF.

In (14), however, where the quantificational DP is the direct object, this is different, since there is evidence that indirect objects c-command direct objects at the surface (Grewendorf 2002):

(15) weil Hans_i $[\text{dem Studenten}]_j$ $[\text{ein Bild von sich}_{i,j}]$ zeigte.
[because Hans_i showed $[\text{the student}]_{i,j}$ a picture of $\text{himself}_{i,j}$.]

III. A Unified Explanation
III.I. Aboutness Topicality

Reinhart (1981): The topic of a sentence is the **center of interest**, the item the sentence is **about**. It is the **logical subject** of the **predication** that the sentence expresses, where the predicate corresponds to the **comment part** of the assertion.

In the default case, the **logical subject** corresponds to the **grammatical subject**, since the latter canonically occupies the highest DP position, but in languages like German it is also possible to put another XP in clause-initial position.

In many (but not all) cases fronting thus serves to mark the fronted constituent as the aboutness topic.

(3) $[_{DO}$ Den Patienten$]_i$ untersucht $[_{SU}$ der Chefarzt$]_k$. Der_k ist nämlich Herzspezialist.
[[The patient]$_i$ was examined by [the head doctor]$_k$. DEM_k is a heart specialist.]

Since movement triggers lambda-abstraction over the variable denoting the trace left behind by the moved constituent, the object DP *the patient* becomes the logical subject:

(16) [λx.λs. examines(x)(ιy. head_doctor(y)(s*))(s)]
(ιz. patient(z)(s*))

In cases like (4), the second sentence is most naturally read with the main accent on the subject DP *Peter*, i.e. *Peter* is focal.

(4) Woher Karl$_i$ das weiß? [$_{SU}$ Peter]$_k$ has [$_{DO}$ es] [$_{IO}$ ihm]$_i$ gesagt. {Der$_k$/Er$_{i,k}$} war gerade hier.
[How does Karl$_i$ know? Peter$_k$ told him$_i$. He {DEM$_k$/Ppro$_{i,k}$} has just been here].

Assumption: Foci can be reconstructed at LF, and the weak pronoun *es* has been moved across the subject for purely phonological reasons (i.e. at PF only).

The indirect object can thus function as the logical subject, and therefore the aboutness topic, in examples like (4), too.

We can therefore also account for the facts discussed in **I.** if we take **aboutness topicality** to be the relevant notion and assume that D-pronouns are prohibited from picking up antecedents that are **aboutness topics**.

But what about the facts discussed in **II.**?

Let us turn to the donkey sentences first.

III. A Unified Explanation
III.II. Donkey Sentences

D-pronouns may only pick up discourse referents introduced by subject indefinites if another DP has been scrambled across the subject:

(7) Wenn [ein Bauer]$_i$ [einen Esel]$_j$ besitzt, schlägt der$_j$ ihn$_i$.
[If [a farmer]$_i$ owns [a donkey]$_j$, DEM$_j$ beats him$_i$.]

(8) Wenn [ein Bauer]$_i$ [einen Esel]$_j$ besitzt, tritt der$_j$ ihn$_i$.
[If [a farmer]$_i$ beats [a donkey]$_j$, DEM$_j$ kicks him$_i$.]

(10) Wenn [$_{IO}$ einem Hund]$_i$ [$_{SU}$ ein WOLF]$_j$ begegnet,
bellt er$_i$ den$_j$ an.
'If [a dog]$_i$ encounters [a wolf]$_j$, it$_i$ barks at it$_j$'.

Known since Reinhart (1981) that indefinites can in principle be aboutness topics.

But: not obvious in which sense the notion of aboutness topicality applies to the examples above.

The subject indefinite in (7) and (8) and the indirect object in (10) are the highest DPs within the respective *if*-clause.

Nevertheless, it does not seem to make sense to speak of them as the logical subject of a predicate that is provided by the (rest of the) respective sentence.

Endriss (2009): the ability of indefinites to take exceptional (i.e. island-violating) wide scope can be accounted for by treating indefinites in such cases as aboutness topics.

Topical indefinites are type-shifted (via minimal witness sets) in such a way that they function in effect as logical subjects of a predication that is provided by the rest of the sentence.

The resulting readings are equivalent to ones giving the respective indefinites widest scope.

But the sentences above are not about a particular farmer, dog, etc., but rather about farmers, dogs, etc. in general, i.e. about the sets containing all individuals satisfying the respective predicates or about the corresponding kinds.

Endriss and Hinterwimmer (2009): Indefinites marked as aboutness topics not only receive wide(st) scope readings.

They can also be shifted from their original quantifier denotation as objects of type $\langle\langle e,\langle st\rangle\rangle,\langle st\rangle\rangle$ to objects of type $\langle st\rangle$, i.e. to the type of situation predicates.

The situation predicate provided by the shifted indefinite is then the (higher-order) logical subject of the (higher-order) predicate that that results from combining the Q-adverb with its nuclear scope.

Problem: The standard view since Kratzer (1986) is that the restrictor of the generic operator (or an overt Q-adverb) is provided by the whole *if*-clause.

Hinterwimmer (2007): *if*-clauses cannot simply restrict any operator whatsoever, but only modal operators.

Sentences like the ones under consideration accordingly contain a covert universal quantifier over possible worlds in addition to a covert generic operator.

Crucially, the conditional as a whole is interpreted in the nuclear scope of the generic operator, while the restrictor is determined in the following way:

The topical DP – which is the DP occupying the highest position within the *if*-clause – is moved out of the *if*-clause and adjoined to the matrix-CP.

Evidence for this kind of movement:

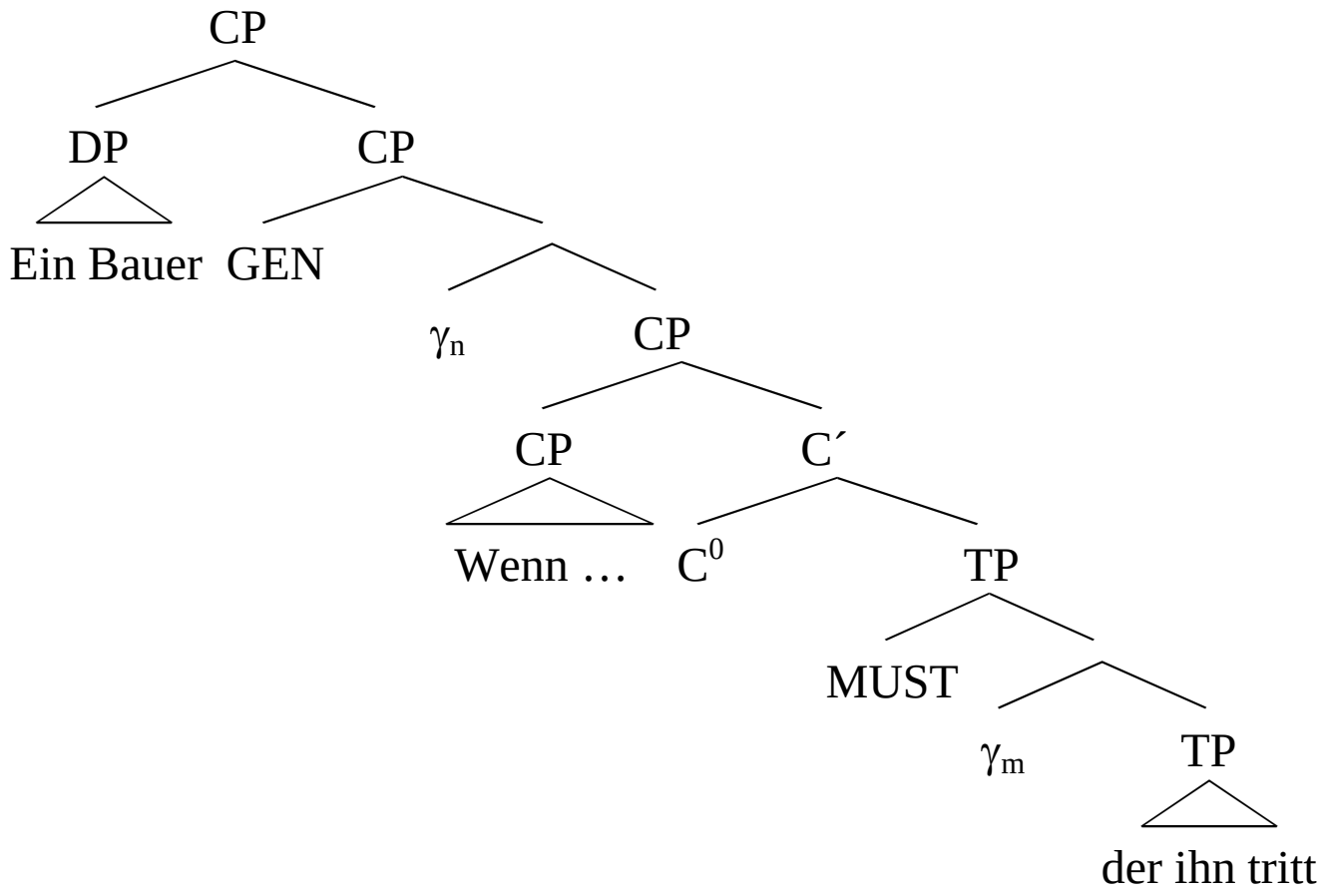
Bavarian German, where proper names, definites, PPs and indefinites, but not strong quantificational DPs (i.e. elements that can either be aboutness topics or frame setting topics) can undergo this kind of movement overtly.

(16) [A Katz]$_i$ wenn I t_i sieh, streichel I's.
[[A cat]$_i$ if I see t_i, I stroke it$_i$].

The LF for a sentence such as (8) looks then as given in simplified form in (17):

(8) a. Wenn ein Bauer einen Esel besitzt, tritt der ihn.
[If a farmer owns a donkey, DEM beats him].

(17)



γ_n (and γ_m): situation variable binding operator whose insertion has the effect of turning any free situation variable in its scope into a lambda-bound variable, and thus in effect into a variable bound by the respective (overt or covert) Q-adverb.

(18) $[[\gamma_n \text{ XP}]]^{w,g} = \lambda s.[\ [[\text{XP}]]^{w,g[n \rightarrow s]}(s)\ ]$

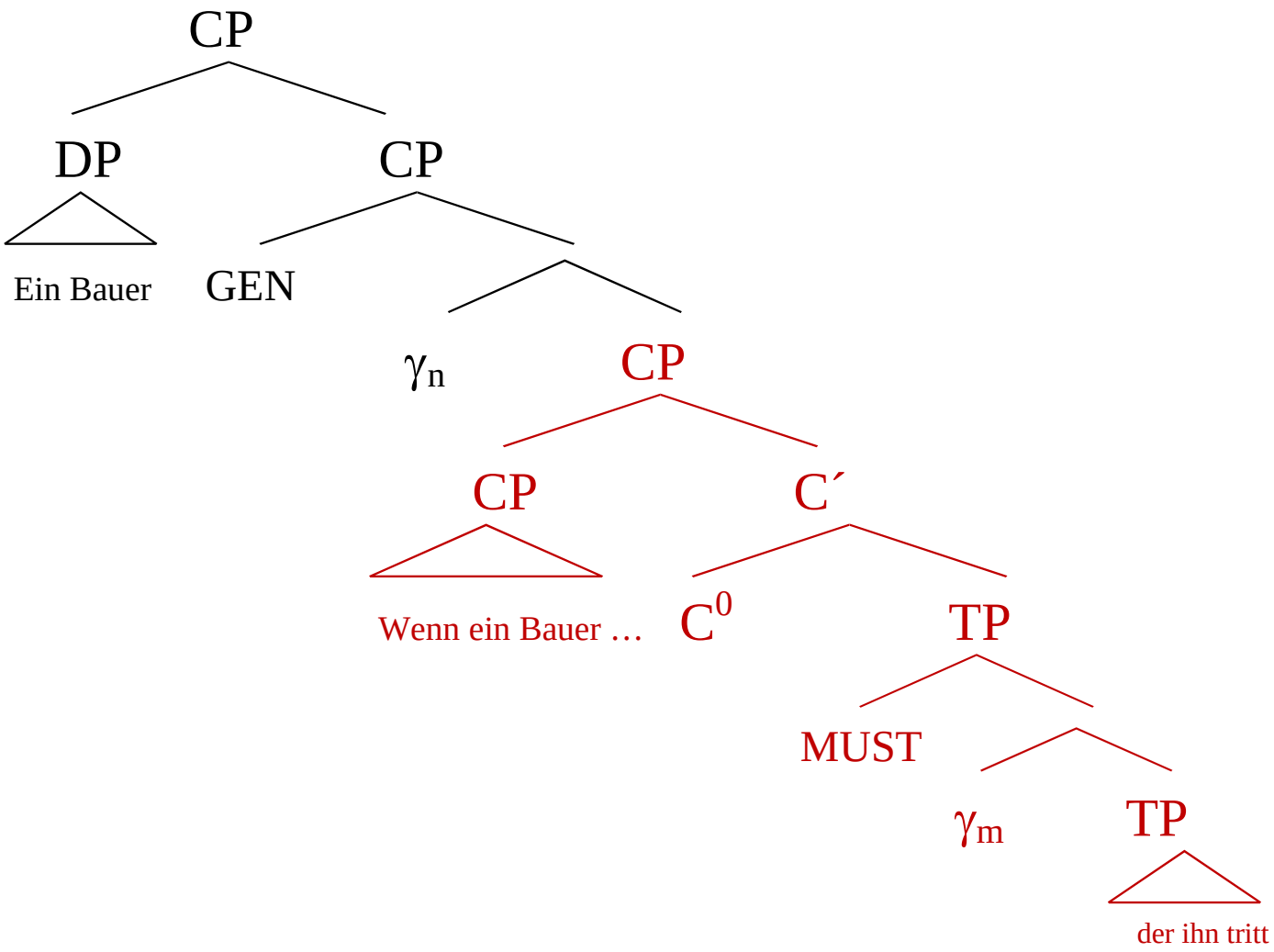
Fox 2002, Sauerland 2004 and Elbourne 2005: the copies of moved DPs interpreted as definite descriptions.

Inserting a lambda-operator directly beneath the higher copy and intersecting the predicate denoted by the NP in the lower copy with the predicate *λxλs. identical-to(x)(y)(s)*(*y* = the variable bound by the lambda-operator) ensures that they become bound variables in effect.

Hinterwimmer (2008): The lower copies are only optionally manipulated in a way that makes them equivalent to bound variables.

They can also be interpreted as ‘ordinary’ definite descriptions, where the uniqueness conditions are relativized with respect to free situation variables that can be either be resolved to contextually salient situations, or be bound by Q-adverbs via binding operators (see (17) above).

Both pronouns are (for the time being) interpreted as definite descriptions in disguise whose uniqueness conditions are relativized with respect to the situations quantified over by the Q-adverb (Elbourne 2005).


CP
DP
CP
Ein Bauer
GEN
γn
CP
CP
C´
Wenn ein Bauer …
C0
TP
MUST
γm
TP
der ihn tritt

$[[\text{MUST}]] = \lambda Q.\ \lambda P.\ \lambda s.\ \forall w \forall s_1[R(w)(s) \wedge s_1 \leq w \wedge EX(P)(s_1) \rightarrow \exists s_2[s_1 \leq s_2 \leq w \wedge Q(s_2)]]$[1]

where *EX*(*P*)(*s*$_1$) means '*s*$_1$ exemplifies *P*', and a situation *s* exemplifies a proposition *P* iff whenever there is a part of *s* in which *P* is not true, then *s* is a minimal situation in which *P* is true (Kratzer 2007, Schwarz 2009).

(18) $\lambda Q.\ \lambda P.\ \lambda s. \forall w \forall s_1[R(w)(s) \wedge s_1 \leq w \wedge EX(P)(s_1) \rightarrow \exists s_2[s_1 \leq s_2 \leq w \wedge Q(s_2)]]$

$(\lambda s'.\ \exists x[\text{do}.(x)(s') \wedge \text{owns}(x)(\iota y.\ \text{fa}.(y)(s^*))(s')])$

$(\lambda s''.\ (\text{kicks}(\iota y.\ \text{do}.(y)(s''))((\iota x.\ \text{fa}.(x)(s''))(s'')$

$=$

[1] Thanks to Kai von Fintel for pointing out to me that there was a fatal problem in the original formula, and to Kai von Fintel and Florian Schwarz for suggesting a way to remedy it, which I'm adopting above...

$= \lambda s.\forall w \forall s_1[R(w)(s) \wedge s_1 \leq w \wedge$
$EX(\lambda s'.\ \exists x[do.(x)(s') \wedge owns(x)(\iota y.\ fa.(y)(s^*))(s')])(s_1) \rightarrow$
$\exists s_2[s_1 \leq s_2 \leq w \wedge kicks(\iota y.\ do.(y)(s_2))((\iota x.\ fa.(x)(s_2))(s_2)]]$

In the next step, (18) becomes the nuclear scope of the generic operator.

$[[Gen]] = \lambda Q.\ \lambda P.\ \lambda s.\ \forall s_1\ [s_1 \leq s \wedge EX(P)(s_1) \rightarrow$
$\exists s_2[s_1 \leq s_2 \leq s \wedge Q(s_2)]]$

(19) $\lambda Q.\ \lambda P.\ \lambda s.\ \forall s_1\ [s_1 \leq s \wedge EX(P)(s_1) \rightarrow$
$\exists s_2[s_1 \leq s_2 \leq s \wedge Q(s_2)]]$
$(\lambda s.\forall w \forall s_3[R(w)(s) \wedge s_3 \leq w \wedge$
$EX(\lambda s'.\ \exists x[do.(x)(s') \wedge owns(x)(\iota y.\ fa.(y)(s))(s')])(s_3) \rightarrow$
$\exists s_4[s_3 \leq s_4 \leq w \wedge$
$kicks(\iota y.\ do.(y)(s_4))((\iota x.\ fa.(x)(s_4))(s_4)]]])$ =

$$\lambda P.\ \lambda s.\ \forall s_1\ [s_1 \leq s \wedge EX(P)(s_1) \rightarrow$$
$$\exists s_2[s_1 \leq s_2 \leq s \wedge$$
$$\forall w \forall s_3[R(w)(s_2) \wedge s_3 \leq w \wedge$$
$$EX(\lambda s.\ \exists x[do.(x)(s) \wedge owns(x)(\iota y.\ fa.(y)(s_2))(s)])(s_3) \rightarrow$$
$$\exists s_4[s_3 \leq s_4 \leq w \wedge$$
$$kicks(\iota y.\ do.(y)(s_4))((\iota x.\ fa.(x)(s_4))(s_4)]]]]$$

Final step: The object in (19) is applied to the higher copy of the indefinite *Ein Bauer* (*a farmer*).

The indefinite accordingly needs to be shifted from its original denotation as a quantificational DP to a situation predicate by applying it to the dummy predicate $\lambda y \lambda s_1$. *in(y)*(s_1):

(20) $\lambda P.\ \lambda s.\ \exists x[farmer(x)(s) \wedge P(x)(s)]\ (\lambda y \lambda s_1.\ in(y)(s_1)) =$
$\lambda s.\ \exists x[farmer(x)(s) \wedge in(x)(s)] = \lambda s.\ \exists x[farmer(x)(s)]$

The final interpretation of our sentence now results from applying the higher-order situation predicate in (19) to the higher-order logical subject in (20).

(21) $\lambda P.\ \lambda s.\ \forall s_1\ [s_1 \leq s \wedge EX(P)(s_1) \rightarrow$
$\exists s_2[s_1 \leq s_2\ \leq s \wedge$
$\forall w \forall s_3[R(w)(s_2)\ \wedge s_3 \leq w \wedge$
$EX(\lambda s.\ \exists x[do.(x)(s) \wedge owns(x)(\iota y.\ fa.(y)(s_2))(s)])(s_3) \rightarrow$
$\exists s_4[s_3 \leq s_4 \leq w \wedge$
$kicks(\iota y.\ do.(y)(s_4))((\iota x.\ fa.(x)(s_4))(s_4)]]]]$
$(\lambda s.\ \exists x[farmer(x)(s)])$
$=$

$\lambda s.\ \forall s_1\ [s_1 \leq s \wedge EX(\lambda s.\ \exists x[farmer(x)(s)])(s_1) \rightarrow$
$\exists s_2[s_1 \leq s_2\ \leq s \wedge$
$\forall w \forall s_3[R(w)(s_2)\ \wedge s_3 \leq w \wedge$
$EX(\lambda s.\ \exists x[do.(x)(s) \wedge owns(x)(\iota y.\ fa.(y)(s_2))(s)])(s_3) \rightarrow$
$\exists s_4[s_3 \leq s_4 \leq w \wedge$
$kicks(\iota y.\ do.(y)(s_4))((\iota x.\ fa.(x)(s_4))(s_4)]]]]$

The higher copy of *a farmer* is the logical subject of the higher-order predicate provided by the rest of the sentence, and thus the **aboutness topic.**

This is intuitively the right result, since the sentences under consideration are felt to convey information about farmers, dogs, wolves etc., and the set of temporally maximal situations containing nothing but a farmer is equivalent to the set of farmers.

Let us now return to the question of what distinguishes personal pronouns from D-pronouns.
Pronouns in general are definite descriptions in disguise.

They initially contain a free variable ranging over predicates that needs to be resolved to a salient predicate (cf. Elbourne 2008):

(22) $[[\text{er}]] = \iota\{x: \text{male}(x)(s_1) \wedge P(x)(s_1)\}$

Assuming that D-pronouns are interpreted similarly, we need to ensure in our example (repeated here as (23)) that in the case of the D-pronoun, *P* does not get resolved to the predicate *farmer*.

(23) Wenn [ein Bauer]$_i$ [einen Esel besitzt]$_j$, tritt der$_i$ ihn$_j$.
[If [a farmer]$_i$ owns [a donkey]$_j$, DEM$_i$ kicks him$_j$].

Idea: D-pronouns come with the additional presupposition that the individuals they denote are not elements of the set functioning as the current aboutness topic, if the current aboutness topic is a set (recall that the set of famers is equivalent to the set of temporally maximal situations containing nothing but a farmer).

If the current aboutness topic is an individual (as in the cases discussed in section **I.**), the individual denoted by the D-pronoun may not be identical to the current aboutness topic.

(24) $[[\text{der}]] = \iota\{x: \text{male}(x)(s_1) \wedge P(x)(s_1) \wedge \neg R^*(x, \text{TOP})\}$
where $R^* = \lambda y.\ \lambda z.\ y = z$ iff TOP is of type *e*
and $R^* = \lambda y.\ \lambda P_{<e,t>}.\ y \in P$ iff TOP is of type *et*.

III. A Unified Explanation
III.III. D-Pronouns as Bound Variables

Let us finally return to the question of why D-pronouns in contrast to personal pronouns can only be bound by quantificational DPs that are not in subject position:

(25) a. [Jeder Mann]$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Every man believes that he/DEM is strong.]

b. Peter stellte [jedem Studenten]$_j$ mindestens
Peter posed every-DAT student-DAT at-least
eine Frage, die der$_j$ nicht beantworten
one question REL DEM-NOM not answer
konnte.
could

'Peter asked [every student]$_j$ at least one question that he$_j$ couldn't answer'.

There is empirical evidence showing that strong quantificational DPs cannot function as aboutness topics.

Idea: not only in the case of Q-adverbs, but also in the case of quantificational DPs, the **restrictor set** can function as the aboutness topic of the respective sentence.

In the case of quantificational DPs, however, this is masked by the fact that the NP providing the restrictor forms a constituent with the determiner.

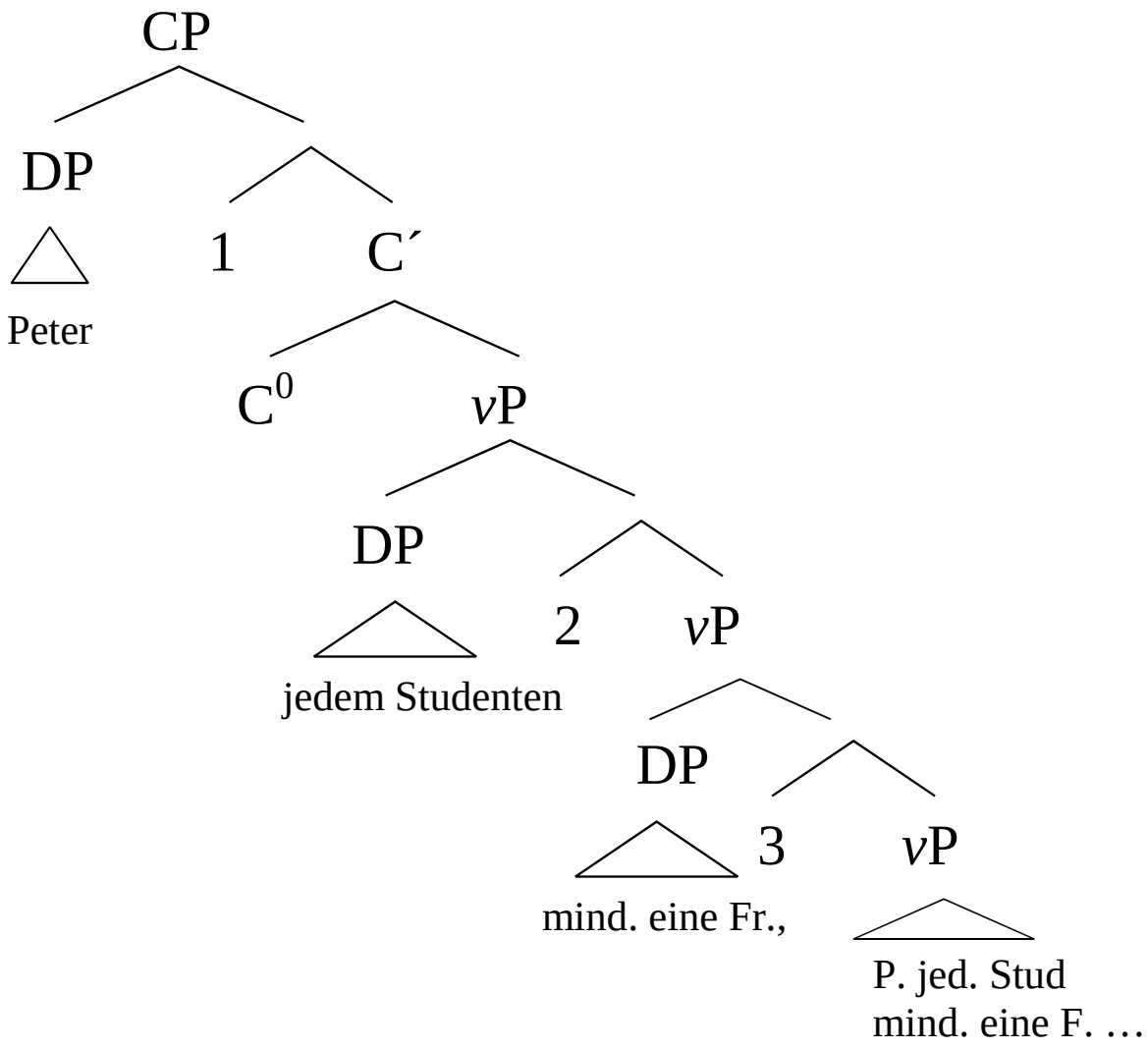
Assumption: if a quantificational DP is the highest DP at the surface, its restrictor is interpreted as the aboutness topic of the sentence by default.

If another DP occupies a higher position at the surface, however, this DP is the aboutness topic by default (at least if it is not focus-marked).

Technically, this can be achieved as follows: In an example such as (25b) the quantificational DP need not be moved across the subject via QR at LF, because it has been adjoined to *v*P already at the surface via (vacuous) scrambling.

The LF representation of the sentence looks thus as shown in (26).

(26)


CP
DP
1
C´
Peter
C0
vP
DP
2
vP
jedem Studenten
DP
3
vP
mind. eine Fr.,
P. jed. Stud
mind. eine F. …

The subject DP *Peter* is thus the logical subject of the predicate provided by its sister.

Consequence: The restrictor of the quantificational DP is not interpreted as the aboutness topic of the sentence, and the D-pronoun can (in effect) be interpreted as abound variable if *P* is resolved to a predicate such as $\lambda x.\ \lambda s.\ identical\text{-}to(x)(y)(s)$.

This gives us (27b) as the (strongly simplified) semantic interpretation of the sentence:

(27) a. Peter stellte [jedem Studenten]$_1$ mindestens eine Frage, die der$_1$ nicht beantworten konnte.
[Peter asked [every student]$_1$ at least one question that he$_1$ couldn‘t answer].

b. $\lambda x.\ \lambda s.\ \forall y[\text{student}(y)(s^*) \rightarrow \exists s_1 \leq s[\exists z[\text{question}(z)(s_1) \wedge \neg\text{answer}(z)(\iota k.\text{identical-to}(y)(k)(s_1))(s_1) \wedge \text{ask}(z)(y)(x)(s_1)]]]$

(Peter) =

$\lambda s.\ \forall y[\text{student}(y)(s^*) \rightarrow \exists s_1 \leq s[\exists z[\text{question}(z)(s_1) \wedge \neg\text{answer}(z)(\iota k.\text{identical-to}(y)(k)(s_1))(s_1) \wedge \text{ask}(z)(y)(\text{Peter})(s_1)]]]$

In a case such as (25a), in contrast, the parallel resolution of *P* would violate the presupposition in (24), since the object denoted by the D-pronoun would in effect be an element of the set functioning as the aboutness topic.

(25) a. [Jeder Mann]$_i$ glaubt, dass er$_i$/*der$_i$ stark ist.
[Every man believes that he/DEM is strong.]

We thus have a unified explanation for the properties of D-pronouns in terms of aboutness topicality:

D-pronouns may not receive an interpretation that makes them either

(a) coreferential with the current aboutness topic (the cases discussed in **I.**) or

(b) turns them in effect into an element of the set functioning as the current aboutness topic (the cases discussed in **II.**).

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