

Questions on The Semantics of Quantificational Determiners

(1) **Negation and the Type of Quantificational DPs**

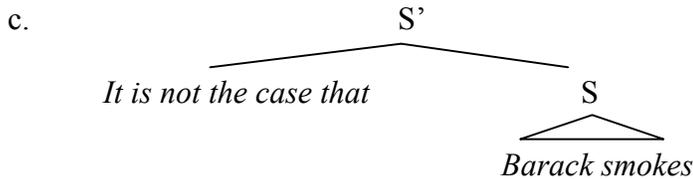
Recall the semantics we developed for “doesn’t” in Assignment 3.

a. $[[\text{doesn't}]]$ $[\lambda f_{\langle et \rangle} : [\lambda x_e : \underline{f(x)} = F]]$

As observed in the second class handout (“The Conceptual Foundations of Truth-Conditional Semantics”), there also exists another, more awkward locution to express negation in English: the expression “it is not the case that”.

Let us retain the assumption from the second handout that the syntax of a sentence like (b) is that in (c). That is, we will adopt the simplifying assumption that “it is not the case that” is some kind of sentence modifier.

b. It is not the case that Barack smokes.



Let us also retain from the second handout our assumption regarding the semantics of “it is not the case that”. That is, we will assume that it has the following extension.

d. $[[\text{it is not the case that}]]$ = $[\lambda p_t : \underline{p} = F]$

e. **Question 1**

Please show that if $[[DP]] \in D_e$, then

$$[[DP \text{ doesn't smoke}]] = T \text{ iff } [[\text{it is not the case that } DP \text{ smokes}]] = T$$

Don't give a truth-conditional proof; please give a simple, general argument.

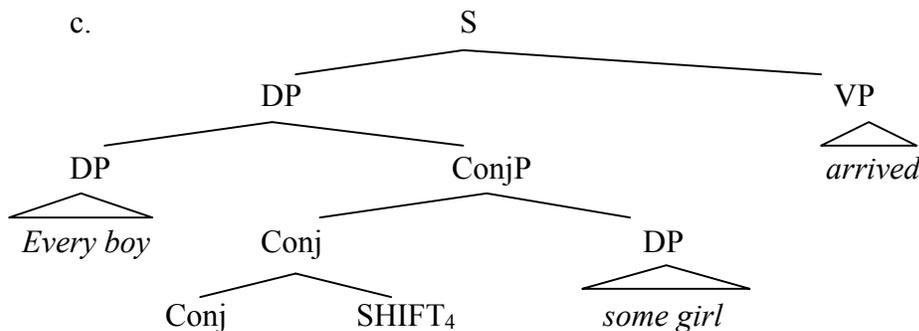
f. **Question 2**

Please use the fact proved in (e) to show that “every man” and “some man” are not of type e.

(2) **Oh Dear God No, Not More Type-Shifters!**

Consider the sentence in (a), which we will assume to have the T-conditions in (b). We will also assume that (a) has the syntax in (c), where “SHIFT₄” is a brand new lovely type-shifting operator for “and”.

- a. Every boy and some girl arrived.
- b. For all x, if x is a boy, then x arrived, and there is some y such that y is a girl and y arrived.



- d. **Question 1**
Please provide a semantics for “SHIFT₄” that will allow us to derive (b) as the truth-conditions for structure (c).

Don't worry about giving a truth-conditional proof; the lexical entry will suffice.

- e. **Question 2**
Now consider the sentence in (f) below. Please identify the problem that it raises for our system. Please also provide a solution to that problem.

- f. Mary and some boy arrived.

HINT: Maybe there's a type-shifter that can apply to “Mary”?...

(3) **The Formal Properties of Determiners**

For each of the determiners in (a), please state whether it has each of the properties in (b).

- a. Some, no, every, three, many, less than two
- b. Transitive, Left Upward Monotone, Right Upward Monotone, Left Downward Monotone, Right Downward Monotone.

(4) **Negative Polarity Items: The Classic Puzzle**

Words like *ever* in English are often called “Negative Polarity Items”, or “NPIs”. This name comes from one of the very first observations about them: it seems that they need to be in the scope of a negation.

- a. Obama hasn’t ever smoked.
- b. * Obama has ever smoked.

Interestingly, while the name stuck, it was quickly observed that these elements don’t really need a negation *per se*. That is, they are also possible in environments like the following.

c. [[Few [linguists]] [have **ever** smoked]]

d. [[Few [people who have **ever** smoked]] [are able to quit]]

e. **Question 1**

For each of the quantifiers in (3a), state whether it can appear in frame (i) and whether it can appear in frame (ii).

(i) [[**D** [linguist(s)]] [have/has **ever** smoked]]

(ii) [[**D** [linguist(s) who have/has **ever** smoked]] [was/were able to quit]]

f. **Question 2**

What property in (3b) seems to be shared by the determiners that can appear in frame (i)? What property in (3b) seems to be shared by the determiners that can appear in frame (ii)?

g. **Question 3**

Given your answer to Question 2, can you name a general property that allows an NPI to appear in some constituent XP? If you can, please make reference to the contrast between (4a,b).