

# Syntactic Theory WS09-10

## Overview of LFG Material

### 1 Background LFG

#### 1.1 Motivation

What were the motivation to develop Lexical Functional Grammar as a syntactic framework? In particular, what is the motivation for introducing the f-structure (why is the motivation for f-structure more important than the motivation for c-structure?)?

- Lecture of 19.11.2009: Slides 4 & 9
- Clarification on the differences between motivation (slide 9)
  - Capturing what wide-spread phenomena have in common cross-linguistically, allows us to define the phenomena independent of its realization (e.g. passivization)
  - Capturing universal properties allows us to observe which properties of language are important to describe and capture phenomena (e.g. the Keenan-Comrie hierarchy)
  - Ask yourself: Why does it not make sense to see 'object becomes subject in passives' as a universal property of language?

#### 1.2 Overall Architecture

What is the basic architecture used in LFG? Which representations are used? What do individual structures (c- and f-structures) represent? What are basic properties of c- and f-structure?

- Lecture of 19.11.2009: slide 5, Kaplan (1994)
- It is important to see that the c-structure is, in the first place, a phonological representation, and the f-structure represents grammatical relations

## 2 F-structures

### 2.1 formal properties

Formal properties should be known, so that you can draw well-formed f-structures and see when an f-structure is not well-formed. Based on later lectures on HPSG, you should also know what the difference between unification in LFG and HPSG is.

- Lecture of 19.11.2009: slides 12 - 17, Kaplan (1994)

### 2.2 Subcategorization

The material on subcategorization should be understood: when given a sentence, you should have some idea of which elements are subcategorized arguments, and which are adjuncts.

- Slides 20-26 (lecture of 19.11.2009) are meant as background information on the topic.
- It is important to remember that an obligatory element is always an argument, but an optional argument may be either an argument or an adjunct (think of optional arguments of verbs such as 'eat')

### 2.3 well-formedness conditions

The principles of completeness, coherence and consistence should be known. You should be able to:

- Define/explain them (in your own words is fine)
- recognize when either of these principles is violated in an f-structure
- be able to use them to exclude ungrammatical sentences
- make sure they are respected when analyzing grammatical sentences

For definitions/examples see:

- Lecture of 19.11.2009, slides 27 - 31
- Exercise 3 of 01.12.2009 + solution

## 3 C-structure

### 3.1 Constituents and motivations

Why does LFG use c-structure? What is a constituent? You need to be able to draw reasonable c-structures (i.e. no [the [man ran]]): the identification rules are meant to help you practice, but do not need to be learned by heart.

- Lecture of 24.11.2010 Slides 10,11
- Lecture of 24.11.2010 Slides 12-21 are background information. You do need to know that in LFG decisions on how to make the c-structure are purely based on overt properties, i.e. observations made on the surface string

### 3.2 formal properties of c-structures

You need to be able to:

- draw well-formed c-structure trees (that means non-tangled in LFG).
- recognize when a tree is not well-formed.
- provide PS-rules that create the desired tree, or derive a correct tree based on given PS-rules.
- understand the definitions that allow to refer to specific nodes (since this is needed to understand how the correspondence rules work).

## 4 Function $\phi$ and syntactic correspondences

Function  $\phi$  relates nodes to their associated f-structure. It is used to derive the f-structure from the c-structure. It is **very important** to understand:

- that every node has an associated f-structure
- that  $\downarrow$  refers to the f-structure associated with the current node
- that  $\uparrow$  refers to the f-structure associated with the mother node
- that syntactic correspondence equations define the f-structure, which means
  - that they must **always** be present

- that you need to make sure that they provide all information that ends up in the f-structure (recall that words also come with syntactic correspondences) and that every thing that ends up in the f-structure must be defined somewhere
- how to define lexical entries

Intuitive understanding is not enough: the exam will include some question(s) where you need to show that you know how the formalism works. Make sure you can answer question 11 on LFG from the midterm. If you cannot solve such an exercise, or need to look at examples to define basic correspondences, go through the relevant slides, or come to office hours!

- Lecture of 24.11.2010: slides 31,32,33,34, Lecture of 26.11.2010: slides 4,15 + (identical to those of 24.11.2010) 6,7,8 for definitions on syntactic correspondences
- Lecture of 24.11.2010: slides 35 - 41 and Lecture of 26.11.2010: slides 9 - 15 for explanation

## 5 Grammatical functions in LFG

This part of the lecture mostly provides background information. You need to:

- be able to provide sensible f-structures (i.e. not call something that is clearly a subject an object, oblique or adjunct. For foreign languages, translations, glosses or additional explanations will be provided to indicate differences with English)
- know the difference between XCOMP and COMP
- understand that there is evidence for the distinctions made, but that it is language dependent
- have an idea of the distinctions being made (governable versus non-governable, term versus non-term, open versus closed functions)

Most of the slides are for reference only

- Lecture of 26.11.2010: slides 17,18,26-27 (phenomena on slide 17 are for reference only)
- Lecture of 26.11.2010: slides 19-25 provide background information

## 6 LFG equations

The basic equations used in LFG (assigning, constraining, existential and negative) should be known and understood. When asked to capture a specific property of language (e.g. make assure that a particular value is present (\*girl walks), agreement or case marking works (\*the boy laugh, \*Den Mann singt), that a grammatically required word is present (\*Peter likes Mary surprised me)) you should know how to use individual constraints.

- Lecture of 01.12.2010 Slides 32 - 38 (examples should be understood, not learned)
- Slide 32 is particularly important: make sure you understand what each constraint does, and why you would choose one over the other
- Often a phenomenon can be handled by either an assigning equation or a constraining equation. For instance, agreement or case marking (the verb can assign case to its arguments which will lead to clashes if the bear the wrong one, or constrain their cases). Assigning constraints are computationally cheaper, so if you can use both: use the assigning constraint!
- In what cases would you need a constraining equation? Recall that assigning equations assign values, and constraining equations do not.

## 7 LFG analyses

For long distance dependencies and raising and equi-verbs: see comments at the end of the slides. Make sure you understand the solutions for exercises done in class: ask yourself for each detail why it is there.

You should be able to:

- provide lexical entries with appropriate equations (the semantics of lexical entries will be similar to what we have seen in several examples in class, or it will be given)
- provide PS-rules with appropriate annotations
- provide c-structures (appropriately annotated of course) and f-structures
- use equations and constraints to capture grammatical properties of the language
- understand (i.e. explain) a given analysis

When asked to provide an analysis:

- make sure that all relevant equations are introduced via lexicon and ps-rules, unless it is specifically stated that you need not provide this
- check whether your ps-rules can generate your c-structure, and that your f-structure is derived from your c-structure (important!)
- you only need to capture constraints that are pointed out (e.g. if no examples with overt case are provided for English, you need not include case marking in your analysis). We may point out constraints in the following way:
  - contrasting examples: make sure your grammar captures the grammatical sentence(s) and excludes the provided ungrammatical expression(s)
  - glosses: when given a foreign sentence, the information present in glosses should return in the f-structure
  - explicit explanation (e.g. 'make sure your analysis captures subject agreement')
  - if you add constraints that are not required, make sure that they capture facts of the language (e.g. providing subject agreement information for an English regular past tense is wrong!)