

Specificity and Scope

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1. Introduction¹

The notion of specificity has played a significant role in linguistic theory both in the fields of semantics and, increasingly, in work on syntax/semantics interface. (For work in the semantics/philosophy of language realm, see, Fodor (1970), Abbott (1976), Kripke (1977), Fodor and Sag (1982), Higginbotham (1988) and Enc (1991) among many others; see also Pesetsky (1987), Szabolcsi and Zwarts (1991), Diesing (1992), Dobrovie-Sorin (1993), E. Kiss (1993), Mahajan (1992), and Chung (1994) for work where specificity is discussed in connection with syntactic matters.)

Specificity is interesting for the student of semantics because it is crucially relevant to establishing varieties of reference (and referents). For the syntactician, the notion of specificity comes up when attempting to account for the use of various case markers on DOs in languages as diverse as Romanian, Turkish, and Hindi, or when attempting to account for the full spectrum of judgments concerning weak island violations and the interpretation of multiple wh-questions.

The first point I will argue for is that there are several distinct (though possibly related) notions of specificity that should be kept apart. More specifically, I will argue that there are at least three. The discussion inevitably leads to Fodor and Sag's ambiguity claim, which in turn leads to the issue of the possible scopes of indefinite (weak) noun phrases versus the possible scope of quantificational (strong) noun phrases. Section 3 will establish the relevant empirical generalizations concerning simple indefinites and distributives, and Section 4 captures them within a non-configurational theory of scope proposed in Farkas (1993) and Farkas (1994a).

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2. Three types of specificity

2.1 Do indefinites contribute an existential quantifier?

Before going into a discussion of specificity the question of whether indefinites contribute an existential quantifier has to be addressed. There are three possible positions with respect to this question, all of which have been advocated in both recent and not so recent literature: (i) the strict Russellian view, according to which indefinites are always quantificational, most recently defended in Ludlow and Neale (1991); (ii) the strict Strawsonian view, according to which non-cardinal indefinites never contribute a quantifier, argued for in Kamp (1981) and Heim (1982), following Karttunen (1976); (iii) the ambiguity view, according to which indefinites may or may not contribute an existential quantifier, argued for in Fodor and Sag (1982) and taken up in various forms since then, most recently in Diesing (1992), and Dobrovie-Sorin (1993). The ambiguity proponents vary both with respect to how many readings are assigned, as well as to the actual analysis of the non-quantificational reading(s).²

In this paper I restrict my attention to non-cardinal indefinites and assume a strict Strawsonian view with respect to them. Indefinite noun phrases then are taken to contribute a variable and a descriptive content (DC); they get their quantificational force from the properties of the semantic structures in which they occur. What I have to say is compatible with this view but cannot be construed as an argument for it. In the last section an argument is presented against the strongest argument for the ambiguity view.

2.2 Epistemic, Partitive, and Scopal Specificity

The three types of specificity to be distinguished here are exemplified in [1] through [3].

Epistemic-specificity (Fodor and Sag (1982)):

- [1] a. A student in Syntax 1 cheated on the exam.

²The issue of whether (in)definites contribute their own existential quantifier is partially independent of the question of whether indefinites are 'referential' or 'non-referential' terms. (Referential terms combine with predicates to form singular propositions; non-referential terms form general propositions.) Thus, when an indefinite is analysed as contributing its own existential quantifier it necessarily is a non-referential term; when it is analysed as not contributing an existential quantifier of its own, it may be taken either as a referential term (as in Strawson and Fodor and Sag) or as a general term (as in the work of Kamp and Heim).

- b. His name is John.
- c. We are all trying to figure out who it was.

Partitive-specificity (Enc (1991), Diesing (1992)):

- [2] a. There are some ghosts in this house.
- b. Some ghosts live in the pantry; others live in the kitchen.

Scopal specificity:

- [3] a. John wants to marry a Norwegian.
- b. He met her last year.
- c. He'll move to Norway to try to achieve this goal.

The indefinites in [1a] and [3a] can be understood in two ways, which are isolated by the possible continuations in (b) and (c). The continuation in (b) forces a specific understanding of the indefinite in (a), while the continuation in (c) forces a non-specific understanding of that indefinite. In [2a], the indefinite *some ghosts* is understood as non-partitive, while in [2b] it is interpreted as a covert partitive. Note that the determiner *some* can be pronounced in its reduced form in [2a] but not in [2b].

I turn now to an intuitive characterization of each type of specificity exemplified above, and show that they are independent. For the time being I will talk about different ‘understandings’ without committing myself to an ambiguity claim for any of the cases exemplified above.

(a) *Scopal specificity*

This type of specificity has been at the center of the semantics/philosophy of language literature. The issue here is whether the interpretation of the indefinite is dependent on some quantifier or intensional predicate or whether it is independent. In the latter case the indefinite is scopally specific; in the former, it is scopally non-specific. I will concentrate below on the issue of scopal specificity in quantificational structures. In such structures, the indefinite is scopally specific iff its interpretation is independent of the cases that constitute the domain of quantification, and it is scopally non-specific iff its interpretation is dependent on the domain of quantification.

In terms of the theory presented in Heim (1982, Chapter 2), an indefinite is scopally specific iff it is bound by text level existential closure; it is scopally non-specific if it is in the Restrictor of a quantifier Q , in which case it is bound by Q , or if it is in the Nuclear Scope of Q , in which case it is bound by the quantifier introduced by NS-level existential closure. These

two cases of scopal non-specificity are exemplified with the ‘narrow scope’ readings of the indefinites in [4] and [5]:

[4] Everybody in this room speaks a foreign language.

[5] Every farmer who owns a donkey is rich.

In theory-neutral terms, the difference lies in the fact that the value given to scopally specific indefinites must be fixed independently of the domain of quantification, i.e., these noun phrases are rigid with respect to the cases that form this domain, while the value of scopally non-specific indefinites varies over the domain of quantification, i.e., they are non-rigid with respect to it. When such an indefinite is in the Restrictor, its reference is non-rigid because it participates in forming the domain of quantification, and therefore its values range over that domain; when it is in the NS the assigned values co-vary with every possible value selected for the variables in the Restrictor. Variables contributed by narrow scope indefinites in the Restrictor may be assumed to be bound by Q (as argued for in Heim (1982) or by their own narrow scope existential quantifier (as in more traditional approaches). Below I will only consider indefinites in the Nuclear Scope.

In the case of indefinites occurring within the complements of intensional predicates such as *want* and *believe*, exemplified in [3] above, when scopally specific, the value of the indefinite is to be chosen from the domain of *w*, the world with respect to which the main clause is evaluated, while the value of scopally non-specific indefinites is to be chosen from the domain of the world or worlds introduced by the predicate. In the latter case we have non-rigid reference because the value of the indefinite changes from world to world.³

An indefinite then will be scopally non-specific if its valuation is dependent on the domain of some quantifier, or on the worlds introduced by a predicate, and it is scopally specific otherwise. Scopally specific indefinites are said to have widest scope. In DRT terms they are entered into the main DRS box. I will assume in what follows that scopal specificity is a matter of semantics and gives rise to semantic ambiguity.⁴

³I argued in Farkas (1985) and Farkas (1992) that there is an important difference between predicates that introduce sets of worlds, like *want*, and those that introduce single worlds, like *believe*. Non-rigid reference arises only in cases involving predicates of the first type. This distinction is not essential to the points made here so it will be ignored below.

⁴I will not deal here with a separate though related issue, namely the scope of the descriptive content of noun phrases. For discussion see Farkas (1993) and Farkas (1994a).

(b) *Epistemic specificity*

The gist of Fodor and Sag’s claim is the following: sentences like [1] are semantically ambiguous. Scopal specificity cannot be resorted to in their case given that there is no operator or quantifier that could be responsible for the ambiguity. Hence, indefinites are inherently, lexically ambiguous between a specific and a non-specific reading. In their view, non-specific indefinites exhibit the type of scopal ambiguities discussed above.⁵

Fodor and Sag’s intuitive characterization of the ambiguity is that in the case of the specific reading, the speaker has an intended referent in mind, i.e., knows who the cheater is. In the non-specific case, on the other hand, the indefinite is quantificational and therefore it doesn’t refer. This brand of specificity will be called *epistemic* in what follows.

More concretely now, Fodor and Sag propose that the two understandings of [1] are due to a lexical ambiguity of indefinite (weak) determiners, and therefore indefinite (weak) noun phrases. In their view, such noun phrases are either quantificational, just like strong noun phrases or they are non-quantificational, that is, referential, in which case they function like demonstratives.

Formally, epistemically specific noun phrases are treated as not contributing an existential quantifier, and as having their Kaplan-style parameters of evaluation lexically set for the context of the speech act, just like demonstratives. Epistemically specific noun phrases then always appear to have ‘widest scope’ but do not actually participate in scopal relations. The lexically specified evaluation parameter will ensure that the noun phrase will denote the individual the speaker has in mind. This is what provides the connection between the formal and the intuitive characterization of the ambiguity. Recall that only epistemically specific noun phrases denote the speaker’s intended referent. Epistemically non-specific ones don’t, independently of their scopal properties.

An obvious way to translate this position into a Heimian framework is to take Fodor and Sag’s quantificational indefinites to be Heim’s free variables bound by the closest commanding quantifier, and their epistemically specific noun phrases to be constants not subject to binding. This is essentially the view taken in Dobrovie-Sorin (1993). It appears preferable in principle to Fodor and Sag’s because it does not posit an arbitrary lexical ambiguity within the category of determiners. The analysis proposed in Dobrovie-Sorin (1993) does, however, rely on a distinction between deter-

⁵This point is ignored by Ludlow and Neale (1991), who criticize Fodor and Sag for allegedly reducing specificity to a binary distinction.

miners that must and determiners that may undergo Determiner Raising.

It follows from this characterization that one may have scopally specific but epistemically non-specific noun phrases, as exemplified in the reading of [1a] forced by the continuation in (b). Clearly, one can have scopally and epistemically non-specific noun phrases as well. An interesting question that I raise here but will not discuss is whether there are scopally non-specific but epistemically specific noun phrases. The question is relevant to the interpretation of sentences such as [6], and Geach's [7].

[6] John believes that a unicorn has destroyed his flowerbeds.

[7] Cob believes that a witch has blighted his mare and Nob believes that she has destroyed his crops.

Deciding whether epistemic specificity belongs in the pragmatic or the semantic realm is a complex matter that I will return to below. For the moment let us note that there is no necessary connection between the intuitive characterization Fodor and Sag give for their putative ambiguity, which concerns the epistemic state of the speaker, and the formal account of such noun phrases as constants or as expressions whose evaluation parameters are lexically anchored to the context of the speech act. I turn now to sketching a different way of capturing the intuitive characterization of epistemic specificity which makes reference to the speaker's epistemic state.

Let us assume, following Stalnaker (1979), that the context of the speech act includes a set of propositions P_0 , which are the propositions the participants in the conversation publicly assume to be true, and let us call P_0 the *common ground*. The common ground determines a set of possible worlds, $W(P_0)$, called the *context set*, which contains all and only those worlds of the model in which all the propositions in the common ground are true.

Let us further assume that the cognitive state of an individual i is represented by a set of propositions P_i , the propositions i takes as being true of the actual world. Let us call the propositions in P_i the *epistemic modal base* of i . P_i characterizes a set of worlds, $W(P_i)$ containing all and only those worlds of the model in which all the propositions in P_i are true. $W(P_i)$ will be referred to as 'the worlds epistemically accessible to i '.⁶

⁶Note that the cognitive state of the speaker will have to be brought into the picture anyway when discussing the connection between assertion and belief, as well as in connection with the use of certain subjunctives in French complement clauses (see Farkas (1992)).

Finally, let us assume that the context of a conversation contains information regarding the participants' epistemic modal bases, and that assertions have a secondary effect of affecting information concerning the epistemic modal base of the speaker. Their primary effect is, of course, affecting the common ground.

We may now characterize epistemic specificity in terms of the status of the referent of an indefinite with respect to the speaker's epistemic modal base, and not with respect to the common ground *per se*. Thus, if a speaker s asserts [1a] with respect to P_0 , and the assertion is not objected to, the common ground is changed to P_1 , by adding to P_0 a proposition claiming the existence of a student who cheated on the exam, independently of whether the indefinite is epistemically specific or not. The indefinite will refer non-rigidly with respect to the context set: which individual is the cheater will vary from world to world in $W(P_1)$. If the indefinite is epistemically specific, the speaker will be taken to have fixed the referent of the indefinite, i.e., the indefinite will refer rigidly with respect to the worlds in the modal base of the speaker, $W(P_s)$. An epistemically specific indefinite refers non-rigidly with respect to $W(P_0)$, and it refers rigidly with respect to $W(P_s)$, while an epistemically non-specific noun phrase refers non-rigidly with respect to both sets of worlds. In order to implement these suggestions one has to allow assertions to affect the common ground and the representation of the cognitive state of the speaker in different ways. Fleshing out this proposal would take us too far into the realm of model structure and beyond the scope of this paper. The following characteristics of it are relevant for present purposes:

- (i) Under the assumption that the truth conditions of a proposition concern only its effect on the common ground, epistemic specificity does not affect them. Epistemic specificity affects only the information concerning the speaker's cognitive state. This is a welcome result in view of Ludlow and Neale's (1991) persuasive argument concerning the non-desirability of having epistemic specificity affect truth conditions.
- (ii) Epistemic specificity is characterized in terms of rigidity of reference with respect to a set of worlds, just like scopal specificity, only in this case the set of worlds in question is present in the context of the speech act, rather than being introduced by linguistic expressions.
- (iii) The information concerning epistemic specificity need not be encoded at the level of semantic representation, which can be assumed to be underspecified with respect to it. We do not preclude, however, a situation in which epistemic specificity is morphologically encoded.

This proposal maintains Fodor and Sag’s insight while avoiding the most problematic consequence of their claim, namely the view that the semantic representation of [1a] and its truth conditions are sensitive to the speaker’s cognitive state. An important ingredient of this proposal is the analysis of epistemic specificity as a contextual (pragmatic) relative of scopal specificity, by connecting both to non-rigidity of reference in the tradition of Kripke (1977), Abbott (1976), and Abbott(1994a), as well as Farkas (1985).

I take it as established then that epistemic and scopal specificity are distinct though related, and that so far we have seen no evidence that forces us to take the former to be a matter of strict semantic ambiguity.

(c) Partitive specificity

The point relevant to present purposes is that partitive specificity is distinct from both scopal and epistemic specificity. The issue of partitivity has been connected to specificity since Enc (1991). In what follows I will take a noun phrase to be partitive iff it denotes a member or a subset of a familiar discourse group. (Familiarity is defined in terms of Heim (1982).) It is easy to see that partitivity (whether overt or covert) is independent of both scopal and epistemic specificity, as shown by the examples in [8] below.

- [8] a. John wants to marry one of Steve’s sisters. (He doesn’t care which.)
b. One of Steve’s sisters cheated on the exam. (We have to find out which.)

Here *one of Steve’s sisters* is an overt partitive that can be interpreted as scopally non-specific in [8a] and epistemically non-specific, in [8b]. (The non-specific readings are forced by the continuations in parentheses.)⁷ Partitivity can be treated as a form of familiarity, as proposed by Enc, or as involving the quantificational/non-quantificational dichotomy, as proposed in Diesing (1992). I will assume here the former view and treat the special properties of both overt and covert partitives as connected to their being more familiar than non-partitive indefinites, but less familiar than definites. (For discussion of types of novelty/familiarity see Condoravdi (1993) and (1994).)

⁷This point is also made in Abbott (1994b), who gives examples of scopally specific non-partitive noun phrases. Abbott then goes on to show that neither the use of the adjective *certain* nor the ability to occur in existential sentences is sensitive to partitivity, contrary to what is claimed in Enc (1991).

Establishing the difference between partitivity and the two types of specificity discussed above is easier than establishing the family resemblance. The best I can do for the moment is to note that all three dichotomies involve a distinction with respect to range of possible referents. The range of possible referents is narrower in the case of specific noun phrases than in the case of non-specific ones. In the case of scopal specificity this is so because the range of scopally non-specific noun phrases involves domains from multiple worlds; in the case of epistemic specificity this is so because epistemically non-specific noun phrases are non-rigid with respect to the epistemic alternatives of the speaker, and in the case of partitives, the range of partitive non-specific noun phrases is more restricted than that of a non-partitive non-specific noun phrase.

To conclude then, I take it to have established that the three types of specificity talked about in the literature are distinct, though possibly related. I now turn to the question of whether positing a semantic ambiguity inherent in indefinites is justified on independent grounds. This is where scope enters the picture.

3. Scope of indefinites vs. scope of distributives

Fodor and Sag give the best evidence to date in favor of the inherent ambiguity view, evidence that is independent of what intuitive content one gives to the referential reading of indefinites. Their claim can be broken down into the following subclaims:

(i) There is a contrast between the scope possibilities of indefinites on the one hand, and distributive noun phrases on the other. The scope of distributives is upward clause-bounded, while that of indefinites appears to be free. Thus, in [9a] the distributive may not have scope over the indefinite, but the indefinite in [9b] may have scope over the distributive.

- [9] a. A high placed official claimed that John talked to every member of the committee.
- b. Every member of the committee claimed that John talked to a high placed official.

The example in [9a] lacks a reading where officials co-vary with committee members, but [9b] does have a reading which involves a single official.

(ii) The apparent discrepancy is due, Fodor and Sag claim, to the existence of the referential (non-quantificational) reading, which gives rise to the illusion of wide scope. Indefinites are either quantificational (and then they

are scopally constrained just like distributives) or they are referential, and appear to have widest scope.

This claim is crucial to the analysis since it is the basis for the empirical prediction in (iii).

(iii) No Intermediate Reading Prediction: when indefinites have scope outside their clause they must have widest scope.

The prediction in (iii) has been shown to be false first in Farkas (1981) and most recently, in Abusch (1994) on the basis of examples like [10a and b], both of which can be understood with scopes assigned as in [10c]:

- [10] a. Every student had to review every major paper that was written by a famous university alumnus.
- b. Every witness alleged that every suspect had some connection to a well-known movie star.
- c. every a every

Ludlow and Neale (1991), while acknowledging the existence of the intermediate reading, claim that the apparent discrepancy between the scope potential of indefinites and distributives is a pragmatic illusion. This is shown to be false in Farkas (1981), and, using essentially the same arguments, in Abusch (1994).

The empirical generalizations to be accounted for, noted first in Farkas (1981), are given in [11] and [12]. The former prevents distributive quantifiers from having scope over a non-clause-mate indefinite. The latter allows indefinites to take scope freely.

- [11] The scope of distributive quantifiers and operators is upward clause-bounded with respect to indefinites or other quantifiers.

- [12] The scope of indefinites is upward unbounded.

The question I turn to now is how to capture these generalizations.

4. An indexical theory of scope

I summarize here the theory of scope proposed in Farkas (1994a), and show how it captures the generalizations in [11] and [12] above. My aim is to show that an insightful account of the facts is possible without relying on an inherent ambiguity of indefinites.

In the theory of scope I am proposing the relative scope of two expressions is a matter of possible dependencies between evaluation index values.

Evaluation indices, discussed first in the linguistic literature in Kaplan's work on demonstratives, specify the modal, situational and temporal parameters at which a predicate must be true of its arguments. In the case of variables, they specify the world or situation at which the relevant evaluation function is to be interpreted as well as what the relevant evaluation function is.

I am assuming here that the semantic contribution of sentences is broken down into a main predication (MP), contributed by the main predicative expression of a sentence, and a set of argument constraining conditions, contributed by the constituents that realize the arguments of the main predication. In case these constituents are lexical noun phrases with weak determiners, they contribute a discourse referent, represented by a subscripted variable, and a condition on that variable, which is the descriptive content (DC) of the noun phrase. These are exemplified in [13]. The w 's are modal indices, $f(w)$ is an evaluation function index; situational indices will be ignored here.

- [13] a. A man left.
 b. $x_1 f(w)$
 c. MP: *leave'*(x_1) w
 d. DC: *man'*(x_1) w

I assume that interpretation is done with respect to a model $M = \langle W, U, V, F \rangle$, where W is a set of worlds, U is a set of individuals, V is a set of valuation functions assigning intensions to constants, and F is a set of assignment functions assigning intensions to variables. The domain of worlds are possibly overlapping subsets of U . A logical form \mathcal{I}_1 is true in w wrt M iff there is some assignment function $f(w) \in F$ that satisfies all the conditions in \mathcal{I}_1 at w .

The truth conditions of [13] are given in [14].

- [14] [13b-d] is true in w wrt M iff there is an assignment function f such that
 (i) $f(x_1, w) \in V(\textit{leave}', w)$
 (ii) $f(x_1, w) \in V(\textit{man}', w)$

The variable x_1 is interpreted with respect to f at w because its index is $f(w)$; the predicates *leave'* and *man'* are interpreted with respect to w because w is the value of the world or modal indices in [13c, d]. Scopal variation under this approach is a matter of differing index values.

Evaluation indices may be *free* or *bound*. If an index is bound, it must be set to a particular value determined by local properties of the lf the bound index occurs in; if an index is free, it may be set to any value the context makes available. The actual choice is of course constrained by considerations of discourse coherence. The modal index of the MP of the complement of an intensional predicate or noun is bound by the world(s) introduced by the predicate or noun; the modal index of variables and their DCs are free. In [15],

[15] John dreamt that a high official lied.

the value of the modal index of the MP of the complement must be w_d , the world introduced by *dream*; the modal index of the variable and its DC may either be the base world, w , which is always available in the discourse, or w_d , the world just introduced. The former choice corresponds to the ‘wide scope’ reading of the indefinite, and the latter to its ‘narrow scope’ reading. Here I will be concerned only with the interpretation of the variable and assume that the DC always shares the modal index of its variable. (For discussion see Farkas (1994a).) The possibilities are given in [16]:

[16] a. $x_1 f(w)$ a'. $x_1 f(w_d)$
 b. DC: *high official'*(x_1) w b'. *high official'*(x_1) w_d
 c. MP: *lie'*(x_1) w_d

In QR accounts of scope the choice between the possibilities in [16] is determined by whether the indefinite DP c-commands the main predicate at LF, resulting in [16a, b] or whether the DP is c-commanded by the predicate, resulting in [16 a', b']. In DRT accounts of scope the choice depends on whether x_1 is entered into the main DRS box (for the wide scope reading) or into a subordinate box opened because of the use of the intensional predicate (for the narrow scope reading). In both approaches there is a structural difference between the two readings. In the present theory, the lfs of the two readings are structurally identical, the difference being only in index value. Hierarchical structure undetermines indexing in this approach. A choice is possible at all in the case of the indefinite because its indices are free; the choice in a. and b. is possible because the base world is always an available index value; the choice in a'. and b'. is possible because the indefinite is within the complement of *dream* and therefore w_d , having just been introduced, is an available value. The freedom of the modal index of indefinite DPs parallels the freedom of their temporal index, as argued in

Enc (1986). In this theory then, the narrow scope of the indefinite *a Norwegian* in [3a] is given by setting the evaluation index of the noun phrase to the worlds introduced by *want*. The wide scope reading of the indefinite is given by setting the evaluation index of the noun phrase to *w*. Both possibilities exist because the evaluation indices of noun phrases are free. Note that under this proposal, the scope difference reduces to a difference in evaluation index value and not a structural difference: whether a noun phrase is interpreted as having wide or narrow scope with respect to some expression is dictated by whether the evaluation index of the noun phrase is set to a value introduced by that expression or not.

I turn now to scope issues in quantificational structures. Because of space limitations I will only deal here with nominal quantification. If one of the arguments is a quantificational DP, i.e., if one of the argument noun phrases has a ‘strong’ determiner, a tripartite structure is induced where the Restrictor contains the variable and the DC contributed by the quantificational DP, the quantifier Q, is contributed by the quantificational determiner, and the Nuclear Scope contains the main predication.

In order to verify a quantificational claim one has to first identify the set of relevant cases, which form the domain of quantification, and then check whether the possibly complex property expressed in the NS is true of the appropriate number of cases. The cases introduced by the Restrictor play the role of ‘logical subject’, and as such their existence is presupposed, while the NS plays the role of ‘logical predicate’. (This is essentially the view underlying restricted quantification as well as Szabolcsi and Zwarts’ ‘look up’ procedure.) Crucial for present purposes is that the Restrictor introduces a set of cases which must serve as values for the evaluation parameter of the NS: the truth of the Nuclear Scope has to be checked relative to the cases introduced by the Restrictor.

In nominal quantification the cases that form the domain of quantification are the individuals in *w* (or the individuals in some contextually salient situation in *w*) that meet the DC condition of the quantificational DP. A way of making such a case true amounts to choosing an evaluation function which assigns to the variable contributed by the quantificational DP a value that meets the DC condition of the DP. The If of sentences involving nominal quantification is as in [17],

[17] Restrictor Qx_n Nuclear Scope

where x_n is the variable contributed by the quantificational DP. Truth conditions for such expressions are given in [18].

[18] An lf of the form in [17] is true in w wrt M iff there is an $f \in F$ such that there are Q-many functions f_R that extend f and that verify the lf in the Restrictor, such that each f_R has an extension f_{NS} that verifies the lf in the NS.

(The world argument is ignored below). A function f_e is an extension of f iff f_e agrees with f on all mentioned variables in f . A function is said to verify an lf iff it meets the conditions of that lf; a variable x is mentioned in f iff f verifies some lf in which x appears. In what follows, f will be called the base function, F_R will denote the set of functions that extend the base function and that verify the lf in the Restrictor, and F_{NS} will denote the set of functions that extend the functions in F_R and that verify the Nuclear Scope. The lf of [19] is [20], and its truth conditions are as in [21].

[19] Every student left.

[20] Restrictor:	$\forall x_1$	Nuclear Scope:
$x_1 F_R$		<i>leave'</i> (x_1)
<i>student'</i> (x_1)		

[21] The lf in [20] is true in w with respect to M iff there is some assignment function f with the following property: every assignment function f_R which extends f such that $f_R(x_1) \in V(\textit{student}')$ has the property of having an extension f_{NS} such that $f_{NS}(x_1) \in V(\textit{leave}')$.

Variables contributed by quantificational DPs have bound evaluation function indices; they must be evaluated with respect to the functions in F_R . Variables contributed by non-quantificational DPs to either the Restrictor or the Nuclear Scope have free indices. I will exemplify here with the case of an indefinite in the Nuclear Scope. Consider [22]:

[22] Every student speaks an Indo-European language.

The evaluation index of the variable contributed by the indefinite is either the base function, giving the wide scope reading, or the functions in F_{NS} , giving the narrow scope reading. The former option is available because the base function, just like the base world, is always available as a value to a free index; the functions in F_{NS} are available because the variable occurs in the NS of a quantificational expression. The two lfs are given in [23] and the truth conditions in [24].

- [23] a. Restrictor: $\forall x_1$ Nuclear Scope:
 $x_1 F_R$ $x_2 f$
DC₁: *student'*(x_1) DC₂: *I-E language'*(x_2)
MP: *speak'*(x_1, x_2)
- b. Restrictor: $\forall x_1$ Nuclear Scope:
 $x_1 F_R$ $x_2 F_{NS}$
DC₁: *student'*(x_1) DC₂: *I-E language'*(x_2)
MP: *speak'*(x_1, x_2)
- [24] a. The lf in [23a] is true in w wrt M iff there is an assignment function f such that every assignment function f_R that extends f such that $f_R(x_1) \in V(\textit{student}')$ has an extension f_{NS} such that $f(x_2) \in V(\textit{I-E language}')$ and $\langle f_{NS}(x_1), f(x_2) \rangle \in V(\textit{speak}')$.
- b. The lf in [23b] is true in w wrt M iff there is an assignment function f such that every assignment function f_R that extends f such that $f_R(x_1) \in V(\textit{student}')$ has an extension f_{NS} such that $f_{NS}(x_2) \in V(\textit{I-E language}')$ and $\langle f_{NS}(x_1), f_{NS}(x_2) \rangle \in V(\textit{speak}')$.

In the narrow scope case the values of the variable contributed by the indefinite co-vary with the values assigned to the variable contributed by the quantificational DP because the evaluation index of the former is F_{NS} ; in the wide scope case, the indefinite refers rigidly because its evaluation index is the base function f . The two readings differ only with respect to index values but not with respect to structure. In QR based approaches the two readings would differ at LF, while in DRT the two readings induce DRSs that differ structurally in that x_2 would be introduced in the main box in the wide scope case and in the NS box in the narrow scope case.

Turning now to limits on scopes, note that the range of possible scopes in this approach is delimited by which values are accessible to a particular index. The generalization in [11] reduces to the claim that the cases introduced by the Restrictor are not possible values for indices of variables contributed by expressions occurring in clauses that command the quantificational expression in surface structure. The generalization in [12] reduces to the claim that the base function is a possible index value for variables whose index is free. To capture these generalizations an accessibility relation between index values and indices has to be defined. As a first step, let us assume the constraint in [25]:

- [25] A value v is accessible as a possible value to an index i of an expression e iff v has been introduced prior to e .

The generalization in [12] is captured under the natural assumption that the base function (as well as the base world) need no introduction, and therefore are always accessible as index values in the case of free indices. In this approach then the unlimited upward scope of indefinites can be captured without resorting to positing a systematic lexical ambiguity of indefinite determiners (as in Fodor and Sag (1982)), and without having to assume unbounded NP-Preposing or QR for indefinites as in LF-based approaches. There is no need to assume long distance binding of variables by text level existential closure either, as in Abusch (1994).

The generalization in [11], and therefore the contrast between indefinites and *every*, concerns assumptions about when the index contributed by the Restrictor becomes accessible as a value to expressions that command the quantificational DP in surface structure. This reduces to determining the relation between priority and command. Suppose that at the level of complex clauses, the constituents of a clause S_1 are prior relative to the constituents of a clause S_2 iff S_1 c-commands S_2 in surface structure. Under this assumption the generalization in [11] is accounted for. In order to predict the possibility of inverse scope in [26]

[26] A proofreader read every paper.

we have to assume that clause-mates are simultaneous. Under these assumptions priority at the sentence level corresponds to c-command defined on clausal domains at surface structure. I see as the main virtue of this analysis of scope the fact that it captures these two generalizations without having to resort to any special stipulations concerning limited or unlimited LF movement.

In the present account, just as in Kamp and Reyle (1993), indefinites differ from distributives in that the latter, but not the former, involve quantification in the sense discussed above. The crucial difference between quantificational and non-quantificational noun phrases is that the latter do not introduce a split box structure and therefore they do not introduce a set of cases that can serve as evaluation index values for expressions in subsequent discourse.⁸ As argued for in detail in Farkas (1993) and (1994a), the scope possibilities of the DC are upward unbounded, independently of

⁸As discussed in Kamp and Reyle (1993), plural non-quantificational noun phrases may involve a distributive reading as well which arises when a predicate is ‘distributed over’ the members of the group denoted by its subject. Note also that a full account of scope facts has to handle cases where command appears to be relevant even within the clause, as well as cases where *each* may have scope over an indefinite that occurs in the immediately higher clause. The former problem could be dealt with by refining

the type of noun phrase the DC occurs in. I conclude therefore that there is no compelling evidence for the ambiguity view advocated by Fodor and Sag, and implicitly, for the modern reincarnation of this claim based on two types of Determiners proposed in Dobrovie-Sorin (1993).

With respect to specificity, note that under the present approach scopal specificity is a matter of evaluation index value which is only indirectly affected by configurational considerations. Finer-grained distinctions between types of scopally non-specific noun phrases can now be drawn based on what the evaluation index of the noun phrase ranges over. A noun phrase in the NS of a quantificational expression will be scopally non-specific if it bears the index of the cases introduced by the Restrictor because that indexing forces non-rigid reference with respect to those cases. Depending on what the cases are, however, we may have non-rigid reference with respect to a set of worlds, or with respect to a set of individuals or situations within a single world. I will call the former type *intensional non-specificity* and the latter, *extensional non-specificity*. This distinction is relevant to mood distribution in French and Romanian, where the subjunctive in relative clauses is possible in intensional but not in extensional non-specific noun phrases, and to determiner reduplication in Hungarian, which is possible in extensional but not in intensional non-specific noun phrases. (See Farkas (1985) for a discussion of subjunctive relative clauses, and Farkas (1994b) for a discussion of determiner reduplication.)

To sum up, I have argued here that there are three distinct notions of specificity, and that it is possible (and perhaps even desirable) to hold a strict Strawsonian view with respect to the interpretation of indefinites, and at the same time capture the scopal properties of indefinites and distributives. Scopal specificity has been argued to be a matter of evaluation index value, while epistemic specificity has been argued to be a matter of assumptions concerning the epistemic modal base of the speaker. The discussion has been framed within an indexical theory of scope which captures the relative scope of indefinites and distributives without having to posit unbounded QR or long distance binding of variables by text-level existential closure.

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