The Meaning of Pronouns:

Insights from Sign Language

Philippe Schlenker

(Institut Jean-Nicod & NYU)

The work on Weak Crossover is co-authored with

Gaurav Mathur

(Gallaudet University)

Goals

- In two domains, sign language [here: ASL and LSF] can bring **crucial data to bear on theoretical semantics.**

- **Context Shift**

  a. In some languages, the context of evaluation of an indexical expression (e.g. *I*, *you*, *here*) can be shifted.
  e.g. **John says that I am a hero**
  can mean: John says that *he* is a hero (e.g. Amharic).

  b. Different researchers disagree about the formal properties of context shift (Schlenker '03 vs. Anand'06)

  c. In ASL:
  1. context shift is overtly represented (Role Shift);
  2. it might provide evidence in favor of one side (Anand's).

Goals

- In two domains, sign language [here: ASL and LSF] can bring **crucial data to bear on theoretical semantics.**

- **Donkey Anaphora.**

  a. Quantifiers sometimes appear to bind pronouns outside of their normal syntactic ('c-command') domain.
  e.g. **John owns a donkey. He beats it.**

  b. Different researchers disagree about whether this requires a new notion of binding.
  Dynamic semantics: **Yes.** E-type theories: **No.**

  c. In ASL and LSF:
  1. the formal connection between a pronoun and its antecedent is overtly represented (indexing);
  2. it provides evidence in favor of dynamic semantics.

Comparative Grammar

☞ Suppose we find an apparent difference between a Sign Language and English. What can we conclude from this?

- **Possibility 1:** Real difference that could be replicated among spoken languages, and is not due to modality.
- **Possibility 2:** Real difference that is due to the difference in modality.
- **Possibility 3:** Superficial difference: the difference in modality only makes visible in one case structures that are abstract in the other.

☞ I believe all three cases are instantiated, but here we will specifically focus on **Possibility 3.**

Pronouns in Sign Language

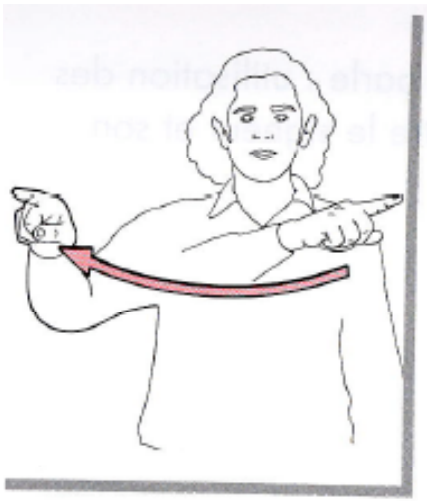
Pronouns in LSF (Source: IVT)

JE, MOI

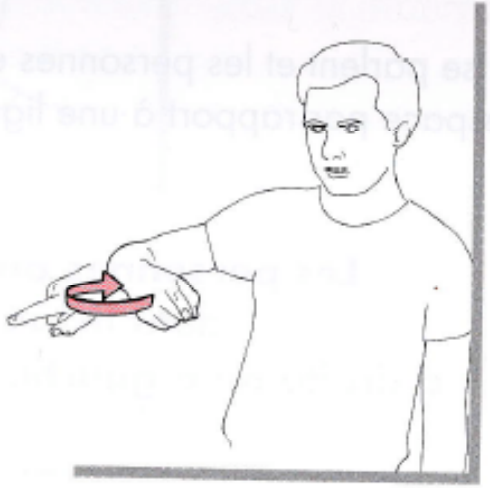
TU, TOI*

IL, ELLE, LUI

Pronouns in LSF (Source: IVT)



VOUS (pluriel)



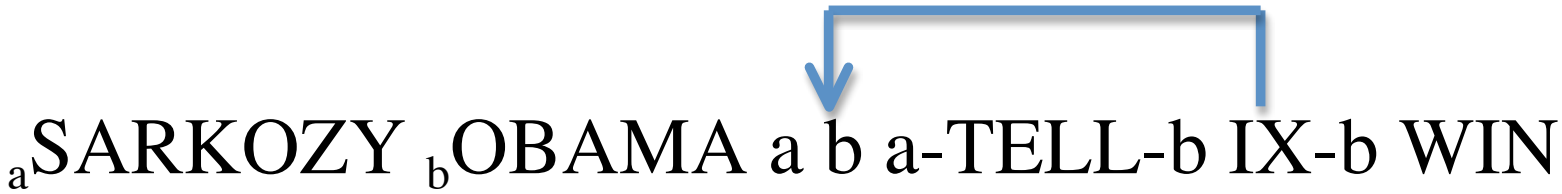
ILS, ELLES, EUX

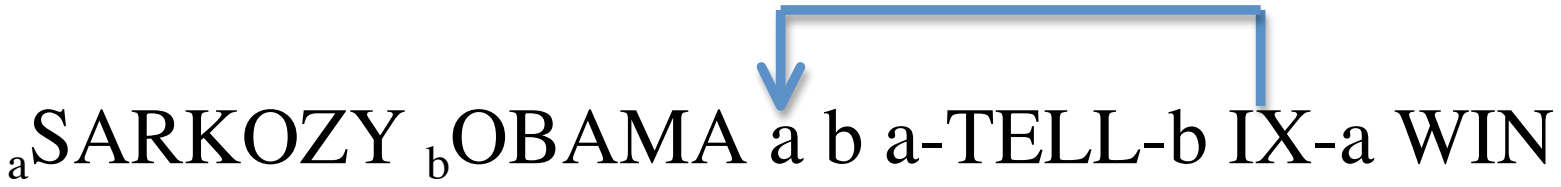
NOUS

Sign Language Pronouns as Indices

- English
  a. Sarkozy$_1$ told Obama$_2$ that he$_{1?\ /\ 2?}$'d win the election.
  b. A senator$_1$ told a governor$_2$ that he$_{1?\ /\ 2?}$'d win the election.

- LSF (Informant F, 4, 235)

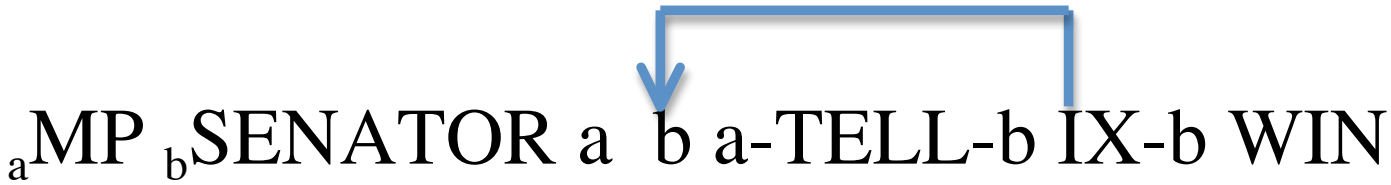


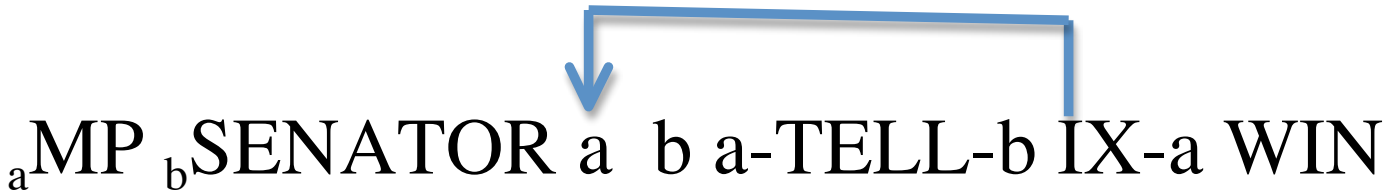


Sign Language Pronouns as Indices

- English
  a. Sarkozy$_1$ told Obama$_2$ that he$_{1?\ /\ 2?}$'d win the election.
  b. A senator$_1$ told a governor$_2$ that he$_{1?\ /\ 2?}$'d win the election.

- LSF (Informant F, 4, 233)



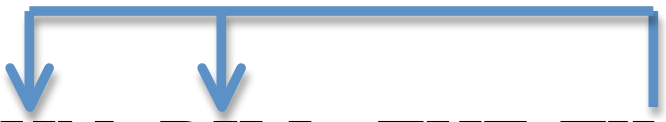


Sign Language Pronouns as Indices

- English
  I have two tickets. If I give them to John$_1$ and Bill$_2$, they$_{1+2}$ will be happy.

- ASL (Informant 1, 2, 180)

  IX-1 HAVE TWO TICKET.



IF 1-GIVE $_a$JOHN $_b$BILL, THE-TWO-a,b HAPPY.

Formal Properties of Pronouns

	English	Sign Language
1st vs. non-1st person	I walk She walks	ASL: Yes LSF: (Yes)
Ambiguity in ellipsis	Peter loves his wife. John does too.	ASL: Yes LSF: Yes
Conditions A and B	$John_1$ admires $himself_1$ *$John_1$ admires him_1	ASL: Yes (but…) LSF: Yes (but…)
Weak/Strong Crossover	??Who_1 do his_1 students like?	ASL: Yes LSF: ?

First person features in ASL

- It is uncontroversial that ASL and LSF can express first person.

- But is the difference between 1st vs. non-1st person features grammatically active in sign language?

  ASL: Yes.

  Argument: The first person plural pronoun has a special form, which is **not** obtained by combining an all-purpose index with a plural marker (Meier 1990).
  (VID-he, VID-you, VID-you_plural, VID-they)

Ambiguities in ellipsis

- Peter likes his wife, and John does too ~~like his wife~~.
  a. Peter$_1$ λx_2 x_2 likes his$_2$ wife. John too λx_2 x_2 likes $\boxed{\text{his}_2}$ wife.
  b. Peter$_1$ λx_2 x_2 likes his$_1$ wife. John too λx_2 x_2 likes $\boxed{\text{his}_1}$ wife.

- **ASL**
  IX-1 POSS-1 MOTHER LIKE. IX-a SAME-1,a.
  (Inf 1, 1, 108)
  'I like my mother. He does too.'

  Ambiguous in ASL (similar facts in LSF)
  ... He likes my mother too.
  ... He likes his mother too.

Conditions A and B

- English
  a. Condition A: John$_i$ likes himself$_i$
  b. Condition B: *John$_i$ likes him$_i$

- ASL (Lillo-Martin and Sandler 2006)
  $_a$JOHN LIKES SELF-a

- **Koulidobrova 2009** (simplified)
  In ASL, SELF has be behavior of *self*-anaphors in languages such as Danish and Dutch.
  a. It has a 'short distance use', in which it behaves like a reflexive.
  b. It has a long-distance use, in which it behaves like an intensifier.

Weak Crossover

(joint work with
Gaurav Mathur, Gallaudet University)

Crossover Effects

Strong Crossover => * movement to the left of a coindexed pronoun that c-commands the base position!

*[Which professor]$_i$ does he$_i$ love t$_i$

Weak Crossover => ?? movement to the left of a coindexed pronoun NOT c-commanding the base position

??[Which professor]$_i$ do [his$_i$ students] love t$_i$

Weak Crossover

- a. Who$_1$ do your parents love t$_1$ unconditionally?
  means: For which person x, your parents love x?

  b. Who$_1$ do his$_1$ parents love t$_1$ unconditionally?
  cannot mean: For which person x, your parents love x?

- **Weak Crossover Constraint**

  who$_1$ **his$_1$** students admire <who$_1$>

  An interrogative cannot move to the left of a pronoun with the same index.

Strong Crossover in ASL: Lillo-Martin 1991

- **Strong Crossover Effects:**

Lillo-Martin 1991, Sandler and Lillo-Martin 2006

(i) Strong Crossover effects exist when movement is to the left in ASL;

(ii) the effects are obviated with:
1. a resumptive pronoun, and

2. a null pronoun licensed by verb agreement in the original position of the moved element

Weak Crossover in ASL

- **ASL displays WCO effects, and they are obviated by resumptive pronouns.**

a. WHICH PROFESSOR **POSS-2** STUDENT IXarc LOVE
(IX-a) Q [IX-a is optional]
'Which professor do your students all love?'

b. *WHICH PROFESSOR **POSS-a** STUDENT IXarc LOVE ***(IX-a)** Q **[IX-a is obligatory]**
'[Which professor]$_i$ do **his$_i$** students all love?' (= [Which professor]$_i$ is loved by all his$_i$ students?)

(Inf. 1, 3, 35; 2, 334)

Weak Crossover Effects and Resumption

- "it was established early (...) that [resumptive pronouns] quite generally show no Weak Crossover effects." (McCloskey 2007).

- **Hebrew** (Shlonsky 1992)

*?Ze ha-baxur še- yidaʕti ʔet ha-horim šel-o_i še-ha-more
this the-guy that- (I) informed ACC the-parents of-*him* that-the-teacher
yaxšil t_i.
will flunk
'This is the guy that I informed his parents that the teacher will flunk.'

Ze ha-baxur še- yidaʕti ʔet ha-horim šel-o_i še-ha-more
this the-guy that- (I) informed ACC the-parents of-*him* that-the-teacher
yaxšil ʔ*oto*$_i$.
will flunk *him*

Weak Crossover in ASL: Agreement

- **Null pronouns licensed by verb agreement obviate Weak Crossover Effects**

a. WHICH PROFESSOR **POSS-2** STUDENT IXarc **LIKE-a** Q
'Which professor do **your** students all like?'

b. WHICH PROFESSOR **POSS-a** STUDENT IXarc **LIKE-a** Q
'[Which professor]$_i$ do his$_i$ students all like?' (= [Which professor]$_i$ is liked by all his$_i$ students?)

(Inf. 1, 3, 37)

Conclusion on Weak Crossover

- **ASL displays Weak Crossover Effects.**
- **These can be obviated by resumption or agreement (like Strong Crossover Effects (Lillo-Martin 1991))**
- **This generalization has been described for several spoken languages, e.g. Hebrew and Irish.**

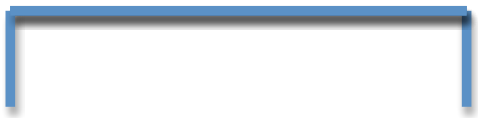
[A Difference: Locative Agreement]

- When several geographical locations are associated to a single individual, **the *locations'* loci can serve to refer to the individual.**

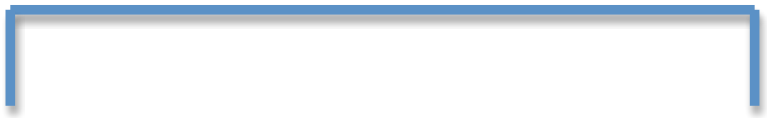
- ASL (Informant 1, 2, 23)

JOHN LIVE NY.

IX-1 1-MEET-a $_{a}$LA. IX-1 1-MEET-b $_{b}$PARIS.



THERE-a IX-1 LIKE IX-a.



THERE-b IX-1 DON'T-LIKE IX-b.

Context Shift

English: only one context!

- **I = speaker of the actual context**

- **'I' vs. 'the speaker'**

  a. The speaker always sounds stupid.
  b. ≠ I always sound stupid.

  ***I* can only refer to the speaker of the actual context; *the speaker* can refer to the speaker of other situations.**

- **Reported speech**

  a. John says: 'I am an idiot'.
  b. ≠ John says that I am an idiot.

English: only one context!

- **I = speaker of the actual context**

- **Apparent counterexamples => quotation**

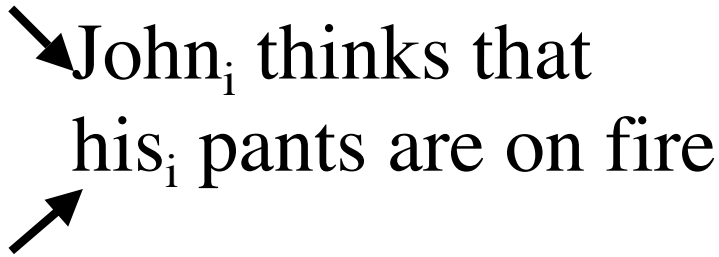
  a. John said I love Mary.
  => ambiguous
  b. Who did John say I love?
  => unambiguous
  c. The person John said I love is nice.
  => unambiguous.

- **Quotations => block grammatical dependencies**

  a. John said I love Mary / John said 'I love Mary'
  b. *Who did John say 'I love' ?
  c. *The person who John said 'I love' is nice.

Indirect Discourse I: Losing the 1st person perspective

John thinks: 'My pants are on fire' *(True)*



John thinks: 'His pants are on fire' *(True)*
(where 'his' refers to John)

Apparently, we report a thought by preserving what it says about the world but not about the context.

Indirect Discourse II: Regaining the 1st person perspective

This guy should be elected!

- a. Ok George hopes that he is elected
  b. **# George hopes to be elected**

Monsters:
Constructions that 'Shift the Context'

- **Shifted Indexicals in Amharic and Zazaki**

čɛnɛkɛ [kɛ Hɛseni va **mi** *t* paci kɛrda] rindɛka
girl that Hesen said I *t* kiss did pretty.be-PRES
'The girl that Hesen said {Hesen, I} kissed is pretty.' (Ar

lit.: **The girl who Hesen said I kissed __ is pretty**

- **-Wh-extraction shows that this is not quotation.**
  -But 'I' is ambiguous (= speaker or Hesen)
  -So the context can be shifted!

Two Theories

- **Theory I: Mix Perspectives!**
  Systematic Shift + Lexical Properties of Pronouns)

Argument 1: One and the same clause may display shifted and unshifted pronouns (e.g. in Russian).

petja$_i$ skazal, čto on$_i$ plačet [Russian]

Pejta$_i$ said that he$_i$ is-crying

'Petja said that he was crying [at the time of his utterance]

- **-'he' is evaluated from the speaker's perspective.**
  -present tense is evaluated from Petja's perspective.
  -So mixing of perspectives is possible!

Two Theories

- **Theory II: Don't Mix Perspectives!**
  Optional Context Shift + Operators (Anand 2006)

  Argument: In Zazaki, either all indexicals or no indexicals are shifted in a given clause.
  => no 'mixing' of perspectives.

- **c** John said to Ann I hate you
  ↓ ↓
  speaker addressee

  c'
  c John said to Ann **Op** I hate you
  ↓ ↓
  John Ann

Catalan Sign Language Favors Theory I ('Mix Perspectives!)

- **Quer 2004**

_____t _____RS-i

IXa $MADRID_m$ MOMENT $JOAN_i$ THINK IX-1_i STUDY FINISH $HERE_b$

'When he was in Madrid, Joan thought he would finish his study i Barcelona.'

- **-'he' is evaluated from the speaker's perspective.**
  -present tense is evaluated from Petja's perspective.
  -So mixing of perspectives is possible!

Role Shift in ASL

- **No Role Shift** (Informant 1, 2, 49)

  $_{a}$PETER TELL $_{b}$ANN a-GIVE-b CAR.

  'Peter told Ann that he would give her a car'

- **Role Shift** (Informant 1, 2, 49)

  RS_{a} _____

  $_{a}$PETER TELL $_{b}$ANN 1-GIVE-2 CAR.

  'Peter told Ann that he would give her a car'

Role Shift vs. No Role Shift: Inferences

- *Context:* the speaker is in NYC

- **No Role Shift**

  IN LA WHO IX-a JOHN$_a$ SAY **IX-a** WILL MEET **HERE** WHO

  HERE = NYC (Inf. 1, 6, 313-315. Acceptability: 6/7; here = NYC. 6, 363: same)

  'In LA, who did John say he would meet here [in NYC]'?

- **Role Shift**

  RS_a_____

  IN LA WHO IX-a JOHN$_a$ SAY **IX-1** WILL MEET **HERE** WHO

  HERE = LA (Inf. 1, 6, 316-317: 7/7; here = LA. 6, 362: same)
  Inf. 2, 6, 293-295. Acceptability: 7/7; here = LA 5/7; here = NYC 2.5/7)

  'In LA, who did John say he would meet there [in LA]?

  [Inf. 2 uses *IX-b LA* rather than *IN LA*]

ASL Favors Theory II ('No Mixing')

- **Extraction**
  The interrogative word is extracted out of the embedded clause
  => this is not English-style quotation [to be refined!!]

- **Role Shift**
  a. IX-1 is evaluated with respect to the shifted context
  b. and so is HERE

- **Perspectives**
  So **perspectives cannot be mixed in ASL**: when an indexical is shifted in a clause, other indexicals in the same clause must be shifted too.

But... Extraction out of Quotations!

- ?WOMAN$_b$ IX-arc-b IX-a JOHN TELL

  RS$_a$_____ RS'$_a$_____
  “” IX-1 LOVE IX-2, “” IX-1 LOVE IX-2,

  RS”$_a$_____
  “” IX-1 LOVE IX-2 (Inf. 1, 6, 309-310)

- ?SO MARY IX-d NOT **ONLY ONE$_c$** IX-a SAY

  RS$_a$_____
  “” IX-1 LOVE **IX-c** (1, 6, 307c-308: 5/7 ; Judgment 6, 353: 6/7)

  Lit.: ‘Mary is not the only one that he says ‘I love’’

[More Extraction out of Quotations!]

- **No Role Shift, "Embellishment" => IX-1 = agent**

IX-a THE-TWO-OF-US-1,a IN COMPETITION.
Emb_____
WHO IX-a SAY IX-1 WILL BEAT WHO

'Who does he say that he will beat'
(Inf. 1, 6, 347-348; rating: 7/7. See also Inf. 1, 5, 60-61)

Conclusion on Context Shift

- a. **In our data, perspectives cannot be mixed under Role Shift.**

  [b. This seems to hold in indirect discourse and outside of indirect discourse.]

  [c. (Possibly marginal) exceptions arise only when Role Shift is interrupted within a clause.]

  d. More data with more informants are needed.

- **Theory A: In indirect discourse, Anand's theory of context shift is correct for ASL**
  Theory B: These are cases of quotation, but ASL quotation is very different from English quotation.

[No Mixing outside of Indirect Discourse]

- **No Mixing – Outside of Indirect Discourse**(1st try)
  When Role Shift occurs outside of indirect discourse, all **admissible** indexicals are shifted.

- WEEK-LAST IX-1 MEET PETER$_a$ IN LA$_b$.

  RS_____
  IX-a PEOPLE IX-c MEET-1,c MEET-1c

  _____
  FIGHT-1,c FIGHT-1,c FIGHT-1,c

  'Last week I met Peter in LA. People he met, he fought with.' (Inf. 1, 6, 433)

  ☞ Under Role Shift, **both occurrences of 1 are evaluated from Peter's perspective.**

[Not all indexicals are admissible in Role Shift outside of Indirect Discourse]

- WEEK-LAST XI-1 1-MEET PETER IN LA.

a. **Non-Quotational**

RS_____
IX-a PEOPLE 1-MEET 1-FIGHT

b. **Quotational**

RS_____
IX-a PEOPLE **IX-1** 1-MEET 1-FIGHT

RS_____
IX-a PEOPLE 1-MEET **IX-1** 1-FIGHT

... '**He says/said that** people he meets, he fights with.'

[see Lillo-Martin 2009]

[Unshifting I]

- b. ? YEAR LAST IX-1 1-MEET-a JOHN.

  RS_a_____
  NOW IX-a 1-EMAIL-repetitive EMAIL-repetitive-1

  'Last year I met John. Now he sends lots of emails to me.'
  (Inf. 1, 2, 291. Judgment 6, 340: 5/7)

- b. (?) YESTERDAY IX-1 1-MEET-a $JOHN_a$.
  RS_a___
  IX-a 1-GIVE GIVE-1 MONEY
  'Yesterday I met Mary. He gave me money'.
  (Inf. 1, 2, 295. Judgment 6, 341: 5/7)

[Unshifting II (very marginal)]

- a.
?? YESTERDAY IX-1 1-MEET-a $MARY_a$.

RS_a____
IX-a 1-LIKE IX-1
'Yesterday I met Mary. She likes me.'
(Inf. 1, 2, 298. Judgment 6, 342: 3/7)

b.
? YESTERDAY IX-1 1-MEET-a $JOHN_a$.
RS_a_____
IX-a 1-GIVE MONEY IX-1.
'Yesterday I met John. He gave me money.' (Inf. 1, 2, 295)

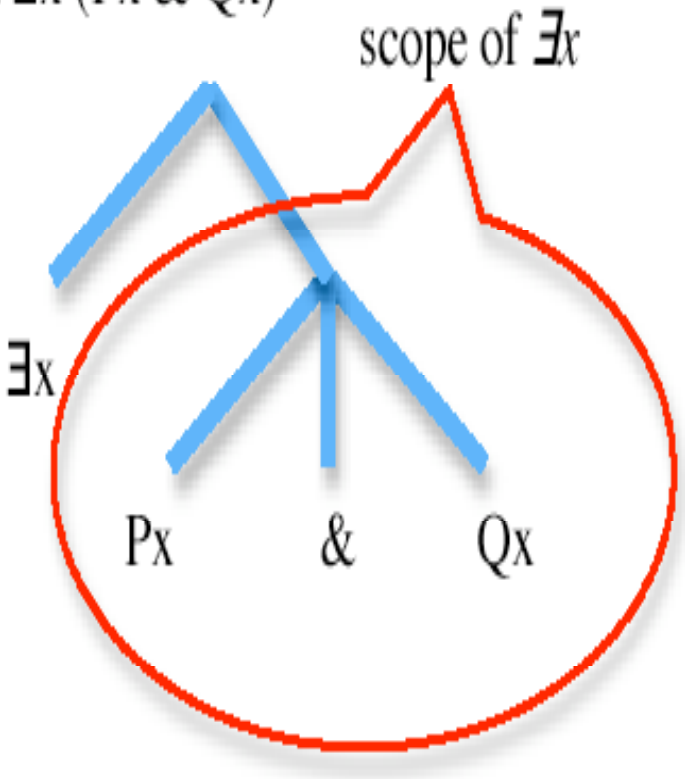
Donkey Anaphora

[Scope in Logic]

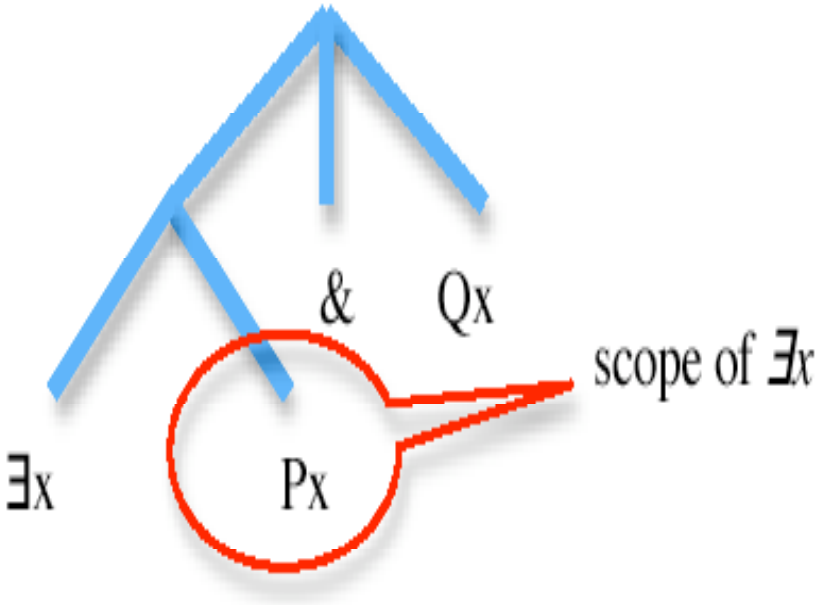
Scope in Predicate Logic

Qx is in the scope of the quantifier ∃*x* in a. but not in b. (we omit parentheses from the trees).

a. ∃x (Px & Qx)



b. ((∃x Px) & Qx)

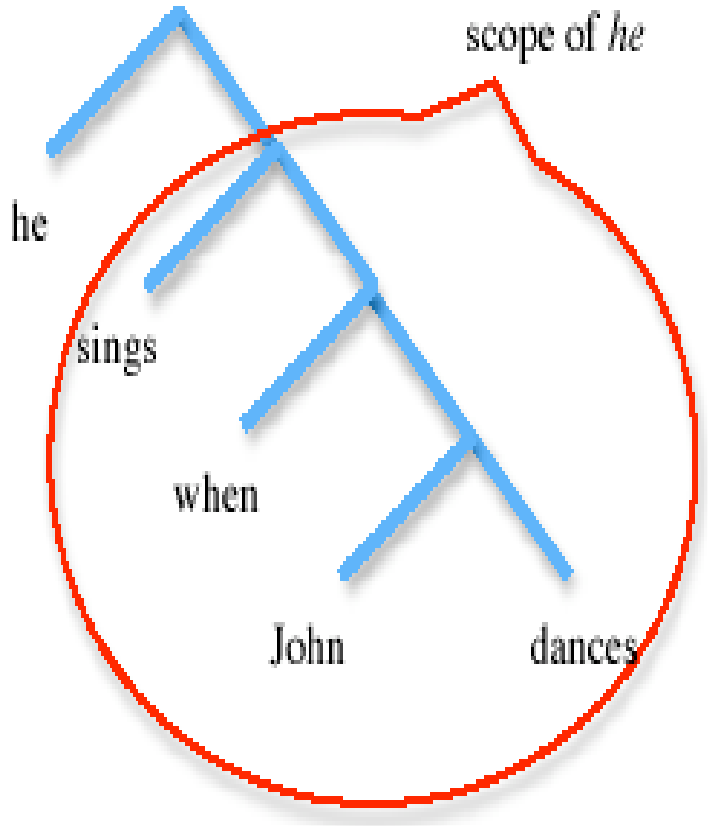


[Scope in Natural Language (= c-command)]

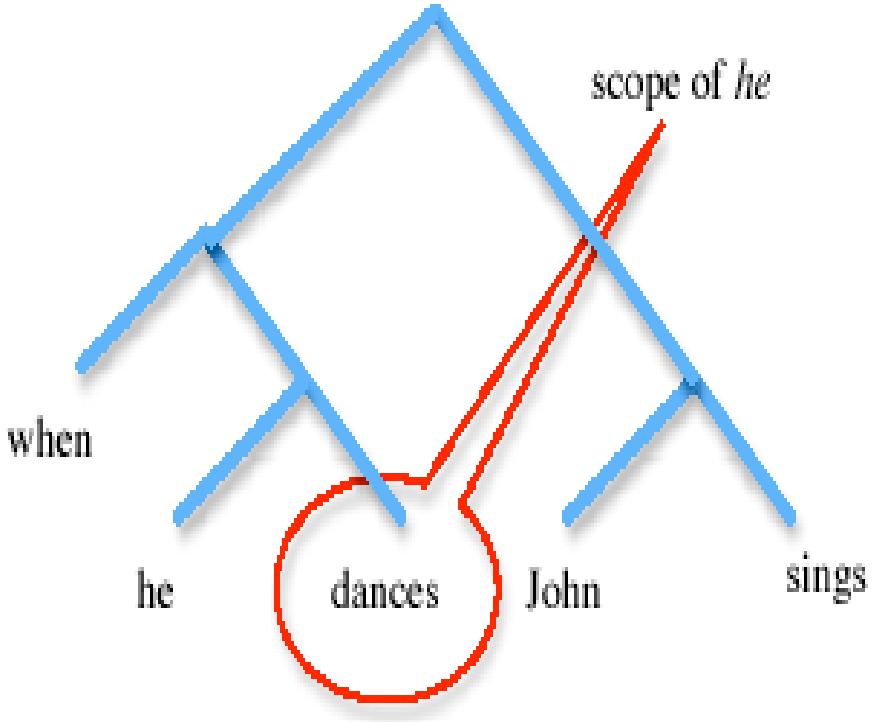
Scope in English I

A proper name *cannot* be in the scope of an expression that refers to the same person (*Condition C*[4])

a. He sings when John dances.



b. When he dances, John sings.

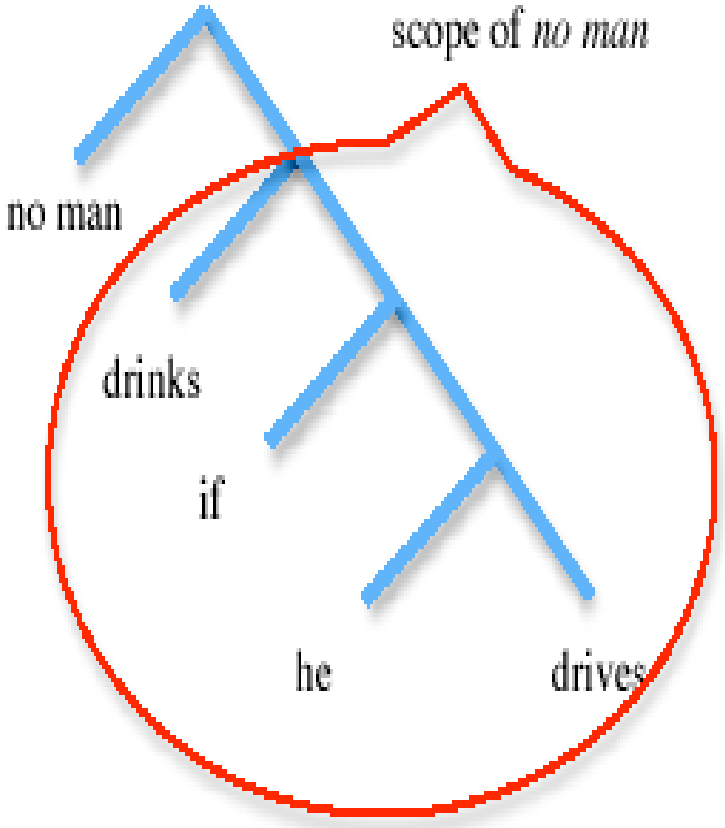


[Scope in Natural Language (= c-command)]

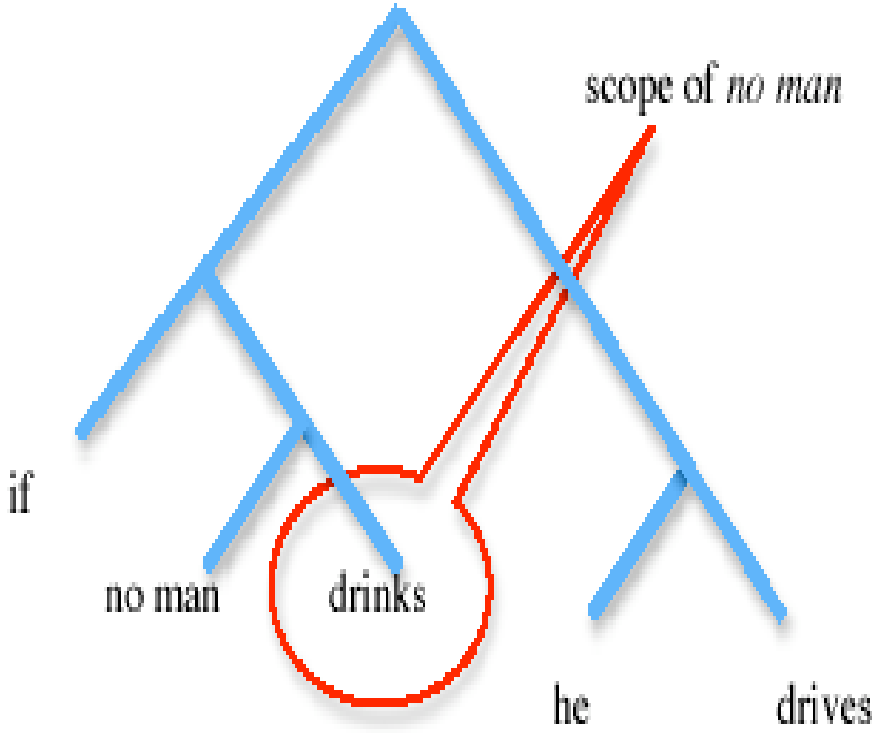
Scope in English II

A pronoun must be in the scope of [= 'c-commanded by'] a quantifier it depends on.

a. No man drinks if he drives.



b. If no man drinks, he drives.



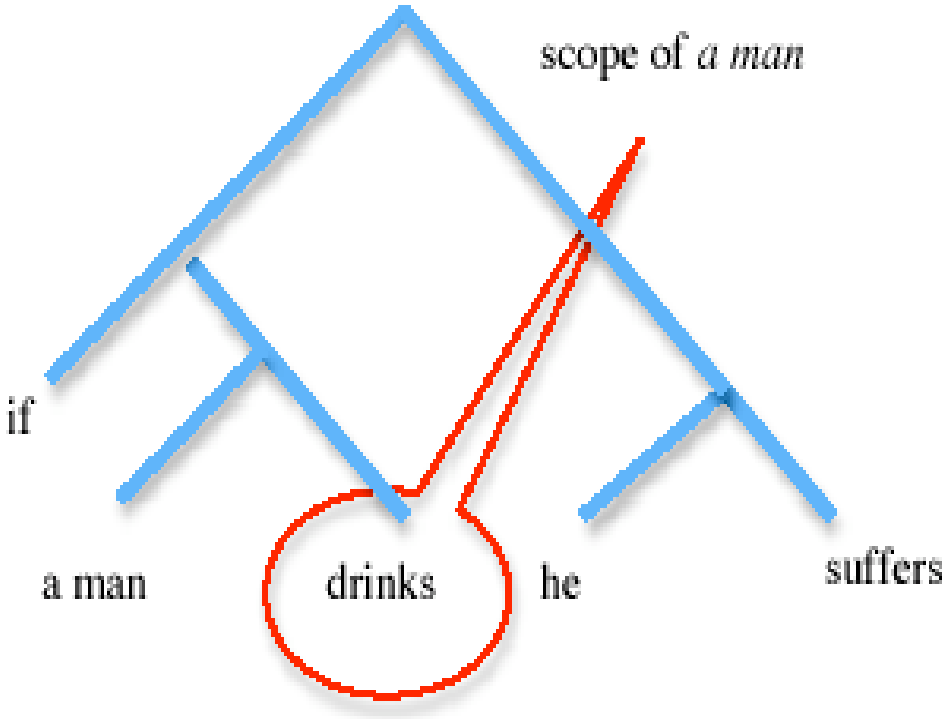
A Problem

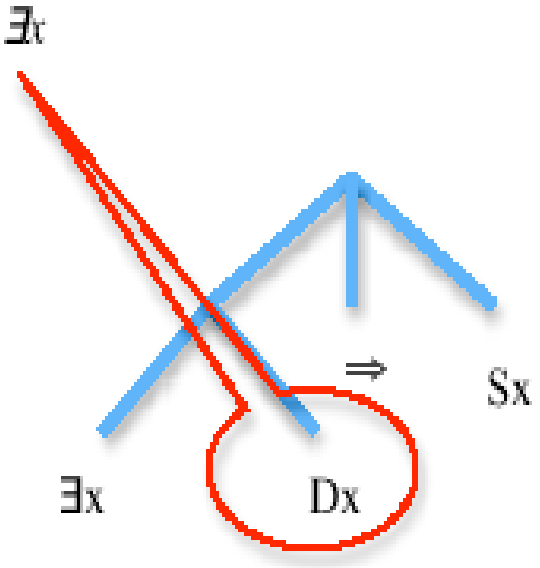
Scope in English vs. Predicate Logic

A pronoun can depend on an existential quantifier without being in its scope in English, but not in Predicate Logic.[6]

a. If a man drinks, he suffers.

b. $((\exists x\ Dx) \Rightarrow Sx)$





E-type vs. Dynamic Theories

Two Theories

- **Theory I: Dynamic Semantics**

  The logic of natural language is just different from standard logic: variable in language can depend on quantifiers without being in their scope.

- **Theory II: Pronouns as Descriptions**

  a. The logic of natural language is **not** different from standard logic, but pronouns are not (just) variables. They are **concealed descriptions**.

  b. **Assumption:** he = the + unpronounced noun
  … recovered by copying the antecedent.

  If a man drinks, ~~the~~ ~~man~~ suffers.
  'In each situation in which a man drinks, the man in that situation suffers'

The Necessity of a 'Formal Link'

- a. Every man who has a wife is kind to her.
  b. #Every married man is kind to her.

- **Theory I: Dynamic Semantics**
  - The contrast is expected: *a wife* is a quantifier over women, *married man* is not.
  - Formal link = variable that appears on pronoun and quantifier.

- **Theory II: Pronouns as descriptions**
  - The data can be explained *if* we assume that the pronoun *her* must syntactically recover a noun (Elbourne 2005).
    Every man who has a wife is kind to ~~t~~he[r] ~~wife~~.
  - Formal link = copying procedure

Crucial Cases

- If a bishop meets a bishop, he blesses him.

- **Theory I: Dynamic Semantics**

  a. If [a bishop]$_x$ meets [a bishop]$_y$, he$_x$ blesses him$_y$.
  b. If [a bishop]$_x$ meets [a bishop]$_y$, he$_y$ blesses him$_x$.
  … if same antecedent for both pronouns, wrong meaning!

- **Theory II: Pronouns as Descriptions**

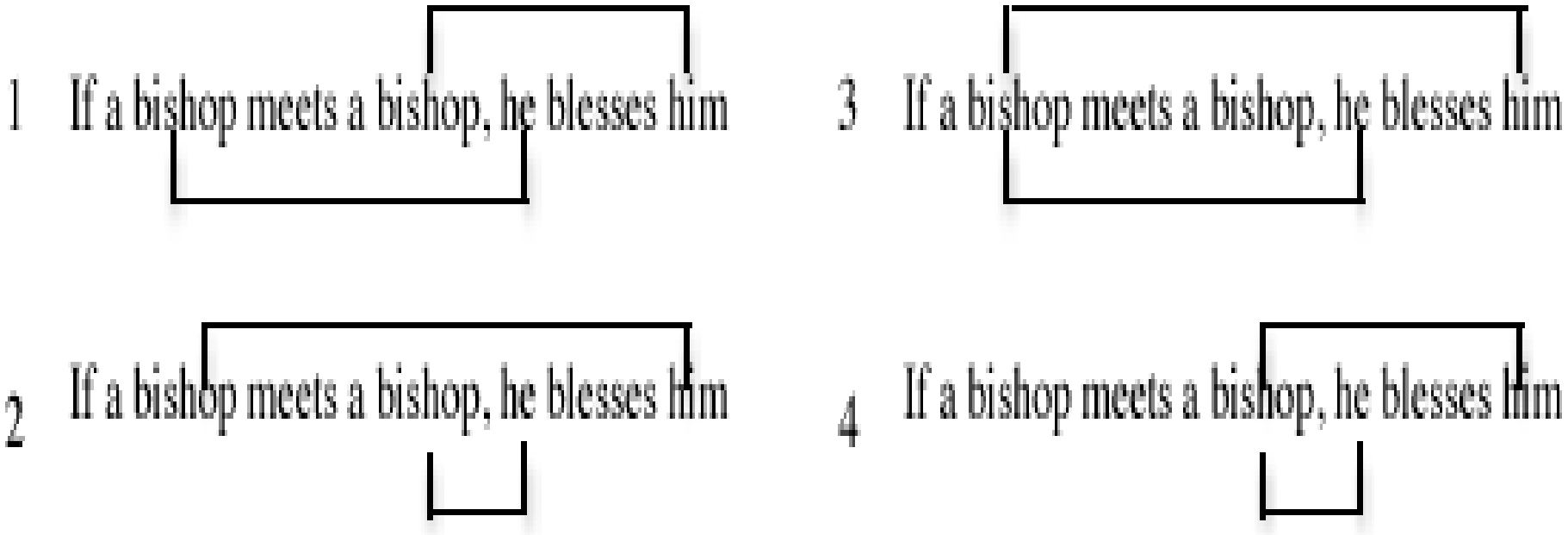
  First attempt [failure!]

  If [a bishop] meets [a bishop], ~~the~~ ~~bishop~~ blesses ~~the~~ ~~bishop~~
  If a bishop meets a bishop, one ~~bishop~~ blesses the other ~~bishop~~

  Second attempt [success]

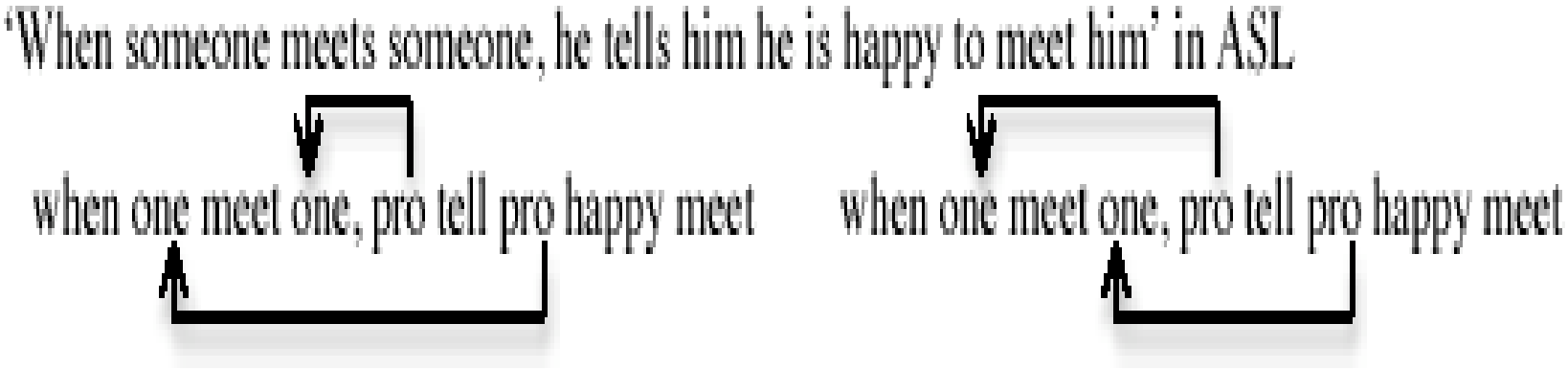
  If [a bishop] meets [a bishop], ~~the~~ ~~bishop~~ #1 blesses him ~~bishop~~ #2.
  But see: If two bishops meet, one ~~bishop~~ blesses the other ~~bishop~~

Predictions



- **Theory I: Dynamic Semantics: 1, 2 ok; 3, 4 bad**
- **Theory II: Pronouns as descriptions: all ok**
  because as long as the **word** *bishop* is copied, the right meaning is obtained.

Crucial Sentences in ASL and LSF



Crucial Sentences in ASL and LSF

- ASL

  WHEN $_{a}$ONE a-MEET-b $_{b}$ONE…

  a. IX-a TELL IX-b HAPPY a-MEET-b (Inf 1, 2, 285; 111)

  b. IX-b TELL IX-a HAPPY a-MEET-b (Inf 1, 2, 285; 111)

  c. # Any patterns in which both pronominals index the same position.

- LSF

  a. EACH-TIME $_{a}$STUDENT MEET $_{b}$STUDENT, a-GIVE-b CIGARETTE. (Informant F, 3, 35)

  b. EACH-TIME $_{a}$STUDENT MEET $_{b}$STUDENT, b-GIVE-a CIGARETTE. (Informant F, 3, 35)

Indistinguishable Antecedents in ASL: Noun Phrase Conjunction

- a. If a bishop meets a bishop, he greets him.
  b. #If a bishop and a bishop meet, he greets him (Elbourne)

- ASL
  a. WHEN $_{a}$ONE AND $_{b}$ONE MEET-a,b, IX-a TELL IX-b HAPPY MEET-a,b (Inf 1, 2, cf. 307; cf. 306)
  'When someone and someone meet, he [= the former] tells him [= the latter] that he is happy to meet him.'

  b. WHEN $_{a}$ONE AND $_{b}$ONE MEET-a,b, IX-b TELL IX-a HAPPY MEET-a,b (Inf 1, 2, 306; cf. 307)
  'When someone and someone meet, he [= the latter] tells him [= the former] that he is happy to meet him.'

Indistinguishable Antecedents in ASL: Propositional Conjunction

- ASL

  a. IF $_a$[FRENCH CL HERE] a-OTHER-b $_b$[FRENCH CL HERE] IX-a GREET IX-b

  'If a Frenchman were here and another Frenchman were here, he [= the former] would greet him [= the latter].'

  (Inf 1, 2, 114; see also Inf 1, 2, 113-114; Inf 1, 2, 153-154)

  b. IF $_a$[FRENCH CL HERE] a-OTHER-c $_c$[FRENCH CL HERE] c-OTHER-b $_c$[FRENCH CL HERE] IX-a GREET BOTH-b, c (Inf 1, 2, 115)

  'If a Frenchman were here and another Frenchman were here and another Frenchman were here, he [= the first] would greet them [= the second and the third].'

A Way Out for the E-type Approach?

- **First attempt [failure!]**
  If [a bishop] meets [a bishop], ~~the bishop~~ blesses ~~the bishop~~

- **Second attempt [initial success]**
  If [a bishop] meets [a bishop], ~~the bishop~~ #1 blesses him-~~bishop~~ #2.

- **Third attempt**
  If [a bishop #1] meets [a bishop #2], ~~the bishop #1~~ blesses him ~~bishop #2.~~

- **Problems**
  a. How are *#1* and *#2* in the antecedent interpreted?
  b. How is this different from a dynamic theory with coindexing *and* ellipsis in addition?

Binding Across Negation

Binding Across Negation

- a. John has an umbrella. It is red.
  b. #John doesn't have an umbrella. It is red.

- **Theory I:** Dynamic binding is subject to strict formal constraints - a quantifier **cannot bind across a negation**.

  Theory II: Dynamic binding is not subject to strict formal constraints, but pronouns come with a **presupposition that they should have a non-empty denotation.**

- It's not true that John doesn't have an umbrella. I've just seen it: it is read.
  => seems to favor Theory II; but *it* could also be an E-type pronoun... sign language can help determine whether a formal connection is established in this case.

Binding Across Negation

- a. $_{a}$ONE DEMOCRAT PERSON WILL CO SUPPORT HEALTH BILL WITH $_{b}$REPUBLICAN PERSON. BUT IX-a WILL a-GIVE-b A-LOT MONEY.

  'Some Democrat will cosponsor the healthcare bill with some Republican, but he [= the Democrat] will give him [=the Republican] a lot of money.'
  '(Inf 1, 2, 225)

- * IX-1 **THINK** NO $_{a}$DEMOCRAT CL WILL CO SUPPORT HEALTH BILL WITH $_{b}$REPUBLICAN CL. IX-1 THINK IX-a WILL a-GIVE-b A-LOT MONEY. (Inf 1, 2, 228)

Binding Across Negation

- **ASL**

  IX-1 **DON'T-THINK** NO $_{a}$DEMOCRAT CL WILL CO SUPPORT HEALTH BILL WITH $_{b}$REPUBLICAN CL. IX-1 THINK IX-a WILL a-GIVE-b A-LOT MONEY.

  'I don't think no Democrat will cosponsor the healthcare bill with a Republican. I think he [=the Democrat] will give him [= the Republican] a lot of money.' (Inf 1, 2, 228, 229)

  Follow-up: Who will give money? That Democrat who cosponsors.

Binding Across Negation

- **LSF**

  Note: UMP is the (right-wing) governing party in France; PS is the opposition socialist party

  $_{c}$[CL UMP] IX-c ACCEPT WRITE LAW WITH $_{a}$[CL PS] – NONE; **IX-b TRUE NOT**. BUT IX-c MONEY c-GIVE-a.
  'It is not true that no UMP member will accept to write a bill with a member of PS. But he [= the member of UMP] will give him [= the member of PS] money.' (Inf F, 3, 107)

Conclusion on Donkey Anaphora

- **E-type vs. Dynamic Accounts**
  a. ASL and LSF data provide **initial support in favor of the indexing mechanisms postulated by Dynamic Semantics**.
  b. E-type analyses that devise similar mechanisms would come even closer to dynamic accounts (Dekker 2004)

- **Binding Across Negation**
  a. In ASL and LSF, existential quantifiers can bind pronouns across (double) negation.
  b. This suggests that when negation disrupts binding, this is because an existence presupposition of pronouns is not satisfied.

3 Reasons to Study Sign Language Semantics

- **Sign languages are, like all other languages, important for comparative grammar – and they are under-studied.**
- **It is of some theoretical importance to understand the effect of modality.**
- **The difference in modality might make visible some formal properties which are only abstract in spoken languages.**

Partial Acknowledgments:

Special thanks to Jonathan Lamberton for help with the ASL data. This work was supported by a Euryi grant from the European Science Foundation ('Presuppositions: A Formal Pragmatic Approach') and by an NSF grant (BCS-0802671). Neither foundation is responsible for the claims made here. Thanks to audiences at MIT (NELS 2009), Amsterdam (Amsterdam Colloquium 2009), UMass Amherst (Colloquium) for helpful comments (and special thanks to K. von Fintel, who commented on the 'donkey anaphora' part of this work at NELS 2009).

Appendix I. More Weak Crossover Effects

The Playback Method

a. **Production of the stimuli:** Informant 1 (deaf child of deaf signing parents) signs complete paradigms, modifying one parameter at a time.

b. **Assessment of the stimuli:** Informant 1 is shown a video of the complete paradigms, and is asked to rate them on a scale of 1 (worst) to 7 (best).

c. The Assessment phase can be **repeated** with the same informant (or with other informants).

d. The WCO data cited in the earlier parts of this presentation were checked in part with traditional elicitation methods at Gallaudet University.

No Weak Crossover

- 7, 150 – Judgments 7, 151; 7, 160; 7, 268

  a. WHO_a POSS-2 PARENT LOVE NO-MATTER WHAT?

  7 6 6

  b. WHO_a POSS-2 PARENT LOVE WHO NO-MATTER WHAT?

  6 6 2

  c. WHO_a POSS-2 PARENT LOVE NO-MATTER WHAT WHO?

  7 6 6

  d. POSS-2 PARENT LOVE WHO NO-MATTER WHAT?

  6 6 6 7

  e. POSS-2 PARENT LOVE NO-MATTER WHAT WHO?

  7 7 7 7

Weak Crossover

- 7, 161. 7, 162; 7, 269
  a. WHO_a POSS-a PARENT LOVE NO-MATTER WHAT?
  2 2
  b. WHO_a POSS-a PARENT LOVE WHO NO-MATTER WHAT?
  2 2
  c. WHO_a POSS-a PARENT LOVE NO-MATTER WHAT WHO?
  2 2
  d. POSS-a PARENT LOVE WHO NO-MATTER WHAT?
  2, 2 2 1
  e. POSS-a PARENT LOVE NO-MATTER WHAT WHO-a?
  2, 2 3 4

Obviation by Resumption [partial]

- 7, 113, 117-140

d. POSS-a PARENT LOVE IX-a WHO NO-MATTER WHAT?
4 5
e. POSS-a PARENT LOVE IX-a NO-MATTER WHAT WHO?
7 7

Appendix II. Role Shift and De Se vs. De Re

- **Two scenarios**

  We showed 10 boys lots of videos of people's hands signing – including videos of each of them signing.

  a. De Se Scenario

  Each of them recognizes himself, and says: 'I sign well'

  b. Mixed Scenario [some De Se, some non-De Se]

  Some of them recognize themselves, and each of those says: 'I sign well'. Some of them don't recognize themselves, and each [about himself]: 'He signs well'

- 'All the boys think that they sign well, but some don't / and all realize it because they don't/do recognize themselves'.

Shifted 1st person is De Se

- **Mixed Scenario**

  a. **No Role Shift**

  BOY IX-arc-a ALL THINK <SELF-arc-a> SIGN WELL BUT SOME IX-arc-a NOT REALIZE BECAUSE IX-arc-a NOT RECOGNIZE SELF-arc-a.

  => True (Inf. 1, 5, 214-215)

  b. **Role Shift**

  RS_____

  IX-arc BOY ALL THINK IX-1 SIGN WELL BUT SOME IX-arc-a NOT REALIZE BECAUSE IX-arc-a NOT RECOGNIZE SELF-arc-a.

  => Not true (Inf. 1, 5, 220-221)

Shifted 1st person is De Se

- **De Se Scenario**

  a. **No Role Shift**

  IX-arc-a BOY ALL THINK <SELF-arc-a> SIGN WELL AND ALL_a REALIZE BECAUSE ALL_a RECOGNIZE SELF-arc-a.

  => True (Inf. 1, 5, 216-217)

  b. **Role Shift**

  RS_____

  ? IX-arc BOY ALL THINK IX-1 SIGN WELL AND ALL_a REALIZE BECAUSE ALL_a RECOGNIZE SELF-arc-a.

  => True (Inf. 1, 5, 222-223) [but the sentence is better without Role Shift]