

# Towards a D-type theory of specificity

## A unified and explicit syntax/semantics for QPs

Michelangelo Falco

Scuola Normale Superiore

Specificity from empirical and theoretical perspectives

University of Stuttgart

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## A. Partitive specificity: the phenomenon

- While definiteness is associated with a presupposition of uniqueness and of existence (2-a),
  - *partitivity* (Enç 1991 a.o.) is associated only with a presupposition of existence (2-b).
- (2) a. *The professor* came to the party. #The other professor did not.  
Existence and uniqueness
- b. *One of the professors* came to the party. The other professor did not.  
Existence, not uniqueness

## Outline

### The ingredients:

- Elbourne's (2005) proposal that indexes are phonologically null NPs, but present in the syntactic representation of DPs.
- Stanley's (2000) claim that the restriction of Qs is enriched by another domain restriction index supplied by the context.
- Enç's (1991) idea that there are two 'referential indexes': one, the index  $i$ , for the referent, and one, the index  $j$ , for the restriction.

### The recipe:

On the basis of a new empirical observation on partitive specificity, I extend Elbourne's (2005) format to Q:

(1) [Q [[NP1][NP2]]

Preview of the format for indefinites

This format and Stanley's (2000) proposal converge: in a nutshell **the second index of Enç does the same work of Stanley's (2000) domain restriction index.**

### The upshot:

Unified and explicit syntax/semantics for quantificational DPs (Qs), based on a contextualist view of LF representations, which accounts for specificity, in its different forms: A. partitive, B. epistemic, and C. scopal (Farkas 2002).

## A. Partitive specificity: the analysis

Enç (1991) is based on File Change Semantics. Specific DPs are (covert) partitives like *one of the professors* and impose a further restriction on the discourse, with respect to definites and indefinites.

Enç (1991) introduces a double indexing ( $i, j$ ) to define partitive specificity: index  $i$  denotes the referent of the DP and the index  $j$  a set in which the referent of  $i$  is included.

(3) Every  $[_{DP} \alpha]_{\langle i, j \rangle}$  is interpreted as  $\alpha(x_i)$  and  $x_i \subseteq x_j$  (adapted from Enç 1991, p. 7)

- Definites:  $i[+\text{definite}] j[+\text{definite}]$
- Specific indefinites:  $i[-\text{definite}] j[+\text{definite}]$
- Non-specific indefinites:  $i[-\text{definite}] j[-\text{definite}]$

Definites cannot be non-specific by definition: if  $i$  is definite so is  $j$ , since  $i$  is included in  $j$ .

Note: Enç (1991) is a formalization of the traditional notion of D-linking for *wh*-elements (Pesetsky, 1987), still widely used in many syntactic works.

## B. Epistemic specificity: the phenomenon

An epistemically specific indefinite (Fodor and Sag 1982; Schwarzschild 2002 a.o.) makes reference to an entity that is known by the speaker as in (4-a) vs. (4-b).

- (4) a. *A student* cheated on the exam. It was the guy who sits in the very back.  
Epistemically specific
- b. *A student* cheated on the exam. I wonder which student it was.  
Epistemically non-specific

## B. Epistemic specificity: the analysis

### Lexical ambiguity

Fodor and Sag (1982) propose a lexical distinction between:

- quantificational indefinites that have an existential quantifier as part of their meaning and obey to the usual scope restrictions
- referential indefinites which are not quantificational

The argument comes from the absence of intermediate scope (5):

- (5) Each teacher overheard the rumor that a student of mine had been called before the dean.  
(Fodor and Sag 1982, ex. 69)
- (6) a. (each teacher:  $x$ ) [ $x$  overheard the rumor that [(a student of mine:  $y$ ) [ $y$  had been called before the dean]]]  
narrow = quantificational indef.
- b. (each teacher:  $x$ ) [(a student of mine:  $y$ ) [ $x$  overheard the rumor that [ $y$  had been called before the dean]]]  
intermediate = \*
- c. (a student of mine:  $y$ ) [(each teacher:  $x$ ) [ $x$  overheard the rumor that [ $y$  had been called before the dean]]]  
widest = referential indef.  
(Fodor and Sag 1982, ex. 71)

Only the narrow and widest scope of *a student of mine* are available.

## B. Epistemic specificity: the analysis

Two approaches:

- Burden of the explanation in the lexicon: lexical ambiguity analysis (Fodor and Sag, 1982)
- Burden of the explanation in the pragmatics: domain restriction analysis (Schwarzschild, 2002)

## B. Epistemic specificity: the analysis

### Pragmatic account

Schwarzschild (2002) proposes to charge the burden of the explanation on a pragmatic mechanism.

- indefinites are not special and behave as standard existential quantifiers over individuals;
- the normal mechanism of quantifier domain restriction (implicit or explicit) (Stanley, 2000), as an extreme case, produces wide and intermediate scope: this is possible when the domain of the **quantifier is reduced to a singleton set, thus making the indefinite effectively scopeless**;
- implicit parameters are meanings that in some cases are relativized to other elements of the context as illustrated in the following example of comparison classes (7), adapted from Stanley (2000).  

(7) Most species have members that are small.  
 Most species  $S$  have members that are small relative to other members of  $S$ .  
(Schwarzschild 2002, ex. 57-58)
- these kind of variables dependent on the context can be relativized to the bearer of an attitude: it is exactly the case of epistemic specificity.

### C. Scopal specificity: phenomenon

Finally, the scopal definition equates specificity with wide scope of the indefinite with respect to the scope of an operator such as an intensional verb, a modal or negation (8) (Reinhart 1997 a.o.).

- (8) a. John would like to buy a boat, but he cannot afford it. Scopally specific  
 b. John would like to buy a boat, but he cannot afford one. Scopally non-specific

Crucially, intermediate scope does exist (Reinhart, 1997):

- (9) a. [Most linguists] have looked at [every analysis that solves [some problem]].  
 b. [Most linguists x][[some problem y] [every analysis z that solves z resolve y] [x looked at z]]. Intermediate scope  
(Reinhart 1987, ex. 21)

### The form of the solution

After these preliminaries, back to the core of my proposal.

Extending Elbourne's (2005) proposal for definite descriptions (12)

- (12) [the *i* [NP]] Format for definites

my proposal is developed as follows:

1. I propose a format for partitive indefinites (A.) based on a new empirical observation: the indefinite determiner selects a special kind of index.
2. I argue that it extends to epistemic specificity (B.): the second index of  $\text{Enç}$  does the same work of Stanley's (2000) domain restriction index, adopted by Schwarzschild (2002) for epistemic specificity.
3. I show that epistemic specificity in turn subsumes scopal specificity (C.), as in Schwarzschild (2002).

### C. Scopal specificity: the analysis

Many analyses have treated long distance indefinites in terms of **choice functions**, which map any non-empty set in their domain to a member of this set (Reinhart, 1997).

- (10) A function  $f$  is a ( $CH(f)$ ) if it applies to every non-empty set and gives a member of that set. (Reinhart 1997, p. 372)

The indefinite introduces a variable on choice functions that is bound by an existential closure at arbitrary distance  $\rightarrow$  the various scopes are derived.

- (11) a. Every lady read some book.  
 (i)  $\exists f(CH(f) \wedge \forall x(\text{lady}(z) \rightarrow z \text{ read } f(\text{book})))$   
 (ii)  $\exists x(\text{book}(x) \wedge \forall z(\text{lady}(z) \rightarrow z \text{ read } f(\text{book})))$  (Reinhart 1997, ex. 65)

Semantically, the choice function is the mirror image of a Q determiner:

- a. while a Q determiner composes with an elements of type  $\langle e, t \rangle$ , and lifts it to a type  $\langle \langle e, t \rangle, t \rangle$ ,
- b. the choice function determiner does the opposite and composes with the restrictor of type  $\langle e, t \rangle$ , yielding and element of type  $\langle e \rangle$ .

### The definite index

Definite and indefinite determiners select different types of indexes:

- Definites select a referential index  $i$  (13).

- (13) [the *i* [NP]] Format for definites

- Indefinites, due to their non-referential nature, do not select such an index, thus their format can be preliminarily represented as in (14), where the referential index is missing.

- (14) [Q [NP]] Preliminary format for indefinites

## The indefinite index: a new empirical observation

Nevertheless, indefinites do select an index, but crucially not an *i*-index (15).

- (15) *Discourse context* A: Ho visto dei cani.  
 A: I have seen ART.IND dogs.
- a. B: Anch'io ne ho visti.  
 B: Also I CLIT:PART.GEN have seen.
- b. B: Anch'io ne ho visti alcuni (dei cani che hai visto).  
 B: Also I CLIT:PART.GEN have seen some (of the dogs that you have seen).

Consider the two answers (15-a) and (15-b).

- a. in (15-a) the anaphoric reading is absent: in other words the set of dogs seen by the speaker A is different from the set of dogs seen by the speaker B.
- b. in the case of (15-b) it can be the same set of dogs, that is to say the anaphoric reading is possible.

## The source of the difference

What is the source of the difference in the minimal pair?

Note that in both sentences *ne*, the genitive clitic, cliticizes ART.IND *dogs* so it is not responsible for the difference.

1. Since the difference between (15-a)-(15-b) is the presence of *alcuni* (some) in (15-b) the anaphoric reading is dependent on its presence.
2. Since the anaphoric reading depends on the presence of an index, it is the indefinite that provides a set-denoting index.
3. Therefore: **indefinites select a different type of index**, whose interpretation can be given by a set formula introduced by the previous discourse.

## Format for indefinites

Consequently, the format in (14) must be extended by introducing the second index *j* denoting a set (16), as in Enç (1991).

- (16) [Q [[NP][*j*]]] Format for indefinites

In the case of anaphoric reading of (15-b), the index is interpreted using the linguistic material from the previous discourse *dogs that you have seen*. In this sense the theory I'm advancing is a **D-type theory of specificity**.

Technically, this can be formalized through the *abstraction* (Kamp and Reyle, 1993): applied to (15), it constructs the set described by the formula (17), which is the desired interpretation of *j* for the anaphoric reading.

- (17)  $\lambda x$ . [dog *x* and speaker A has seen *x*]. Abstraction applied to (15)

## Syntactic format

Syntactically, in (16) *j*, the second index, corresponds to a - possibly phonologically null - phrase, NP2 in (18), as the definite NPs in Elbourne's (2005) proposal.

- (18) [Q [[NP1][NP2]]] Syntactic format for indefinites

As for the structure of the complex NP, I claim that NP2 is adjoined to NP1.

## An argument for the adjunction analysis

The argument comes from the anaphoric possibilities of examples involving hypernyms and hyponyms, such as (19).

(19) I read all the works by Verga. Two novels (\*of the works by Verga) are very intriguing.

The example (19) means that *two novels* belong to the set of the *works by Verga*, thus the DP has a specific interpretation.

### Argument:

1. if NP2 (*of the works by Verga*) were a complement of NP1 (*novels*), the complex NP would correspond to *the novels of the works by Verga*, with ellipsis of the partitive at Spell-Out. But this NP is ill-formed!
2. Since adjuncts can be omitted in the syntax, but complements cannot, I conclude that NP1 does not select NP2, instead NP2 is adjoined to NP1.

## Argument from binding

The most natural interpretation of the sentence (21-a) is the one informally represented in (21-b).

- (21) a. Every student answered every question.  
 b. Every student  $x$  answered every question  $y$  on  $x$ 's exam.

(Stanley 2000, ex. 22b-23b)

Since binding is a semantic phenomenon, to generate the interpretation (21-b) we must assume that there are bound variables in the LF of Qs, whose values, relative to a context, generate a domain of quantification.

## The interpretation

As for the semantics, the index-NP2 is characterized as a set, an elements of logical type  $\langle e, t \rangle$

It has exactly the same type of the index- $i$  in Elbourne's (2005) theory, here (NP1).

(20)  $NP2 = \lambda x. g(j) = x.$

[[NP1][NP2]] is interpreted by *predicate modification*: the intersection of the denotation of NP1 and NP2, thus arriving at a traditional restriction.

## Domain restriction indexes

Stanley (2000) captures these readings by syntactically associating with each nominal, domain restriction indexes of the form  $f(k)$ .

Relative to a context:

- $f$  is assigned a function from object to properties,
- and  $k$  is assigned an object.

Thus the structure of the sentence in (21-a) becomes at LF (22):

(22) [Every student,  $f(k)$ ] <sub>$l$</sub>  answered every question  $\langle$ question,  $f(l)$  $\rangle$ .

In this formula  $f(k)$  and  $f(l)$  correspond both to the index  $j$  of Enç (1991), that is to NP2 in the present analysis.

Summarizing: my proposal and Stanley's (2000) converge to the same analytical conclusion, looking at two different empirical domains  $\rightarrow$  the analysis is strengthened from the larger empirical support it receives.

## A. Partitive specificity

My analysis suggests that the second index of Enç does the same work of Stanley's (2000) domain restriction index.

- Empirical support: the data in (15) and the argument from binding justify its presence.
- Theoretical advantage: its status is quite stipulative and its semantics unclear in Enç 1991.

## C. Scopal specificity

In turn, this possibility explains the exceptional scopal behavior of indefinites (C): singleton are existential Qs whose domain is restricted to a singleton, thus they are scopally inert.

Why the singleton is approach instead of the choice function approach (Reinhart 1997)?

The singleton approach is **more economic**: it uses the plain and independently needed domain restriction of Qs, without the stipulation of an additional determiner (the choice function).

## B. Epistemic specificity

From the format for partitive specificity (A), epistemic specificity (B) is derived once we consider the possibility that implicit parameters can be relativized to the bearer of an attitude in the case of indefinites: Schwarzschild's (2002) *singleton* analysis.

- (23) *Privacy Principle*  
It is possible for a felicitous utterance to contain an implicit restricted quantifier even though members of the audience are incapable of delimiting the extension of the implicit restriction without somehow making reference to the utterance itself. (Schwarzschild 2002, ex. 52)

Example a lawyer says to John: "You can only sell the house if one of your relatives dies". John report that sentence to Mary. The lawyer's use of *one* is implicitly restricted, but exactly what restriction it consists of, only the lawyer can tell them. This is the *privacy principle* derived: the only way to say exactly over which set the lawyer quantifies over, is to make reference to the lawyer utterance: it is the person she had in mind when she uttered the sentence.

**The contribution of my proposal for epistemic specificity is an explicit syntax/semantics format for the singleton analysis, missing in Schwarzschild's (2002)**

## Conclusions

All in all, I proposed an explicit and uniform syntax and semantics for Qs on the basis of a new empirical observation and I showed how this format subsumes all the aspects of specificity.

- the proposal is a conceptual advancement over Enç's (1991) quite stipulative account of partitive specificity,
- the proposal provides a format for Schwarzschild's (2002) idea on epistemic specificity.

Thank you!

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