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.[1]

(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) Kara is a black cat.

(8) Austin is a city in Texas.

Option 1: Intuitively, *black* modifies *cat*. Write a semantics so that [black] modifies [cat] through Functional Application.
Option 2: Add some glue.

[1] We may revisit later whether this is a good assumption or not.

(9) **Predicate Modification:**
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 $[\![\gamma]\!] = 1$

4 Definite descriptions and presupposition calculation

(10) The black cat is in Texas.

(11) An earlier definition: $[\![\text{the}]\!] = \lambda P_{\langle e,t\rangle} \,.\, \lambda Q_{\langle e,t\rangle} \,.\, |P| = 1$ and $P \subseteq Q$
(using set notation for the predicates P and Q)

Is that what (10) means?

(12) It is not the case that [the black cat is in Texas].

(13) a. I'm on the elevator in AS5.
b. I'm on the escalator in AS5.

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

(15) **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:

(16) The black cat likes the big dog.

(17) I read the book on the table.

Food for thought:

(18) a. I saw John's sister.
b. Mary is John's sister.

(19) The black cat is Kara.

(20) John is the spy.

[2] H&K describes this in terms of linguistic objects *being in the domain of* $[\![\cdot]\!]$ rather than being defined or not.