

Saliency, Inference and Plural Anaphora

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Occam's Razor, Minimalism and Plural Anaphora

- **Occam's Razor:** eliminate redundancies
- **Minimalism:** eliminate structural mechanisms in favor of “interface conditions”, for example, conditions relating to Conceptual-Intentional system. (Chomsky 95)
- DRT has two structural conditions on plural anaphora: **Abstraction** and **Summation**
- Proposal: eliminate these in favor of general mechanisms of C-I system: Inference and Salience

Plural Pronouns: Two Alternatives

- **DRT** (Kamp & Reyle 93): Explicit Construction Rules – plural pronoun antecedents must be constructed by **Summation** or **Abstraction**.
- **General Inference**: plural pronoun antecedent can be any set of individuals whose existence can be inferred from the discourse.
 - Subject to general **salience** preferences

Outline

- DRT Construction Rules: Summation and Abstraction
- General Inference vs DRT Rules
- Compset Anaphora
- General Inference and Salience/Priming
- An Empirical Issue: Where is Plural Description Interpreted?

Summation

(1) **John** took **Mary** to Acapulco. **They** had a lousy time.

- Summation constructs the set {John, Mary}, which is the desired antecedent for *They*
- Summation allows plural reference to any subset of currently accessible discourse referents.

Abstraction

(2) Susan has found **every book** which Bill needs.
They are on his desk.

- Abstraction constructs the set of books **which Susan has found and Bill needs**, which is the desired referent for *They*.

Abstraction in General

- In general, Abstraction constructs a property P from duplex condition, by abstracting over position of quantified NP.
- Then it constructs a set consisting of all individuals that satisfy P .
- In (2), property is $\lambda x.[book\ x\ and\ Susan\ has\ found\ x\ and\ Bill\ needs\ x]$

Inference and Construction Rules

- By General Inference, one can infer the existence of the sets produced by the Construction Rules
 - Summation: constructs subsets of *accessible* individuals
 - Abstraction: constructs set of individuals that satisfy abstracted property.
 - * (We set aside some problematic cases, in which Abstraction incorrectly introduces sets which may be empty; see Nouwen 2003 for discussion.)

Why Construction Rules?

- Kamp & Reyle argue against defining a General Inference rule for plural pronouns.
- Their intention is to construct some, but not all, of the inferrable antecedents for plurals, because not all inferrable antecedent are potential antecedents.
- For example, “subtracting one set from another is not a permissible operation for the formation of pronominal antecedents.” (Kamp & Reyle 93, p. 307)

Compset Anaphora

(3) **Few MP's** attended the meeting. **They** stayed home instead. (Nouwen 2003, p44)

- **They** = the NP's who didn't attend the meeting.
- *compset* anaphora: pronoun refers to the complement of the *refset*, ie, set associated with the quantified NP

Compset Anaphora

- Pronoun refers to set whose existence is entailed, because downward entailing QP
- *[Few N] P* entails *[Many N] [not P]*
- Compset Anaphora is consistent with General Inference view, but not with DRT view.

DRT: One Potential Response to Compset Anaphora

- **Compset Anaphora does not really exist** – sloppy reference to “whole set”
 - This seems to have been Kamp & Reyle’s view (see also Corblin, Geurts)
- It’s hard to see how this view can account for the great variety in acceptability of Compset Anaphora

DRT: Another Potential Response to Compset Anaphora

- **Compset Anaphora is Degraded:** this difference reflects a difference in underlying mechanisms
- Refset set anaphora has accessible antecedent, defined by Construction Rule, while Compset Anaphora requires a special inference (Nouwen 2003, page 71)
- Together with stipulation that Compset inference is more difficult than Summation/Abstraction mechanisms, this accounts for the general preference for Refset over Compset anaphora

Response

- Some Compset cases are quite acceptable, others are unacceptable
- Distinction between Abstraction/Summation and inference doesn't explain this – need other factors, such as Saliency
- General Inference alternative seeks to rely on these other factors to account for the difference between Compset and Refset anaphora.
- No need to posit distinct mechanisms

Compset Anaphora

- (4) - How are things going with your class?
- (5) - Really good. **Almost none of my students** skipped the review session. And **they** all came prepared with interesting questions, too.
- They = the students who didn't skip the review session
 - Refset blocked because of consistency

Salience and Plural Anaphora

- In general, explicit antecedents are more salient than implicit antecedents (Centering, Grosz et al 95)
- This suggests that Refset antecedents are more salient than Compsets

Explicit Antecedents

- What exactly is “explicit reference”?
- DRT Answer: sets constructable by Abstraction/Summation
- Question: can Salience rule be defined without Abstraction/Summation or analogous mechanisms?

Proposed Alternative: Semantic Priming

- Retain maximally simple account of plural anaphora: can refer to any set of individuals whose existence can be inferred.
- Explicit reference to a set raises its salience, because its description is primed.

Proposed Alternative: Details

- Represent a plural pronoun as *they (P)*, where *P* is any description.
- *they (P)* is preferred over *they (Q)* if *P* has been primed more recently than *Q*.
- Description gets primed as follows: “Q students skipped the review session” primes the description $\lambda x.x$ *skipped the review session*

Description Priming in General

- In general, for a sentence S containing a QP, the description $\lambda x.S[QP/x]$ is primed.
- Explicit reference to a set raises its salience, because its description is primed.

Potential differences between General Inference Account and DRT

- **Processing:** on General Inference account, hearer would do more work at plural pronoun position, with quantifier antecedent. DRT would not.
- **Interpretation:** General Inference account suggests that plural Description is evaluated at position of pronoun; for DRT it's evaluated at position of duplex condition.

Where is Description Evaluated?

- Evans: for singular pronouns, description is *not* evaluated at position of pronoun.

(6) I have a meeting with **the Mayor of Boston**.

(7)a. **He** used to be a Democrat.

b. **The Mayor of Boston** used to be a Democrat.

- (7)a – **he** is the *same* individual, who has switched party affiliation; (7)b is a *different* individual, who was the Mayor in the past.

Where is *Plural* Description Evaluated?

- (8) **Many members of Congress** have some control over tax policy. **They** used to be Democrats (but now most of them are Republicans).
- Antecedent Set by Abstraction = *members of Congress who at present have some control over tax policy*
 - **They** = *individuals who in the past were members of Congress with some control over tax policy*
 - Unlike singular pronouns, plural pronouns allow re-evaluation of description at pronoun position

Some Conclusions

- If Inference is available to construct plural antecedents, DRT's plural construction rules are redundant
- Inference is arguably required to account for Compset Anaphora
- Salience as description priming is relevant to distinction between Refset and Compset Anaphora
- Tentative evidence that plural descriptions are interpreted at position of pronoun, rather than at position of antecedent duplex condition