

Fronted Quantificational Adverbs*

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Abstract

Fronting a noun phrase changes the focus structure of a sentence. Therefore, it may affect truth conditions, since some operators, in particular quantificational adverbs, are sensitive to focus. However, the position of the quantificational adverb itself, hence its informational status, is usually assumed not to have any semantic effect. In this paper I discuss a reading of some quantificational adverbs, the *relative reading*, which disappears if the adverb is fronted. I propose that this reading relies not only on focus, but on B-accent (fall-rise intonation) as well. A fronted Q-adverb is usually pronounced with a B-accent; since only one element can be B-accented, this means that the scope of the adverb contains no B-accented material, hence no relative readings. Thus, the effects of fronting range more widely than is usually assumed, and quantificational adverbs are a useful tool with which to investigate these effects.

1 The Problem

It is well known that left-dislocation and topicalization can affect logical form, hence meaning. For example, Rooth (1985) points out that (1) is ambiguous.

- (1) Ballerinas always escort officers.

Under one reading, (1) means that all ballerinas escort an officer, whereas the other reading is that all officers are escorted by ballerinas. The two readings have different truth conditions: in a situation where all ballerinas escort an officer but some opera singers do so too, the first reading would be true, but the second reading would be false.

In contrast, when either *ballerinas* or *officers* is left-dislocated, the ambiguity disappears:

- (2) a. Ballerinas, they always escort officers.
b. Officers, ballerinas always escort them.

Sentence (2a) only means that all ballerinas escort officers, whereas (2b) only has the reading where all officers are escorted by ballerinas.

We get a similar effect if we topicalize, rather than left-dislocate, the object:¹

* I would like to thank Sigrid Beck, Hans Kamp, and Manfred Krifka for helpful discussion.

¹ It is, of course, impossible to unambiguously topicalize the subject.

(3) Officers, ballerinas always escort.

Just like (2b), (3) can only mean that all officers are escorted by ballerinas.

I will follow common usage and refer to both topicalization and left-dislocation as *fronting*. The question I address in this paper is the effect of fronting the Q-adverb (quantificational adverb) itself. How does the interpretation of (4) differ from that of (1), if at all?

(4) Always, officers accompany ballerinas.

The fronted Q-adverb in (4) shares prosodic similarities with the fronted NPs in (2) and (3). In all three cases, the fronted element is pronounced with a B-accent, i.e. fall-rise intonation, and is followed by a slight pause. It is therefore meaningful to talk about fronted Q-adverbs.

Before we discuss the semantics of sentences like (4), we need to say something about their syntax. When we talk of fronting a noun phrase, the intuitive idea is this: NPs have designated positions; when fronted, they appear in different positions. While adverbs in general, and Q-adverbs in particular, do not appear to have designated positions, there is still an intuitive sense in which (1) exhibits the usual, or unmarked, word order, whereas (4) is marked. It is in this sense that I talk about the fronting of Q-adverbs. One need not read more into this term, and, in particular, one should not take it as a claim that the Q-adverb is syntactically moved from some base position.

The question I address in this paper is this: does fronting a Q-adverb change the truth conditions of a sentence? And, if so, how and why?

2 Relative Readings

Consider the following sentence, from de Swart (1991: 21):

(5) Paul often has a headache.

De Swart observes that (5) has a reading under which in many of the contextually relevant situations, Paul has a headache. But she notes that

this is not the only way to read [(5)]. The sentence can also be taken to mean that the situations of Paul having a headache occur with a frequency superior to the average.

Consider another example:

(6) A politician is often crooked

In Cohen 2001, I have proposed that *often* (and *seldom*, and generics, and *many*, and *few*...) is ambiguous. Under one reading, the *absolute* reading, (6) means that many politicians are crooked. This can also be put in terms of

probability (Cohen 1999a):² a politician is likely to be crooked. Under this reading, the sentence is false.

However, one may feel reluctant to declare (6) unequivocally false. This, I have suggested, is because (6) has another reading, the *relative* reading. According to this reading, a politician is more likely to be crooked than an arbitrary person is. In other words, suppose p_1 is the probability that an arbitrary politician is crooked, and p_2 is the probability that an arbitrary person is crooked. The sentence is true, under the relative reading, just in case p_1 is greater than p_2 . Read in this way, (6) may, to our misfortune, be true.³

The availability of relative readings is facilitated by context and intonation. Specifically, B-accent, namely fall-rise intonation, is helpful, perhaps necessary, to obtain the relative reading. Consider (7), where $[\phi]_B$ indicates that ϕ is uttered with B-accent, and $[\phi]_F$ indicates that ϕ is focused.

(7) Q: The main suspects are a politician, a physician, and a linguist. Who do you think did it?

A: Well, [a politician]_B is often [crooked]_F.

The relative reading clearly has different truth conditions from the absolute reading. But is it really a distinct reading? Couldn't it be argued that the relative reading is not a new interpretation, but is subsumed by some existing interpretation?

One such possible objection is the following. It is well known that, in general, a Q-adverb may choose its object, rather than subject, to restrict its domain of quantification. Perhaps, then, what I call the relative reading is simply the reading of (6) where many crooked individuals are politicians.

Such a view, however, would be problematic. For one thing, it is not clear that (6) really has such a reading. Normally, in order to get the object-asymmetric reading, the subject must be focused. But if the subject is focused rather than B-accented, the result is quite bad:

(8)??[A politician]_F is often crooked.

Even if (6) or (8) had an object asymmetric interpretation, this would not be the relative reading. Since the percentage of politicians among crooked individuals is certainly quite small, the object asymmetric reading is false. In contrast, the relative reading is probably true.

Another possible way to explain relative readings away is to assimilate them to cardinal readings. It is commonly believed that *many* is ambiguous

² I will make use of probabilities throughout this paper; readers who object to the use of probabilities may wish to think of proportions instead, since everything said about probabilities in this paper could equally well be said about proportions (see Cohen 1999a for reasons why, nonetheless, accounting for Q-adverbs using proportions is inadequate).

³ Compare Westerstahl (1985), who considers a similar interpretation of *many*.

between cardinal and proportional readings (Partee 1988). Presumably, *often* is similarly ambiguous. Therefore, it could perhaps be maintained that the relative reading is just the cardinal reading. This is, in fact, what de Swart proposes regarding (5).⁴ According to her interpretation, (5) simply means that there are many situations of Paul's having a headache. This interpretation, of course, corresponds to the cardinal reading of *many*.

It may very well be the case that *often* has a cardinal reading; I will not comment on this issue in this paper. What I do claim is that the interpretation of (5) where Paul has a headache more often than the average is distinct from its cardinal reading (if it has one). If, as de Swart states, this interpretation really were the cardinal reading, then the burden of inferring the desired interpretation, i.e. that Paul has a headache more often than the average person, would presumably be left to pragmatics, in a way that de Swart does not specify. On the other hand, if, as proposed here, (5) has a relative reading, the desired interpretation will, of course, be readily available.

Another argument against assimilating relative readings to either object asymmetric or cardinal readings involves conservativity. Object asymmetric readings and cardinal readings are conservative. Hence, anyone who proposes reducing relative readings to one of these would have to assume that relative readings are conservative too. This, however, turns out not to be the case. For example, (9a) and (9b) may not receive the relative reading.

- (9) a. Paul is often Paul and has a headache.
b. Politicians are seldom politicians who commit crimes.

Sentence (9a) can only get the absolute reading, namely that in many appropriate situations, Paul is Paul and has a headache. It does not get the reading that Paul is more likely to be Paul and have a headache than an arbitrary person is likely to be Paul and have a headache — otherwise it would be trivially true, since an arbitrary person is highly unlikely to be Paul. Similarly, (9b) can only mean that few of the politicians commit crimes, not that they are less likely to commit crimes than arbitrary people are.

Another property that distinguishes relative readings from other interpretations, and which is particularly relevant for the purposes of this paper, involves sentences where the Q-adverb is fronted. It is very difficult, perhaps impossible, to get a relative reading for such sentences. Compare the sentences in (10) with (5) and (6).

- (10) a. Often, Paul has a headache.
b. Often, a politician is crooked.

⁴ She calls the cardinal reading a 'pure frequency' reading.

Sentence (10a) can only mean that there are many situations where Paul has a headache, not that Paul has headaches more frequently than the average; (10b) can only mean that few politicians commit crimes, not that they are more likely to commit crimes than other people are. These facts would be unexplained if we tried to reduce relative readings to object asymmetric or cardinal readings.

We have seen, then, that the absolute and relative readings are distinct. One may still wonder whether the two readings embody a real ambiguity, or merely different strategies to make a vague quantifier more precise (as suggested to me by Hans Kamp). I find the latter possibility quite appealing, but will not comment on it further here.⁵

Relative readings, then, are a real phenomenon, which deserves an account. In particular, we want to explain why they are not available when the Q-adverb is fronted. The fact that the fronted Q-adverb is pronounced with a fall-rise intonation contour will turn out to be crucial. To see this, let us look more closely at the effects of intonation on semantic interpretation.

3 Types of Semantic Value

3.1 Focus Semantic Value

Rooth (1985) proposes that every expression ϕ has, in addition to its ordinary semantic value, $[[\phi]]^O$, a focus semantic value, $[[\phi]]^F$. I will take focus to be a feature — focused elements are F-marked. The intuition underlying the focus semantic value can then be put roughly as follows: the focus semantic value is generated by replacing the F-marked element (or elements) with its alternatives.⁶ In adverbial quantification, the union of the focus semantic value is used to restrict the domain of quantification.

In order to demonstrate how this works, we first need to decide what sort of objects Q-adverbs quantify over. There are good reasons to believe that Q-adverbs quantify over cases in the sense of Lewis (1975), as developed in Discourse Representation Theory (Kamp 1981) and File Change Semantics (Heim 1982). However, specifying the focus semantic value for this type of semantics turns out to be rather complex, though quite possible (see Rooth 1995 and Krifka 2001 for examples of such systems).⁷ So as not to be distracted from the main point of the paper by overly complex formulations, I

⁵ See Cohen in preparation for a proposal along these lines.

⁶ This idea is not so easy to formalize; see Cohen 1999b for problems with Rooth's and von Stechow's (1989) attempts at formalization.

⁷ In his paper, Krifka develops a formal account which uses the focus semantic value, but then discards it in favor of an alternative theory.

will assume, for convenience, that propositions denote sets of situations, and Q-adverbs apply to sets of situations (von Fintel 1994; Heim 1990).

Now consider a classic example:

(11) Mary always takes [John]_F to the movies.

This sentence means that, whenever Mary takes someone to the movies, she takes John. Let us assume that Q-adverbs have sentential scope; the logical form of (11) is therefore something like (12).

(12) **always**(λs .**take-to-movies**(**m**,**j**,**s**))

Note that (12) has no restrictor;⁸ in order to restrict the domain of quantification, we need the focus semantic value of the nuclear scope.

If the nuclear scope of the Q-adverb denotes a set of situations, its focus semantic value is a set of sets of situations, corresponding to Mary's taking alternative people to the movies.

$$(13) \quad [[\mathbf{take-to-movies}(m, [j]_{F,S})]]^F = \{ \{s | \mathbf{take-to-movies}(m, j, s)\}, \\ \{s | \mathbf{take-to-movies}(m, f, s)\}, \\ \{s | \mathbf{take-to-movies}(m, b, s) \dots \}$$

The union of the focus semantic value results in the set of situations where Mary takes someone to the movies:

$$(14) \quad \cup [[\mathbf{take-to-movies}(m, [j]_{F,S})]]^F = \{s | \exists x \mathbf{take-to-movies}(m, x, s)\}$$

If we use (14) to restrict the domain of quantification, we get the desired interpretation, namely that, when Mary takes someone to the movies, she always takes John to the movies.

3.2 Contrast Semantic Value

Büring (1997, 1999) discusses elements pronounced with a B-accent. I will assume that, just like F, B is also a feature, and that some elements are B-marked. Büring calls such elements contrastive topics, and he proposes to treat them by adding another semantic value: topic semantic value. This name is somewhat problematic. I take topics to be what the sentence is about (Erteschik-Shir 1997; Portner and Yabushita 1998; Reinhart 1981); hence, topics must be specific. Since B-accented elements need not be specific, I do not believe they are topics. Nonetheless, such elements certainly *are* contrastive. I will therefore refer to Büring's semantic value as *contrast* semantic value.

⁸ Alternatively, we could make the restrictor contain nothing but a free variable (von Fintel 1994; Rooth 1985).

This semantic value takes into account alternatives to both the B-marked and the F-marked elements, so the appropriate notation for it is $[[\phi]]^{B+F}$. This is a set of sets of elements of the type of ϕ . In each such set, all elements share a B-marked constituent, but vary with respect to the focus.

Consider (15), for example:

(15) $[\text{Mary}]^B$ took $[\text{John}]^F$ to the movies.

Its focus semantic value will be a set of sets of propositions. The first set comprises propositions where Mary takes alternative people to the movies: John, Fred, etc. The second set contains propositions where an alternative to Mary, say Kate, takes a person to the movies, and so on. If we assume that propositions are sets of situations, we get the following:

(16) $[[[\text{Mary}]^B \text{ took } [\text{John}]^F \text{ to the movies}]^{B+F} =$
 $\{\{\{s|\text{take-to-movies}(\mathbf{m}, \mathbf{j}, s)\}, \{s|\text{take-to-movies}(\mathbf{m}, \mathbf{f}, s)\}, \dots\}$
 $\{\{s|\text{take-to-movies}(\mathbf{k}, \mathbf{j}, s)\}, \{s|\text{take-to-movies}(\mathbf{k}, \mathbf{f}, s)\}, \dots\} \dots\}$

Following the standard assumption that the meaning of a question is the set of its possible answers, (16) can be interpreted as a set of questions:

(17) $\{\text{Whom did Mary take to the movies?}, \text{Whom did Kate take to the movies?}, \dots\}$

Büring suggests that a question-answer dialog is felicitous if the question is a member of the contrast semantic value of the answer.

If we take the union of the contrast semantic value, the result is of the same type as the focus semantic value: a set of elements of the type of ϕ . The difference is that now we replace both F-marked and B-marked constituents with alternatives:

(18) $\cup[[[\text{Mary}]^B \text{ took } [\text{John}]^F \text{ to the movies}]^{B+F} =$
 $\{\{s|\text{take-to-movies}(\mathbf{m}, \mathbf{j}, s)\}, \{s|\text{take-to-movies}(\mathbf{m}, \mathbf{f}, s)\},$
 $\{s|\text{take-to-movies}(\mathbf{k}, \mathbf{j}, s)\}, \{s|\text{take-to-movies}(\mathbf{k}, \mathbf{f}, s)\}, \dots\}$

3.3 B Semantic Value

Let us take stock. We have three types of semantic value: the ordinary semantic value, which takes no alternatives into consideration; the focus semantic value, which considers alternatives to the focus; and the contrast semantic value, which considers alternatives to both the topic and the B-marked element. To complete the picture, we need an additional semantic value that considers alternatives to the B-marked element only.

The types of semantic value can be described in a table:

Semantic value	Considers alternatives to F?	Considers alternatives to B?
$[[\phi]]^O$	No	No
$[[\phi]]^F$	Yes	No
$[[\phi]]^{B+F}$	Yes	Yes
?	No	Yes

I will therefore suggest yet a fourth type semantic value: B semantic value, $[[\phi]]^B$. This is obtained by replacing B-marked elements with alternatives.

For example, the B semantic value of (15) will be a set of propositions (i.e. a set of sets of situations); in one of them Mary takes John to the movies, in another Kate does this, in yet another Linda, and so on.

$$(19) \quad [[[Mary]_B \text{ took } [John]_F \text{ to the movies}]]^B = \\ \{ \{s | \text{take-to-movies}(m, j, s)\}, \{s | \text{take-to-movies}(k, j, s)\}, \\ \{s | \text{take-to-movies}(l, j, s)\} \dots \}$$

4 Explanation of the Facts

4.1 Explaining Relative Readings

Using the four semantic values, we can now account for both absolute and relative readings of Q-adverbs. Recall that I will be assuming that Q-adverbs have probabilistic truth conditions, but, as far as this paper is concerned, it would be possible to work with proportions instead.

Note that both absolute and relative readings are interpretations of the proportional reading of *often*: it is this reading that can be interpreted either absolutely or relatively. If *often* also has a cardinal reading, this would constitute an additional interpretation.

The proposed account of absolute readings follows Rooth (1985) in that the union of the focus semantic value restricts the domain of quantification. In a probabilistic semantics, this means that the union of the focus semantic value forms the reference class of the conditional probability. Hence, the absolute reading is defined as follows:

$$(20) \quad \text{often}(\phi) \text{ is true iff } P([\phi]^O \cup [\phi]^F) > \rho, \text{ where } \rho \text{ is 'large'}.$$

In other words, we take some expression, ϕ , and consider the probability of $[[\phi]]^O$ given the union of the alternatives to the focused elements of ϕ .

The account of relative readings is the same, except that the value of ρ is given a definite value. As with the absolute reading, we take some expression ϕ' , and consider its probability given the union of the alternatives to the focused elements of ϕ' . In the case of the absolute reading, ϕ' was simply ϕ itself; but this time it is the B semantic value of ϕ . This means that we consider the probability of $[[\phi]]^B$ given $[[\phi]]^{B+F}$.

Formally, the definition of relative readings is as follows:

$$(21) \text{ often}(\phi) \text{ is true iff } P([\phi]^O | \cup[\phi]^F) > \rho, \text{ where } \rho = P(\cup[\phi]^B | \cup\cup[\phi]^{B+F})$$

Similar definitions can be provided for *seldom*, *many*, *few*, and generics.

We can now see how these definitions work. Let us consider the answer in (7), repeated below:

$$(22) [A \text{ politician}]_B \text{ is often } [crooked]_F.$$

What is its logical form? Keeping our simplifying assumption that Q-adverbs apply to sets of situations, we assume something like the following:

$$(23) \text{ often}(\lambda s. \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x)))$$

Let us indicate the nuclear scope by ϕ . Then the ordinary semantic value is

$$(24) [[\phi]]^O = \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x))\}$$

With regard to the focus semantic value, it is important to identify where the focus is. The adverb may be stressed, but since Q-adverbs require focus (Cohen 2004), there must be (possibly second occurrence) focus inside the nuclear scope; since *politician* is B-marked, the only possibility is focus on *crooked*. Assuming the only alternative to *crooked* is *honest*, the focus semantic value is

$$(25) [[\phi]]^F = \left\{ \left\{ s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x)) \right\}, \right. \\ \left. \left\{ s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{honest}(x)) \right\} \right\}$$

The union of the focus semantic value is then simply

$$(26) \cup[[\phi]]^F = \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x))\}$$

Assuming the alternatives to *politician* are *physician* and *linguist*, the B semantic value is

$$(27) [[\phi]]^B = \left\{ \left\{ s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x)) \right\}, \right. \\ \left. \left\{ s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{physician}(x) \wedge \mathbf{crooked}(x)) \right\}, \right. \\ \left. \left\{ s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{linguist}(x) \wedge \mathbf{crooked}(x)) \right\} \right\}$$

Its union is simply

$$(28) \cup[[\phi]]^B = \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{crooked}(x))\}$$

The contrast semantic value is

$$(29) \llbracket [\phi] \rrbracket^{B+F} = \{ \{ \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x))\}, \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{honest}(x))\} \}, \{ \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{physician}(x) \wedge \mathbf{crooked}(x))\}, \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{physician}(x) \wedge \mathbf{honest}(x))\} \}, \{ \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{linguist}(x) \wedge \mathbf{crooked}(x))\}, \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{linguist}(x) \wedge \mathbf{honest}(x))\} \} \}$$

This corresponds to the following set of questions:

$$(30) \{ \text{How honest is a politician?}, \text{How honest is a physician?}, \text{How honest is a linguist?} \}$$

These questions are implied by the context of (7), hence the felicity of the exchange.

The union of the union of the contrast semantic value is just

$$(31) \cup \cup \llbracket [\phi] \rrbracket^{B+F} = \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{person}(x))\}$$

4.2 Non-fronted *often*

We can now account for the two readings of (22). Its logical form (annotated for F and B features) is

$$(32) \mathbf{often}(\lambda s. \exists x(\mathbf{in}(x,s) \wedge [\mathbf{politician}(x)]_B \wedge [\mathbf{crooked}(x)]_F))$$

According to the absolute reading, $\mathbf{often}(\phi)$ is true iff $P(\llbracket [\phi] \rrbracket^O | \cup \llbracket [\phi] \rrbracket^F)$ is ‘large’. In this case, this means

$$(33) P(\{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x))\} | \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x))\}) > \rho$$

where ρ is ‘large’. In words, the sentence is true just in case a situation involving a politician is likely to be situation involving a crooked politician, as desired.

Under the relative reading, $\mathbf{often}(\phi)$ is true iff

$$(34) P(\llbracket [\phi] \rrbracket^O | \cup \llbracket [\phi] \rrbracket^F) > P(\cup \llbracket [\phi] \rrbracket^B | \cup \cup \llbracket [\phi] \rrbracket^{B+F}).$$

In this case this is the following requirement:

$$(35) P(\{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x) \wedge \mathbf{crooked}(x))\} | \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{politician}(x))\}) > P(\{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{crooked}(x))\} | \{s | \exists x(\mathbf{in}(x,s) \wedge \mathbf{person}(x))\})$$

In words, the sentence is true just in case a situation involving a politician is more likely to be a situation involving a crooked politician than a situation involving an arbitrary person is likely to be a situation involving a crook. This is the desired relative reading.

4.3 Fronted *often*

Recall that fronted elements are typically uttered with a fall-rise intonation. Hence, I propose that the fronted adverb is B-marked. Since only one element can be B-marked, a fronted Q-adverb has no B-marked element in its scope. Therefore, the F-marking and B-marking of (10b) are as follows:

(36) [Often]_B, a politician is [crooked]_F.

Its logical form is

(37) **often**($\lambda s.\exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x)\wedge[\mathbf{crooked}(x)]_F)$)

Referring to the scope of **often** as ϕ , its ordinary semantic value is, as before,

(38) $[[\phi]]^O = \{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x)\wedge\mathbf{crooked}(x))\}$

The union of the focus semantic value is, again,

(39) $\cup[[\phi]]^F = \{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x))\}$

The difference, however, is in the B and contrast semantic value. Since now *politician* is not B-marked, we do not consider alternatives to it. We get the result that the union of the B semantic value is

(40) $\cup[[\phi]]^B = \{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x)\wedge\mathbf{crooked}(x))\}$,

and the union of the union of the contrast semantic value is

(41) $\cup[[\phi]]^{B+F} = \{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x))\}$

The absolute reading is still available: $\mathbf{often}(\phi)$ is true iff $P([\phi]O | \cup[[\phi]F])$ is ‘large’. In this case, this is the following requirement:

(42) $P(\{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x)\wedge\mathbf{crooked}(x))\} | \{s | \exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x))\}) > \rho$

where ρ is ‘large’. In words, the sentence is true iff a situation involving a politician is likely to be a situation involving a crooked politician. This is the desired interpretation, as before.

The relative reading, however, is not available. Recall that, under this reading, $\mathbf{often}(\phi)$ is true iff $P([\phi]O | \cup[[\phi]F]) > P(\cup[[\phi]B] | \cup\cup[[\phi]]^{B+F})$. This is the following requirement:

$$(43) P(\{s|\exists x(\text{in}(x,s)\wedge\text{politician}(x)\wedge\text{crooked}(x))\} | \{s|\exists x(\text{in}(x,s)\wedge\text{politician}(x))\}) > P(\{s|\exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x)\wedge\mathbf{crooked}(x))\} | \{s|\exists x(\mathbf{in}(x,s)\wedge\mathbf{politician}(x))\})$$

Since a number is never strictly greater than itself, the result is necessary false, and certainly the wrong reading.

5 Consequences and Conclusions

We conclude that fronting *often* B-marks it, so that there are no B-marked elements in its scope, and no possibility of relative readings. What about other Q-adverbs?

There are Q-adverbs that do not seem to be affected by fronting. Take *usually*, for example:

(44) A politician is usually crooked.

Front the Q-adverb, and the truth conditions appear to remain the same:

(45) Usually, a politician is crooked.

Does this mean that fronting *usually* does not B-mark it?

The answer is no. Note that non-fronted *usually* does not have a relative reading: (44) can mean only that a politician is likely to be crooked, not that a politician is more likely to be crooked than an arbitrary person is.⁹ Thus, we cannot observe the elimination of the relative reading by fronting the Q-adverb and B-marking it, since this reading was not available in the first place. Thus, the behavior of all Q-adverbs is quite compatible with the hypothesis that fronting *all* Q-adverbs B-marks them, thus eliminating the possibility of any B-marking in their scope. Because absolute readings are not dependent on B-marking, this *usually* has no effect on truth conditions. But relative readings *are* dependent on B-marking. Since some Q-adverbs are ambiguous between absolute and relative readings, these Q-adverbs provide a test case that allows us to observe the semantic effects of fronting a quantificational adverb.

In fact, the account proposed here is compatible with the hypothesis that fronting *all* elements, noun phrases included, B-marks them. Fronting constructions, namely topicalization and left dislocation, have similar, but not identical functions (Prince 1984). Probably the only unifying statement that can be made about them is that they indicate that the fronted element is not a focus.¹⁰ If, indeed, a fronted expression is B-marked, it would immediately follow that it is not a focus, since an element cannot be both B-accented and

⁹ See Cohen in preparation for an explanation.

¹⁰ Fronting is not to be confused with *preposing*, which can, in fact, indicate focus.

focused (A-accented). Whether or not this is a correct generalization, therefore, merits further research.

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