NELS 44, University of Connecticut, October 19 2013.
http://adrummond.net/nels2013dahlposter.pdf

Dahl's paradigm: In Defense of the Crossover Analysis

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1 Introduction

Dahl's paradigm (Dahl 1973, 1974):

(1) John said that he loved his mother and Bill did too.
  a. ...say that Bill loved Bill's mother.
  b. ...say that John loved John's mother.
  c. ...say that Bill loved John's mother.
  d. *...say that John loved Bill's mother.

Analyses of Fox 2000 and Reinhart 2006 share two key assumptions:

(i) The constraint which blocks reading (1d) is the same constraint responsible for Strong Crossover (SCO) effects.

(ii) This constraint is an "global" economy condition stated over a comparison set of interpretatively-equivalent competing derivations.

Roelofsen (2008) rejects (i) while maintaining (ii). I will argue that we should rather maintain (i) while rejecting (ii).

2 Fox's analysis of the Dahl effect

(2) **Rule H:** A pronoun, α, can be bound by an antecedent, β, only if there is no closer antecedent, γ, such that it is possible to bind α by γ *and get the same semantic interpretation.* (Fox 2000:115)

Rule H blocks the following binding configurations:

(3) a. * John said that he loves his mother *(co-binding)*

  coreference

  b. * John said that he loves his mother *(long binding)*

Given Fox's loose formulation of the parallelism constraint on VP ellipsis, both the co-binding and long-binding LFs could give rise to the illicit reading (1d).

Fox also takes Rule H to block crossover configurations:

(4) * Who did he say *t* loves John

The motivation for formulating Rule H as an economy condition defined in terms of an interpretatively-equivalent comparison set comes from Heim's (1998) exceptional co-binding examples:

(5) a. * Every politician worries that he voted for him

  b. * Every politician worries that he voted for him

  c. Every politician worries that **only HE** voted for him

Because (5a) blocks (5b) via Rule H, Condition B need only rule out (5a). (5c) receives an interpretation which (5a) cannot, so Rule H does not block it.

- Rule H must block co-binding in order to rule out SCO configurations.
- Given a strict parallelism constraint (rather than Fox's loose one), it would not be necessary to block co-binding to account for Dahl's paradigm.
- Rule H is formulated as an economy condition solely in order to explain why co-binding is available in (5). **Dahl's paradigm does not motivate its formulation in this manner.**

3 Roelofsen's evidence for co-binding

(6) No student said that he liked his paper but every student hoped that the teacher would.
  ...
  ...like the student's paper.
  ...

(7) No student said he liked his paper

  but every student hoped that the T. would like his paper.

Given strict parallelism, the LF in the second conjunct (which does correspond to an attested reading) is only available if co-binding is available in the first conjunct.

- There is independent evidence that co-binding LFs are available.
- Thus, we should revise Rule H to permit co-binding.
- We can still block the unattested reading (1d) of Dahl's paradigm given a strict parallelism constraint.
- But since SCO configurations appear to be co-binding configurations, we must give up the idea that Rule H blocks SCO.

Roelofsen replaces Rule H with **Free Variable Economy**, which has essentially the same effect as Rule H but for the fact that it permits co-binding.

4 The Embedded Dahl paradigm

The Dahl paradigm can be reconstructed within the domain of a quantifier with the same pattern of judgments. Both Rule H and FVE fail to predict the availability of the available mixed reading exemplified in (8c):

(8) Every worker said that he knew when he could take home his tools and the boss did too.
  a. ...know when TB could take home TB's tools.
  b. ...know when the worker could take home the worker's tools.
  c. **...know when TB could take home the worker's tools.**
  d. *...know when the worker could take home TB's tools.

FVE blocks the LF in the first conjunct of (9), but this is the only LF which could license the LF in the second conjunct (which corresponds to the attested reading (8c)) given strict parallelism.

(9) EW said he knew when he could take home his t.s

  and TB did know when he could take home his t.s too.

- Neither FVE nor Rule H can account for the available "mixed" reading of the embedded Dahl paradigm – (8c).
- Roelofsen proposes to solve this problem for FVE by relaxing the parallelism constraint, so that the LF in (10) (which satisfies FVE) also satisfies parallelism.

(10) EW said he knew when he could take home his t.s

  and TB did know when he could take home his t.s too.

5 Reinhart's (2006) alternative analysis

- Reinhart extends the notion of "coreference" to a broader notion of "covaluation". Two referential pronouns are covalued if they have the same referent. More generally, two pronouns are covalued if they denote the same individual under all assignments.
- A pronoun to be covalued with another pronoun which is interpreted as a bound variable without being, formally speaking, bound by the same antecedent.

For example, (11a) can be assigned the interpretation in (11b), in which *his* is translated as a variable (y) which is formally distinct from, but covalued with, the variable bound by *every boy* (x):

(11) a. Every boy said that he likes his mother.
  b. Every boy (λx (x (λy (x said that x likes y's mother))).

In SCO configurations, only the *wh*-trace can be translated as a variable formally bound by the *wh*-phrase. The pronoun is (merely) covalued with the trace:

(12) a. *Who$_1$ did he$_1$ say t_1 likes John?
  b. Who (λx (x (λy (y (did y say x likes John)))))

The interpretation (12b) is blocked by a (very) modified formulation Grodzinsky & Reinhart (1993)'s Rule I:

(13) **Rule I:** α and β cannot be covalued in a derivation D if
  (i) α is in a configuration to bind β,
  (ii) α cannot A-bind β in D, and
  (iii) The covaluation interpretation is indistinguishable from what would be obtained if α binds β.

This condition also blocks the illicit reading in Dahl's paradigm.

- Reinhart's notion of covaluation enables us to dissociate SCO configurations from co-binding configurations. Thus, we can block SCO configurations and the LFs responsible for the unavailable reading in the Dahl paradigm while still accounting for examples such as (7).
- Roelofsen (2010) points out that there is an internal inconsistency in Reinhart's Rule-I-based analysis. This relates to the technical details of Rule I's formulation as an economy condition.
- **But Rule I is formulated as an economy condition solely in order to account for the classic Condition B/C obviation phenomena familiar from Reinhart (1983) ("...even JOHN likes John."), together with Heim's exceptional co-binding examples such as (5). As with Fox's Rule H, neither Dahl's paradigm nor SCO motivate its formulation in this manner.**

6 Local Rule H

(14) **Local Rule H:** α can bind β as a variable only if there is no γ such that
  (i) γ is c-commanded by α and c-commands β,
  (ii) γ is covalued with β, and
  (iii) γ is is not bound by α.

- Roelofsen's (2008) argument against unifying SCO with the Dahl effect is based on the assumption that SCO instantiates a co-binding configuration. Once we enrich our theory of LF representations with covaluation, we need no longer make this assumption, and it is possible to permit co-binding while still blocking SCO configurations.
- We will see shortly that the problem posed by the embedded Dahl paradigm is also solved by adding covaluation to the theory (without necessitating any relaxation of strict parallelism).

7 Dahl's paradigm via Local Rule H

Local Rule H blocks the LF in (9). This is the only LF, given Fox/Roelofsen's assumptions, which can yield reading (8c) of the embedded Dahl paradigm given strict parallelism. However, once we permit Reinhart-style covaluation, there is an additional LF available which yields reading (8c) and satisfies Local Rule H:

(15) EW said he knew when he could take home his t.s

  and TB did know when he could take home his t.s too.

In Reinhart's quasi-semantic notation, (15)=(16):

(16) EW (λx (x (λy (x said that x (λz (z knew when z could take home y's t.s and that TB (λz (z knew when z could take home y's t.s))))))

Local Rule H blocks both of the LFs which could conceivably give rise to the unattested reading (8c) (given strict parallelism):

(17) *EW said he knew when he could take home his t.s

  and TB did know when he could take home his t.s too.

(18) *EW said he knew when he could take home his t.s

  and TB did know when he could take home his t.s too.

In both (17) and (18), take the first, second and third pronouns in the first conjunct to be α,β,γ respectively in (14).

8 Conclusion

- Local Rule H, together with Reinhart's notion of covaluation, offers a unified analysis of Dahl's paradigm and Strong Crossover which is simple and empirically viable.
- There is little motivation for formulating Rule H (or FVE) as an economy condition defined in terms of a set of interpretatively equivalent comparison LFs.
- If Rule H is not formulated as an economy condition, this raises the question of how to deal with Heim's exceptional co-binding examples (e.g. (5)). Interestingly, Heim herself (Heim 2007) has recently argued that these examples may be epiphenomenal.

Acknowledgments

I would like to thank Floris Roelofsen for helpful comments and discussion. I would also like to thank the audiences for a 2012 McGill colloquium talk, and for a talk at the *Reference and Antecedence* conference at Durham University in 2012.

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