

A's may denote subsets of D, subsets of $D \times D$; subsets of $D \times \text{Pow}(D)$, or subsets of $D \times \text{Pow}(D \times D)$:

A \rightarrow $\llbracket \text{honest} \rrbracket = \{x \mid x \text{ is honest}\}$, $\llbracket \text{afraid}_1 \rrbracket = \{x \mid x \text{ is afraid}\}$,
 $\llbracket \text{open}_{\text{stative}} \rrbracket = \{x \mid x \text{ is open}\}$, etc.
 $\llbracket \text{fond} \rrbracket = \{\langle x, y \rangle \mid x \text{ is fond of } y\}$, $\llbracket \text{afraid}_2 \rrbracket = \{\langle x, y \rangle \mid x \text{ is afraid of } y\}$, etc.
 $\llbracket \text{eager} \rrbracket = \{\langle x, A \rangle \mid x \text{ is eager for } x \in A\}$, $\llbracket \text{ready}_1 \rrbracket = \{\langle x, A \rangle \mid x \text{ is ready for } x \in A\}$,
 $\llbracket \text{easy} \rrbracket = \{\langle x, T \rangle \mid \text{For any } y, \text{ it is easy for } \langle y, x \rangle \in T\}$, $\llbracket \text{ready}_2 \rrbracket = \{\langle x, T \rangle \mid \text{For any } y, \text{ it is easy for } \langle y, x \rangle \in T\}$, etc.

P's may denote subsets of D, or subsets of $D \times D$:

P \rightarrow $\llbracket \text{outside} \rrbracket = \{x \mid x \text{ is outside}\}$, $\llbracket \text{inside} \rrbracket = \{x \mid x \text{ is inside}\}$, etc.
 $\llbracket \text{near} \rrbracket = \{\langle x, y \rangle \mid x \text{ is near } y\}$, $\llbracket \text{from} \rrbracket = \{\langle x, y \rangle \mid x \text{ is from } y\}$, etc.

Indexical pronouns (i.e., Pron_c) depend on the context for their reference:

$\text{Pron}_c \rightarrow \llbracket \text{I} \rrbracket^c = \text{the speaker in } c$ $\llbracket \text{you} \rrbracket^c = \text{the (salient) addressee in } c$

D's that are quantificational (i.e., D_Q) denote relations between sets:

$D_Q \rightarrow \llbracket \text{some} \rrbracket = \{\langle A, B \rangle \mid A \cap B \neq \emptyset\}$, $\llbracket \text{no} \rrbracket = \{\langle A, B \rangle \mid A \cap B = \emptyset\}$, etc.
 $\llbracket \text{every} \rrbracket = \{\langle A, B \rangle \mid A \subseteq B\}$ Presupposition: $A \neq \emptyset$.
 $\llbracket \text{most} \rrbracket = \{\langle A, B \rangle \mid |A \cap B| > |A - B|\}$ Presupposition: $A \neq \emptyset$.
 $\llbracket \text{the} \rrbracket = \{\langle A, B \rangle \mid A \subseteq B\}$ Presupposition: $|A| = 1$.

All other lexical items have no denotation specified in the lexicon; instead, their denotations are derived by semantic rule. Some such items are vacuous, e.g. *that*, and some such items have the semantic effect of *variable binding*, e.g., Pron_{wh} .

D \rightarrow **his, her, only** $\text{Pron} \rightarrow$ **he, she, it** $\text{Pron}_{\text{wh}} \rightarrow$ **which, who, \(\emptyset\)**
Adv \rightarrow **not** Conj \rightarrow **and, or** C \rightarrow **that, \(\emptyset\)**
I \rightarrow **should, will, can, do, might, etc.**

Misc. notes re. lexical entries:

Vs, Ps, As, and Ns that refer to sets are called *predicates*. Predicates seem to be either *stable* or *temporary*. One way of accounting for this is to include *stages* of individuals in D; temporary predicates can then be said to state conditions on stages of individuals, e.g., the temporary predicate $\llbracket \text{naked} \rrbracket = \{x \mid \text{Ey}[y \text{ is a stage of } x \text{ and } y \text{ is naked}]\}$.

Some lexical items are *presupposition triggers*, i.e., they are associated with presuppositions, e.g., *the*.

Some lexical items are *Negative Polarity Items (NPIs)*. NPIs are expressions that must occur in downward entailing (DE) contexts. The class of NPIs includes (at least): *any, at all, ever*.

ii. *Lexical rules*. The following lexical rules derive lexical entries from existing entries:

1. *Passive*. If $\llbracket V_{\text{active}} \rrbracket$ is a relation between individuals, and has the thematic grid $\langle \text{Agent, Theme} \rangle$, then $\llbracket V_{\text{passive}} \rrbracket = \{x \mid \text{Ey}[\langle y, x \rangle \in \llbracket V_{\text{active}} \rrbracket]\}$, $\langle \text{Agent, Theme} \rangle$.
2. *Existential object drop (Eod)*. If $\llbracket V_{\text{trans}} \rrbracket$ is a relation between individuals with the thematic grid $\langle \text{Agent, Theme} \rangle$, then $\llbracket V_{\text{eod}} \rrbracket = \{x \mid \text{Ey}[\langle x, y \rangle \in \llbracket V_{\text{trans}} \rrbracket]\}$, $\langle \text{Agent, Theme} \rangle$.
3. *Reflexive object drop (Rod)*. If $\llbracket V_{\text{trans}} \rrbracket$ is a relation between individuals with the thematic grid $\langle \text{Agent, Theme} \rangle$, then $\llbracket V_{\text{rod}} \rrbracket = \{x \mid \langle x, x \rangle \in \llbracket V_{\text{trans}} \rrbracket\}$, $\langle \text{Agent, Theme} \rangle$.

Rules 2 and 3 appear to be restricted to certain verbs in the lexicon.

C. Semantic rules of composition. The LF output of the syntactic component serves as input to the following rules. Rule 3 is crucially ordered before Rule 2, Rule 22 is crucially ordered before Rule 19, and Rule 19 is crucially ordered before Rule 10.

For any assignment a , and context c :

1. If α is a non-branching node whose daughter node is β , then $\llbracket \alpha \rrbracket^a = \llbracket \beta \rrbracket^a$.
2. If α is of the form $[_S \text{ NP I VP}]$, then $\llbracket \alpha \rrbracket^a = 1$ iff $\llbracket \text{NP} \rrbracket^a \in \llbracket \text{VP} \rrbracket^a$.
3. If α is of the form $[_S [_{\text{NP}} \text{ D}_Q \text{ N}'] \text{ I VP}]$, then $\llbracket \alpha \rrbracket^a = 1$ iff $\langle \llbracket \text{N}' \rrbracket^a, \llbracket \text{VP} \rrbracket^a \rangle \in \llbracket \text{ID} \rrbracket^a$.
4. If α is of the form $[_{\text{VP}_1} \text{ VP}_2 [_{\text{Conj}} \text{ and}] \text{ VP}_3]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{VP}_2 \rrbracket^a \cap \llbracket \text{VP}_3 \rrbracket^a$.
5. If α is of the form $[_{\text{VP}_1} \text{ VP}_2 [_{\text{Conj}} \text{ or}] \text{ VP}_3]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{VP}_2 \rrbracket^a \cup \llbracket \text{VP}_3 \rrbracket^a$.
6. If α is of the form $[_{\text{AP}_1} \text{ AP}_2 [_{\text{Conj}} \text{ and}] \text{ AP}_3]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{AP}_2 \rrbracket^a \cap \llbracket \text{AP}_3 \rrbracket^a$.
7. If α is of the form $[_{\text{AP}_1} \text{ AP}_2 [_{\text{Conj}} \text{ or}] \text{ AP}_3]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{AP}_2 \rrbracket^a \cup \llbracket \text{AP}_3 \rrbracket^a$.
8. If α is of the form $[_{\text{VP}} [_{\text{V}} \text{ V}] \text{ AP}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{AP} \rrbracket^a$.
9. If α is of the form $[_{\text{VP}} [_{\text{V}} \text{ V}] \text{ PP}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{PP} \rrbracket^a$.
10. If α is of the form $[_X \text{ X YP}]$, then $\llbracket \alpha \rrbracket^a = \{x \mid \langle x, \llbracket \text{YP} \rrbracket^a \rangle \in \llbracket \text{X} \rrbracket^a\}$.¹
11. If α is of the form $[_{N'} \text{ AP N}']$ then $\llbracket \alpha \rrbracket^a = \llbracket \text{AP} \rrbracket^a \cap \llbracket \text{N}' \rrbracket^a$.
12. If α is of the form $[_{N'} \text{ N}' \text{ PP}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{N}' \rrbracket^a \cap \llbracket \text{PP} \rrbracket^a$.
13. If α is of the form $[_{N'_1} \text{ N}'_2 \text{ CP}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{N}'_2 \rrbracket^a \cap \llbracket \text{CP} \rrbracket^a$.
14. If α is of the form $[_{\text{VP}_1} [_{\text{Adv}} \text{ not}] \text{ VP}_2]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{VP}_2 \rrbracket^a$.
15. If α is of the form $[_S \text{ I VP}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{VP} \rrbracket^a$.
16. If α is pronoun or trace, then $\llbracket \alpha \rrbracket^a = a$.
17. If α is of the form $[_{\text{CP}} [_{\text{NP}} \text{ Pron}_{\text{wh}}] \text{ C}']$, then $\llbracket \alpha \rrbracket^a = \{x \mid \llbracket \text{C}' \rrbracket^a = 1\}$.
18. If α is of the form $[_C \text{ C S}]$, then $\llbracket \alpha \rrbracket^a = \llbracket \text{S} \rrbracket^a$.
19. If α is of the form $[_{\text{V}} \text{ V} [_{\text{NP}} \text{ D}_Q \text{ N}']]$, then $\llbracket \alpha \rrbracket^a = \{x \mid \langle \llbracket \text{N}' \rrbracket^a, \{y \mid \langle x, y \rangle \in \llbracket \text{V} \rrbracket^a \} \rangle \in \llbracket \text{ID} \rrbracket^a\}$.
20. If α is of the form $[_{\text{CP}} [_{\text{NP}} \text{ D}_Q \text{ N}'] \text{ C}']$, then $\llbracket \alpha \rrbracket^a = 1$ iff $\langle \llbracket \text{N}' \rrbracket^a, \{x \mid \llbracket \text{C}' \rrbracket^a = 1\} \rangle \in \llbracket \text{ID} \rrbracket^a$.
21. If α is of the form $[_{\text{CP}} [_{\text{NP}} \text{ N}'] \text{ C}']$, then $\llbracket \alpha \rrbracket^a = 1$ iff $\llbracket \text{NP} \rrbracket^a \in \{x \mid \llbracket \text{C}' \rrbracket^a = 1\}$.
22. If α is of the form $[_{\text{CP}} [_{\text{NP}} [_{\text{D}} \text{ only}] \text{ N}'] \text{ C}']$, then $\llbracket \alpha \rrbracket^a = 1$ iff for all x such that $x \neq \llbracket \text{N}' \rrbracket^a$, it is not the case that $x \in \{x \mid \llbracket \text{C}' \rrbracket^a = 1\}$.

¹ If YP is of the form $[_{\text{PP}} [_{\text{P}} [_{\text{P}} \text{ of}] \text{ NP}]]$, then the denotation of $\llbracket \text{YP} \rrbracket^a = \llbracket \text{NP} \rrbracket^a$.

23. If α is of the form $[_S [_{NP} [_D \text{ only}] N'] VP]$, then $\|\alpha\|^a = 1$ iff for all x such that $x \neq \|\mathcal{N}'\|^a$, it is not the case that $x \in \|\mathcal{VP}\|^a$.
24. If α is of the form $[_T T CP]$, then $\|\alpha\|^a = 1$ iff $\|\mathcal{T}\| = \|\mathcal{CP}\| = 1$.

3. Pragmatics.

Every sentence is uttered in a *context*. A context is made up of (at least) a *common ground*, a *variable assignment*, and the *participants of the conversation*.

The *common ground* of a context c is the conjunction of all those propositions assumed to be taken for granted or shared knowledge by the participants in the conversation in c .

The *variable assignment* of a context c is the most salient individual in c . There are many possible reasons why a particular individual might have become salient; it could be due to an act of pointing by the speaker, or because the individual has just been mentioned, etc.

The *participants of the conversation* in a context c (usually) include: the *speaker* in c and one or more *addressees* in c .

When the speaker in a context *asserts* a sentence, the content of that sentence is added to the common ground.

Presuppositions are constraints on the context in which a sentence is uttered, in order for the sentence to be *appropriate* (or *felicitous*) in that context. More specifically:

A pragmatically presupposes B in a context c iff the use of A is appropriate in c only if the common ground of c entails B .

Thus, in any given context c , an utterance of a sentence A in c is *appropriate in c* only if every presupposition of A is entailed by the common ground in c .

Implicatures are potentially cancelable inferences made by participants in a conversation, which are the result of observing or flouting the following *Rules of conversation*:

1. Try to say things that are true.
2. Be informative; say as much as you can.
3. Be economical; say no more than you have to.

4. Phonology (or “PF Rules”).

The SS of a sentence serves as input to the following phonological rules, which produce as output, the PF (or phonetic form) of that sentence. This is the representation which is pronounced.

1. VP Deletion (optional).

For any two VPs, VP_1 and VP_2 , do not pronounce (i.e., *delete*) VP_1 if it is identical to VP_2 at LF, and follows VP_2 at PF. A deleted VP cannot contain *not*.

2. Affix Hopping.

Lower an inflectional suffix in I to V if I and V are adjacent.

3. Do-Support.

Insert *do* to bear a stranded inflectional suffix in I.

4. Relative Clause Constraint.

In a structure of the form $[_N' N' [_{CP} \text{Pron}_{wh} [_C' C \dots]]]$, either Pron_{wh} or C may be overtly pronounced, or neither may be pronounced, but both may not be pronounced.

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Still lots more work to do to get all of English, not to mention the 6,999 (or so) other languages of the world!

“To me the most fascinating feature of current linguistics is that although natural language has been studied by untold linguists for thousands of years, even the most intensively studied natural languages remain sources of nearly endless mystery.”

-Paul Postal, <http://www.nyu.edu/gsas/dept/lingu/people/faculty/postal/>