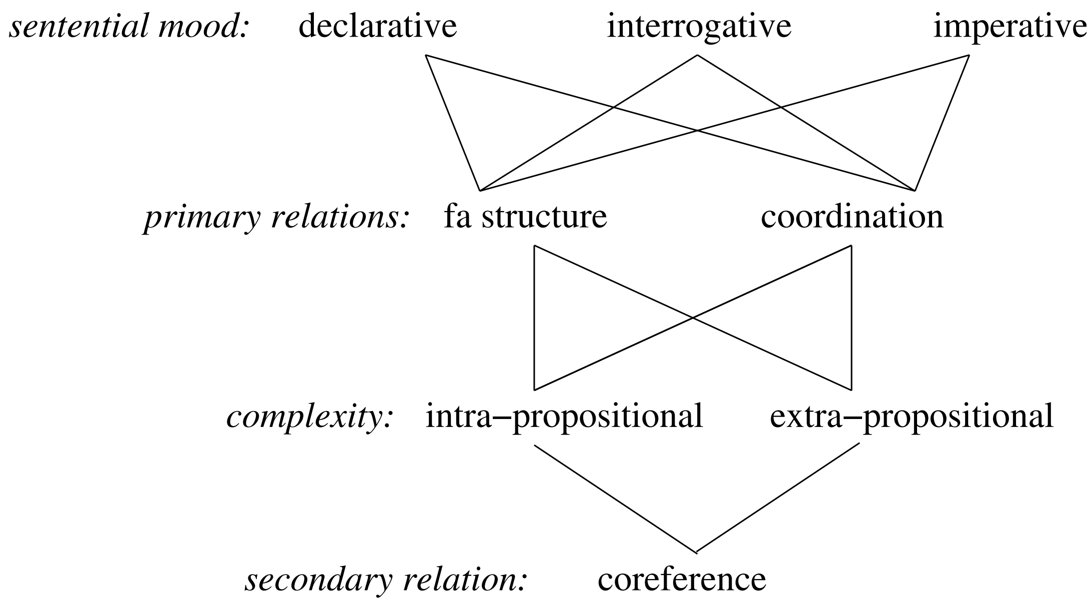
10. Intra- and Extra-Propositional Coreference

10.1 Overview

10.1.1 Correlating the major constructions



10.1.2 Different kinds of coreference

1. Name-based coreference in an extra-sentential coordination

   Julia ate an apple. Then Julia took a nap.

$$\begin{bmatrix}\text{noun: Julia}\\ \text{fnc: eat}\\ \text{mdr:}\\ \text{idy: 1}\\ \text{prn: 36}\end{bmatrix}\begin{bmatrix}\text{verb: eat}\\ \text{arg: Julia apple}\\ \text{pc:}\\ \text{nc: > 37 take}\\ \text{prn: 36}\end{bmatrix}\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{mdr:}\\ \text{idy: 2}\\ \text{prn: 36}\end{bmatrix}\begin{bmatrix}\text{noun: Julia}\\ \text{fnc: take}\\ \text{mdr:}\\ \text{idy: 3 (=1)}\\ \text{prn: 37}\end{bmatrix}\begin{bmatrix}\text{verb: take}\\ \text{arg: Julia nap}\\ \text{pc: < 36 eat}\\ \text{nc:}\\ \text{prn: 37}\end{bmatrix}\begin{bmatrix}\text{noun: nap}\\ \text{fnc: take}\\ \text{mdr:}\\ \text{idy: 4}\\ \text{prn: 37}\end{bmatrix}$$

2. Pronoun-based coreference in an extra-sentential coordination

   Julia ate an apple. Then she took a nap.

$$\begin{bmatrix}\text{noun: Julia}\\ \text{fnc: eat}\\ \text{mdr:}\\ \text{idy: 5}\\ \text{prn: 38}\end{bmatrix}\begin{bmatrix}\text{verb: eat}\\ \text{arg: Julia apple}\\ \text{pc:}\\ \text{nc: > 39 take}\\ \text{prn: 38}\end{bmatrix}\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{mdr:}\\ \text{idy: 6}\\ \text{prn: 38}\end{bmatrix}\begin{bmatrix}\text{noun: pro\_1}\\ \text{fnc: take}\\ \text{mdr:}\\ \text{idy: 7 (=5)}\\ \text{prn: 39}\end{bmatrix}\begin{bmatrix}\text{verb: take}\\ \text{arg: pro\_1 nap}\\ \text{pc: < 38 eat}\\ \text{nc:}\\ \text{prn: 39}\end{bmatrix}\begin{bmatrix}\text{noun: nap}\\ \text{fnc: take}\\ \text{mdr:}\\ \text{idy: 8}\\ \text{prn: 39}\end{bmatrix}$$

3. Blocked intra-propositional coreference between two equal names

   John shaved John.

$$\begin{bmatrix}\text{noun: John}\\ \text{fnc: shave}\\ \text{idy: 9}\\ \text{prn: 40}\end{bmatrix}\begin{bmatrix}\text{verb: shave}\\ \text{arg: John John}\\ \text{mdr:}\\ \text{prn: 40}\end{bmatrix}\begin{bmatrix}\text{noun: John}\\ \text{fnc: shave}\\ \text{idy: 10}\\ \text{prn: 40}\end{bmatrix}$$

4. Intra-propositional coreference between a name and a reflexive pronoun

%John shaved himself.

noun: John	verb: shave	noun: rfl_1
fnc: shave	arg: John rfl_1	fnc: shave
idy: 1	mdr:	idy: 2
prn: 1	prn: 1	prn: 1

5. Coreference between a nominal symbol and an intra-propositional coordination

The man washed his hands, clipped his nails, and shaved himself.

noun: man	verb: wash &	noun: hand	verb: clip	noun: nail	verb: shave	noun: rfl_2
fnc: wash	arg: man hand	fnc: wash	arg: # nail	fnc: clip	arg: # rfl_2	fnc: shave
mdr:	nc: clip	mdr:	nc: shave	mdr:	nc:	mdr:
idy: 13	pc:	idy: 14	pc: wash	idy: 15	pc: clip	idy: 16(=13)
prn: 42	prn: 42	prn: 42	prn: 42	prn: 42	prn: 42	prn: 42

10.2 Intra-Propositional Coreference

10.2.1 DEFINITION OF **LA-think.pro-1**

$\text{ST}_S =_{def} \{ (\begin{bmatrix}\text{noun: RFL\_n}\end{bmatrix} \{ \text{rfl-0 rfl-1}\}) \}$

rfl-0: $\begin{bmatrix}\text{noun: RFL\_n}\\ \text{cat: X'}\\ \text{idy: j}\\ \text{prn: k}\end{bmatrix} \begin{bmatrix}\text{noun: } \alpha\\ \text{cat: X}\\ \text{idy: i}\\ \text{prn: k}\end{bmatrix}$ if X is not compatible with X' set *nw* = preceding noun {rfl-0, rfl-1}

rfl-1: $\begin{bmatrix}\text{noun: RFL\_n}\\ \text{cat: X'}\\ \text{idy: j}\\ \text{prn: k}\end{bmatrix} \begin{bmatrix}\text{noun: } \alpha\\ \text{cat: X}\\ \text{idy: i}\\ \text{prn: k}\end{bmatrix}$ if X is compatible with X' set j = i { }

$\text{ST}_F =_{def} \{(\begin{bmatrix}\text{noun: } \alpha\end{bmatrix} \text{rp}_{\text{rfl}-1})\}$

10.2.2 APPLYING THE INFERENCE RULE **rfl-1**

rule level rfl-1:
$$\begin{bmatrix}\text{noun: RFL\_n}\\ \text{cat: X'}\\ \text{idy: j}\\ \text{prn: k}\end{bmatrix}\begin{bmatrix}\text{noun: }\alpha\\ \text{cat: X}\\ \text{idy: i}\\ \text{prn: k}\end{bmatrix}\quad \begin{array}{l}\text{if X is compatible with X'}\\ \text{set j = i}\end{array}\quad \{\ \}$$

language level
$$\begin{bmatrix}\text{noun: rfl\_1}\\ \text{fnc: shave}\\ \text{cat: m sg}\\ \text{idy: 2}\\ \text{prn: 1}\end{bmatrix}\quad\begin{bmatrix}\text{noun: John}\\ \text{fnc: shave}\\ \text{cat: m sg}\\ \text{idy: 1}\\ \text{prn: 1}\end{bmatrix}$$

10.2.3 INTERPRETATION OF John shaved himself AFTER INFERENCE

$$\begin{bmatrix}\text{noun: John}\\ \text{cat: m sg}\\ \text{fnc: shave}\\ \text{idy: 1}\\ \text{prn: 1}\end{bmatrix}\quad\begin{bmatrix}\text{verb: shave}\\ \text{arg: John, rfl\_1}\\ \text{prn: 1}\end{bmatrix}\quad\begin{bmatrix}\text{noun: rfl\_1}\\ \text{cat: m sg}\\ \text{fnc: shave}\\ \text{idy: 2 (=1)}\\ \text{prn: 1}\end{bmatrix}$$

10.3 Langacker-Ross Constraint for Sentential Arguments

10.3.1 Langacker-Ross constraint in sentential arguments

1. **LH':** That *Mary* had found the answer pleased *her*.
2. **H'L:** %*She* knew that *Mary* had found the answer.
3. **L'H:** That *she* had found the answer pleased *Mary*.
4. **HL':** *Mary* knew that *she* had found the answer.

10.3.2 LH’: That *Mary* had found the answer pleased *her*. (n/v-cnn)

pattern level	n/v: sc β arg: X γ Y fnc: r α prn: q	noun: γ fnc: β idy: i prn: q			noun: PRO_n fnc: α idy: i prn: r
proplet level	n/v: that find arg: Mary answer fnc: 28 please prn: 27	noun: Mary fnc: find idy: 1 prn: 27	noun: answer fnc: find idy: 2 prn: 27	verb: please arg: 27 find pro_1 mdr: prn: 28	noun: pro_1 fnc: please idy: 3 prn: 28

10.3.3 H’L: %*She* knew that *Mary* had found the answer.

pattern level	noun: PRO_n fnc: α idy: i prn: r		n/v: sc β arg: X γ Y fnc: r α prn: q	noun: γ fnc: β idy: i prn: q	
proplet level	noun: pro_1 fnc: know idy: 1 prn: 27	verb: know arg: pro_1 28 find mdr: prn: 27	n/v: that find arg: Mary answer fnc: 27 know prn: 28	noun: Mary fnc: find idy: 2 prn: 28	noun: answer fnc: find idy: 3 prn: 28

10.3.4 L'H: That *she* had found the answer pleased *Mary*. (n/v-pro)

pattern level	n/v: sc α arg: X PRO_n Y fnc: r β prn: r	noun: PRO_n fnc: α idy: i prn: r			noun: γ fnc: β idy: i prn: q
proplet level	n/v: that find arg: pro_1 answer fnc: 28 please prn: 27	noun: pro_1 fnc: find idy: 3 prn: 27	noun: answer fnc: find idy: 2 prn: 27	verb: please arg: 27 find Mary mdr: prn: 28	noun: Mary fnc: please idy: 1 prn: 28

10.3.5 HL': *Mary* knew that *she* had found the answer.(n/v-pro)

pattern level	noun: γ fnc: β idy: i prn: q		n/v: sc α arg: X PRO_n Y fnc: β prn: r	noun: PRO_n fnc: α idy: i prn: r	
proplet level	noun: Mary fnc: know idy: 1 prn: 27	verb: know arg: Mary 28 find mdr: prn: 27	n/v: that find arg: pro_1 answer fnc: 27 know prn: 28	noun: pro_1 fnc: find idy: 2 prn: 28	noun: answer fnc: find idy: 3 prn: 28

10.3.6 DEFINITION OF **LA-think.pro-2** (SENTENTIAL ARGUMENTS)

$\text{ST}_S =_{def} \{ ([\text{noun: PRO\_n}] \ \{\text{n/v-cnn, n/v-pro}\}) \}$

$$\text{n/v-cnn:} \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{idy: i} \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{n/v: sc } \beta \\ \text{arg: X } \gamma \text{ Y} \\ \text{fnc: r } \alpha \\ \text{prn: q}\end{bmatrix} \begin{bmatrix}\text{noun: } \gamma \\ \text{fnc: } \beta \\ \text{idy: j} \\ \text{prn: q}\end{bmatrix} \quad \begin{array}{l}\text{if q and r are adjacent, q < r, and} \\ \text{PRO\_n and } \gamma \text{ are compatible, set i = j}\end{array} \quad \{\}$$

$$\text{n/v-pro:} \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{idy: i} \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{n/v: sc } \alpha \\ \text{arg: X PRO\_n Y} \\ \text{fnc: r } \beta \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \gamma \\ \text{fnc: } \beta \\ \text{idy: j} \\ \text{prn: q}\end{bmatrix} \quad \begin{array}{l}\text{if q and r are adjacent and} \\ \text{PRO\_n and } \gamma \text{ are compatible, set i = j}\end{array} \quad \{\}$$

$\text{ST}_F =_{def} \{([\text{noun: } \alpha] \ \text{rp}_{\text{n/v-cnn}}), ([\text{noun: } \alpha] \ \text{rp}_{\text{n/v-pro}})\}$

10.4 Langacker-Ross Constraint for Adnominal Sentential Modifiers

10.4.1 Langacker-Ross constraint in adnominal sub-clauses

1. **LH':** The man who loves *the woman* kissed *her*.
2. **H'L:** *%She* was kissed by the man who loves *the woman*.
3. **L'H:** The man who loves *her* kissed *the woman*.
4. **HL':** *The woman* was kissed by the man who loves *her*.

10.4.2 LH’: Every farmer who owns *a donkey* beats *it*. (adn-cnn)

pattern–level	noun: β fnc: α mdr: q γ idy: k prn: r		noun: δ fnc: γ mdr: idy: j prn: q		noun: PRO_n fnc: α mdr: idy: i prn: r
proplet level	noun: farmer fnc: beat mdr: 2 own idy: 1 prn: 1	a/v: own arg: # donkey mdd: 1 farmer prn: 2	noun: donkey fnc: own mdr: idy: 2 prn: 2	verb: beat arg: farmer pro–2 mdr: prn: 1	noun: pro_2 fnc: beat mdr: idy: 3 (=2) prn: 1
	Every farmer	who owns	a donkey	beats	it

10.4.3 H’L: *%She* was kissed by the man who loves *the woman*.

pattern–level	noun: PRO_n fnc: α mdr: idy: k prn: r		noun: β fnc: α mdr: q γ idy: i prn: r		noun: δ fnc: γ mdr: idy: j prn: q
proplet level	noun: pro_1 fnc: kiss mdr: idy: 1 prn: 1	verb: kiss arg: man pro_1 mdr: prn: 1	noun: man fnc: kiss mdr: 2 love idy: 2 prn: 1	a/v: love arg: # Mary mdd: 1 man prn: 2	noun: woman fnc: love mdr: idy: 3 prn: 2

10.4.4 L’H: The man who loves *her* kissed *the woman*. (adn-pro)

pattern−level	noun: β fnc: γ mdr: r α idy: k prn: q		noun: PRO_n fnc: α mdr: idy: i prn: r		noun: δ fnc: γ mdr: idy: j prn: q
proplet level	noun: man fnc: kiss mdr: 2 love idy: 1 prn: 1	a/v: love arg: # pro_1 mdd: 1 man prn: 2	noun: pro_1 fnc: love mdr: idy: 2 prn: 2	verb: kiss arg: man woman mdr: prn: 1	noun: woman fnc: kiss mdr: idy: 3 prn: 1

10.4.5 HL’: *The woman* was kissed by the man who loves *her*. (adn-pro)

pattern−level	noun: δ fnc: γ mdr: idy: k prn: q		noun: β fnc: γ mdr: r α idy: i prn: q		noun: PRO_n fnc: α mdr: idy: j prn: r
proplet level	noun: woman fnc: kiss mdr: idy: 1 prn: 1	verb: kiss arg: man woman mdr: prn: 1	noun: man fnc: kiss mdr: 2 love idy: 2 prn: 1	a/v: love arg: # pro_1 mdd: 1 man prn: 2	noun: pro_1 fnc: love mdr: idy: 3 prn: 2

10.4.6 DEFINITION OF **LA-think.pro-3** (ADNOMINAL SENTENTIAL MODIFIERS)

$ST_S =_{def} \{ (\begin{bmatrix}\text{noun: PRO\_n}\end{bmatrix} \{\text{adn-cnn adn-pro}\}) \}$

$$\text{adn-cnn: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{mdr:} \\ \text{idy: i} \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \beta \\ \text{fnc: } \alpha \\ \text{mdr: q } \gamma \\ \text{idy: k} \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \delta \\ \text{fnc: } \gamma \\ \text{mdr:} \\ \text{idy: j} \\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if q and r are adjacent, q < r, and} \\ \text{PRO\_n and } \alpha \text{ are compatible, set i = j}\end{array} \quad \{\}$$

$$\text{adn-pro: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{mdr:} \\ \text{idy: i} \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \beta \\ \text{fnc: } \gamma \\ \text{mdr: r } \alpha \\ \text{idy: k} \\ \text{prn: q}\end{bmatrix} \begin{bmatrix}\text{noun: } \delta \\ \text{fnc: } \gamma \\ \text{mdr:} \\ \text{idy: j} \\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if q and r are adjacent and} \\ \text{PRO\_n and } \gamma \text{ are compatible, set i = j}\end{array} \quad \{\}$$

$ST_F =_{def} \{(\begin{bmatrix}\text{noun: } \alpha\end{bmatrix} \text{rp}_{\text{adn}-\text{fnc}}), (\begin{bmatrix}\text{noun: } \alpha\end{bmatrix} \text{rp}_{\text{adn}-\text{mdr}})\}$

10.5 Langacker-Ross Constraint for Adverbial Sentential Modifiers

10.5.1 LANGACKER-ROSS CONSTRAINT IN ADVERBIAL SUB-CLAUSES

1. **LH':** When *Mary* returned *she* kissed John.
2. **H'L:** %*She* kissed John when *Mary* returned.
3. **L'H:** When *she* returned *Mary* kissed John.
4. **HL':** *Mary* kissed John when *she* returned.

10.5.2 LH’: When *Mary* returned *she* kissed John. (adv-cnn)

pattern level

noun: γ	a/v: sc β	noun: PRO_n
fnc: β	arg: X γ Y	fnc: α
idy: j	mdd: r α	idy: i
prn: q	prn: q	prn: r

proplet level

noun: Mary	a/v: when return	noun: pro_1	verb: kiss	noun: John
fnc: return	arg: Mary	fnc: kiss	arg: pro_1 John	fnc: kiss
idy: 1	mdd: 28 kiss	idy: 2	mdr: 27 return	idy: 3
prn: 27	prn: 27	prn: 28	prn: 28	prn: 28

10.5.3 H’L: %*She* kissed John when *Mary* returned.

pattern level

noun: PRO_n			noun: γ	a/v: sc β
fnc: α			fnc: β	arg: X γ Y
idy: i			idy: j	mdd: r α
prn: r			prn: q	prn: q

proplet level

noun: pro_1	verb: kiss	noun: John	noun: Mary	a/v: when return
fnc: kiss	arg: pro_1 John	fnc: kiss	fnc: return	arg: Mary
idy: 1	mdr: 28 return	idy: 2	idy: 3	mdd: 27 kiss
prn: 27	prn: 27	prn: 27	prn: 28	prn: 28

10.5.4 L'H: When *she* returned *Mary* kissed John. (adv-pro)

pattern level	noun: PRO_n fnc: α idy: i prn: r	a/v: sc α arg: X pro_n Y mdd: q β prn: r	noun: γ fnc: β idy: j prn: q		
proplet level	noun: pro_1 fnc: return idy: 1 prn: 27	a/v: when return arg: pro_1 mdd: 28 kiss prn: 27	noun: Mary fnc: kiss idy: 2 prn: 28	verb: kiss arg:Mary John mdr: 27 return prn: 28	noun: John fnc: kiss idy: 3 prn: 28

10.5.5 HL': *Mary* kissed John when *she* returned. (adv-pro)

pattern level	noun: γ fnc: β idy: i prn: q			a/v: sc α arg: X PRO_n Y mdd: q β prn: r	noun: PRO_n fnc: α idy: j prn: r
proplet level	noun: Mary fnc: kiss idy: 1 prn: 27	verb: kiss arg: Mary John mdr: 28 return prn: 27	noun: John fnc: kiss idy: 2 prn: 27	a/v: when return arg: pro_1 mdd: 27 kiss prn: 28	noun: pro_1 fnc: return idy: 3 prn: 28

10.5.6 DEFINITION OF **LA-think.pro-4** (ADVERBIAL SENTENTIAL MODIFIERS)

$ST_S =_{def} \{ (\begin{bmatrix}\text{noun: PRO\_n}\end{bmatrix} \{\text{adv-cnn adv-pro}\}) \}$

$$\text{adv-cnn: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{a/v: sc } \beta \\ \text{arg: X } \gamma \text{ Y}\\ \text{mdd: r } \alpha \\ \text{prn: q}\end{bmatrix} \begin{bmatrix}\text{noun: } \gamma \\ \text{fnc: } \beta \\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \quad \begin{matrix}\text{if q and r are adjacent, q < r, and}\\ \text{PRO\_n and } \gamma \text{ are compatible, set i = j}\end{matrix} \quad \{\}$$

$$\text{adv-pro: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha \\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{a/v: sc } \alpha \\ \text{fnc: X PRO\_n Y}\\ \text{mdd: q } \beta \\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \gamma \\ \text{fnc: } \beta \\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \quad \begin{matrix}\text{if q and r are adjacent and}\\ \text{PRO\_n and } \gamma \text{ are compatible, set i = j}\end{matrix} \quad \{\}$$

$ST_F =_{def} \{(\begin{bmatrix}\text{noun: } \alpha\end{bmatrix} \text{rp}_{\text{adv-cnn}}), (\begin{bmatrix}\text{noun: } \alpha\end{bmatrix} \text{rp}_{\text{adv-pro}})\}$

10.5.7 LANGACKER-ROSS CONSTRAINT FOR OBLIQUE COREFERENTS

1. **LH’:** When *Mary* returned John kissed *her*.
2. **H’L:** %John kissed *her* when *Mary* returned.
3. **L’H:** When *she* returned John kissed *Mary*.
4. **HL’:** John kissed *Mary* when *she* returned.

10.5.8 LH': When *Mary* returned John kissed *her*. (adv-cnn)

pattern level	noun: γ fnc: β idy: j prn: q	a/v: sc β arg: X γ *Y* mdd: r α prn: q			noun: PRO_n fnc: α idy: i prn: r
proplet level	noun: Mary fnc: return idy: 1 prn: 27	a/v: when return arg: Mary mdd: 28 kiss prn: 27	noun: John fnc: kiss idy: 3 prn: 28	verb: kiss arg: John pro_1 mdr: 27 return prn: 28	noun: pro_1 fnc: kiss idy: 2 prn: 28

10.5.9 H'L: %John kissed *her* when *Mary* returned.

pattern level			noun: PRO_n fnc: α idy: i prn: r	noun: γ fnc: β idy: j prn: q	a/v: sc β arg: X γ Y mdd: r α prn: q
proplet level	noun: John fnc: kiss idy: 2 prn: 27	verb: kiss arg: John pro_1 mdr: 28 return prn: 27	noun: pro_1 fnc: kiss idy: 1 prn: 27	noun: Mary fnc: return idy: 3 prn: 28	a/v: when return arg: Mary mdd: 27 kiss prn: 28

10.5.10 L'H: When *she* returned John kissed *Mary* (adv-pro)

pattern level	noun: PRO_n fnc: α idy: i prn: r	a/v: sc α arg: X PRO_n Y mdd: q β prn: r			noun: γ fnc: β idy: j prn: q
proplet level	noun: pro_1 fnc: return idy: 1 prn: 27	a/v: when return arg: pro_1 mdd: 28 kiss prn: 27	noun: John fnc: kiss idy: 3 prn: 28	verb: kiss arg:John Mary mdr: 27 return prn: 28	noun: Mary fnc: kiss idy: 2 prn: 28

10.5.11 H'L: John kissed *Mary* when *she* returned (adv-pro)

pattern level			noun: γ fnc: β idy: i prn: q	noun: PRO_n fnc: α idy: j prn: r	a/v: sc α arg: X PRO_n Y mdd: q β prn: r
proplet level	noun: John fnc: kiss idy: 2 prn: 27	verb: kiss arg:John Mary mdr: 28 return prn: 27	noun: Mary fnc: kiss idy: 1 prn: 27	noun: pro_1 fnc: return idy: 3 prn: 28	a/v: when return arg: pro_1 mdd: 27 kiss prn: 28

10.6 Handling Pronominal Coreference by means of Inference

10.6.1 Definition of **LA-think.pro**

$$ST_S =_{def} \{ (\begin{bmatrix}\text{noun: PRO\_n}\end{bmatrix} \{\text{pro-0 rfl-1 n/v-cnn n/v-pro adn-cnn adn-pro adv-cnn adv-pro}\}) \}$$

$$\text{pro-0:} \quad \begin{bmatrix}\text{noun: PRO\_n}\\ \text{idy: j}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: }\alpha\\ \text{idy: i}\\ \text{prn: q}\end{bmatrix}$$

PRO_n and α are not compatible, set *nw* = preceding noun in the input sequence

{pro-0 rfl-1 n/v-cnn n/v-PRO adn-cnn adn-PRO adv-cnn adv-PRO}

$$\text{rfl-1:} \quad \begin{bmatrix}\text{noun: PRO\_n}\\ \text{idy: j}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: }\alpha\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix}$$

if PRO_n is a reflexive pronoun, and PRO_n and α are compatible, set j = i

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$$\text{n/v-cnn:} \quad \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: }\alpha\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{n/v: sc }\beta\\ \text{arg: X }\gamma\text{ Y}\\ \text{fnc: r }\alpha\\ \text{prn: q}\end{bmatrix} \begin{bmatrix}\text{noun: }\gamma\\ \text{fnc: }\beta\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix}$$

if PRO_n is a non-reflexive personal pronoun, PRO_n and γ are compatible, q and r are adjacent, and q < r, set i = j

{ }

$$\text{n/v-pro:} \quad \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: }\alpha\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{n/v: sc }\alpha\\ \text{arg: X PRO\_n Y}\\ \text{fnc: r }\beta\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: }\gamma\\ \text{fnc: }\beta\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix}$$

if PRO_n is a non-reflexive personal pronoun, PRO_n and γ are compatible, and q and r are adjacent, set i = j

{ }

$$\text{adn-cnn: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha\\ \text{mdr:}\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \beta\\ \text{fnc: } \alpha\\ \text{mdr: q } \gamma\\ \text{idy: k}\\ \text{prn: r}\end{bmatrix} \quad \begin{bmatrix}\text{noun: } \delta\\ \text{fnc: } \gamma\\ \text{mdr:}\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if PRO\_n is a non-reflexive personal pronoun,}\\ \text{PRO\_n and } \alpha \text{ are compatible,}\\ \text{q and r are adjacent, and q < r,}\\ \text{set i = j}\end{array} \quad \{\}$$

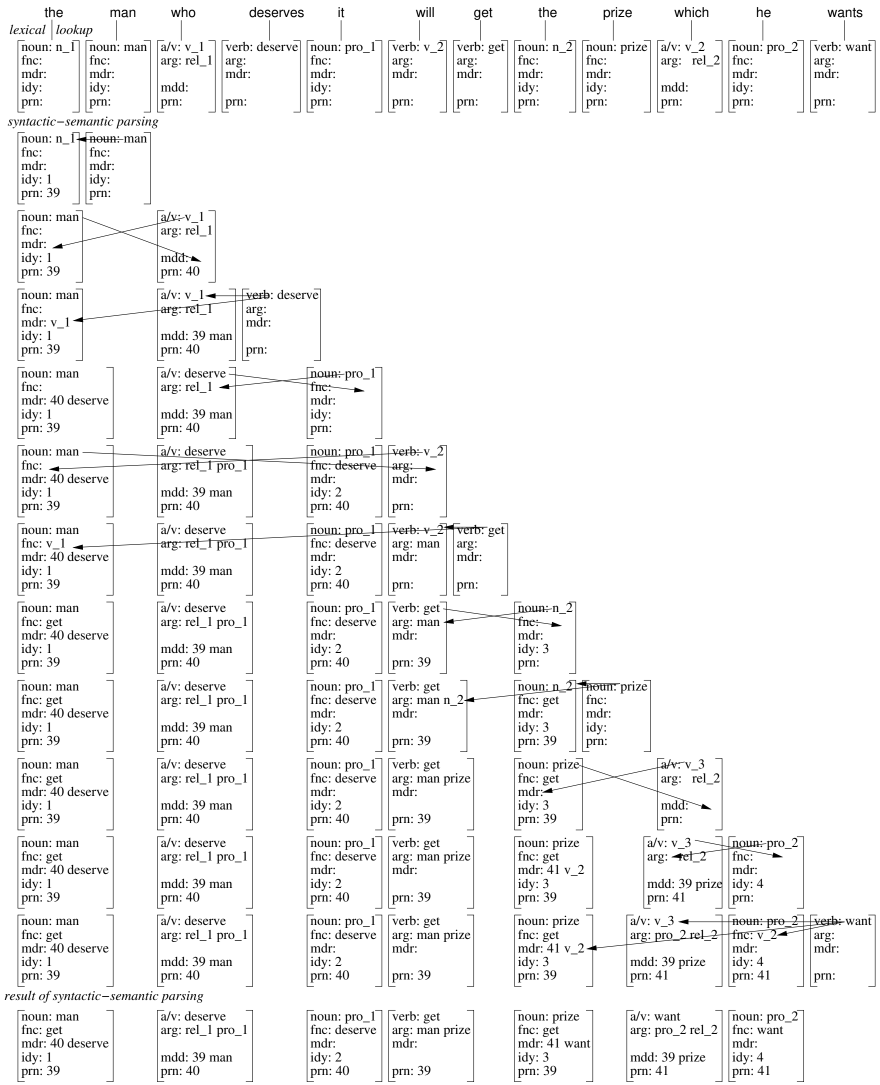
$$\text{adn-pro: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha\\ \text{mdr:}\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \beta\\ \text{fnc: } \gamma\\ \text{mdr: r } \alpha\\ \text{idy: k}\\ \text{prn: q}\end{bmatrix} \quad \begin{bmatrix}\text{noun: } \delta\\ \text{fnc: } \gamma\\ \text{mdr:}\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if PRO\_n is a non-reflexive personal pronoun,}\\ \text{PRO\_n and } \gamma \text{ are compatible,}\\ \text{and q and r are adjacent,}\\ \text{set i = j}\end{array} \quad \{\}$$

$$\text{adv-cnn: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{a/v: sc } \beta\\ \text{arg: X } \gamma \text{ Y}\\ \text{mdd: r } \alpha\\ \text{prn: q}\end{bmatrix} \quad \begin{bmatrix}\text{noun: } \gamma\\ \text{fnc: } \beta\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if PRO\_n is a non-reflexive personal pronoun,}\\ \text{PRO\_n and } \gamma \text{ are compatible,}\\ \text{q and r are adjacent, and q < r,}\\ \text{set i = j}\end{array} \quad \{\}$$

$$\text{adv-pro: } \begin{bmatrix}\text{noun: PRO\_n}\\ \text{fnc: } \alpha\\ \text{idy: i}\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{a/v: sc } \alpha\\ \text{fnc: X PRO\_n Y}\\ \text{mdd: q } \beta\\ \text{prn: r}\end{bmatrix} \begin{bmatrix}\text{noun: } \gamma\\ \text{fnc: } \beta\\ \text{idy: j}\\ \text{prn: q}\end{bmatrix} \begin{array}{l}\text{if PRO\_n is a non-reflexive personal pronoun,}\\ \text{PRO\_n and } \gamma \text{ are compatible,}\\ \text{and q and r are adjacent,}\\ \text{set i = j}\end{array} \quad \{\}$$

$$\begin{aligned}\text{ST}_F =_{def} \{&([\text{noun: } \alpha]\ \text{rp}_{\text{rfl}-1}), ([\text{noun: } \alpha]\ \text{rp}_{\text{n/v}-\text{cnn}}), ([\text{noun: } \alpha]\ \text{rp}_{\text{n/v}-\text{pro}}),\\ &([\text{noun: } \alpha]\ \text{rp}_{\text{adn}-\text{cnn}}), ([\text{noun: } \alpha]\ \text{rp}_{\text{adn}-\text{pro}}), ([\text{noun: } \alpha]\ \text{rp}_{\text{adv}-\text{cnn}})\\ &([\text{noun: } \alpha]\ \text{rp}_{\text{adn}-\text{pro}})\}\end{aligned}$$

10.6.2 Hearer-mode derivation of the Bach-Peters sentence



10.6.3 The HL' constellation

H: The *man* will get the prize
L': which *he* wants

10.6.4 The L'H constellation

The man **H:** will get the *prize*
L': who deserves *it*

10.6.5 THE COREFERENCE INFERENCES