

Homework 5: LFG

Syntactic Theory
Meaghan Fowlie

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1. Preliminaries

One-replacement is a constituency test for English.

Let's assume the DP hypothesis for this discussion, and modification at the XP level. The claim is that in English, any NP can be replaced by the word *one*.¹ In actuality, sometimes it fails (eg usually *a one* sounds terrible no matter what) but arguably it never yields a false positive.

- (1)
 - a. That man in this yellow hat
 - b. That one in this yellow hat
 - c. That one
 - d. That man in this one
 - e. That man in this yellow one

- (2)
 - a. The destruction of Rome by the barbarians
 - b. The one by the barbarians
 - c. *The one of Rome by the barbarians

Assuming we design our grammar according to the principles discussed previously – specifically that adjuncts are at the XP level and anything inside the XP is an argument – use these data to argue whether each of the following are adjuncts or arguments of their local noun

- (a) *yellow* in (1-a)
- (b) *in this yellow hat* in (1-a)
- (c) *of Rome* in (2-a)
- (d) *by the barbarians* in (2-a)

¹The equivalent for the NP \rightarrow D N' + modification at the bar level version is that N' can be replaced by *one*.

English LFG fragment expanded from Falk (2011):

DP →	D'		<i>a</i>	D	(↑DEF) = - (↑NUM) = SG
	↑=↓				
D' →	D	NP	<i>the</i>	D	(↑DEF) = +
	↑=↓	↑=↓			
NP →	N	(PP)	<i>dinosaur</i>	N	(↑PRED) = dinosaur (↑NUM) = SG
	↑=↓	↑=↓			
NP →	AdjP	NP	<i>falafel</i>	N	(↑PRED) = falafel (↑NUM) = SG
	↓∈(↑ADJ)	↑=↓			
NP →	NP	PP	<i>hamster</i>	N	(↑PRED) = hamster (↑NUM) = SG
	↑=↓	↓∈(↑ADJ)			
AdjP →	Adj		<i>give</i>	V	(↑PRED) = give((↑SUBJ)(↑OBJ) (↑OBL _{GOAL} OBJ))
	↑=↓				
IP →	DP	I'	<i>will</i>	I	(↑TENSE) = FUT
	(↑SUBJ)=↓	↑=↓	<i>to</i>	P	(↑PCASE) = OBL _{GOAL}
I' →	I	VP	New		
	↑=↓	↑=↓	<i>in</i>	P	(↑PCASE) = OBL _{LOC} (↑PRED) = in((↑OBJ))
VP →	VP	PP	<i>of</i>	P	(↑OBJ CASE) = POSS
	↑=↓	↓∈(↑ADJ)			
PP →	P	DP	<i>death</i>	N	(↑PRED) = death((↑OBJ)) (↑NUM) = SG
	↑=↓	(↑OBJ)=↓			
VP →	V	(DP)	<i>death</i>	N	(↑PRED) = death (↑NUM) = SG
	↑=↓	(↑OBJ)=↓ (↑OBL _{goal})=↓	<i>swamp</i>	N	_____
			<i>huge</i>	A	_____
			<i>eat</i>	V	_____

2. Consider the LFG above, taken from our work together Wednesday and with a few new rules added. There are also a few blanks for you to fill in, and the arguments in the VP rule have been made optional ().

(a) Give a parse (c-structure + f-structure + connection) of the following phrases (IPs unless otherwise noted). Complete the half-finished new lexical items if you need them. Note (5) is ambiguous. Are both readings available in this grammar?

(3) A dinosaur will eat

- (4) The huge dinosaur will eat a huge falafel
- (5) The hamster will give the huge falafel to the dinosaur in the swamp²
- (6) The death of the dinosaur (DP)

(b) There are two rules that put a PP in an NP, but there is only one parse for (7-a). Why is this? Do you think we get the right parse? Is this a bug or a feature? Hint: consider (7-b):

- (7) a. The death in the swamp
- b. The one in the swamp

3. In class Wednesday, Brie asked whether the following pattern, where both daughters are marked with $\uparrow=\downarrow$, was related to this being a bar-level rule:

$$\begin{array}{l} D' \rightarrow D \quad NP \\ \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow \\ I' \rightarrow I \quad VP \\ \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow \end{array}$$

The rules we had certainly instantiated this generalisation, which I'll call the "bar-level hypothesis". The rules that were more specific about features within parent feature structures were:

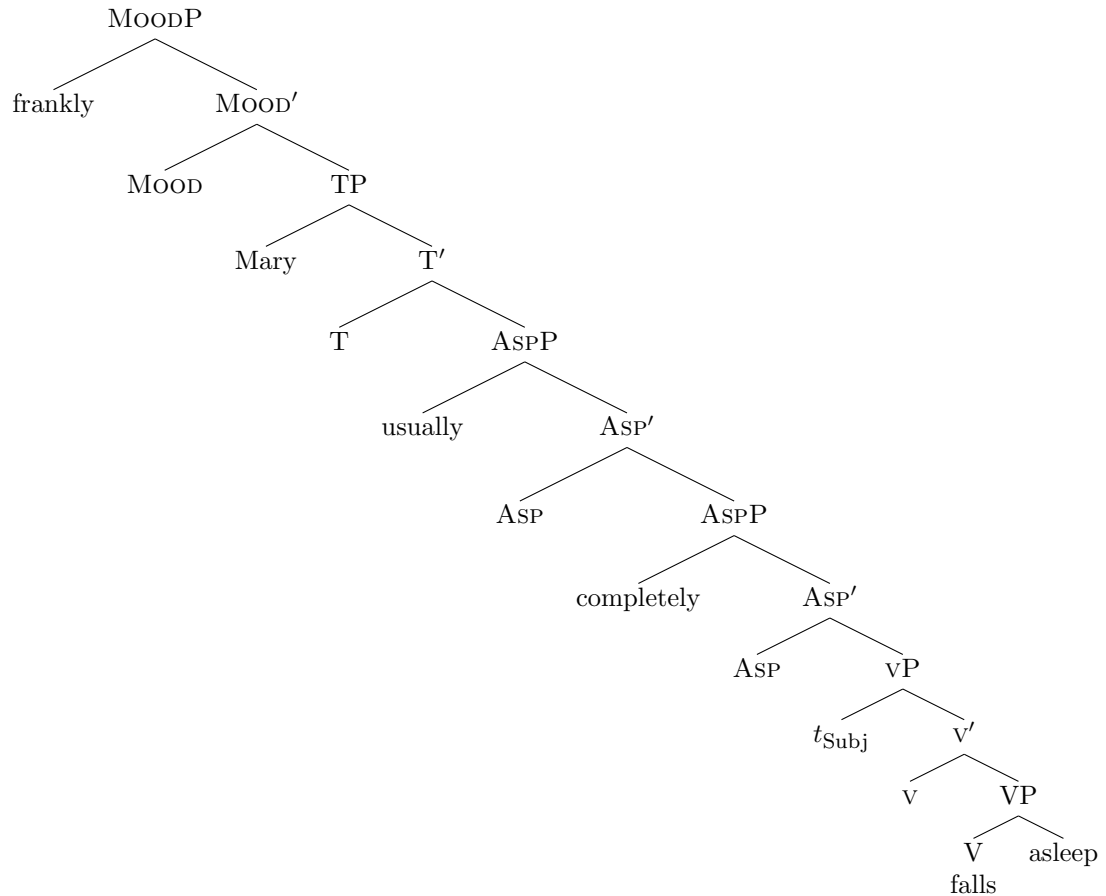
$$\begin{array}{l} IP \rightarrow \quad DP \quad I' \\ \quad \quad (\uparrow\text{SUBJ})=\downarrow \quad \uparrow=\downarrow \\ \\ VP \rightarrow \quad V \quad DP \quad PP \\ \quad \quad \uparrow=\downarrow \quad (\uparrow\text{OBJ})=\downarrow \quad (\uparrow\text{OBL}_{\text{goal}})=\downarrow \\ \\ PP \rightarrow \quad P \quad DP \\ \quad \quad \uparrow=\downarrow \quad (\uparrow\text{OBJ})=\downarrow \end{array}$$

- (a) Thinking back to X-bar theory, what do you think of the possibilities for the bar-level hypothesis? Things to consider: What are bar levels used for? What do you think about the use of bar levels in this particular phrase structure grammar?
- (b) Many researchers follow Cinque (1999) in positing a long stack of functional categories above the VP, some of which introduce heads (eg modals) and some of which introduce adverbs as specifiers. A highly truncated and slightly abstracted example is given below. Consider everything in SMALL CAPS to be a functional category with no pronunciation

²The following data may help you. *Do-so* replacement is like *one* replacement for VPs.

- (i) a. The hamster will give the huge falafel to the **one** in the swamp
- b. The hamster will **do so** in the swamp

(eg MOOD.)³



In these analyses, if a lot of functional information is given to a noun, a similar kind of structure arises above it (though maybe not with the adjuncts in specifier position), like number and case markers.

Assume these functional elements add their feature structure to the f-structure of the main sentence in the same way that we had *will* add future tense information to the main f-structure of the sentence in our example, using the I' rule above. That is, assume we have a bunch of rules like

$$\begin{array}{l}
 \text{ASP}' \rightarrow \quad \text{ASP} \quad \text{vP} \\
 \quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow \\
 \text{ASPP} \rightarrow \quad \text{AdvP} \quad \text{ASP}' \\
 \quad \quad \quad \downarrow \in (\uparrow \text{ADJ}) \quad \uparrow=\downarrow
 \end{array}$$

Under this analysis, does your evaluation of the bar-level hypothesis change? Does it give you a different idea for a generalisation, strengthen your previous argument, or contribute in any other way? Do you have a good hypothesis, and does it have any obvious holes that are worrying you?

³Yeah, I know, linguists be crazy

4. Warlpiri LFG (Made up by me, inspired by Legate (2002) and Snijders (2016))

<i>kurdujarrrarl</i>	N	(↑PRED) = child (↑NUM) = DUAL (↑CASE) = ERG (↑PERS) = 3	IP →	NP (↑SUBJ)=↓ (↑FOC)=↓	I' ↑=↓
<i>kurdu</i>	N	(↑PRED) = child (↑PERS) = 3	IP →	NP (↑OBJ)=↓ (↑FOC)=↓	I' ↑=↓
<i>maliki</i>	N	(↑PRED) = dog (↑PERS) = 3	I'	I ↑=↓	VP ↑=↓
<i>kapala</i>	I	(↑TENSE) = PRES (↑ASP) = IMPERF (↑FOC NUM) = DUAL (↑FOC PERS) = 3	NP →	N ↑=↓	
<i>witajarrarl</i>	A	(↑PRED) = small (↑NUM) = DUAL (↑CASE) = ERG	NP →	A (↑CASE)=↓(CASE) (↑NUM)=↓(NUM) ↓∈(↑ADJ)	
<i>wajilipinyi</i>	V	(↑PRED) = chase((↑SUBJ)(↑OBJ)) ¬(↑TENSE) = PAST (↑SUBJ CASE) = ERG (↑OBJ CASE) = ABS	NP →	NP ↑=↓	NP (↑CASE)=↓(CASE) (↑NUM)=↓(NUM) ↓∈(↑ADJ)
			VP →	V ↑=↓	(NP) (↑SUBJ)=↓
			VP →	V ↑=↓	(NP) (↑OBJ)=↓
			VP →	(NP) (↑OBJ)=↓	V ↑=↓
			VP →	(NP) (↑SUBJ)=↓	V ↑=↓
			VP →	(NP) (↑OBJ)=↓	(NP) (↑SUBJ)=↓
			VP →	(NP) (↑SUBJ)=↓	V ↑=↓
			VP →	(NP) (↑OBJ)=↓	(NP) (↑SUBJ)=↓
			VP →	(NP) (↑SUBJ)=↓	V ↑=↓

(a) The following sentences all mean the same thing in Warlpiri (data from Legate (2002):

- (8) a. *kurdu-jarra-rlu* ka-pala *maliki* *wajili-pi-ny* *wita-jarra-rlu*
 child-Dual-Erg PresImpf-3Dual dog chase-nonpast small-Dual-Erg
 ‘Two small children are chasing the dog’
- b. *kurdu-jarra-rlu* ka-pala *wita-jarra-rlu* *wajili-pi-ny* *maliki*
- c. *kurdu-jarra-rlu* ka-pala *maliki* *wita-jarra-rlu* *wajili-pi-ny*
- d. *kurdu-jarra-rlu* ka-pala *wita-jarra-rlu* *maliki* *wajili-pi-ny*
- e. *kurdu-jarra-rlu* ka-pala *wajili-pi-ny* *wita-jarra-rlu* *maliki*
- f. *kurdu-jarra-rlu* ka-pala *wajili-pi-ny* *maliki* *wita-jarra-rlu*
- (9) a. *kurdu* *wita-jarra-rlu* ka-pala *maliki* *wajili-pi-ny*
 child small-Dual-Erg PresImpf-3Dual dog chase-nonpast
 ‘Two small children are chasing the dog’
- b. *kurdu* *wita-jarra-rlu* ka-pala *wajili-pi-ny* *maliki*

Pick three sentences, at least one from each of (8) and (9), to analyse using the grammar given. Make sure to indicate the connection between the c-structure and the f-structure in some way.

Can you get f-structures that are complete, consistent, and coherent? Are the f-structures the same for all three sentences?

(Hint: there should be a variable $\boxed{1}$ in the f-structure.

- (b) Approximately what do you think an f-structure for the English sentence below should look like? How different is it from the Warlpiri? Does the similarity/difference surprise you, or is it about what you expect out of an LFG?

(10) Two small children are chasing the dog

References

- Cinque, Guglielmo. 1999. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford University Press on Demand.
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- Legate, Julie Anne. 2002. Warlpiri: theoretical implications. Doctoral Dissertation, Massachusetts Institute of Technology.
- Snijders, Liselotte. 2016. An LFG account of discontinuous nominal expressions. In *Proceedings of the Workshop on Discontinuous Structures in Natural Language Processing*, 1–11.