

FOCUS AND WEAK NOUN PHRASES*

This paper discusses a truth-conditional effect that focus has on the interpretation of noun phrases. In particular, it claims that focus within weak NPs, but not within strong NPs, affects the logical form of the sentence, giving rise to ‘f(ocus)-a(affected)’ readings. In a f-a reading, the nonfocused part of the sentence functions as the restriction of the determiner and the focused predicate functions as the matrix. The existence of f-a readings is shown to provide an argument for treating weak NPs that exhibit the Definiteness Effect as quantificational, instead of analyzing their determiners as cardinality predicates.

1. INTRODUCTION

It is often observed that focus does not only affect the felicity of a sentence in a given discourse, but that it can also change the truth conditions of a sentence if it appears embedded in the scope of certain operators, for example *only* (cf. e.g. Rooth 1985). This paper sets out to analyze a truth-conditional effect that focus can have when it appears inside certain quantified NPs (DPs). The empirical claim I will make is that focus in so-called weak DPs, but not in strong DPs, can give rise to a truth-functionally distinct focus-affected (f-a) reading. Even though f-a weak DPs pattern in their distribution with the classic Milsarkian weak DPs, it turns out that semantically f-a weak DPs and indefinite weak DPs are quite different: unlike indefinite weak DPs, f-a weak DPs license proportional readings of the determiners *few* and *many*. This is shown to be theoretically interesting because it provides one (of two) arguments that I will discuss here which suggest that a general account of the Definiteness Effect (DE) should not treat weak determiners as cardinality predicates (cf. e.g. Milsark 1977; Diesing 1992). Instead, I propose a quantificational analysis of weak DPs.

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The paper is organized as follows. I first review the existential closure account of weak DPs that was developed in Milsark (1977) and Diesing (1992). This account is shown to run up against two problems: what I call the monotonicity problem and the cardinality/symmetry problem. The latter is an empirical limitation that becomes apparent once f-a readings of weak DPs enter into the picture. The interpretive and distributional properties of f-a DPs are discussed in detail in section 3, which also addresses an issue concerning Conservativity (cf. Westerståhl 1985). The analysis is presented in section 4. There, I argue that DPs that occur in DE environments are in fact quantificational and that what distinguishes them from DPs elsewhere is the way in which their determiners take scope, which I argue is through D-raising, as opposed to DP-raising (QR). It is shown that this allows us to account for the effects of focus on the interpretation of weak DPs in the same way we account for the effects of focus on adverbial quantifiers. The analysis I adopt is couched in Rooth's (1985) 'alternative semantics' approach.

2. THE 'EXISTENTIAL CLOSURE' ANALYSIS OF THE DEFINITENESS EFFECT

2.1. *Milsark's Proposal*

The classic place for a description and analysis of the DE is Milsark's dissertation (Milsark 1974) and his (1977) article. The well-known descriptive observation made there is that some DPs are acceptable in *there*-insertion contexts, while others are not. Milsark distinguishes between the two types with the terms 'weak' and 'strong':

- (1) a. There are some/three/many/few/no children in the garden.
weak
 b.*There is (are) every/each/all/most child(ren) in the garden.
strong

Milsark also points out that the determiners introducing weak DPs have what he calls a cardinal reading when the DPs appear in a DE context, as in (1), but not when they appear outside such contexts, where they have what we could call a 'strong-like' reading. Thus, for instance, *few* in *few children* in the DE environment in (1a) means something like 'few in number' (= 'indefinite reading'). On the other hand, when *few children* occurs outside of a DE environment, *few* cannot be paraphrased as 'few in number', but must be understood proportionally, as 'a small percentage

of whatever satisfies the predicate NP' (= 'strong-like reading'). We find this interpretation for instance in (2a). Furthermore, Milsark observes that whereas the existential sentence in (1a) only allows for a 'cardinal' (or indefinite) interpretation of *few* and the individual level predicate in (2a) only allows for a proportional (or strong-like) one, the subject position of the stage level predicate in (2b) actually allows for both kinds of interpretations, both the indefinite and the strong-like.¹

- (2) a. Few children like spinach.
 b. Few children are playing.

Throughout this paper, I will refer to the kind of environment provided by existential sentences (cf. (1a)) as 'obligatory DE environment', to that provided by individual level subjects (cf. (2a)) as 'anti-DE environment', and to that of stage level subjects (cf. (2b)) as 'optional DE environment'. The term 'DE environment' will be used to cover both obligatory and optional DE environments.

It is worth noting that the indefinite and the strong-like interpretation of *few* differ truth-conditionally in some cases, which suggests that the two interpretations should not be attributed to an inherent vagueness of the determiner (cf. Partee 1988 for detailed discussion on this issue). Essentially, the difference is this: whereas the indefinite interpretation of *few* in principle allows for 100% of the children to be picked out (so long as they are few in number), the same cannot be said of the strong-like reading of *few*. On the latter, *few* never allows 100% of the children to be picked out, no matter how context-dependent the percentage is that counts as *few*. Thus, *There are few children in the garden* (cf. (1a)) can in principle be uttered in a context where all the children are in the garden. This, however, is not true of *Few children like spinach* (2a), which, since *few* is proportional here, is false when in fact all children like spinach. This truth-conditional difference that can be observed between *few* in the indefinite reading and *few* in the strong-like interpretation supports Milsark's claim that there really is a true semantic difference between *few* in a DP

¹ Milsark does not actually use the terms 'stage level' and 'individual level', but 'state descriptive predicate' and 'property predicate'. The former refers to "conditions in which an entity finds itself and which are subject to change without there being any essential alteration of the entity" (Milsark 1977, p. 12). The latter describes "some trait possessed by the entity and which is assumed to be more or less permanent, or at least to be such that some significant change in the character of the entity will result if the description is altered" (p. 13).

that occurs in a DE environment (indefinite reading) and *few* in a DP outside such an environment (strong-like reading).^{2,3}

Turning now to Milsark's analysis of the DE, it crucially relies on a correlation he draws between a determiner being cardinal and the DP appearing in a DE environment. Specifically, he argues that while the determiners of strong DPs remain truly quantificational, the determiners of weak DPs in DE environments should be analyzed as nonquantificational cardinality predicates, or cardinality adjectives, so that *few* will mean something like 'not numerous'. This leaves weak DPs in DE contexts without any quantificational force of their own. Instead, their quantificational force is said to be provided from outside by an existential quantifier hidden in the expletive *there*. In contrast to indefinite DPs in *there*-insertion sentences, strong DPs and strong-like weak DPs remain truly quantificational. Strong(-like) DPs are then ruled out in *there*-insertion contexts on grounds that their presence there would give rise to vacuous quantification on the part of *there*, which is deemed illicit. It is left as an open question how weak DPs find their quantificational force when they do not appear in *there*-insertion sentences, but as the subjects of stage level predications, i.e. optional DE environments, as in (2a). As to why weak nonquantificational DPs are

² The same kind of ambiguity between an indefinite reading and a strong-like reading that arises with *few* also arises with *many*, although here the truth-conditional difference is not as clear as with *few*.

³ As one reviewer suggests, one might argue that the lack of a "100% interpretation" of *few* that we observe in strong-like readings (cf. (2a)) is due to the Gricean Maxim of Quantity ("Say as much as you can"). If this can be maintained, we could then further argue that there is in fact no ambiguity between proportional and nonproportional *few* (cf. also Musan (1995) for some suggestions along this line). On such a view, *Few children like spinach* would be assimilated to *Most children like spinach*. The second sentence would not normally be uttered in a context where all children like spinach because, even if it would be literally true in such a context, it would violate Grice's Maxim of Quantity. Presumably, the same would be said of the first sentence.

Notice, however, that if the lack of a "100% interpretation" in *Few children like spinach* were argued to be due to Gricean reasons and *few* were unambiguous, one might wonder why this is not also the case for a sentence like *Few children are playing* on its indefinite reading; that is, why does the indefinite reading in principle allow for 100% of the children to be picked out when the strong-like reading doesn't?

A further problem is that it would be difficult to explain under this view why *few* and *most* in the following context do not pattern the same:

- (i) Most children like spinach; in fact all do.
- (ii) #Few children like spinach; in fact all do.

By adding *in fact all . . .* we can defeat the Quantity implicature of *most*. But, as the incoherence of (ii) shows, with *few* this is not possible. I take this to strongly suggest that the fact that *few* in *Few children like spinach* does not allow 100% of the children to be picked out is not a matter of Gricean implicatures, but rather of semantics, as suggested by Milsark.

barred in the subject position of individual level predications and why only strong DPs and strong-like DPs are possible in this context, Milsark suggests that only quantificational DPs make good ‘topics’, and that being a topic is a prerequisite for allowing for individual level predication.⁴

Adopting various important aspects of Milsark’s analysis, Diesing (1992) takes up the question of how cardinal weak DPs in DE environments receive their quantificational force in the general case. To this end Diesing proposes, first, that cardinal weak DPs appear inside the VP at LF, and second, that VP is a domain of existential closure of free variables in the sense of Heim’s (1982) tripartite structure. Her analysis then works as follows: because the cardinal, nonquantificational weak DPs appear inside the VP at LF, they wind up being existentially bound, given the claim that the VP is a domain where otherwise unbound variables get caught by a mechanism of existential closure. This proposal allows Diesing to extend Milsark’s analysis of weak DPs from those occurring in obligatory DE environments (*there*-insertion sentences) to optional DE environments (stage level subjects). In addition, it also accounts for another, not yet mentioned observation of Milsark’s, namely the fact that cardinal weak DPs have a propensity for taking narrow scope relative to strong DPs and strong-like weak DPs. Under Diesing’s account this follows directly from the view that cardinal weak DPs are interpreted inside the VP at LF, while strong and strong-like weak DPs, which are considered quantificational, are held to undergo Quantifier Raising (QR) at LF.^{5,6}

⁴ A closely related issue is taken up by Ladusaw (1994), who discusses in detail the connection between individual level predications and categorical judgments and between stage level predications andthetic judgments.

⁵ Milsark adduces the following examples:

- (i) Some unicorns hid behind every tree.
- (ii) Some people visit the bathroom every hour.

Precisely when *some unicorns* receives an indefinite interpretation, it is said to obligatorily take narrow scope with respect to *every tree*, but not when it is interpreted with a strong-like reading.

Similar facts seem to hold for other strong DPs, such as those introduced by *most*, *all*, *each*. Consider for example (iii), where *most trials* seems to obligatorily distribute over *two witnesses* when the latter is weak:

- (iii) Two witnesses testify in most trials.

⁶ In addition to the scope facts, Diesing uses the overt syntax of German as further evidence for the claim that the VP is the domain of DE-weak DPs and their existential closure. She claims that scrambled DPs in German behave as if they are in an anti-DE environment, whereas nonscrambled DPs behave as if they are in an obligatory DE environment.

It should be noted in this context, however, that while the overt syntax of German is disambiguating with respect to scrambled DPs, it is not disambiguating with respect to non-

For reasons that will become clear in the course of the discussion, in what follows I will use ‘weak’ and ‘strong’ strictly in their distributional sense. This means that ‘weak’ refers to DPs introduced by the determiners *no, some, three, few, many*, etc., while ‘strong’ refers to DPs introduced by *most, every, all, each*, etc. Those weak DPs that exhibit the DE will be called ‘DE-weak DPs’; the others will be referred to as ‘strong-like weak DPs’. What I will show is that there are two types of DE-weak DPs, not just one: the familiar indefinite one, on the one hand, and the focus-affected one, on the other. Where the present usage of ‘weak’ crucially differs from Milsark’s and Diesing’s is in the semantic characterization of the determiners of a weak DP. Specifically, the cardinality of its determiner will not be considered the hallmark of a DE-weak DP.

2.2. *Monotonicity and Cardinality/Symmetry*

Despite its elegance and its wide empirical scope, the existential closure account also has some limitations, two of which are discussed here. I will refer to them as the monotonicity problem, on the one hand, and the cardinality/symmetry problem, on the other. The problems are quite different in nature. The monotonicity problem is intrinsic to the existential closure analysis and can perhaps be solved by resorting to certain nonstandard assumptions. The cardinality/symmetry problem, in contrast, is an independent empirical limitation, which only becomes apparent once the effects of focus on weak DPs are taken into account. Unlike the case with the monotonicity problem, it does not seem that the cardinality/symmetry problem can be overcome without giving up the existential closure analysis of the DE.

The monotonicity problem can briefly be stated as follows:⁷ If the determiners of DE-weak DPs are nonquantificational and the DPs are bound by a process of existential closure, then all DE-weak DPs are in effect

scrambled DPs, for although they *can* have indefinite readings, they do not have to. Also, strong DPs are in fact felicitous in nonscrambled positions:

- (i) . . . weil gestern ja doch [alle Vögel in den Süden geflogen sind]
 because yesterday PRT PRT all birds in the south flown have
 ‘. . . because all birds flew to the south yesterday.’

This fact is acknowledged in Diesing (1992, pp. 52, 108). What I take it to suggest is that although scrambled DPs might provide direct evidence for Diesing’s ‘Mapping Hypothesis’, nonscrambled DPs in German do not lend themselves to this purpose.

⁷ The problem is also noted in footnote 9 Diesing (1992: 143), who attributes the observation to Maria Bittner, cf. also Higginbotham (1987).

existentially quantified. This will provide a sentence like (1a) with the logical form given in (3). The determiner is treated as a cardinality predicate of groups where the group is expressed in terms of a second order variable.

- (3) $[\exists X]$ some/many/few/no(X) & $\exists x$ X(x) & $\forall x$ (X(x) \rightarrow children(x) & in the garden (x))

The problem with this account is that by existentially binding the variables of the DP, this analysis predicts that weak elements should behave like other existentially quantified elements. In particular, they should be monotone increasing and should license inferences from the set denoted by the NP to a superset of that set, for example an inference from D tall children V-ed to D children V-ed.^{8,9}

However, not all DE-weak DPs are monotone increasing, and clearly, some are decreasing, namely those introduced by *no*, *few*, and *at most five*. Thus, (4) does not entail (5), as we would expect it to if it were indeed existentially quantified; rather, the entailment goes in the opposite direction, showing that the determiners here are in fact decreasing:

- (4) There are no/few/at most five tall children in the garden.
 (5) There are no/few/at most five children in the garden.

One possible route to salvage the existential closure account would be to decompose a decreasing quantifier into a wide scope negation and an increasing quantifier; for instance, *few* would be *not + many*, and *no* would be *not + some*, and *at most five* would be *no + more than five*. Depending on how much importance is given to the lexical integrity of determiners, this move may or may not be attractive.

Moreover, notice that even if we give up the lexical integrity of determiners we would have to find some way to ensure that the sentence under

⁸ A quantifier is monotone increasing (in its first argument) if it holds that [D A] B iff [D A'] B, where $A \subset A'$. It is decreasing (in its first argument) if the opposite is true: [D A] B iff [D A'] B, where $A' \subset A$ (cf. Barwise and Cooper 1981).

⁹ It might seem that the problem with decreasing quantifiers can be overcome if one assumed that what the existential quantifier picks out is the empty set, of which it certainly holds true that whatever members it has (namely none) are children in the garden. But if we appeal to the empty set, then we predict that a sentence like *There are no children in the garden* should also be true when there *are* children in the garden, contrary to fact.

Notice also that if we introduced a maximality condition whereby the relevant set contains all and only the things that satisfy *children in the garden* (cf. Diesing, op. cit.), we would correctly rule out that the sentence comes out true when there are no children in the garden, but we would not predict that *some*, *many*, *three* etc. are monotone increasing; see text below.

the wide scope negation is false precisely because the cardinality predicate does not hold, and not because any other predicate in the scope of the wide scope negation does not hold. It seems to me that devising an additional mechanism to ensure this would be costly.

The easiest way to avoid the monotonicity problem, then, is to simply give up the claim that weak determiners are ambiguous between a cardinal, nonquantificational reading and a truly quantificational one. Instead, one can say that weak determiners are quantificational and are characterizable as determiners that are symmetric; cf. e.g. Higginbotham (1987).¹⁰ Thus, *few* is ambiguous between *few*₁, which is a proportional determiner and occurs in strong-like weak DPs, and *few*₂, which is a symmetric determiner and occurs in DE-weak DPs.¹¹ What remains to be explained on this view is why there should be a correlation between the environment a DP occurs in and the interpretation its determiner receives.

Setting this question aside and assuming that it can receive a satisfactory answer, notice next that even if we replace the property of cardinality with symmetry, so that we can analyze the determiners of DE-weak DPs as quantificational elements rather than as cardinality predicates, it still turns out that we have not yet picked the right set of DPs that are possible in a DE environment. In particular, as the data to be discussed will show, the

¹⁰ Following Barwise and Cooper (1981), a determiner is symmetric iff $[Q A] B \leftrightarrow [Q B] A$. Moreover, (given that it is conservative) a determiner is symmetric iff it is intersective, i.e. $[Q A] B \leftrightarrow [Q A \cap B] B$. As noted, determiners like *few* and *many* seem to be ambiguous between a symmetric and a proportional reading. When they are symmetric, it only matters how many things are both A and B. For instance, symmetric *few* requires that the number of things that are both A and B is relatively small, but it is irrelevant whether actually all things that are A are picked out so long as they are also B and *few* in number. On the other hand, this is not true of proportional *few*. Unlike symmetric *few*, it requires that only a contextually determined small proportion of things that are A be also B. Here the number of things that are A is also relevant – not just the number of things that are in the intersection of A and B.

¹¹ Not only does this analysis avoid the monotonicity problem, it also makes it easier to describe the behavior of weak determiners like *five*, *twenty-four*, etc. It is hard to see how the indefinite and the strong-like interpretations of these determiners could be distinguished in terms of a dichotomy ‘cardinal’ vs. ‘proportional’, as suggested in Milsark (1977), because the determiners in question would always seem to be cardinal. On the other hand, they do not appear to be symmetric when they appear in an anti-DE environment. Thus, (i) is true if last year there were (exactly) five newborns that were girls, but (ii) need not be true if we switch the arguments around, that is, if last year (exactly) five newborns were girls. Imagine a situation where *five girls* in (ii) may pick out a particular group of girls – say, those with green eyes – but these were only a subset of all the girls that were born last year.

- (i) There were (exactly) five girls born last year.
- (ii) Five girls were newborns last year.

symmetry of their determiners is actually not a defining property of DE-weak DPs; there are DE-weak DPs which actually license proportional readings of the determiners *few* and *many*. These are the f-a weak DPs.

3. FOCUS-AFFECTED READINGS

3.1. *The Basic Phenomenon*

The phenomenon of f-a readings is illustrated in (6) (I use capitals to mark the semantic domain of focus):

(6) Few COOKS applied.

In (6) we see a weak DP in the subject position of a stage level predicate. According to the literature on the DE, this sentence should have exactly two readings: an indefinite one and a strong-like one. These readings are shown in (7a,b) and (7c), respectively. (I use diacritics here to mark the difference between the two interpretations of *few*. (7a) renders it as a symmetric determiner, (7b) as a cardinality predicate, in the improved existential closure analysis suggested above.)

- (7) a. [$\text{Few}_{\text{symm}} x$: COOKS (x)] applied (x) *indefinite*
 b. $\sim[\exists X] \text{many} (X) \ \& \ \exists x X(x) \ \& \ \forall x(X(x) \rightarrow \text{COOKS} (x) \ \& \ \text{applied} (x)))$
 c. [$\text{Few}_{\text{prop}} x$: COOKS (x)] applied (x) *strong-like*

Both on the indefinite and on the strong-like interpretation the focus on *cooks* is contrastive (contrasting cooks with non-cooks), but in neither case does focus have an effect on the truth conditions of the sentence. There is a third reading of (6), however, where focus does affect the truth conditions. I call this reading the f-a reading of (6).

The f-a reading of (6) can be paraphrased in the following way: ‘Few that applied were cooks’. Its logical form is given in (8):

- (8) [$\text{Few}_{\text{prop}} x$: applied (x)] COOKS (x) *focus-affected*

Here the determiner of the DP is not interpreted as symmetric but as proportional; but, unlike in (7c), the restriction of *few* in (8) is made up by those that applied, rather than by cooks, and conversely, the matrix is made up by cooks, rather than those that applied.

It is possible to confirm that the f-a reading is really available by verifying that (6) can be judged true in a scenario like the one outlined in (9).

- (9) The fellowship committee is sorting through the applications

for travel funding to Paris. Without knowing how many applications there are, at an early point during the review process they observe that on average only every twentieth application was sent in by a cook, which is a much lower percentage than they had anticipated.

Intuitively, we find that (6) can be judged true when it is uttered in a circumstance such as the one outlined in (9). This supports the claim that on one interpretation of (6), it has the f-a reading, meaning that few that applied were cooks.

To see why this should be so, we can first observe that (9) does not legitimize a strong-like reading of (6), since the committee does not know how many cooks applied and what percentage of all cooks the applying cooks constitute. Second, the indefinite reading is also impossible; given that the committee members do not know the overall number of applicants, they cannot draw any conclusion about the total number of cooks that have applied – in particular, they cannot say whether they were few or many. On the other hand, the committee does have all the information needed to establish the veracity of the f-a reading. First, the members know the ratio of applying cooks to applicants in general. Furthermore, they know that the ratio is small and does not exceed a certain contextually determined percentage. Rather, it falls well below their expectations. The fact that (6) can be felicitously uttered in a context like (9) thus supports the claim that the sentence in question has a f-a reading.

Descriptively, the focus inside the NP in a f-a reading functions in the same way the IP normally functions in a structure that has undergone Quantifier Raising (QR), namely as the matrix or second argument of the determiner. Moreover, the nonfocused part performs the role normally performed by the NP complement of D, namely that of restricting the determiner.

- (10) *Focus-affected (f-a) readings*: Focus inside a DP can give rise to a f-a interpretation, where the focused predicate serves as the matrix of the determiner and the nonfocused part as the restriction.

As will be shown next, f-a readings have the property that they only arise in DE environments. In this respect, they group together with indefinite weak DPs. On the other hand, f-a interpretations also share an important property with strong-like interpretations, despite the fact that they occur in different environments; in both kinds of readings, *few* and *many* are proportional and not symmetric. This is what I would like to call the symmetry/cardinality problem; it crucially suggests that a general account

of weak DPs cannot assume that the determiners of these DPs are symmetric.¹²

3.2. *The DE on f-a Readings*

Going through various cases, in this section I elaborate on the distributional properties of f-a readings, showing how they are only possible in weak DPs that occur in DE environments. The relevant examples are taken from English and German.

As a first piece of evidence let us consider the following paradigm:

- (11) a. Few/many/no/three/some COOKS applied.
 b. Most/all/every/each/neither COOK(S) applied.
 c. Few/many/no/three/some COOK(S) know how to make a soufflé.

(11a), where a weak DP occurs in an optional DE environment, namely in the subject position of a stage level predicate, can be interpreted in f-a manner, and can be paraphrased as ‘Few/many/none . . . that applied were cooks’. Its logical form is shown in a schematized form in (12).

- (12) [D x: apply(x)] COOKS(x) *focus-affected*

In addition to its f-a reading, (11a) also has a strong-like interpretation (‘Q that were cooks – rather than something else – applied’) and an indefinite interpretation (e.g. ‘The applying cooks were Q in number’).

In contrast with (11a), in (11b), where the DPs are strong, no f-a readings are possible, for (11b) cannot be paraphrased as ‘Most, all, etc. that applied were cooks.’ In (11c), finally, the DPs are weak, but they occur in an anti-DE environment, namely as the subjects of an individual level predicate. In contrast to (11a) and as in (11b), in (11c) no f-a readings are available. In particular, (11c) cannot mean that few/many/most people that know how to make a soufflé are cooks, but only that few/many/most people that are cooks know how to make a soufflé, rather than something else.¹³

¹² The existence of f-a readings is briefly noted independently in Geilfuß (1993). Being primarily concerned with focus inside the VP, Geilfuß does not provide an analysis of this phenomenon (see fn. 24 below).

¹³ Another good example to consider is (i), which is due to David Pesetsky (p.c.):

- (i) Few SALVADOREANS speak Spanish.

The predicate being individual level, the sentence clearly does not have a f-a reading, which would be ‘Few of those that speak Spanish are Salvadoreans’. This is so despite the fact that this reading would be more in accordance with our knowledge of the world, and thus favored if at all possible, than the ‘strong-like’ reading the sentence actually has: ‘A small percentage of Salvadoreans speak Spanish’.

Next, notice that a f-a reading can also appear in the paradigm case of the DE, namely *there*-insertion contexts:

- (13) a. There are many/few speakers of Basque THAT ARE CITIZENS OF SPAIN.
 b. There are many/few citizens of Spain THAT ARE SPEAKERS OF BASQUE.

Taking *many*, for instance, it is possible to judge the first sentence true and the second one false (and conversely with *few*). Since the truth conditions of (13a) and (13b) differ, we can conclude that *many* and *few* cannot be considered symmetric here, for if they were, switching *speakers of Basque* and *citizens of Spain* should, by definition, not have any effect on the truth conditions whatsoever. It does, however, and I would like to suggest that the reason (13a) and (13b) have different truth conditions is that they have different focus assignments and consequently the resulting f-a readings (14a) and (14b), respectively:

- (14) a. [Many_{prop} x: speakers of Basque (x)] CITIZENS OF SPAIN (x)
 b. [Many_{prop} x: citizens of Spain (x)] SPEAKERS OF BASQUE (x)

(14a) asserts, truthfully it seems, that many speakers of Basque are citizens of Spain. (14b), on the other hand, means something close to ‘Many citizens of Spain are speakers of Basque’. And despite the relative vagueness of *many*, this seems false to most people.¹⁴

Further evidence that shows that f-a readings only arise with weak DPs comes from scrambling in German. As Diesing (1992) discusses, in German scrambled positions pattern with subjects of individual level predications in English, that is, scrambled positions constitute an anti-DE environment. On the other hand, we note that nonscrambled positions pattern with the subjects of stage level predications in English in being optional DE environments (cf. fn. 2). As (15) shows, DPs in scrambled positions behave as we expect them to: since they pattern with strong(-like) DPs, they do not license f-a readings. In contrast with scrambled DPs, nonscrambled DPs, provided they are weak, clearly do have f-a interpretations:

¹⁴ It may appear that in (13) the focused predicate, i.e. the relative clause, is not inside the NP in the overt syntax but a sister of it. If so, one could perhaps suggest that the relative clause is the matrix not because it is focused but because it is in the appropriate syntactic position. Notice, however, that f-a readings arise equally in (i) and (ii), where the focused predicate is unequivocally the NP in the overt syntax:

- (i) There are many SPANISH Basque speakers.
 (ii) There are many BASQUE-SPEAKING Spaniards.

- (15) a. . . . weil viele/einige/wenige SCHWALBEN ja doch
 ‘ . . . because many/some/few swallows PRT PRT
 in den Süden fliegen.
 to the south fly.’
- b. . . . weil ja doch viele/einige/wenige SCHWALBEN
 ‘ . . . because PRT PRT many/some/few swallows
 in den Süden fliegen.
 to the south fly.’

(15a), where the DP has scrambled, cannot be interpreted in a f-a manner as ‘Q things that are flying to the south are swallows’. It only allows for a strong-like reading of the weak DP, namely, ‘Q things that are swallows fly to the south’. But in (15b), where the DP has not scrambled, both readings are possible.

Finally, another respect in which f-a weak DPs behave like indefinite weak DPs is their scope properties. Like indefinite DPs, f-a DPs do not like to take inverse scope. Consider, for instance, (16):

- (16) Every teacher flunked many POOR kids.

On its f-a reading, (16) can be paraphrased as ‘Every teacher is such that many kids that s/he flunked were poor’. Under this reading, *every* must take scope over *many*. It is not possible to have a f-a reading where *many* take inverse scope, along the lines of ‘Many kids that every teacher flunked were poor’, even though this reading would be as plausible pragmatically as the reading that the sentence in (16) actually has.

What the data in this section suggests, then, is that focus on weak DPs in DE environments can give rise to a f-a reading, where the focus (rather than the IP) assumes the role of the matrix of D and the non-focused part (rather than the NP that is the sister of D) assumes the role of restriction.¹⁵

¹⁵ The data presented involve subjects, but the generalizations in (10) and (11) also seem to apply to objects; consider, for example, (i) and (ii):

- (i) I know few FAMOUS skiers.
 (ii) I know most FAMOUS skiers.

Sentence (i) can have a f-a reading and (ii) cannot: (i) can mean ‘Few of the skiers that I know are famous’, but (ii) cannot mean ‘Most of the skiers that I know are famous’. Notice that it is irrelevant here that the predicate is individual level, for whether a predicate is stage level or individual level only seems to affect the interpretation of subjects, as shown in Diesing (1992).

3.3. *F-a Readings and Conservativity*

In the context of f-a readings, it is interesting to consider the following pair of sentences, which Westerståhl (1985) shows to contrast in an interesting way in their semantic interpretations:

- (17) a. Many Scandinavians have won the Nobel prize in literature.
 b. Most Scandinavians have won the Nobel prize in literature.

What Westerståhl observes is that the first sentence can have a reading where the restriction of the determiner is not the NP, and where its matrix does not correspond to the VP, namely: ‘Many that are winners of the Noble prize in literature are Scandinavians’. He also points out that when we replace *many* with *most*, as in the second example, such a ‘switched’ reading is not possible, for (17b) cannot be interpreted as ‘Most of those that have won the Nobel prize in literature are Scandinavians’.

Following standard views, Westerståhl assumes a categorial, syntactically-based definition of the restriction and matrix of determiners, where the restriction (A) is provided by the predicate denoted by the NP and the matrix argument (B) by the open sentence denoted by the IP after QR. Assuming this syntactically-based definition and that nothing further is going on in (17a), he concludes that *many* is a non-conservative determiner in this example because it does not take its expected restriction, namely *Scandinavians*, but rather is restricted by *have won the Nobel prize in literature*. Thus, unlike other natural language determiners, *many* in (17a) does not obey (18):

- (18) *Conservativity*:
 $[Q A]B \text{ iff } [Q A]B \cap A$ (Keenan and Stavi 1986)

Counting *Scandinavians* as A and *have won the Nobel Prize in literature* as B, we find that, contrary to (18), it does not hold that many that won the Nobel prize in literature are Scandinavians (= ‘switched’ interpretation of (17a)) if and only if many that are Scandinavian have won the Nobel prize in literature and are Scandinavian. Westerståhl takes this to suggest that there is one kind of *many* which occurs in a ‘switched’ interpretation and which, unlike the other, homophonous *many*, is not conservative.

Many in (17a), however, need not be seen as flying in the face of Conservativity. The point I would like to make, which is not observed by Westerståhl, is that the ‘switched’ reading arises only when *Scandinavians* is focused, and it is absent when another part of the sentence is focused. Consider the contrast between (19a) and (19b):

- (19) a. Many SCANDINAVIANS have won the Nobel prize in literature.
 b. Many Scandinavians have won THE NOBEL PRIZE IN LITERATURE.

Only (19a) can mean that many that have won the Nobel prize in literature are Scandinavian; (19b), by contrast, means something along the lines of ‘What many Scandinavians have won is the Nobel prize in literature’. In light of this contrast, we can conclude that the ‘switched’ reading is an instance of f-a quantification, where *Scandinavians* forms the matrix and *have won the Nobel prize in literature* the restriction, rather than the result of a non-conservative interpretation of the determiner *many* where, following the syntax-based definition of restriction and matrix, *Scandinavians* would form the restriction and *have won the Nobel prize in literature* the matrix. In other words, (19a) really has a logical form like (20b), rather than the one in (20a):

- (20) a. [$\text{Many}_{\text{non-conserv}} x: \text{SCANDINAVIANS}(x)$] have won the Nobel prize in literature(x)
 b. [$\text{Many}_{\text{prop}} x: \text{have won the Nobel prize in literature}(x)$] SCANDINAVIANS(x) f-a

Given the logical form in (20b), it is now the nonfocused part, and not the NP, that corresponds to A in (18), and furthermore, it is the focus that corresponds to B, not the IP. Under this way of partitioning the lexical material into restriction and matrix Conservativity is in fact obeyed, for it holds true that many that have won the Nobel prize in literature are Scandinavian if and only if many that have won the Nobel prize in literature are Scandinavian and have won the Nobel prize in literature (cf. (18)). Furthermore, if we analyze the ‘switched’ reading of (17a) as a f-a reading, we can not only maintain that *many* is always conservative, but we also correctly predict that (17b), where the determiner is strong, will not have such a reading.

4. ANALYSIS

4.1. *How the Three Readings of Weak DPs Relate Semantically*

Having established the three different readings of weak DPs, namely strong-like, indefinite, and f-a, the question we are faced with now is what they tell us about the analysis of weak DPs.

One conclusion reached earlier was that since f-a readings share the same distribution as indefinite weak DPs (modulo focus), it is doubtful that the determiners of weak DPs can be generally characterized as symmetric. Rather, the determiners of f-a weak DPs seem to have the same meanings as the determiners of strong-like weak DPs. In the case of *few*, for example, these are restricted, proportional interpretations which differ in what part of the sentence makes up the restriction and what part gives the matrix. As to how the interpretation of determiners on the indefinite reading fits into this picture, at this point I think it is best to assume that there are two quantificational *few*: a proportional one, which occurs in f-a and strong-like readings, and a symmetric one, which appears in the indefinite reading (see above). It may ultimately be possible to reduce one to the other, but I think this may be very difficult and I will not attempt to do so here.¹⁶

Following Higginbotham (1987), I will further assume that in the indefinite reading determiners are unary, or ‘absolute’ in his terminology, rather than binary (cf. also Dobrovie-Sorin 1993; Musan 1995). What makes this possible is that determiners in the indefinite reading are always symmetric, and if a determiner is symmetric, we can analyze it as unary or as binary, since, by definition, commuting or collapsing the arguments has no effect on the truth conditions of a sentence in such a case. Given this, a sentence like (21) now has the logical form in (22):

(21) There are some/no/three/few children in the garden.

(22) [Some/no/three/few_{symm} x] children(x) & in the garden(x)

To sum up a bit, I am arguing that on the strong-like reading and on the f-a reading determiners are binary, with different parts of the sentence providing the arguments of the determiner (restriction and matrix) in each case. On the indefinite reading, on the other hand, determiners are unary. Moreover, in the case of *few* and *many*, the binary interpretations corre-

¹⁶ In Herburger (1995) I attempt to show that *few* in the indefinite reading can be treated as a unary proportional *few*, meaning ‘few of the contextually relevant things’. Clearly, the problem is how to establish what the set of contextually relevant things is. I try to appeal to the general notion of context that is needed for every quantifier, but it is not clear that this will be sufficient for the case at hand. One problem is, for instance, that (i) can be uttered when I am comparing the number of children in the garden with the number of fathers in the garden. In such a case it is not clear what would be the set of contextually salient things few of whose members are children in the garden. The unary proportional analysis of *few*, however, would require us to find such a set.

(i) There are few children in the garden.

late with a proportional interpretation of the determiners, whereas the unary interpretation correlates with a symmetric reading.¹⁷

4.2. *Weak vs. Strong(-like): D-raising vs. DP-raising*

Having outlined a semantic description of the three readings of weak DPs and made a proposal that accommodates the indefinite readings in a quantificational view of the DE, I would now like to explore in more detail how we arrive at these logical forms.

Various ways have been proposed in the literature in which a determiner can take its scope at LF. Classically, the determiner is assumed to raise together with its sister NP by Quantifier Raising (QR), thereby adjoining to IP. Alternatively, it has also been proposed (in various theoretical contexts and for various reasons) that only the determiner raises, stranding the NP (cf. e.g. Heim 1982; Hornstein and Weinberg 1990).¹⁸

In what follows, I suggest that both ways of taking scope exist, but with a division of labor between them (cf. Herburger 1995). In the spirit of Higginbotham (1987), I assume that while strong determiners relate to their NP complement in such a way that they have to take it along when they move to take scope (= QR), weak determiners are not glued to the NP in the same way. As a result of this, weak determiners can raise without their NP complement (= D-raising) or they can raise together with their NP complement, like strong determiners. This latter possibility is what gives rise to strong-like interpretation of weak DPs. I will begin by discussing strong(-like) and indefinite interpretations and then extend the analysis to account for f-a interpretations in the next section.

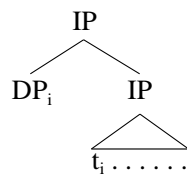
The two ways of taking scope that I assume to exist are illustrated in

¹⁷ In the case of determiners like *few* and *many* the correlation proportional/binary and symmetrical/unary might appear to be semantically motivated. But while it is inherent in the nature of proportional determiners that they are binary (cf. Barwise and Cooper 1981), it is not necessary that symmetric determiners be unary; they could be binary also. This suggests that it is not “because” *few* in an indefinite reading is symmetric that it is unary. In this context, we can also note that while it makes sense to speak of a contrast between proportional and symmetric interpretations in the case of *few* and *many*, with other weak determiners no such distinction can be drawn. Presumably, *some*, *no*, *three*, *less than fifty-five*, etc. always have the same basic interpretation, whether they occur in an indefinite or a strong-like DP. But even if the determiner interpretation itself does not provide any reason here, we would like to maintain nonetheless – for reasons to be detailed in the text below – that the indefinite readings correlate with a unary interpretation of the determiner and the strong-like readings correlate with a binary interpretation.

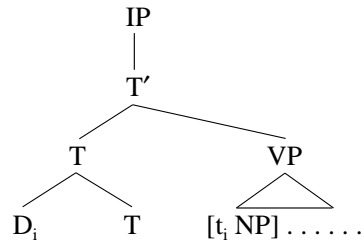
¹⁸ Both these views share the assumption that DPs take scope by creating operator-variable structures at LF, which is what I will be assuming too.

(23). (23a) shows the way in which strong DPs and strong-like weak DPs take scope by QR, which here is represented as adjunction to IP, following standard assumptions. (23b) shows an instance of D-raising. The predilection for narrow scope shown by weak determiners in DE environments suggests that the landing site for D is clearly lower than the landing site for QR. For concreteness, I will assume that it is an inflectional projection between IP and VP, TenseP. The fact that D-raising should be more local than QR is not surprising, given that D-raising involves head movement, which is known for its extremely local nature.

(23) a. Strong(-like) DP



b. DE-weak DP



Given these structures, we can now extrapolate the following hierarchical definition of restriction and matrix:

- (24) a. What is c-commanded by D is *Argument I*.
 b. What is c-commanded by the constituent formed by D + *Argument I* is *Argument II*.

(24) remains uncommitted with respect to whether D takes one or two arguments. It only states which part in a given syntactic structure will count as which argument. To this definition, I add the following interpretive principle:

- (25) a. When D has two syntactic arguments, *Argument I* is its restriction and *Argument II* its matrix.
 b. When D has one syntactic argument, this argument serves, by default, as its matrix.

(25a) states that a determiner may have one or two syntactic arguments, that is, it may be unary (unrestricted) or binary (restricted). Moreover, (25b) states that if the determiner has only one argument, that argument, by default, is the matrix.¹⁹

Applied to the QR structure that accounts for the scopal properties of strong DPs and weak strong-like DPs (23a), we obtain the NP as the restriction of D and the IP as the matrix. The result is crucially different in (23b), which represents the D-raising structure for indefinite weak DPs; here D is unary and there is no lexical restriction for it. This follows from the fact that the sole argument of D here is the VP, which, given (24b), must function as its matrix.

4.3. *The Logical Form of f-a Weak DPs*

So far I have accounted for strong DPs and weak strong-like DPs, on the one hand, and indefinite weak DPs, on the other. The former have been analyzed in terms of QR, while the latter have been argued to involve D-raising. Turning to f-a readings now, the first thing I want to address is that f-a weak DPs share the scope properties of indefinite weak DPs in that they take narrow scope, differing clearly in this respect from strong(-like) DPs. This suggests that the determiners of f-a weak DPs raise by head movement, rather than DP-raising, exactly like the determiners in the indefinite reading, and that this is why f-a DPs take narrow rather than wide scope.

As for the difference between indefinite and f-a weak DPs, we have seen that it lies in the number and content of the arguments of the determiner. Unlike the case in an indefinite reading, the determiner in a f-a reading is not unary but binary semantically, such that its restriction is provided by the nonfocused part of the sentence while its matrix is given by the focused part. Departing from Herburger (1993), in what follows I would like to argue that this semantic effect is not due to a syntactic restructuring at LF, involving extraposition of the focus. Rather, I would like to adopt a different analysis, following a suggestion by Irene Heim (p.c.).²⁰

The situation we find with f-a readings is clearly reminiscent of what

¹⁹ One can see (25b) as being related to the Restriction Against Vacuous Quantification, if one understands the latter to mean that natural language does not allow quantifiers which do not bind a variable in their ‘scope’, that is, effectively have a matrix.

²⁰ See also Musan (1995, pp. 104–107), where a similar approach is taken.

happens with adverbs of quantification, which are not overtly restricted by the syntax, but where the content of the arguments is a function of the assignment of focus. Consider, for instance, the following example due to Rooth (1985):

- (26) a. In St. Petersburg, officers always escorted BALLERINAS.
 b. In St. Petersburg, OFFICERS always escorted ballerinas.

The syntax in (26a,b) is silent as to what should be counted as the restriction of *always*; what marks it is the focus. Thus, (26a) roughly means ‘Always, when officers escorted someone, those who they escorted were ballerinas’, while (26b) can be paraphrased as ‘Always, when ballerinas got escorted, they got escorted by officers’. Essentially, the nonfocused part provides the restriction of the adverb of quantification, while the focus marks the matrix. This is clearly reminiscent of what we saw in the context of f-a readings.

There are various ways of expressing the logical forms that correspond to the readings of (26). For present purposes, I will adopt an analysis in the style of alternative semantics given in Rooth (1985). Rooth’s fundamental observation concerning ‘association with focus’ as illustrated in (26) is that the nonfocused part of the sentence somehow restricts the syntactically unrestricted adverb of quantification. It will be argued that this also carries over to syntactically unrestricted nominal quantifiers, giving rise to f-a readings.

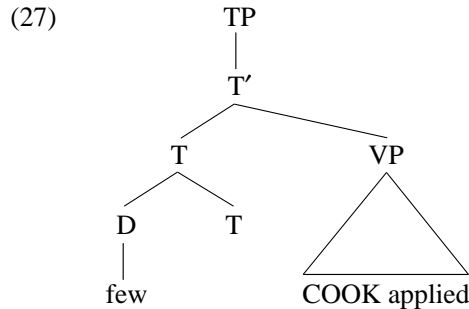
The specific account proposed by Rooth is that along with its ordinary semantic value a sentence also has a ‘focus-semantic value’ denoting a ‘p-set’, which is formed by abstracting over the focus and replacing it with a variable of the same semantic type. An existential quantification over the variable that replaces the focus is then effectively used to restrict focus-sensitive operators.²¹

On this analysis, (26a) comes out as ‘At all time intervals where officers escorted someone, officers escorted ballerinas’. This captures the effects of focus well. Since the theory is entirely ‘in situ’ in that it does not require the focus to move, it can also account for ‘association with focus’ that is non-local and does not obey syntactic islands; cf. Rooth (1985).

Turning to f-a readings now, they can be analyzed in parallel fashion. As a result of D-raising, *few* in *Few COOKS applied* is syntactically un-

²¹ I am abstracting away here from the question what kind of mechanism may ultimately be involved here, i.e. whether the relation takes place directly in the logical form or whether it is a “lucky accident” that is due to two conspiring discourse mechanisms (cf. von Stechow 1994; Rooth 1992).

restricted by any lexical material, so that the entire lexical material makes up its matrix.



The restriction of *few* in a f-a reading are not provided by the syntax (cf. (25) above), but by the nonsyntactic phenomenon of ‘association with focus’.

Replacing the focus with a variable of like semantic type and then applying existential closure to this variable, we obtain ‘ $\exists P P(x) \ \& \ \text{applied}(x)$ ’. Making this the restriction of *few* in (27), following the general analysis of focus-sensitive operators, we obtain the logical form in (28). (The ‘*’ is semantically meaningless; it is intended to bring out the contribution of focus to the logical form.)

(28) [Few x: $\ast\exists P P(x) \ \& \ \text{applied}(x)\ast$] COOKS(x) & applied(x)

The meaning this gives us is ‘Few of the people who have some (contextually relevant) predicate holding of them and who applied, are such that they are cooks and applied’. While (28) is somewhat complex because it also encodes the effects of focal alternatives, it is equivalent to our original logical form (8), ‘Few of those that applied were cooks’. Thus, under the view adopted here, the analysis of f-a determiners exactly parallels that of adverbial quantifiers. In both cases, it is not the syntax that provides the restriction; rather, the restriction is effectively provided by the existential quantification over the variable that replaces the focus.

Next, I would like to note that f-a readings are not limited to cases where focus falls on an immediate constituent of a weak DP (the NP, that is). They also arise when subconstituents of the DP are focused, as in (29), for instance:

(29) Few INCOMPETENT cooks applied.

This sentence can mean that few cooks that applied were incompetent; that is, it can have a f-a reading, where the nonfocused part makes up the restriction of *few* and the focused part makes up its matrix:

- (30) [Few x: cooks(x) & applied(x)] INCOMPETENT(x)

Examples like this one are accounted for analogously to the one discussed above. Thus, by the alternative-semantics analysis adopted here, (30) receives a logical form as in (31):

- (31) [Few x: *cooks(x) & applied(x) & $\exists P$ P(x)*] cooks(x) & applied(x) & INCOMPETENT(x)
 ‘Few of those that were cooks that applied of which P holds were cooks that applied which were incompetent’.

The fact that the focus *incompetent* is more deeply embedded within the DP plays no role since the analysis is *in situ*.²²

A further asset of the present kind of approach is that it straightforwardly extends to those cases where focus does not occur inside the NP, but in the VP instead. Consider, for instance, the examples in (32):

- (32) a. Many Scandinavians won THE NOBEL PRIZE IN LITERATURE.
 b. Most Scandinavians won THE NOBEL PRIZE IN LITERATURE.

These sentences mean roughly that what many/most Scandinavians won was the Nobel prize in literature, and not the Tour de France, for instance. Since the focus does not fall within the NP, it does not matter whether the NP is weak or strong(-like).

Let us assume for the sake of discussion that the relevant existential quantification over the focus variable applies at the level of the minimal argument of the determiner that contains a focus – that is, the sole argument in the case of a unary determiner, and the second argument in the case of a binary determiner.²³ Then, when *many Scandinavians* is interpreted as

²² The *in situ* analysis of f-a readings also makes it possible to capture the following examples, where the focus is either quite deeply embedded, as in (i), or discontinuous, as in (ii). Although judgments may be subtle, these sentences, which were suggested to me by the editors, do seem to have the f-a interpretations given below. Such examples are difficult to account for on a movement analysis (cf. Herburger 1993), but they pose no problems on the *in situ* analysis:

- (i) [Few cooks from JOHN’S school] applied
 ‘Few of the cooks from someone’s school that applied were from John’s school.’
 (ii) [Few INCOMPETENT cooks from FRANCE] applied
 ‘Few of the cooks that applied were incompetent French cooks.’

²³ Nothing here hinges on this. The existential quantification over the focus variable could also include the first argument in a case where the focus only appears in the second argument.

an indefinite DP, where *many* is unary, the sentence has a logical form as in (33), and when it is strong-like, or when the determiner is *most*, in which case the determiner is binary, we have the interpretation in (34):

- (33) [Many x: *Scandinavians(x) & $\exists y$ won(x,y)*] Scandinavians(x)
& won(x, THE NOBEL PRIZE IN LITERATURE)
- (34) [Most x: Scandinavians(x) & * $\exists y$ won(x,y)*] won(x, THE
NOBEL PRIZE IN LITERATURE)

The resulting meanings correspond to ‘Many Scandinavians that have won something are Scandinavians that have won the Nobel prize in literature’ in the case of (33), and to ‘Most (of the) Scandinavians that have won something have won the Nobel prize in literature’ in the case of (34). As these meanings indicate, the present analysis can not only capture f-a readings, it also provides an account of what happens when focus falls outside of the DP. This makes it empirically better than the analysis in Herburger (1993), which was only designed to account for focus within noun phrases and had nothing to say about the effect of focus on nominal quantification when focus appears inside the VP.

Finally, I would like to emphasize the important role that D-raising plays in the present analysis. While the difference between D-raising and DP-raising is irrelevant when the focus is realized inside the VP (cf. (33) and (34)), the distinction does matter when focus is inside the NP. It is because the determiners of DE-weak DPs undergo D-raising that focus inside the NP can have such a drastic effect on their interpretation. Thus, if the determiners of f-a DPs were assumed to take scope not through D-raising but through DP-raising instead, the effect of focus would not be adequately captured. For instance, we could not account for the f-a reading of *Few INCOMPETENT cooks applied* if the entire DP raised, as in (35):

- (35) [Few x: INCOMPETENT(x) & cooks(x)] applied(x)

Following the general schema, we would get the logical form in (36):

- (36) [Few x: INCOMPETENT(x) & cooks(x) * $\exists P$ P(x) & cooks(x)*]
applied(x)

But (36) amounts to ‘Few of those that were incompetent cooks applied’, which just means that few of the incompetent cooks applied. It does not express that few of the cooks that applied were incompetent, which is the interpretation we are after.

In sum, D-raising is crucial to the analysis of f-a readings. It is because D-raising makes the determiner syntactically unary that it allows for focus

to have such a strong effect, one that is analogous to ‘association with focus’ with adverbs of quantification. And it is because D-raising is local that it captures the narrow scope property of f-a DPs, which they share with indefinite DPs in obligatory DE.^{24, 25}

5. CONCLUSION

Taking into account the effects of focus on nominal quantification, which affect weak but not strong determiners, in this paper I have considered the differences in logical form between strong DPs and weak DPs. The three types of readings of weak determiners, namely the indefinite, the f-a, and the strong-like, have been argued to involve an ambiguity in the number and content of the determiner’s arguments. I have proposed that what distinguishes DPs that occur in DE environments from those that occur elsewhere is that in DE environments the determiner takes scope via local D-raising, whereas in other environments it takes scope via QR. This was shown to account for the narrow scope property of DPs in obligatory DE

²⁴ Assuming that DPs always take scope via QR, Geilfuß (1993) proposes an account along the lines of (36). While he is mostly concerned with focus inside the VP, which is captured under this analysis (see above), he also briefly notes the existence of f-a readings. To these, however, the analysis that assumes QR (or DP-raising), rather than D-raising, does not extend, as we have just seen. This is also pointed out in de Hoop and Solà (1995), who, maintaining a general QR analysis, attempt a different description of the facts where f-a readings are said not to require any focus inside the NP and where f-a readings are attributed to a general context sensitivity of *few* and *many*. Thus the authors propose that (i) and (ii) have f-a readings even when there is no focus on the noun, but when main stress falls somewhere else, e.g. on the VP in (ii). I have not been able to replicate this claim.

- (i) There are few linguists in the pub.
- (ii) Many Scandinavians have won the Nobel prize in literature.

²⁵ It might appear that the effects of D-raising could also be duplicated by an analysis in terms of tripartite structures as proposed in Partee (1991), where the focused predicate is mapped into the nuclear scope and the nonfocused material goes into the restrictive clause. But in these tripartite structures the determiners are assumed to take scope over the entire sentence. This makes it impossible to capture the narrow scope of f-a weak DPs. Consonant with the observation that f-a DPs take narrow scope, (i) does not have a f-a reading; that is, it cannot mean ‘Few that ever applied were cooks’. The tripartite approach, however, would predict this reading to exist. I owe this example to Anna Szabolcsi (p.c.).

- (i) Few COOKS ever applied.

The same problem arises for an analysis proposed in Eckardt (1994). Eckardt is not concerned with f-a readings and only deals with the effects of focus on noun phrases when focus is inside the VP, but in her analysis she assumes that after QR the determiner raises, adjoining to IP. While this does make the determiner unary, it still assigns too wide a scope and makes the analysis equivalent to the tripartite structure approach.

and to allow for an analysis of f-a DPs which assimilates them to other known cases of ‘association with focus’, notably those involving adverbs of quantification. On a general level, the existence of the f-a reading of weak DPs has also been shown to have repercussions for the analysis of the DE itself, suggesting that all weak DPs are in fact quantificational.

REFERENCES

- Barwise, John and Robin Cooper: 1981, ‘Generalized Quantifiers and Natural Language’, *Linguistics and Philosophy* **4**, 159–219.
- Diesing, Molly: 1992, *Indefinites*, MIT Press, Cambridge, Mass.
- Dobrovie-Sorin, Carmen: 1993, ‘Referentiality, Scope and the ECP’, ms., CNRS.
- Eckardt, Regine: 1994, ‘Focus with Nominal Quantifiers’, in *Focus and Natural Language Processing*, Working Papers of the Institute for Logic and Linguistics, vol. 2, IBM Germany, Heidelberg, pp. 281–290.
- Geilfuß, Jochen: 1993, ‘Nominal Quantifiers and Association with Focus’, *Proceedings on the Semantic and Syntactic Analysis of Focus*, OTW Working Papers, Research Institute for Language and Speech, Utrecht University, pp. 33–41.
- von Stechow, Kai: 1994, *Restrictions on Quantifier Domains*, Ph.D. dissertation, University of Massachusetts, Amherst.
- Heim, Irene: 1982, *The Semantics of Definite and Indefinite Noun Phrases*, Ph.D. dissertation, University of Massachusetts, Amherst.
- Herburger, Elena: 1993, ‘Focus and the LF of Quantified Noun Phrases’, in U. Lahiri and A. Wyner (eds.), *Proceedings from Semantics and Linguistic Theory III*, Dept. of Modern Languages, Cornell University, Ithaca, pp. 77–96.
- Herburger, Elena: 1995, ‘On the Quantificational Nature of Indefinite Noun Phrases’, in L. Nash and G. Tsoulas (eds.), *Actes du Premier Colloque Langue et Grammaire*, Université Paris 8, pp. 169–183.
- Higginbotham, Jim: 1987, ‘Indefiniteness and Predication’, in E. Reuland and A. ter Meulen (eds.), *The Representation of (In)definiteness*, MIT Press, Cambridge, Mass., pp. 43–70.
- de Hoop, Helen and Jaume Solà: 1995, ‘Determiners, Context Sets, and Focus’, ms., University of Groningen; to appear in J. Camacho, L. Choueiri, and M. Watanabe (eds.), *Proceedings of the Fourteenth West Coast Conference on Formal Linguistics*, CSLI, Stanford, Cal.
- Hornstein, Norbert and Amy Weinberg: 1990, ‘The Necessity of LF’, *The Linguistic Review* **7**, 129–167.
- Keenan, Ed and Y. Stavi: 1986, ‘A Semantic Characterization of Natural Language Determiners’, *Linguistics and Philosophy* **9**, 253–326.
- Ladusaw, Bill: 1994, ‘Thetic and Categorical, Stage and Individual, Weak and Strong’, in M. Harvey and L. Santelmann (eds.), *Proceedings from Semantics and Linguistic Theory IV*, Dept. of Modern Languages, Cornell University, Ithaca.
- Milsark, Gary: 1974, *Existential Sentences in English*, Ph.D. dissertation, MIT.
- Milsark, Gary: 1977, ‘Toward an Explanation of Certain Peculiarities of the Existential Construction in English’, *Linguistic Analysis* **3**, 1–29.
- Musan, Renate: 1995, ‘On the Temporal Interpretation of Noun Phrases’, Ph.D. dissertation, MIT.
- Partee, Barbara: 1988, ‘Many Quantifiers’, in J. Powers and K. de Jong (eds.), *Proceedings of the Fifth Eastern State Conference on Linguistics*, The Ohio State University Press, Columbus.
- Partee, Barbara: 1991, ‘Topic, Focus and Quantification’, in S. Moore and A. Wyner (eds.),

- Proceedings from Semantics and Linguistic Theory 1*, Cornell Working Papers in Linguistics 10, Cornell University, Ithaca, pp. 159–187.
- Rooth, Mats: 1985, *Association with Focus*, Ph.D. dissertation, University of Massachusetts, Amherst.
- Rooth, Mats: 1992, 'A Theory of Focus Interpretation', *Natural Language Semantics* **1**, 75–116.
- Westerståhl, Dag: 1985, 'Logical Constants in Quantifier Languages', *Linguistics and Philosophy* **8**, 387–413.

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