Lgcs 106, Semantics. Class Grammar. 17 Feb 2010.

1. Current Grammar

(i) *Inventory of denotations*

Let D be the set of all individuals that exist in the real world. Possible denotations:

Elements of D, the set of actual individuals.
Elements of {0,1}, the set of truth-values.
Subsets of D.
Operations on sets: Intersection (∩), Union (∪), Complement (').

(ii) *Lexicon*

N: $[\![\textit{Emery}]\!]^s$ = Emery, …

V: $[\![\textit{smile}]\!]^s = \{x \mid \text{smile}(x)(s)\}$, be_1 (vacuous)
V_t: $[\![\textit{save}]\!]^s = \{\langle x,y\rangle \mid \text{save}(x)(y)(s)\}$, …

A: $[\![\textit{nice}]\!]^s = \{x \mid \text{nice}(x)(s)\}$, …
A_t: $[\![\textit{fond}]\!]^s = \{\langle x,y\rangle \mid \text{fond}(x)(y)(s)\}$, …

N_{pred}: $[\![\textit{cat}]\!]^s = \{x \mid \text{cat}(x)(s)\}$, …
$N_{pred,t}$: $[\![\textit{fan}]\!]^s = \{\langle x,y\rangle \mid \text{fan}(x)(y)(s)\}$, …

P: $[\![\textit{around}]\!]^s = \{x \mid \text{around}(x)(s)\}$, …
P_t: $[\![\textit{near}]\!]^s = \{\langle x,y\rangle \mid \text{near}(x)(y)(s)\}$, …

Conj: $[\![\textit{and}]\!]^v = \cap$, $[\![\textit{or}]\!]^v = \cup$
Neg: $[\![\textit{not}]\!]^v = '$

T: be_2 (We will neglect for now the semantic contribution of the T node.)
D: *a* (vacuous)

(iii) *Syntactic rules* (New rules are starred)

S → NP (T) VP	NP → N	
*DP → D NP	*NP → N_{pred}	*NP → $N_{pred,t}$ PP
*VP → V ({DP/AP/PP})	VP → V_t NP	
AP → A	AP → A_t PP	
PP → P	PP → P_t NP	

*XP → Neg XP, where X ∈ {V, A, P, D}
*XP → XP Conj XP, where X ∈ {N_{pred}, V, A, P, D}

(iv) *Semantic rules of composition*

For any situation *s*,

(a) If α has the form [$_S$ NP (T) VP], $[\![\alpha]\!]^s = 1$ iff $[\![\text{NP}]\!]^s \in [\![\text{VP}]\!]^s$.
(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 [$_{XP1}$ XP_2 Conj XP_3], $[\![\alpha]\!]^s = [\![XP_2]\!]^s\ [\![\text{Conj}]\!]^s [\![XP_3]\!]^s$.
(e) If α has the form [$_{XP1}$ Neg XP_2], $[\![\alpha]\!]^s = [\![XP_2]\!]^s\ [\![\text{Neg}]\!]^s$.
(f) If α has the form [$_{YP}$ Y_t ZP], $[\![\alpha]\!]^s = \{x \mid \langle x, [\![ZP_2]\!]^s\rangle \in [\![Y_t]\!]^s\}$.

2. Practice

(1) Montréal is not a part of Europe (or colony of France).
(2) Carlos is fond of New York and not afraid of LA.
(3) Debby is hiding.
(4) Dave is cleaning.

3. Start on Quantificational NPs

(5) Every lion roared.
(6) No cat meowed.
(7) Some student cried.
(8) A student cried.
(9) Two lions roared.