Modification and definite descriptions

1 Review of rules

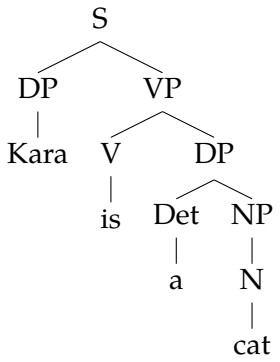
(1) **Terminal Nodes (TN):**
If α is a terminal node, $[\![\alpha]\!]$ is specified in the lexicon.

(2) **Non-branching Nodes (NN):**
If α is a non-branching node, and β is its daughter node, then $[\![\alpha]\!] = [\![\beta]\!]$.

(3) **Functional Application (FA):**
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ is a function whose domain contains $[\![\gamma]\!]$, then $[\![\alpha]\!] = [\![\beta]\!]([\![\gamma]\!])$.

2 Non-verbal predicates

(4) Kara **is a** cat.



Compositionality allows us to (a) use what we know and (b) work backwards.

(5) Kara sleeps and is a cat.

The semantics for conjunction developed in PS3 (hopefully) is only defined for conjunctions of equal semantic type.

(6) a. Austin is a city and Austin is in Texas.

b. Austin is a city and is in Texas.

c. Austin is a city and in Texas.

d. * Austin is a city and Texas.

3 Modification

(7) a. Kara is a black cat.

b. Kara is black and Kara is a cat.

(8) a. Austin is a city in Texas.

b. Austin is a city and Austin is in Texas.

Each pair of sentences in (14a,b) and (8a,b) is truth-conditionally equivalent. We call such modifiers *intersective*.

Option 1: Intuitively, *black* modifies *cat*. Write a semantics so that ⟦black⟧ modifies ⟦cat⟧ through Functional Application.

(9) ⟦black⟧ = $\lambda P_{\langle e,t\rangle} . \lambda x . x$ is black and $P(x) = 1$

The disadvantage of this approach is that attributive adjectives (modifiers) and predicate adjectives have different semantics, although taking a predicate adjective $\langle e, t\rangle$ and converting it to its attributive form $\langle\langle e, t\rangle, \langle e, t\rangle\rangle$ is easy: Winter (pp. 82–84) does this.

Option 2: Add some glue.

(10) **Predicate Modification (PM):**
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ and $[\![\gamma]\!]$ are both in $D_{\langle e,t\rangle}$, then $[\![\alpha]\!] = \lambda x \in D_e . [\![\beta]\!](x) = 1$ and $[\![\gamma]\!] = 1$

Now we can simply use the regular $\langle e, t\rangle$ denotations for *black* and *in Texas*.

4 Non-intersective modifiers

What about the following modifiers?

(11) a. This is a fake diamond.

b. This is fake and is a diamond.

(12) a. John is a short basketball-player.

b. This is short and is a basketball-player.

(13) a. Obama is a former president.

b. * Obama is former and is a president.

5 Definite descriptions and presupposition calculation

(14) The black cat is in Texas.

A first approximation:

(15) $[\![\text{the}]\!] = \lambda P_{\langle e,t\rangle} \,.\, \lambda Q_{\langle e,t\rangle} \,.\, |P| = 1$ and $P \subseteq Q$

(using set notation for the predicates P and Q)

What meaning do we predict for (14)? Is that what (14) means?

(16) a. I took the elevator in AS5.

b. I took the escalator in AS5.

(17) **A "partial" semantics for the definite determiner:**[1]

$[\![\text{the}]\!] = \lambda f : f \in D_{\langle e,t\rangle}$ and there is exactly one x such that $f(x) = 1$.
the unique y such that $f(y) = 1$

(18) $[\![\text{the black cat}]\!]$ = the unique black cat

$\underbrace{\rightsquigarrow \text{ there exists exactly one black cat}}_{\text{presupposition}}$

(19) **Functional Application (revised; compare to H&K p. 76):**[2]

If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, then

- $[\![\alpha]\!]$ is defined if and only if: $[\![\beta]\!]$ and $[\![\gamma]\!]$ are both defined and
  $[\![\beta]\!]$ is a function whose domain contains $[\![\gamma]\!]$;
- if defined, $[\![\alpha]\!] = [\![\beta]\!]([\![\gamma]\!])$.

Exercises:

(20) The black cat likes the big dog.

(21) I read the book on the table.

Food for thought:

(22) a. I saw John's sister.

b. Mary is John's sister.

(23) The black cat is Kara.

(24) John is the spy.

[1] A *partial function* is a function that is not defined for all possible values of its arguments.
[2] H&K describes this in terms of linguistic objects *being in the domain of* $[\![\cdot]\!]$ rather than being defined or not.