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Binding – data, theory, typology

Daniel Hole (Humboldt University Berlin)

9th Tbilisi Colloquium on Logic, Language and Computation, Kutaisi

Sept. 26 – 30, 2011

Syllabus

- **Monday**
  uses of pronominal elements
  co-reference vs. binding
- **Tuesday**
  ways of implementing binding in a compositional semantics
- **Thursday**
  data patterns cross-linguistically

1. Uses of pronominal elements – 2. Co-reference vs. binding

a. anaphoric

(1) A boy came in. He wore a red hat.

b. deictic

(2) Look, the two over there!
[pointing:] She_i's my boss, and she_j's my colleague.

c. bound

(3) a. Paul_i likes himself_i.
b. Mary_i thinks she_i's a genius.

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a. anaphoric: reference to a discourse-salient entity; often with linguistic antecedents

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b. deictic: reference to an entity present in the utterance situation; accompanied by a pointing gesture; focal prosody

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Caution: There are differences in terminology!

a. anaphoric: reference to a discourse-salient entity; often with linguistic antecedents

(1) A boy came in. He wore a red hat.

Generative grammar: "anaphor" and "anaphora" refers to reflexive pronouns!

Anaphors in the traditional sense are often called "pronouns" (as opposed to the more general term "pronominals") in that tradition.

[…]

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(3) a. Paul_i likes himself_i.

b. Mary_i thinks she_i's a genius.

Syntacticians mostly think of reflexives only when they speak of (syntactic) binding. Semanticists will typically think of reflexives and bound uses of normal pronouns when they speak of (semantic) binding.

What is the perspective taken here?

Syntax or semantics?

What is the perspective taken here?

Syntax or semantics?

Primarily semantic.

Generative, but reflexive pronouns are called „reflexive pronouns“ or „reflexives“.

Co-reference vs. binding – why bother?

Co-reference

(4) I can't see [the man]$_i$. He$_i$'s hidden behind a tree.

Binding

(5) [That man$_i$/He$_i$] can see himself$_i$ in the mirror.

(6) Mary$_i$ thinks she$_i$'s a genius.

(7) Paul$_i$ likes his$_i$ teacher.

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(6) Mary$_i$ thinks she$_i$'s a genius.

(7) Paul$_i$ likes his$_i$ teacher. [Yes. Bear with me…]

The classic diagnostic contrast: strict identity vs. sloppy identity (Ross 1967)

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i. ‚Paul likes Paul‘s teacher, and Peter likes Peter‘s teacher.‘
→ **sloppy identity** (bound use of of *his*)

ii. ‚Paul likes Paul‘s teacher, and Peter likes **Paul‘s** teacher.‘
→ **strict identity** (anaphoric use of *his*; it co-refers with *Paul*)

(iii. ‚$Paul_i$ likes c_j‘s teacher, and $Peter_k$ likes c_j‘s teacher.‘
→ **„third reading**“ (anaphoric use of *his* not co-referent with the subject; really a special case of the more general case to which (ii) belongs; Büring 2005)

Is this vagueness or ambiguity?

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*iv. ‚$Paul_i$ likes John‘s‘s teacher, and $Peter_k$ likes Ed‘s teacher.‘
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Generalizations:
3rd ↔ 3rd

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VP ellipsis with reflexive pronouns

(9) Mary likes herself, and Paula does, too.

i. ‚Mary likes Mary, and Paula likes Paula.‘ (binding)
*ii. ‚Mary likes Mary, and Paula likes Mary.‘ (*co-reference)
*iii. ‚Mary likes Sue, and Paula likes Sue.‘ (*3rd)
*iv. ‚Mary likes Mary, and Paula likes Sue.‘

VP ellipsis with (non-possessive) pronouns

(10) Mary thinks she‘s a genius, and Paula does, too.

i. ‚Mary thinks Mary is a genius, and Paula thinks Paula is a genius.‘ (binding)
ii. ‚Mary thinks Mary is a genius, and Paula thinks Mary is a genius.‘ (co-reference)
iii. ‚Mary thinks Sue is a genius, and Paula thinks Mary is a genius.‘ (3rd)

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iii. ‚Mary thinks Sue is a genius, and Paula thinks Mary is a genius.‘ (3rd)

→ Pattern as with possessive pronouns: ambiguity between bound, co-referring and 3rd readings

Exercise

Swedish (like many other languages) has different possessive pronouns that are limited to a reflexive use, or to an anti-reflexive use, respectively.

sin ‚his/her/its (refl.)'

hans ‚his (anti-reflexive)'

hennes ‚her (anti-reflexive)'

Which readings do you predict for the following sentences?

(11)	Paul_i	hjälpte	[hans	dam] (, and Ed did, too).
	Paul	helped	his	lady

(12)	Paul_i	hjälpte	[sin	dam] (, and Ed did, too).
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‚Only' with focus on the antecedent

‚Only' entails the falsity of all (contextually relevant) alternative propositions.

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i. ‚Nobody else loves their respective dog.' (sloppy identity; *sin*)
*ii. ‚Nobody else loves Peter's dog.' (strict identity)
iii. ‚Nobody else loves Eddie's dog.' (3rd; *hans*)

The third classic testing configuration (apart from VP ellipsis and ‚only'-sentences):

Quantified antecedents

(16) Every kid likes his first teacher.

(17) No boy likes his broccoli.

A syntactic condition on binding:
C-command between the antecedent and the pronoun-to-be-bound
(generative parlance)

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(20) I only said that [PAUL [frightens [his [kids]]]].
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(21) I only said that [the [dog [owned [by [PAUL‘s neighbor]]]]]
frightens his kids.
strict, *sloppy, 3rd

A syntactic condition on binding:

C-command between the antecedent and the pronoun-to-be-bound

(generative parlance)

Note: Not all (anti-)binding patterns found in the language of the world conform (straightforwardly) to the c-command generalization.

Cf. Büring (2005: 13-21).

The variation space for pronouns in terms of binding properties

cover-all (Büring 2005: 79):

(i) An NP of **class** must **(not)** be coindexed with a **commanding** {NP / subject} within its {coargument / subject / tense / root} domain.

partial coverage, but more famous (Chomsky 1981: 188):

Binding Condition A: An anaphor is bound in its governing category.
Binding Condition B: A pronominal is free in its governing category.
Binding Condition C: An R-expression is free.

1. Uses of pronominal elements – 2. Co-reference vs. binding

Summary of session 1

- three uses of pronouns: anaphoric, deictic, bound
- three readings if antecedents come into play in VP ellipsis contexts and ‚only' sentences:
  i. strict identity (anaphoric reading of the pronoun(s))
  ii. sloppy identity (bound reading of the pronoun(s))
  iii. 3rd reading (anaphoric reading of the pronoun(s) not relating back to a sentence-internal antecedent)
- C-command between the antecedent and the pronoun renders bound readings possible. Probably other hierarchical relations do, too.
- A whole array of possible pronoun types is defined by Büring's (2005) multidemsional variation space for pronouns which goes well beyong those pronouns predicted by Chomsky's (1981) Binding Conditions.

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Summary of session 1

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- three readings (at most) if antecedents come into play in VP ellipsis contexts and ‚only' sentences:
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Plan for today

1. The basic requirement for reflexive clauses: reflexivization of 2-place predicates

2. Verb-centered vs. VP/vP-centered approaches

3. Further tools and specific proposals

1. The basic requirement for reflexive clauses: reflexivization of 2-place predicates

a lexical entry of a two-place predicate (representation format: lambda calculus; characteristic functions of sets as in Heim and Kratzer 1998):

„Disjoint Reference Presumption“ (Farmer and Harnish 1987) hard-wired

(1)	a.	$\lambda x \in D_e . \lambda y \in D_e .$ y eats x	type ⟨e, ⟨e,t⟩⟩
	b.	$\lambda x \in D_e . \lambda y \in D_e .$ eat(x)(y)=1	”
	c.	$\lambda x \in D_e . \lambda y \in D_e .$ eat(x)(y)	”
	d.	$\lambda x_e . \lambda y_e .$ y eats x	”
	e.	$\lambda x . \lambda y .$ y eats x	”

1. The basic requirement for reflexive clauses: reflexivization of 2-place predicates

Some mechanism with input and output as in (2) is called for.

(2) INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

2. Verb-centered vs. VP/vP-centered implementations

2.1 Verb-centered implementations

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Preview of V-related reflexivization options

- lexical reflexivization rule for verb stems
- a lexical element attaching to the verb stem in the lexicon (derivation)
- a syntactic sister constituent of V

2.2 VP/vP-centered implementations

Some mechanism with input and output as in (2) is called for

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Preview of VP/vP-related reflexivization options

- invariably involve predicate abstraction (or functional equivalents)
- (often require special composition rules other than functional application)

3.1 Details of verb-centered proposals

requirement
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i. lexical reflexivization rule for verb stems

(3) $beat_{Vstem} \xrightarrow{REFL}$ refl-$beat_{Vstem}$

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ii. a lexical element attaching to the verb stem in the lexicon (derivation/cliticization)

(5) [[*beat*-AFF_{REFL}/$CLIT_{REFL}$/…]]

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(5)

[[*beat*-AFF_{REFL}/$CLIT_{REFL}$/…]]	1
= [[AFF_{REFL}/$CLIT_{REFL}$/…]]([[*beat*]])	2
= $\lambda f_{\langle e,\langle e,t\rangle\rangle}$. λx . f(x)(x)[λy . λz . z beats y]	3
= λx . [[λy . λz . z beats y](x)(x)]	4
= λx . [[λz . z beats x](x)]	5
= λx . x beats x	6

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iii. a syntactic sister constituent of V (same reflexivizing denotation as AFF_{REFL}...)

[[REFL]]([[*beat*]]) 7

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= $\lambda x . beat(x)(x)$	6

iii. a syntactic sister constituent of V (same reflexivizing denotation as AFF_{REFL}...)

(6)
[[REFL]]([[*beat*]])	7
= $\lambda f_{\langle e,\langle e,t\rangle\rangle} . \lambda x . f(x)(x)[\lambda y . \lambda z . beat(y)(z)]$	8
= $\lambda x . beat(x)(x)$	9

requirement
INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

3.1 Details of verb-centered proposals

i. lexical reflexivization rule for verb stems

(4) $beat_{\text{Vstem}} \xrightarrow{\text{REFL}} \text{refl-}beat_{\text{Vstem}}$

ii. a lexical element attaching to the verb stem in the lexicon (derivation/cliticization)

(5)
[[*beat*-AFF_{REFL}/$\text{CLIT}_{\text{REFL}}$/…]]	1
= [[AFF_{REFL}/$\text{CLIT}_{\text{REFL}}$/…]]([[*beat*]])	2
= $\lambda f_{\langle e,\langle e,t\rangle\rangle}$. λx . f(x)(x)[λy . λz . beat(y)(z)]	3
= λx . [[λy . λz . beat(y)(z)](x)(x)]	4
= λx . [[λz . beat(x)(z)](x)]	5
= λx . beat(x)(x)	6

iii. a syntactic sister constituent of V (same reflexivizing denotation as AFF_{REFL}...)

(6)
[[REFL]]([[*beat*]])	7
= $\lambda f_{\langle e,\langle e,t\rangle\rangle}$. λx . f(x)(x)[λy . λz . beat(y)(z)]	8
= λx . beat(x)(x)	9

(Keenan 1988, Reinhart & Reuland 1993, Jacobson 1999, Reinhart & Siloni 2005)

3.1 Details of verb-centered proposals

requirement
INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

Filling in the subject (denotation):

(7) [[*beats himself*]]([[*Paul*]])
= (λx . x beats x) (Paul)
= 1 iff Paul beats Paul

requirement
INPUT
λx . λy . y beats x
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3.1 Details of verb-centered proposals

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- That‘s nice and simple.
- And it derives sloppy identity for reflexivized predicates.

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= 1 iff Paul beats Paul

- That‘s nice and simple.
- And it derives sloppy identity for reflexivized predicates. [HOW?]
(Paul loves himself, and so does Peter.)

requirement
INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

3.1 Details of verb-centered proposals

- But there may be a problem in individual cases.

(9) Joschka Fischer wrote [a book about the long journey to himself].

requirement
INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

3.1 Details of verb-centered proposals

- But there may be a problem in individual cases.

(9) Joschka Fischer wrote [a book about the long journey to himself].

- No obvious natural predicate to be reflexivized here;
  two options:

requirement
INPUT
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3.1 Details of verb-centered proposals

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  two options:

  (i) assume an *ad-hoc* predicate that reflexivizes easily

  λx . λy . write-a-book-about-the-long-journey-to(x)(y)

  (ii) assume a variant of the reflexivizing function with a funny high type.

requirement
INPUT
λx . λy . y beats x
OUTPUT
λx . x beats x

3.1 Details of verb-centered proposals

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  (i) assume an *ad-hoc* predicate that reflexivizes easily

  λx . λy . write-a-book-about-the-long-journey-to(x)(y)

  (ii) assume a variant of the reflexivizing function with a funny high type.

[NOT NICE, NONE OF THE TWO.]

3.2 VP/vP-centered proposals

- With VP/vP-centered implementations, the object position gets saturated by a (reflexive) pronoun.
- At the VP/vP level, a special mechanism (predicate abstraction/altering the assignment function) manipulates the VP/vP denotation in such a way that the (i) object slot becomes unsaturated again and (ii) the subject and object slot can be identified
- The outcome is a reflexivized predicate again.
- Our new requirement then is:
  INPUT: λy . y beats $[[PRON_i]]^a$
  OUTPUT: λx . x beats x

requirement
INPUT
λy . y beats $PRON_i$
OUTPUT
λx . x beats x

3.2 VP/vP-centered proposals

- Reflexive pronouns, just like all other pronouns, are interpreted with the help of an assignment function.
- Assignment functions are partial functions from |N into D.

a. Beispiel 1:

1	2	3	4	5	6	7	…
↓	↓	↓	↓	↓	↓	↓	
Paula	Nico	Anna	Emma	Lars	Kevin	Paul	

b. Beispiel 2:

1	2	3	4	5	6	7	…
↓	↓	↓	↓	↓	↓	↓	
Anna	Nico	Lars	Laura	Emma	Paula	Steffi	

(10) $[[him_7]]^a =$

requirement
INPUT
λy . y beats $PRON_i$
OUTPUT
λx . x beats x

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Anna	Nico	Lars	Laura	Emma	Paula	Steffi	

(10) $[[him_7]]^a$ = Paul
$[[her_3]]^a$ = Anna

requirement
INPUT
λy . y beats $PRON_i$
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1	2	3	4	5	6	7	…
↓	↓	↓	↓	↓	↓	↓	
Anna	Nico	Lars	Laura	Emma	Paula	Steffi	

(10) $[[him_7]]^a$ = Paul
$[[her_3]]^a$ = Anna
$[[herself_4]]^a$ = Emma

requirement
INPUT
λy . y beats $PRON_i$
OUTPUT
λx . x beats x

3.2 VP/vP-centered proposals

Specific implementation 1: Heim & Kratzer (1998)

(11) For any assignment a:

$[[beats\ herself_4]]^a$
$= [[beats]]\ ([[herself_4]]^a)$
$= \lambda x\ .\ \lambda y\ .$ y beats x (a(4))
$= \lambda y\ .$ y beats a(4)

requirement
INPUT
λy . y beats $PRON_i$
OUTPUT
λx . x beats x

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The road NOT to go:

- Feed in a subject expression identical in reference to a(4):

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$= [[\textit{beats}]] ([[\textit{herself}_4]]^a)$
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$= \lambda y .$ y beats a(4)

The road NOT to go:

- Feed in a subject expression identical in reference to a(4):

(12) $[[\textit{Emma beats herself}_4]]^a$
$= [[\textit{beats herself}_4]]^a ([[\textit{Emma}]])$
$= \lambda y .$ y beats a(4) (Emma)
= 1 iff Emma beats a(4)

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Specific implementation 1: Heim & Kratzer (1998)

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INPUT
λy . y beats $PRON_i$
OUTPUT
λx . x beats x

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1	2	3	4
↓	↓	↓	↓
Paula	Nico	Anna	Emma

3.2 VP/vP-centered proposals

Specific implementation 1: Heim & Kratzer (1998)

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INPUT
λy . y beats $PRON_i$
OUTPUT
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$[[beats\ herself_4]]^a$
$= [[beats]]\ ([[herself_4]]^a)$
$= \lambda x\ .\ \lambda y\ .$ y beats x (a(4))
$= \lambda y\ .$ y beats a(4)

Why doesn't this lead to the desired meaning? Think of the sloppy identity reading that we want to derive for reflexives!

The road NOT to go:

- Feed in a subject expression identical in reference to a(4):

(12) $[[Emma\ beats\ herself_4]]^a$
$= [[beats\ herself_4]]^a\ ([[Emma]])$
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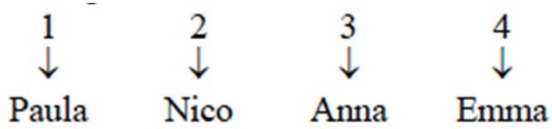

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$= \lambda y\ .\ y\ beats\ a(7)$

requirement
INPUT
$\lambda y\ .\ y\ beats\ PRON_i$
OUTPUT
$\lambda x\ .\ x\ beats\ x$

One road to go:

- Feed in the subject.
- Move the subject up most locally.
- Movement leaves an indexed trace (traces are interpreted like pronouns; background: topicalization/left-dislocation).
- The same index is inserted underneath the landing site of the moved item.
- The higher index triggers predicate abstraction.
- If Binding Principle A is to be respected, the index on the reflexive pronoun must be the same as on the movement trace.

3.2 VP/vP-centered proposals

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$= \lambda y\ .\ y\ beats\ a(7)$

requirement
INPUT
$\lambda y\ .\ y\ beats\ PRON_i$
OUTPUT
$\lambda x\ .\ x\ beats\ x$

One road to go:

Binding Condition A: An anaphor is bound in its governing category.

- Feed in the subject.
- Move the subject up most locally.
- Movement leaves an indexed trace (traces are interpreted like pronouns; background: topicalization/left-dislocation).
- The same index is inserted underneath the landing site of the moved item.
- The higher index triggers predicate abstraction.
- If Binding Condition A is to be respected, the index on the reflexive pronoun must (by chance) be the same as on the movement trace.

3.2 VP/vP-centered proposals

Specific implementation 1: Heim & Kratzer (1998)

(11) For any assignment a:

$[[\textit{beats herself}_7]]^a = \lambda y\,.\,y \text{ beats } a(7)$

requirement
INPUT
$\lambda y\,.\,y \text{ beats } PRON_i$
OUTPUT
$\lambda x\,.\,x \text{ beats } x$

One road to go:

- Feed in the subject. $[[\textit{Emma beats herself}_7]]^a = 1$ iff Emma beats a(7)
- Move the subject up most locally.
- Movement leaves an indexed trace (traces are interpreted like pronouns; background: topicalization/left-dislocation).
- The same index is inserted underneath the landing site of the moved item.
- The higher index triggers predicate abstraction (cf. Heim & Kratzer 1998: 186)

  For any assignment a and number i, $[[\alpha\ \beta\ i\ \ \gamma]]^a = \lambda x \in D\,.\,[\![\gamma]\!]^{a[i \to x]}$

- If Binding Principle A is to be respected, the index on the reflexive pronoun must (by chance) be the same as on the movement trace.

3.2 VP/vP-centered proposals

Specific implementation 1: Heim & Kratzer (1998)

- The higher index triggers predicate abstraction (cf. Heim & Kratzer 1998: 186)

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INPUT
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OUTPUT
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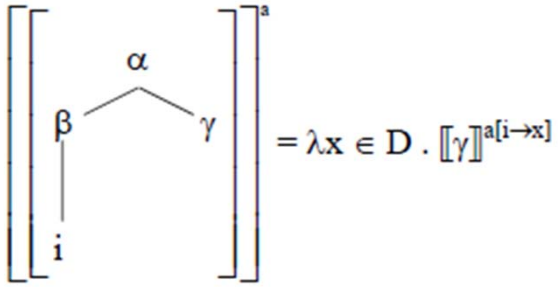
For any assignment a and number i, 

(12) For any assignment a:
[[*Emma* 7 t_7 *beats herself*$_7$]]^a
= [[7 t_7 *beats herself*$_7$]]^a (Emma)
= $\lambda x \in D$. [[t_7 beats herself$_7$]]$^{a[7\rightarrow x]}$ (Emma)
= $\lambda x \in D$. x beats x (Emma)
= 1 iff Emma beats Emma

3.2 VP/vP-centered proposals

Specific implementation 1: Heim & Kratzer (1998)

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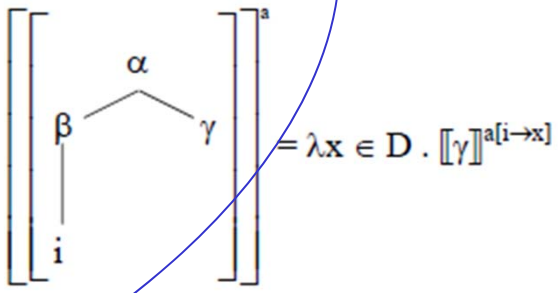

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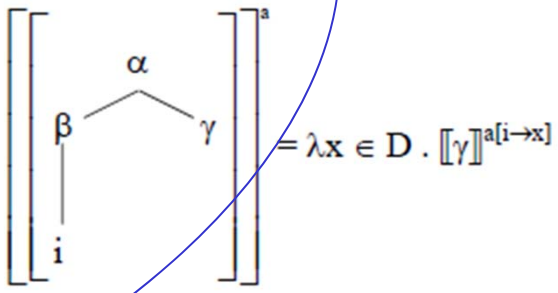

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= $\lambda x \in D$. x beats x (Emma)
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3.2 VP/vP-centered proposals

Can such a baroque conspiracy solution be defended?

Well, ...

- ... we do get what we need: strict identity for reflexives, and the contrast between strict and sloppy identity for possessive and other pronouns;
- ... predicate abstraction, assignment functions and movement/quantifier raising are independently used in many other domains of grammar (by Heim and Kratzer 1998);
- ...most importantly, maybe, reflexive pronouns are interpreted just as other pronouns in this theory, except that they want to end up bound in a local domain; the simple reflexivization functions from 2.1 did not have this feature – the pronominal status of reflexive pronouns was not reflected in the theories that make use of reflexivizing functions (or functional equivalents).

3.2 VP/vP-centered proposals

- There are variations of the Heim & Kratzer (1998) treatment of reflexivity.
- They invariably involve (functional correlates of) predicate abstraction and are all about as complicated as Heim and Kratzer‘s proposal.
- Büring (2005) avoids the movement/quantifier raising component that Heim & Kratzer (1998) employ.
- Hole (2008) ties the availability of pronominal binding to the presence of a syntactic head which introduces an additional semantic role into the clause (Agent, Experiencer, Locative).
- We‘ll return to the benefits of individual proposals.

Summary of day 2

So far, we have ...

(i) ... a family of simple verb-centered reflexivization and binding theories which cannot capture the intuition that reflexive pronouns are pronouns and which has problems with reflexives that are embedded within VP-internal arguments;

(ii) ... a VP/vP-centered family of baroque reflexivization and binding theories
which does justice to the pronoun intuition, but lacks simplicity.

Outlook

In the last session we will see that we can make good use of both families of theories if we take into account the array of different reflexivization strategies found in natural language −

one of them being verbal/verb-centered, the other one pronominal!

Thank you for today!

Binding – data, theory, typology

Daniel Hole (Humboldt University Berlin)

9th Tbilisi Colloquium on Logic, Language and Computation, Kutaisi

Sept. 26 – 30, 2011

Summary of sessions 1 and 2

- at most three possible readings of anaphoric and bound pronouns in VP ellipsis contexts and ‚only' sentences:
  i. strict identity (anaphoric reading of the pronoun(s))
  ii. sloppy identity (bound reading of the pronoun(s))
  iii. 3rd reading (anaphoric reading of the pronoun(s) not relating back to a sentence-internal antecedent)
- Hierarchical relation between antecedent and pronoun required for bound readings (c-command, ...).
- Verb-centered reflexivization theories are simple and elegant, but cannot capture the pronominal nature of reflexive pronouns, and they have problems with reflexives embedded in objects.
- VP/vP-centered reflexivization theories are complicated and ugly, but capture the pronominal nature of reflexive pronouns.

Syllabus

- **Monday**
  uses of pronominal elements
  co-reference vs. binding
- **Tuesday**
  ways of implementing binding in a compositional semantics
- **Thursday**
  data patterns cross-linguistically

Plan for today

1. Pronominal and verbal reflexivization strategies (Prx/Vrx)
2. A morphological classification of reflexive pronouns
3. Non-canonical reflexive structures

- An example of a pronominal reflexivization strategy (Prx): German *sich*?

(1) Paul hat sich gekniffen.
Paul has himself pinched
‚Paul pinched himself.‘

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(1) Paul hat sich gekniffen.
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Q: How can I be sure that this really is a pronoun?
A: If it can have a bound use, then it‘s a pronoun.
(standard answer of a semanticist)

- An example of a pronominal reflexivization strategy (Prx): German *sich*?

(1) Paul hat sich gekniffen.
Paul has himself pinched
‚Paul pinched himself.‘

Q: How can I be sure that this really is a pronoun?
A: If it can have a bound use, then it‘s a pronoun.
(standard answer of a semanticist)
Q: But we‘re trying to distinguish pronominal from verbal reflexivization strategies today, and Vrx often involves verbal affixes instead of pronouns. So how can I be sure *sich* is not a reflexivizing affix?
A. Ok, let‘s try a little harder.

- An example of a pronominal reflexivization strategy (Prx): German *sich*?

You can move it around in the sentence, as you can do with other argument expressions. Affixes don‘t move through sentences. In particular, they don‘t move to the sentence-initial position, where only stressable constituents are allowed in German.

(2) a. Paul hat sich gestern gekniffen.
Paul has himself yesterday pinched
‚Paul pinched himself yesterday.‘

b. Paul hat gestern sich gekniffen.
Paul has yesterday himself pinched

c. Sich hat Paul gestern gekniffen.
himself has Paul yesterday pinched

- An example of a pronominal reflexivization strategy (Prx): German *sich*?

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(2)

a.	Paul	hat	sich	gestern		gekniffen.
	Paul	has	himself	yesterday		pinched
	‚Paul pinched himself yesterday.‘					
b.	Paul	hat	gestern		sich	gekniffen.
	Paul	has	yesterday		himself	pinched
c.	Sich	hat	Paul	gestern		gekniffen.
	himself	has	Paul	yesterday		pinched

Ok, this shows me that *sich* is not an affix and is a stressable word, but it doesn‘t show that *sich* is a pronoun.

Wherever you can use *sich*, you can also use *mich* or *dich*, and you agree that these are pronouns? (doesn‘t hold for inherently reflexive verbs)

(3)	Paul	hat	sich/mich/dich	gekniffen.
	Paul	has	himself/mich/dich	pinched

‚Paul pinched himself yesterday.‘

Wherever you can use *sich*, you can also use *mich* or *dich*, and you agree that these are pronouns? (doesn‘t hold for inherently reflexive verbs)

(3)	Paul	hat	sich/mich/dich	gekniffen.
	Paul	has	himself/mich/dich	pinched

‚Paul pinched himself yesterday.‘

Ok, this shows me that *sich* probably is an argument expression, but not necessarily that it‘s a pronoun.

An argument expression that can be stressed and that has a bound reading – a nice definition of a pronoun with word status.

Plus: *mich/dich/sich* ‚me/you/x-self' forms a paradigm with largely identical phonological shape in German and in almost all related languages (exception: English). So if *mich/dich* are pronouns, then *sich* is one, too.

Well, a proof looks different, but let's stop here. *Sich* is a pronoun.

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Plus: *mich/dich/sich* ‚me/you/x-self' forms a paradigm with largely identical phonological shape in German and in almost all related languages (exception: English). So if *mich/dich* are pronouns, then *sich* is one, too.

Well, a proof looks different, but let's stop here. *Sich* is a pronoun.

You are easy to convince. I would say there's a lot of evidence that *sich* really is a verb-centered reflexivizer, and not a pronoun.

Are you kidding me?

No, not at all.

First: There‘s a use of *sich* in which you CAN‘T move it around in the sentence:

Er rollt sich aus dem Bett , rasiert sich, wäscht sich, macht sich fertig und stärkt sich beim Frühstück.
‚He rolls out of bed, shaves, washes, gets ready and has breakfast (in such a way that it‘s good for him).‘

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Oops, there are no reflexives in the English translation!

Oops, there are no reflexives in the English translation!

You see... that‘s because English x-*self*, which is a historically very recent reflexive, almost exclusively has true stressable pronoun uses. The uses of *sich* in the body-care examples don‘t move around in the sentence, they are not really stressable without producing a different meaning, and they don‘t relate to alternatives with other argument expression.

(4) Er hat sich rasiert.
‚He shaved.‘

(5) Den Patienten hat er rasiert, und dann hat er sich (selbst) rasiert.
the patient has he shaved and then has he himself shaved
‚He shaved the patient, and then he shaved himself.‘

So you‘re saying German *sich* is a reflexive pronoun at times, and a reflexivizing non-pronoun at other times?

Yes, and when it‘s a pronoun, you can replace it by *sich selbst* and nothing bad happens, whereas the meaning becomes different if it‘s not a pronoun.

So you‘re saying German *sich* is a reflexive pronoun at times, and a reflexivizing non-pronoun at other times?

Yes, and when it‘s a pronoun, you can replace it by *sich selbst* and nothing bad happens, whereas the meaning becomes different if it‘s not a pronoun.

Wait, you can tell me many things about German which I cannot control. And English seems to be different here. But can we ask someone who speaks another language with a clearer difference between the pronoun-reflexive and a verbal reflexivizer?

Sure, let‘s try Dutch.

So what is *Jan gets washed* in a case in which it is a normal grooming activity in the morning?

(6) *Jan* *waast* *zich.*
Jan washes ZICH
‚Jan washes/gets washed.‘

Can this *zich* be stressed?

Can it move around in the sentence?

And if Jan is a strange nurse who doesn‘t wash his patients, but only himself, how would I say this?

(6) *Jan waast zich.*
Jan washes ZICH
‚Jan washes/gets washed.‘ (as one does in the morning)

(7) *Jan waast zichself/*ZICH.*
Jan washes ZICHSELF/ZICH
‚Jan washes himSELF.‘ (as opposed to washing other people)

(6) *Jan waast zich.*
Jan washes ZICH
‚Jan washes/gets washed.‘ (as one does in the morning)

(7) *Jan waast zichself/*ZICH.*
Jan washes ZICHSELF/ZICH
‚Jan washes himSELF.‘ (as opposed to washing other people)

I‘m beginning to understand. Seeing a word in a language which has uses as a reflexive pronoun does not mean the word is used as a reflexive pronoun in all cases. It can also be a reflexivizer in the sense of the V-centered reflexivizers we talked about on Tuesday. But still, can we maybe look at a language in which the reflexive pronoun that is a real pronoun and the reflexivizer sitting on the verb look a bit more different than in Dutch, let alone in German?

Ok, let‘s do Russian then.

Or Greek.

Ok, let‘s do Russian then.

Or Greek.

One more thing. You always used verbs of body care for illustration. What‘s the complete generalization? I mean, we don‘t want a feature [+/- body care] in our syntax, right?

Right. The generalization seems to be the following: If a langage has two reflexivization strategies, one of them verbal, the other one pronominal, then the verbal one gets used for typically self-directed actions (e.g. body-care), and the pronominal one for typically other-directed actions (beating, killing, hating, touching, criticizing, ...)

All of this is getting quite complex. Can we wrap up the discussion a little bit?

Here you are:

verbal reflexivization strategies	pronominal reflexivization strategies
marker sits on the verb	marker sits wherever other arguments sit
marker cannot be stressed	marker can be stressed
typically self-directed action	typically other-directed action
plausible analysis as the reflexivizing function	plausible analysis as a pronoun/variable which wants to be bound by the subject/the agent

Table 1: Verbal and pronominal reflexivization strategies compared

Some more exx. of verbal reflexivizers:

a. SHONA (Niger-Kongo; Volta-Kongo)
á-ká-zvi-rwádzísá
NOMINALKLASSE1.3SG-VERGANGENHEIT-REFLEXIV-leid.KAUSATIV
'Er hat sich verletzt.'

b. ABCHASISCH (Nord(west)kaukasisch; Abchasisch-Abasinisch)
sarà s-ʧʂə-s-š-we-yt'
ich POSS.1.SG-REFLEXIV-1.SG-töt-DYNAMISCH-FINIT
'Ich bringe mich um.'

c. KLASSISCHES NAHUATL (Uto-Aztekisch; Aztekisch)
mo-tla?so?tla
REFLEXIV.3-lieb
'Er/Sie liebt sich.'/'Sie lieben sich.'

2. A morphological classification of reflexive pronouns

Type 1: True simplex pronouns

(8) G. *sich*$_{\text{STRESSABLE}}$, I. *se*, R. *sebja*, Kashmiri *paan*

Type 2: (Reflexive) pronouns combined with an emphatic particle

(9) D. *zich-self*, E. *him-self*, Chin. *ta-ziji* ‚3sg-SELF‘

(10) ? Chin. *ziji*

Type 3: Reflexives grammaticalized from body-part nouns (‚head‘, ‚soul‘, ‚body‘, ‚bone‘, ...): (PRON$_{\text{POSSESSIVE}}$ +)body-part noun

(11) Georg. *tav*-, Hebrew *atsm*-, ...

Type 4: Reflexives grammaticalized from representation nouns (‚picture of x‘, ‚thought of x‘, ‚reflection of x‘)

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*Type 4: Reflexives grammaticalized from representation nouns (‚picture of x‘, ‚thought of x‘, ‚reflection of x‘) (DOES NOT EXIST)

	Binder		Bound variable	
	SYN syntactic function of the binder DP	SEM θ-content of the binder Voice head	SYN syntactic function of the bindee DP	SEM θ-content of the bound variable
REFLEXIVITY	subject DP	AGENT	object/coargument	θ-content of datives
DATIVE VOICE/ Free datives in G.	dative DP	P-EXPERIENCER LANDMARK	left branch of coargument PP	POSSESSOR/ POSSESSOR OF A BENEFIT
AUTO-BENEFACTIVE	subject DP	AGENT	indirect object	θ-content of datives
MEDIUM	subject DP	AGENT	(part of) coargument	unrestricted(?)
PASSIVE	subject DP	¬ AGENT	object (empty pronoun)	whatever involvement the verb stem specifies

Table 1: Reflexivity and other frequently conventionalized bound-variable constructions

The big summary/Points to take home

- There are different readings of non-deictic pronouns.
- The distinction between bound and anaphoric readings is probably universal (strict identity vs. sloppy identity).
- The hallmark of a bound pronoun is that it only has sloppy-identity readings.
- There are two families of theories that deliver a compositional analysis of sentences with a reflexive predicate:
  i. the verb-centered theories make use of a simple reflexivizing device not involving a word which has a pronominal semantics
  ii. the predicate/V-O-centered theories make use of complicated mechanisms which first saturate the object slot of a verb with a pronoun, reopens the argument slot later and unifies it with the subject/agent slot
- Natural languages appear to make the same split:
  verbal vs. pronominal reflexivization strategies.
- Canonical reflexivity is only one among a whole paradigm of reflexive constructions that operate at the single-clause level.

The slides can be downloaded from my webpage:
http://www.ilg.uni-stuttgart.de/mitarbeiter/hole/index.htm

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Thank you for your attention!

Thank you
for your attention and cooperation!

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