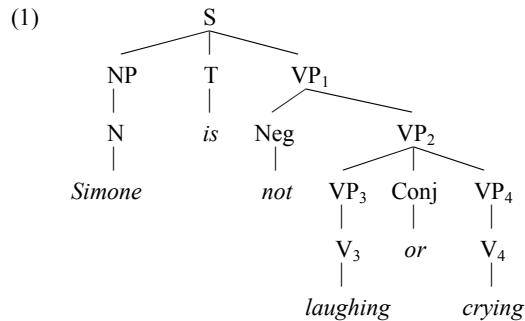


Ling 320, Assignment 4. Due Thursday, October 4th.

Provide a derivation for (1), given the revised grammar below.



Note that an example derivation of a negated sentence is given on page 2.

Current Class Grammar

In class on Thursday (Sept 27th), we revised the grammar to account for negated sentences like *Ezgi is not singing*. We also posited a lexical entry for *or*.

All changes are starred below:

(i) Lexicon

- N: $[[Laure]]^s = Laure$, $[[Alec]]^s = Alec$, etc.
- V: $[[sit]]^s = \{x \mid x \text{ is sitting in } s\}$, $[[sleeping]]^s = \{x \mid x \text{ is sleeping in } s\}$, ...
- Conj: $[[and]]^s = \cap$, * $[[or]]^s = \cup$
- *Neg: $[[not]]^s = '$
- T: *be*

Note: We neglect for now the semantic contribution of the T node.

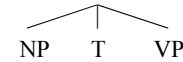
(ii) Syntactic rules

- $S \rightarrow NP (T) VP$
- $NP \rightarrow N$
- $VP \rightarrow V$
- $VP \rightarrow VP \text{ Conj } VP$
- * $VP \rightarrow \text{Neg } VP$
- *Neg $\rightarrow not$
- $N \rightarrow Laure, Carla, Lindsay, Gorka, Alec, \dots$
- *Conj $\rightarrow and, or$
- $V \rightarrow smoke, drink, sing, dance, sit, \dots$
- $T \rightarrow be$

(iii) Semantic rules of composition

For any situation *s*,

- (a) If α has the form S, $[[\alpha]]^s = 1$ iff $[[NP]]^s \in [[VP]]^s$.



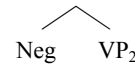
- (b) If α is a non-branching node whose daughter node is β , then $[[\alpha]]^s = [[\beta]]^s$.

- (c) If α is a terminal node, then $[[\alpha]]^s$ is specified in the lexicon.

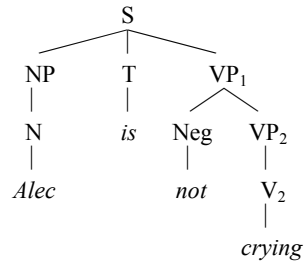
- (d) If α has the form VP₁, $[[\alpha]]^s = [[VP_2]]^s [[Conj]]^s [[VP_3]]^s$.



- * (e) If α has the form VP₁, $[[\alpha]]^s = ([[VP_2]]^s) [[Neg]]^s$.



Example Derivation:



For any s , $\llbracket S \rrbracket^s = 1$ iff

- $\llbracket NP \rrbracket^s \in \llbracket VP_1 \rrbracket^s$ by (a)
- $\llbracket N \rrbracket^s \in \llbracket VP_1 \rrbracket^s$ by (b)
- $\llbracket Alec \rrbracket^s \in \llbracket VP_1 \rrbracket^s$ by (b)
- $Alec \in \llbracket VP_1 \rrbracket^s$ by (c)
- $Alec \in (\llbracket VP_2 \rrbracket^s) \llbracket Neg \rrbracket^s$ by (e)
- $Alec \in (\llbracket VP_2 \rrbracket^s) \llbracket not \rrbracket^s$ by (b)
- $Alec \in (\llbracket VP_2 \rrbracket^s)'$ by (c)
- $Alec \in (\llbracket V_2 \rrbracket^s)'$ by (b)
- $Alec \in (\llbracket crying \rrbracket^s)'$ by (b)
- $Alec \in (\{x \mid x \text{ is crying in } s\})'$ by (c)
- $Alec \notin \{x \mid x \text{ is crying in } s\}$ by def'