

October 12, 2006

CLASS 12: THE MINIMALIST PROJECT

PRINCIPLES AND PARAMETERS

We will spend parts of the semester (re-?)familiarizing ourselves with an earlier attempt at developing a theoretical syntactic framework for the **Principles-and-Parameters (P&P)** approach to human language. The P&P-approach was basically started with Chomsky (1981), a comprehensive outline of how Chomsky saw this approach to be implemented: the basic structural configuration/relation **government** and the grammatical operation **binding**.

(1) **Government** (*rough working definition*)

An element α governs an element β iff (= if and only if)

- (i) α c-commands β and
- (ii) α is a governor.

In order for (1) to make sense, we need to know what **c(constituent)-command** is — which has also been modified in terms of mutual c-command or **m-command** for short, by the way — and what it means to be a **governor**; α and β are generic placeholders for any node in a structural **tree diagram** or one's favourite representation of **syntactic structure** — in short, they are **linguistic expressions**, regardless at this point whether they are **heads** or **phrases**.

(2) **Binding** (*rough working definition*)

An element α binds an element β iff α c-commands β .

The definition of binding is even **more general** — and comes in many guises as we will see (such as the specific instance of *proper binding*). (As a matter of fact, so does government, as in *head government* vs. *antecedent government*) Generally, a binder is an **antecedent** and the element bound, or the bindee, an **anaphor** (pronouns, reflexives, reciprocals, traces, etc.).

At the core of P&P lies the hypothesis that language is the instantiation of an innate system, the **Universal Grammar**, which comes as a set of fixed **principles**. In the natural course of language acquisition, various **parameters** will be set. A typical representation of this process would look like (3), where the **Primary Linguistic Data (PLD)** feed UG, which molds it and then creates the grammar **G** of a particular language **L**, or **G_L** (i.e. what we know of our L):

$$(3) \text{ PLD} \rightarrow \boxed{\text{UG}} \rightarrow G_L$$

We will leave it an open question **how exactly this works** (e.g., a binary switchboard), or **which principles and parameters** there are (such as a fixed principle of *X'-Theory* or the (in)famous *head parameter*, *wh-parameter*, and *pro-drop parameter* of the 1980s).

But the core of this semester will deal with the attempt to “**minimalistify**” syntactic theory... Here we will consider the *Minimalist Program* of Chomsky (1995) and related work by working our way through a recent introduction to minimalism that takes its GB-ancestry very seriously and sketches a minimalist approach to human language based on earlier insights, one step at a time, where each step is an apparently small, minimalistified modification — but yields quite drastic results on the overall theory (Hornstein, Nunes & Grohmann 2005).

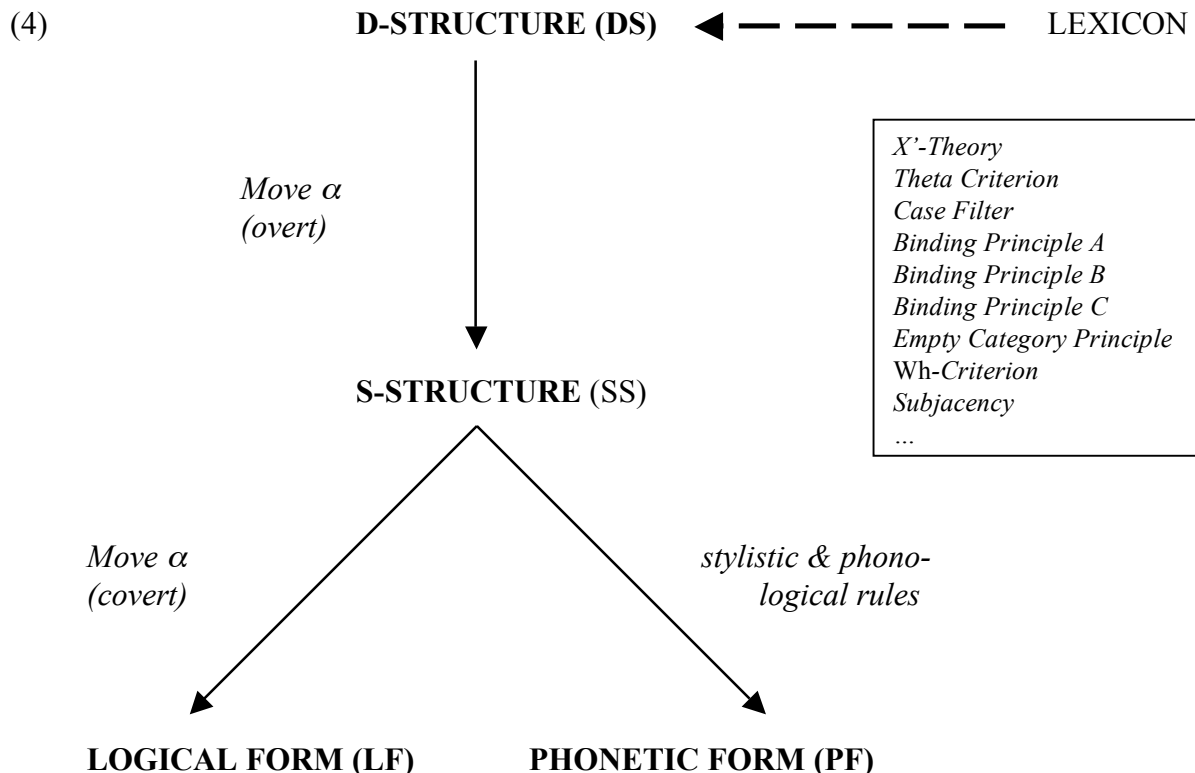
GB ARCHITECTURE

One of our primary concerns will be a very thorough examination of what we may call the **architecture of the grammar** as assumed in GB — and whether all this is really needed (i.e. whether a minimalist approach to grammar could do with a lighter architecture).

The **architectural properties of GB** come in two types (or at least, so I understand it):

1. *modularity* (grammatical modules assumed in GB and their interaction)
2. *teleocity* (how to create a linguistic expression from lexicon to output)

Take (4) to be the **basic picture** which we will discuss and modify further throughout:



In GB there are four **levels of representation**, where such a level is defined by carrying its own **specific properties** and being subject to particular **filtering conditions** and **operations**. We will **investigate some of these** over the next few weeks and paint a picture of GB (both types of architecture and more) which will allow us a pretty good idea of what GB is about.

TOWARDS MINIMALISM

Basic explanandum in theoretical linguistics: “**Plato’s problem**” (see e.g. Chomsky 1986)

- **UG principles** can be viewed as general conditions on grammars with open parameters whose values are set on the basis of linguistic experience (Hornstein & Lightfoot 1981)

⇒ *acquiring a natural language amounts to assigning values to these open parameters*

- ① acquisition process is sensitive to the details of the linguistic/environmental input (as it’s the PLD that provides the information on the basis of which parameter values are fixed)

- ② shape of the knowledge attained is not restricted to whatever information can be garnered from PLD (consider rich backdrop of fixed general principles that UG makes available)

A speaker’s linguistic capacities are a joint function of the environmental input *and* the principles of UG and though these principles can be quite complex, they need not be learned as they form part of the innately endowed language faculty.

This is the essence of a P&P-approach to human language. However, in order to develop a **theory of language**, other criteria play role, such as **simplicity**, **elegance**, and **naturalness**.

⇒ *the Minimalist Program is the concrete application of such criteria to analysis of UG*

Let’s start with some “**big facts**” about language (if you like, on the “sentence level”):

F₁: Sentences are basic linguistic **units**.

F₂: Sentences are **pairings** of form (sound/signs) and meaning.

F₃: Sentences are **composed** of smaller expressions (words and morphemes).

F₄: These smaller units are composed into units with **hierarchical** structure, i.e. phrases, larger than words and smaller than sentences.

F₅: Sentences show **displacement** properties in the sense that expressions that appear in one position can be interpreted in another.

F₆: Language is **recursive**, that is, there’s no upper bound on the length of sentences in any given natural language.

These facts build on the other big fact: a theory of language has a **P&P-architecture**.

In line with our criteria identified above, some sort of **economy** should be integrated as well:

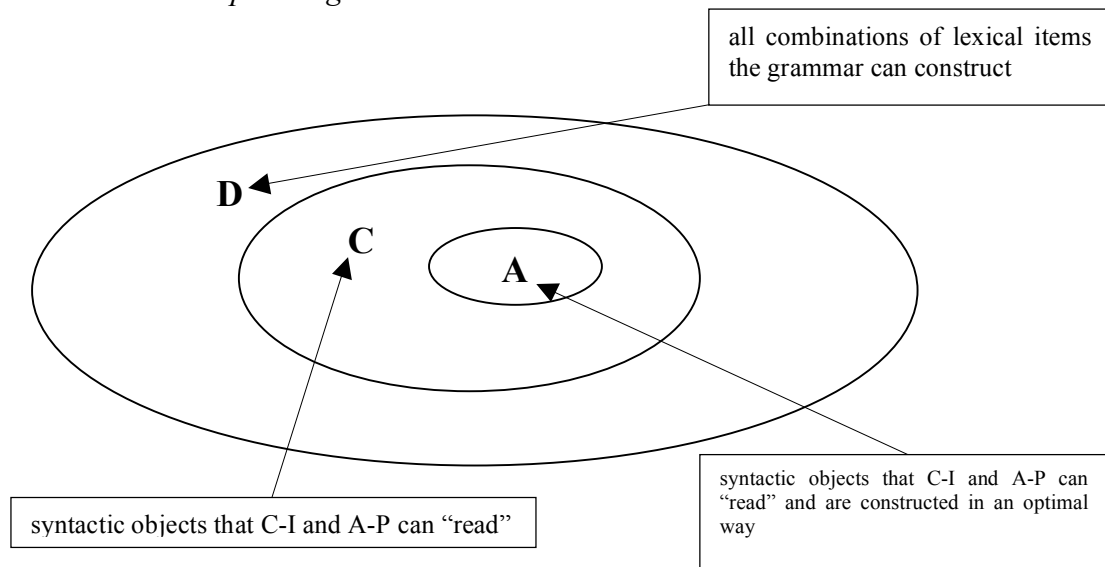
- **methodological economy**: Occam’s razor-considerations: “more is worse, fewer is better”
- **substantive economy**: least effort notions as natural sources for grammatical principles

Let’s assume that the **language faculty** FL (“faculty of language”) comprises a **lexicon** LEX and a **computational system** C_{HL} (“computational system of human language”) which creates a **derivation** which then creates two **levels of representation** LF and PF that in turn feed the **performance systems**, the **articulatory-perceptual** A-P (or sensorimotor) system and **conceptual-intentional** C-I system. (We will fill in a lot of blanks in subsequent classes.)

⇒ a derivation is taken to converge if and only if it converges at both LF and PF

Thus, if D is the set of permissible derivations that yield a pair (π, λ) , the set of convergent derivations C is the subset of D whose members satisfy Full Interpretation at LF and at PF. That is, the set of legible syntactic objects is a subset of the set of all combinations that the grammar can construct. Considerations of *derivational economy* (which is also part of substantive economy considerations) in turn select derivations where legible pairs (π, λ) are built in an optimal way. (We discuss derivational economy in chapter 10.) In other words, the set of admissible derivations A constitutes the subset of C that is selected by optimality considerations. [HNG: 15-16]

(5) *Subset relationship among derivations*



REFERENCES

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
 Chomsky, Noam. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.
 Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
 Hornstein, Norbert & David W. Lightfoot. 1981. *Explanation in Linguistics: The Logical Problem of Language Acquisition*. London: Longman.
 Hornstein, Norbert, Jairo Nunes, and Kleantes K. Grohmann. 2005. *Understanding Minimalism*. Cambridge: Cambridge University Press. [abbreviated as “HNG” — yes, our textbook...]