Comments on S. Hinterwimmer's 'A Unified Account of the Properties of German Demonstrative Pronouns'

Florian Schwarz
(UPenn)

Nov. 15th
NELS 40 Workshop on Pronouns
MIT

Progress!

Some important achievements:

- An understanding of the contrast between the different types of pronouns in discourse anaphoric uses has been emerging
- Strikingly, the very same contrasts are present for pronouns with covarying interpretations
  - This has been known for donkey anaphora configurations
  - Now we learned that it also holds for syntactic binding!
- It's been far from obvious how discourse- and reference-based approaches can be extended to account for covarying interpretations of pronouns
- Hinterwimmer's proposal constitutes major progress in this direction!

Overview

- Technical Issues
- A Variant of the Proposal based on Topic Situations
- Outlook and Connections

Issues with interpreting the lower copy of the Indefinite

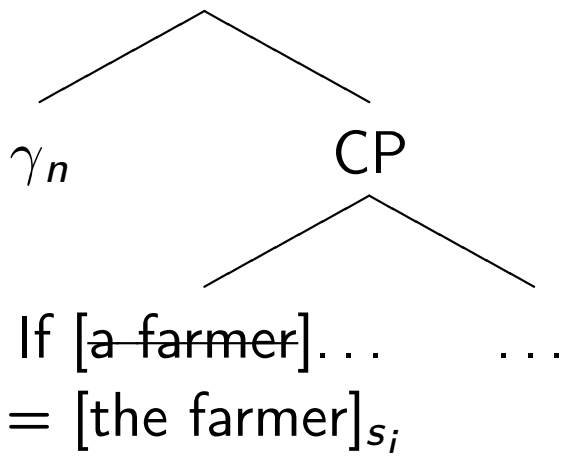
(1) Wenn ein Bauer einen Esel besitzt, dann tritt der ihn
If a farmer owns a donkey, DEM beats him.

- The copy theory analysis of movement of the topical indefinite results in the interpretation of multiple copies.
- Since we are dealing with quantifiers over situations, it's crucial with respect to what situation the copies get evaluated.
- The interpretation of the lower copy is problematic.
- The overall interpretation of the sentence also is problematic.

Resolving the interpretation pronoun on the lower copy

What restriction ensures that the situation argument of the lower copy, which takes the form of a definite, is bound by the situation binder γ below GEN?

(2)



- $i = n$?
- Could it also be something else?
- Could it be bound within the *if*-clause?
- Could it be free?

The proposed analysis

Assuming $i = n$:

$$(3)\quad \lambda s.\forall s_1 \left[\left[s_1 \leq s \wedge EX\left(\lambda s'.\ \exists x\left[\mathrm{fa}(x)(s')\right]\right)(s_1)\right] \rightarrow \right.$$

$$\left[\exists s_2\left[s_1 \leq s_2 \leq s \wedge \right.\right.$$

$$\forall w \forall s_3\left[R(w)(s_2) \wedge s_3 \leq w \wedge\right.$$

$$EX\left(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)\left(\iota y.\mathrm{fa}(\mathbf{s}_2)\right)(s')]\right)(s_3) \rightarrow$$

$$\exists s_4\left[s_3 \leq s_4 \leq w \wedge\right.$$

$$\left.\left.\left.\left.\mathrm{kicks}\left(\iota x.\mathrm{do}(x)(s_4)\right)\left(\iota z.\mathrm{fa}(z)(s_4)\right)(s_4)\right]\right]\right]\right]$$

(Note: The analysis presented here has been updated slightly since the workshop to address some technical issues pointed out by Kai von Fintel.)

Do Individuals belong to Worlds?

(3) $\lambda s \ldots \quad \Big[\exists s_2 \Big[s_1 \leq s_2 \leq s \wedge \forall w \forall s_3 \big[R(w)(s_2) \wedge s_3 \leq w \wedge EX\Big(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)\big(\iota y.\mathrm{fa}(s_2)\big)(s')]\Big)(s_3) \rightarrow \ldots$

- Assuming individuals and situations can only belong to one world, $\mathrm{owns}(x)\big(\iota y.\mathrm{fa}(s_2)\big)(s_3)$ requires $s_3 \leq w_{s_2}$
- But then the only world satisfying the restrictor of $\forall w$ is w_s! (the s bound by the highest λ).

Other Options?

If s_i were bound within the *if*-clause...

(4) $$\lambda s.\forall s_1 \left[\left[s_1 \leq s \wedge EX\left(\lambda s'.\ \exists x\left[\mathrm{fa}(x)(s')\right]\right)(s_1)\right] \rightarrow \right.$$

$$\left[\exists s_2\left[s_1 \leq s_2 \leq s \wedge \right.\right.$$

$$\forall w \forall s_3\left[R(w)(s_2) \wedge s_3 \leq w \wedge\right.$$

$$EX\left(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)(\iota y.\mathrm{fa}(s'))(s')]\right)(s_3) \rightarrow$$

$$\exists s_4\left[s_3 \leq s_4 \leq w \wedge\right.$$

$$\left.\left.\left.\left.\mathrm{kicks}\left(\iota x.\mathrm{do}(x)(s_4)\right)\left(\iota z.\mathrm{fa}(z)(s_4)\right)(s_4)\right]\right]\right]\right]$$

...there would be no connection between the farmer in s_3 and the one s_1 - they could be different ones!

Other Options?

If s_i were free . . .

$$(5)\quad \lambda s.\forall s_1 \Big[\Big[s_1 \leq s \wedge EX\Big(\lambda s'.\ \exists x\big[\mathrm{fa}(x)(s')\big]\Big)(s_1)\Big] \rightarrow$$

$$\Big[\exists s_2\Big[s_1 \leq s_2 \leq s \wedge$$

$$\forall w \forall s_3\big[R(w)(s_2) \wedge s_3 \leq w \wedge$$

$$EX\Big(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)\big(\iota y.\mathrm{fa}(\mathbf{s_7}')\big)(s')]\Big)(s_3) \rightarrow$$

$$\exists s_4\big[s_3 \leq s_4 \leq w \wedge$$

$$\mathrm{kicks}\big(\iota x.\mathrm{do}(x)(s_4)\big)\big(\iota z.\mathrm{fa}(z)(s_4)\big)(s_4)\big]\big]\Big]\Big]$$

. . . we would get a very weird interpretation that depends on the unique farmer in some contextually salient situation

Back to the original option

The other options need to be ruled out. Does the original option work if we assume individuals exists across different worlds? There still is a problem:

$$
\begin{aligned}
(6)\quad \lambda s.\forall s_1 \Big[\Big[s_1 \leq s \wedge EX\Big(\lambda s'.\ \exists x\big[\mathrm{fa}(x)(s')\big]\Big)(s_1)\Big] \rightarrow \\
\Big[\exists s_2\Big[s_1 \leq s_2 \leq s \wedge \\
\forall w \forall s_3\big[R(w)(s_2) \wedge s_3 \leq w \wedge \\
EX\Big(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)\big(\iota y.\mathrm{fa}(\mathbf{s_2})\big)(s')]\Big)(s_3) \rightarrow \\
\exists s_4\big[s_3 \leq s_4 \leq w \wedge \\
\mathrm{kicks}\big(\iota x.\mathrm{do}(x)(s_4)\big)\big(\iota z.\mathrm{fa}(z)(s_4)\big)(s_4)\big]\big]\Big]\Big]
\end{aligned}
$$

If we're considering worlds where the unique farmer in s_2/s_1 is not a farmer, then we cannot guarantee that the unique farmer in s_4 is the same as the one we started out with!

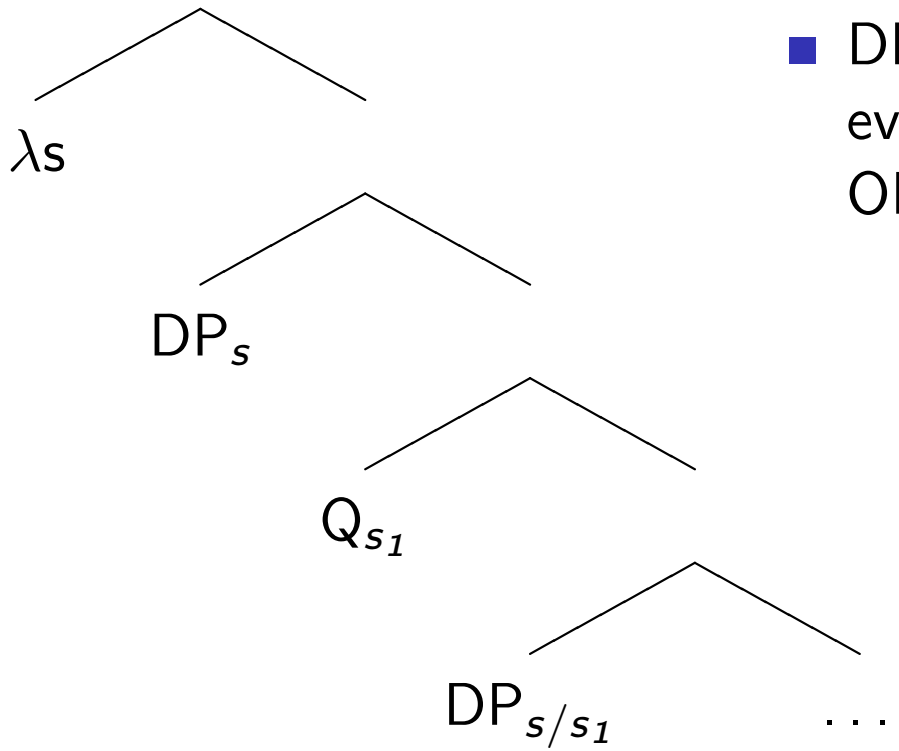
A more general problem

- Even if we can guarantee that the farmer picked out by DEM is the same as the one introduced in the restrictor, a problem remains.
- The analysis assumes that the NP of the indefinite (which also supplies the predicate used to restrict DEM) gets interpreted as holding both in the actual world (w_s) and in the MUST worlds!

- This probably is a more general problem for situation-semantic analyses of donkey sentences, not one particular to the present proposal. But it is one that needs to be dealt with for this analysis to work out!

Standard View of Q-Scope and Modal Dependencies

(7)



- DPs scoping over Q_{s_1} can't be evaluated relative to s_1
- DPs in the scope of Q_{s_1} can be evaluated EITHER relative to s OR s_1

Farmers in Both Worlds?

The proposed analysis requires the relevant individuals to be farmers BOTH in w_s and in w (the world that MUST is quantifying over), since

$$s_1 \leq s_2 \leq s \text{ and } s_4 \leq w$$

$$(6) \quad \lambda s.\forall s_1 \left[\left[s_1 \leq s \wedge EX\left(\lambda s'.\ \exists x\left[\mathrm{fa}(x)(s')\right]\right)(s_1)\right] \rightarrow \right.$$

$$\left[\exists s_2\left[s_1 \leq s_2 \leq s \wedge \right.\right.$$

$$\forall w \forall s_3\left[R(w)(s_2) \wedge s_3 \leq w \wedge\right.$$

$$EX\left(\lambda s'.\ \exists x[\mathrm{do}(x)(s') \wedge \mathrm{owns}(x)\left(\iota y.\mathrm{fa}(\mathbf{s_2})\right)(s')]\right)(s_3) \rightarrow$$

$$\exists s_4\left[s_3 \leq s_4 \leq w \wedge\right.$$

$$\left.\left.\left.\left.\mathrm{kicks}\left(\iota x.\mathrm{do}(x)(s_4)\right)\left(\iota z.\mathrm{fa}(z)(s_4)\right)(s_4)\right]\right]\right]\right]$$

Is the topical Indefinite necessarily transparent?

- The dual evaluation of the NP in question seems odd from the standard perspective
- Its empirical predictions need to be evaluated carefully

- The most problematic part is that topical indefinites are predicted to necessarily be interpreted relative to w_s
  (where s is associated with the highest λ-binder)
- In effect, this means that our sentence is predicted to quantify only over actual farmers.
  ('Every actual farmer is such that in all MUST-worlds in which he owns a donkey, he beats it')
- But we're not just making a claim about the actual farmers - say John, Bob, and Bill - but about farmers in general, which would seem to require an opaque interpretation of the predicate.

More technical questions

- What DPs can be shifted to type $\langle s, t \rangle$?
  $\rightarrow$ presumably, we don't want to allow this for *every NP*

- In the case of an object quantifier with a higher DP of type e as topic, what happens if that individual is part of the domain of quantification?

  (8) *Peter wies jedem Studenten eine Aufgabe zu, die der*
  Peter assigned every student a task to that DEM
  innerhalb einer Woche erledigen sollte.
  within a week accomplish should
  'Peter assigned a task to every student that he was supposed to finish within a week.'

  $\rightarrow$ If Peter is one of the students, what are the predictions (and what is the judgment?).

The disjunctive condition for DEM

- Since there are different types of topics on the proposed analysis (individuals - for expressions of type e or sets of individuals (derived from sets of situations)), the additional requirement for the meaning of demonstrative pronouns has to be disjunctive:

  (9) $[\![DEM]\!] = \iota x[\mathrm{male}(x)(s) \wedge\ P(x)(s) \wedge\ \neg R^*(x)(TOP)]$
  where
  a. $R^* = \lambda y.\lambda z.y = z$ iff TOP is of type e
  b. $R^* = \lambda P.\lambda y.y \in P$ iff TOP is of type $\langle e, t\rangle$

- Is there a way to avoid this?

A sketch of a variant of the proposal using topic situations

- Since we're working with situations already, maybe we can restate the topic-related conditions in terms of topic situations.
- Let's assume these are introduced at the sentential level by
  $[\![\mathit{topic}]\!] = \lambda p.\lambda s[s \approx s_{\mathit{topic}} \ \& \ p(s)]$ (Kratzer 2008, Schwarz 2009)
- s_{topic} is the situation exemplifying the QUD
  (Kratzer 2007, Schwarz 2009)
- An individual then would be (part of) the topic if it is part of the topic situation.

  (10) $[\![\mathit{DEM}]\!] = \iota x[\mathrm{male}(x)(s_1) \wedge \ P(x)(s_1) \wedge \ \neg[x \leq s]]$
  (where s is bound by the highest λ)

- In the referential case, it should not be a (necessary) part of the counterparts of s_{topic}.
- In the quantificational case, the individual should not be part of the situations bound by the highest quantifier over situations.

Discourse Anaphora

(11) A: Who will do the surgery on the patient?

B: *Den Patienten operiert der CHEFARZT.* ***Der*** *ist nämlich*
The$_{Acc}$ patient operates the head doctor. DEM is PART
Herzspezialist
heart specialist

'The head doctor will operate on the patient. DEM is a heart specialist.'

- B's answer is about the situation exemplifying the question.
- Prior to B's answer, the head doctor is not part of all the viable counterparts of s_{topic}
- Thus, DEM, interpreted as referring to the head doctor, is felicitous.

Covarying Interpretations

(12) If a farmer owns a donkey, DEM kicks him.

$$\lambda s.\forall s_1 \left[\left[s_1 \leq s \wedge EX\left(\lambda s'.\ \exists x\left[\mathrm{fa}(x)(s')\right]\right)(s_1)\right] \rightarrow \right.$$

$$\ldots$$

$$\left. \exists s_4\left[s_3 \leq s_4 \leq w \wedge \mathrm{kicks}\left(\iota x.\mathrm{do}(x)(s_4)\right)\left(\iota z.\mathrm{fa}(z)(s_4)\right)(s_4)\right]\right]\Big]$$

- Following Hinterwimmer's analysis, the donkey is not part of s_1, the situation quantified over by the highest quantifier over situations (but the farmer is)
- Therefore, DEM can stand for the donkey (but not for the farmer)

Is this just a Reformulation?

- A lot of details need to be worked out...
- In particular, we'd have to make sure we can define the notion of a topic situation in exactly the right way, and spell out how DEM 'knows' what the topic situation is (an issue that has to be worked out for TOP as well...)

- If it works out, this could render a more streamlined formulation of the present proposal, by allowing us to get rid of a disjunctive condition
- Or is it more than that?

Differences in Predictions

- There actually would seem to be cases where the two come apart:
- This happens when there is an individual that would be part of the topic situation while not being the topic itself.
- One construction where this seems to be the case:
  Relative Clauses!

DP-donkeys

(13) *Jeder Bauer, der einen Esel hat, schlägt #/?? den / ✓ihn*
Every farmer that a donkey has beats DEM / it
'Every farmer that owns a donkey beats #/?? DEM / ✓it.'

- The donkey will be part of the situations quantified over by *every*
- It is not part of the topic set (provided by the restrictor of the quantifier, following Hinterwimmer's analysis) - that just consists of farmers (who happen to own a donkey)
- If the judgment is as I think it is, this seems to speak in favor of a situational approach

Note: I do sense a fairly clear contrast here and in the following example, but it's not clear to what extent other speakers share this intuition - the issue thus needs more careful empirical investigation!

Relative Clauses inside of Conditional donkey sentences

(14) *Wenn ein Bauer, der einen Esel hat, reich ist, . . .*
If a farmer that a donkey owns rich is
'If a farmer that owns a donkey is rich, . . .''

a. *tritt #/?? der / ✓er ihn*
kicks DEM / he him
'it kicks him'

b. *schlägt er #/?? den / ✓ihn.*
beats he DEM / it
'he beats it'

- The donkey will be part of the situations quantified over if we assume, following Hinterwimmer's analysis, that the entire indefinite forms the restrictor of GEN.
- It is not part of the topic set (provided by the indefinite, following Hinterwimmer's analysis) - that just consists of farmers (who happen to own a donkey)
- Again, if the judgment is as I think it is, this speaks in favor of a situational approach

Outlook

General connections that seem like exciting progress is near:

- Successfully incorporating the effect of topichood/salience of antecedents in quantificational analyses would be major progress.
- Incorporating insights from discourse based approaches (e.g., Centering Theory) into the analysis of quantificational constructions now seems within reach
- There also seems to be an uncanny similarity to Elbourne's (2005) analysis of Bishop sentences (which is based on distinguishing individuals based on which situations they are present in)
- Finally, there seem to be interesting parallels to Wolter's (2006) analysis of English demonstratives, which is based on the idea that demonstratives differ from regular definites in that they cannot be evaluated in 'standard situations'.

Bottom Line

Hopefully, the technical difficulties can be overcome to provide a more general framework that can incorporate the ideas from these and other proposals, which allows us to capture the contrasts between different types of pronouns both for their discourse anaphoric and covarying interpretations!