# Exceptional anaphora

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1 Anaphora to quantifiers?

- Coreference without binding:

  (1) Barack$_i$ came in. He$_i$ sat down.

  (2) Everyone who thinks Clinton$_i$ deserves to win will vote for her$_i$.

- A binding analysis seems like a non-starter:

  (3) *Nobody$_i$ came in. He$_i$ sat down.

  (4) *Everyone who thinks nobody$_i$ deserves to win will vote for her$_i$.

- But of course that's no trouble. We can just interpret the unbound pronoun via the contextually given assignment function.

- Other cases seem a little tougher in that they seem to involve anaphora to a quantifier:

  (5) Only one senator$_i$ admires Kennedy, and he$_i$'s very junior.

  (6) Exactly one senator$_i$ admires Kennedy. He$_i$'s very junior.

- Again, this can't be binding. The follow LF is disastrously made true if there's many senators who admire Kennedy, but just one who's very junior.[1]

$$[\![\text{exactly one senator}]\!]^g \left(\lambda x.\ \text{ADMIRES K } x \wedge \text{JUNIOR } x\right)$$
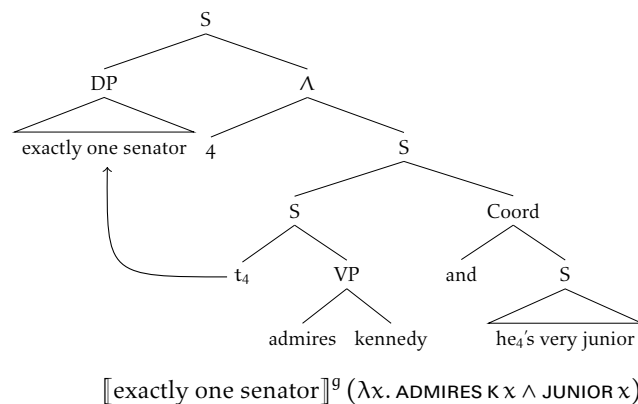
- I want to flag an interesting issue at this point.

  (7) Exactly one senator$_i$ [admires Kennedy and hates his$_i$ opponent].

  (8) John [admires exactly one senator$_i$ and hates his$_i$ opponent].

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[1] H&K appeal to WCO and the Binding Principle to give further evidence against binding analyses of such cases. But this would rule out binding out of DP, as well!

- The first of these has a bound-variable reading. The second does not. But what differentiates them?

2 Referential treatments

- HK explore the follwoing option: the pronouns in cases like (5) and (6) are *referential*. That is, they are directly interpreted by the assignment function.

- For this to work, need a sensible characterization of what the pronoun refers to, check that this gives reasonable truth conditions, and say something about what makes that individual salient. H&K suggest the following:

  ▷ The pronoun refers in each case to the senator who admires Kennedy.

  ▷ Seems like reasonable truth conditions: exactly one senator admires Kennedy, and *the senator who admires Kennedy* is very junior.

  ▷ The first sentence is "about" the senator in a way that facilitates anaphoric reference to the senator.

- Similar things can be said for *few senators$_i$ admire Kennedy, and they$_i$'re very junior,* but requires us to bring in a theory of interpreting pluralities.

- Nice result:

  (9) *{Every, no} senator$_i$ admires Kennedy. He$_i$'s very junior.

  (10) *I doubt there's a senator who admires Kennedy. He's very junior.

  (11) I can't believe I got no mail. You stole it!

- The last piece is the iffy one. The notion of about-ness should be able to pull apart the following pairs, where it seems like something that mentions an indefinite is "about" an individual in a way that something that merely implies the existence of the individual isn't:

  (12) Everyone who's written a book cherishes it.

  ??Every author cherishes it.

  (13) Every man with a wife loves her.

  ??Every married man loves her.

  (14) I dropped ten marbles and found all of them, except for one. It's probably under the sofa.

  ??I dropped ten marbles and found only nine of them. It's probably under the sofa.

  (15) A man$_i$ came in. He$_i$ sat down.

  ??????It's false that every man$_i$ didn't come in. He$_i$ sat down.

- So it seems like mentioning a DP is, in some mysterious and opaque sense, a precondition a given sentence being "about" that DP's referent. We'd definitely like a better theory about about-ness, in the end.

3 Beyond reference and binding

3.1 More data

- The referential view is a nice one in many ways. Doesn't upset any of our fundamental ideas about interpretation, gets a lot of mileage out of simple truth-conditional apparatus. Alas, there's some data it can't handle.

  (16) Every president$_i$ thought that only one congressman$_j$ admired him and he$_j$ was very junior.

  (17) Every host$_i$ bought just one bottle of wine$_j$ and served it$_j$ with dessert.

  (18) Every farmer who owns a donkey$_i$ beats it$_i$.

- Here, it seems like the paraphrases should mention a variable that gets bound:

(19) Every president$_i$ thought that only one senator$_j$ admired him and [the senator who admired <u>him$_i$</u>] was very junior.

(20) Every host$_i$ bought just one bottle of wine$_j$ and served [the bottle of wine <u>he$_i$</u> brought] with dessert.

(21) Every farmer$_i$ who owns a donkey beats [the donkey he$_i$ owns].

- Since the meaning of the prounoun covaries with some higher quantifier, it cannot be referential (since there's no sense in which the pronoun refers to a single entity).

- Yet, as we've seen, the pronoun can't be bound either. Requires an implausible movement and yields the wrong truth conditions. Call these pronouns, neither bound nor free, **E-type pronouns**.

3.2 Cooper's treatment

- Cooper suggests that E-type pronouns are covert definite descriptions whose descriptive content is supplied by a free variable over relations R, itself parametrized to some pronominal argument. Like so:
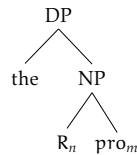
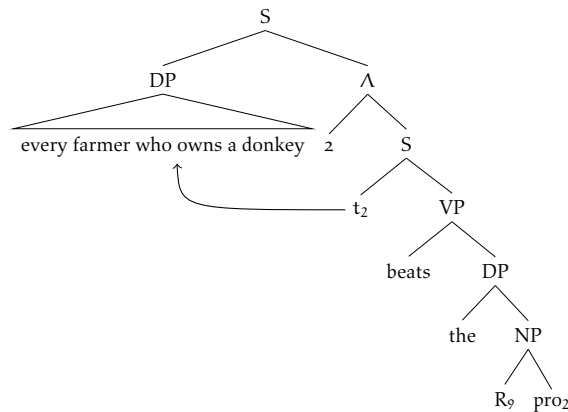- So a full structure for a donkey sentence looks like Fig. 1.

Figure 1: Cooper-style analysis of E-type pronoun

- If the contextually-furnished assignment g is such that $g\,9$ = OWNS, we get something that seems to approximate the correct truth conditions:

$$[\![\text{every farmer who owns a donkey}]\!]^g\,(\lambda x.\,\text{BEATS}\,(\iota y.\,\text{OWNS}\,y\,x)(x))$$

3.3 Some nice results

- A "free" paycheck:

(22) A woman$_i$ who puts her$_i$ paycheck in a federally insured bank is wiser than one$_j$ who puts it in the Brown Employees' Credit Union.

- Intuitively, *it* here should be instantiated as *her$_j$ paycheck*. The Cooper analysis predicts this is possible:

```
            DP
          /    \
        the     NP
              /    \
    R_paycheck-of   pro_3
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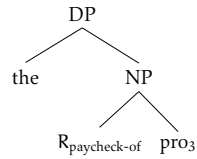
- Multiple paychecks. In the following, *it* needs to be instantiated as something like *the bill they$_l$ had sent her$_k$*— that is, with *two* dependencies.

    (23) The woman$_i$ who made Sears$_j$ believe that the bill they$_j$ had sent her$_i$ was in the mail was wiser than the woman$_k$ who made Filene's$_l$ believe that **it** hadn't been mailed yet.

- Suggests an enrichment:

```
              DP
            /    \
          the     NP
                /    \
              NP      pro_k
            /    \
          R_n     pro_m
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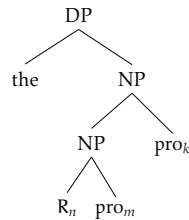
- Bach-Peters sentences. Create paradox for our old theory of anaphora: the subject and object DPs simultaneously depend on each other for their reference! But we can simply treat the first pronoun as E-type, i.e. analogous to *the prize he wanted*.

    (24) Every boy who deserved it got the prize he wanted.

- Possibly the E-type strategy is the *only* strategy for interpreting pronouns (HK seem to suggest it doesn't create any spurious ambiguity, and they are certainly right to suggest that needing to resolve the R variable is no great strike against the theory).

- Notice, by the way, that we might as well just say at this point that pronouns denote variables over $\langle e, e \rangle$ functions (or $\langle e, \langle e, e \rangle \rangle$, and so on…). This is essentially the approach adopted in Jacobson's work.

3.4 Some questions

- Analogizing E-type pronouns to definite descriptions seems to trigger unwanted uniqueness implications, at least given the semantics for the definite determiner that we've been assuming.

    (25) Socrates has a dog$_i$, and he feeds it$_i$ tasty morsels; Socrates has another dog$_j$ but he only feeds it$_j$ scraps.

    (26) Everyone who buys a sage plant$_i$ here buys eight others along with it$_i$.

- Ellipsis: Elbourne claims (28) lacks a sloppy reading analogous to (27). Thus, Elbourne argues, the donkey pronoun can't be interpreted along Cooper-ian lines. The culprit: relying on a bound individual variable to derive the necessary covariation.

    (27) In this town, every farmer who owns a donkey beats the donkey he owns. The priest, BTW, does too.

    (28) ??In this town, every farmer who owns a donkey beats it. The priest, BTW, does too.

- Elbourne uses data like this to motivate a view on which E-type pronouns have less content. There is no individual-variable binding. The covariation comes in via other means (for Elbourne, via [minimal] situations).

  (29) Every farmer who owns a donkey beats [it donkey].

- Flagging an issue: sloppy remains possible, even when these definite-description sorts of views seem to predict it should be impossible!

  (30) The cop who arrested John insulted him.
       The cop who arrested Bill didn't.
  (31) Every farmer who owns a donkey beats it.
       But no farmer who owns a sheep does.

- The issue: given a Cooper- or Elbourne- style analysis of E-type pronouns, how could either of these cases possibly satisfy the Condition on Ellipsis (which, recall, requires some sort of interpretive identity between antecedent and elliptical VPs).

4 Next class

- Dynamic semantics: giving a theory of "about-ness" *vis à vis* anaphora.