

This work is a revision of my 1995 University of Rochester dissertation (referenced as Zamparelli 1995, distributed as a Cogsci technical report in 1996), intended for web distribution. Most of the changes consist of footnotes added or modified, references have been updated when necessary, and an index has been added at the end. There are also minor revisions in the text, particularly in chapter 1, "Preliminaries" and section 4.3, "Spec-head agreement." Needless to say, these changes do not mean that I have tried to make the dissertation fully consistent with my current thinking on the structure and interpretation of DPs. I have, however, inserted pointers to later work when possible.

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Layers in the Determiner Phrase

Acknowledgments

A careful observer of academic life might have noticed that, toward the end of their dissertation, graduate students spend a lot of time in the library, browsing through dissertations. They are not collecting references, but sampling acknowledgment sections, in order to write their own.

Indeed, a class that teaches the art of writing acknowledgments is sorely missed. As for wedding invitations, there seem to be two styles; some students thank everybody, for speaking, listening or just existing at the right time and place; others thank very sparingly, only Those Who Truly Helped. Anything in between is felt to be unfair to the names that didn't quite make it—the boundary cases. Of course, the longer the list, the more boundary cases. The moral is: fair acknowledgment is impossible. Having said this, I move on to write one of these unfair, mid-of-the-road acknowledgment sections.

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As this text was taking shape, I came upon two dissertations that changed it deeply; one is by Andrea Moro, the other, by Louise McNally. I owe them a great deal.

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Abstract

The main focus of the dissertation is on the existence of multiple structural layers within noun phrases, and the claim that each layer is endowed with a different semantic function. In particular, I will focus on the topmost part of the noun phrase, the one containing determiners and quantifiers, proposing that this part should be split into two maximal projections which together constitute the ‘determiner system.’

I propose that the highest maximal projection contains ‘strong’ determiners (in the sense of Milšark, 1974), proper names and personal pronouns, while the intermediate projection contains those determiners that can appear in predicative position (indefinites, plus the definite determiner in a well-specified set of cases); below this layer, we have other functional projections, and finally the NP proper.

The existence of multiple functional projections raises the question of how their heads can be licensed. I will argue that in some cases, an abstract functional head can be licensed if a modifier of the appropriate type is generated or moved into its specifier. In English and Italian, movement to this specifier position is usually visible through the appearance of the preposition “of” (*di* in Italian). This will account for a variety of ill-understood constructions across Romance and Germanic, such as the ‘kind’-construction (“this kind of car” and “a car of this kind”), which will be uniformly reduced to small-clauses plus raising, in parallel with current analyses of copular constructions at the sentential level (“John is the culprit” and “the culprit is John”). Taken together, the idea of multiple levels with different interpretations and the idea of noun-phrase internal raising to specifier position will be a powerful tool to explain the behavior of object clitics in Italian, the presuppositional aspect of the strong/weak distinction for determiners, the different distribution of noun phrases within *There*-sentences in Italian and English, and the internal structure of a special kind of definite predicates in copular constructions.

Finally, in the last chapter I will turn to an examination of the internal structure of the Adjective Phrase across Italian and English, giving evidence that many of the phenomena identified at the Noun Phrase level can be found in the Adjective Phrase as well. The semantic reflexes of these syntactic phenomena can explain the presence or absence of presuppositions associated with adjectives and measure phrases. The analysis will be cast in a general Government and Binding approach (Chom-

sky, 1981, Chomsky 1986a, Chomsky 1986b), also using some notions from the Minimalist Program of Chomsky (1992), Chomsky (1994).

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Introduction

This dissertation is an exploration of the syntax and semantics of noun phrases. Its main goal is to reconcile the idea of a strict mapping between syntactic and semantic categories, which was part of Montague's (1970) and (1973) research program with the natural idea that different noun phrases may have different types of denotations i.e. that the semantic types of the bracketed noun phrases in (1) may be different.

- (1) a. [John] smiled.
- b. [Every dog] barked.
- c. Mary is [a person.]

In order to achieve this goal, I want to take advantage of results in the syntactic study of the internal structure of noun phrases, building in particular on work by Abney (1987), Cinque (1990), Cinque (1992) and Longobardi (1994). These works suggest that the structure of noun phrases is much more complex than the traditional picture of a single projection headed by N, with a determiner in its specifier and possibly recursive N' projections to host adjectives, as found, for instance, in Selkirk (1977) (2):

- (2) [NP Det [N' Adj ... [N' N]]]

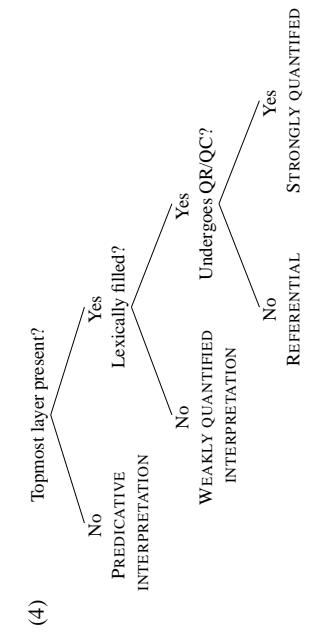
a better syntactic representation would have the noun and its modifiers as complements of the determiner, which becomes the topmost head of the noun phrase (now *determiner phrase*, or DP). In the work of recent proponents of the DP-hypothesis (in particular Crisma 1991; Crisma 1996; Picallo 1991; Ritter 1991; Cinque 1992; Giusti 1992b; Bernstein 1993, etc.) (2) should be replaced by (3), where FP is a 'functional projection' proposed in some accounts to host adjectives and/or morphological material.

- (3) [DP Det [FP Adj ... [NP N]]]

If a structure of this kind is necessary on syntactic grounds, the research project that this dissertation begins to carry out is that of putting syntactic complexity at the service of meaning.

Specifically, I will explore the idea that the two topmost projections of the structure in (3) constitute together the “determiner system” of a language (where I use the term ‘determiner’ to cover *articles*, *demonstratives* and *quantifiers*). At the interpretational level of ‘Logical Form’ (LF), these projections are univocally mapped onto different semantic types. The higher projection will denote an individual, the lower one, a property.

The denotation of the noun phrase as a whole will depend on three factors: whether the topmost projection is present or missing; whether the topmost projection, when present, is occupied by lexical material, or headed by an empty element; whether a lexically filled topmost projection is interpreted *in situ*, or undergoes the operation of ‘Quantifier Raising’ (QR) and Quantifier Construal (QC)—in the sense of Heim (1982). These settings will give the difference between predicate nominals—and argument nominals, between ‘strongly’ and ‘weakly’ quantified noun phrases—in the sense of Milsark (1974)—and between proper names and strong quantifiers, according to the following schema:



Under this assumption, the bracketed noun phrases in (1) correspond to different points in this tree. (1)a and b both have a filled topmost layer, therefore they denote an individual at LF, but they differ in the fact that (b) but not (a) undergoes QR and QC; (1)c, on the other hand, belongs to a *syntactic category* different from (a) or (b), since it lacks the topmost DP layer which is present in (a) and (b). Unlike (1)a and (1)b, (1)c denotes a property.

This approach gives the possibility of reconstructing in a very different syntactic background one of Montague’s fundamental proposals, the direct correspondence between syntactic categories and semantic types:

“There is a uniform correspondence between the categories of English and the types of IL [Intensional Logic]; that is, if an English expression of category x must translate into an IL expression of type a , then all English expressions of category x must translate into expressions of type a' (Montague 1970).

Of course, if one assumes, contra Montague, that the bracketed noun phrases in (1) do not all have the same semantic type (as argued, for instance, by Williams 1983 and Partee 1987), this correspondence can be maintained only by splitting the ‘noun phrase’ into two syntactic categories. The DP hypothesis offers the theoretical tools to do this without disregarding what is in common between predicative and argumental uses of noun phrases.

Indeed, I will try to show that this analysis offers a straightforward explanation for several phenomena across English and Italian, including the conditions under which a predicative reading of noun phrases is (im)possible, the way *There*-sentences impose (or apparently, fail to impose) a definiteness restriction on the noun phrases they embed, how the kind-denoting reading of noun phrases is obtained and why some predicate nominals are ‘transparent’ to the semantic type of their complement.

Even though the account presented here gives a syntactic explanation to some of the same semantic phenomena, it is very different from the one proposed by Kratzer (1989) and Diesing (1992). Kratzer’s and Diesing’s accounts are based on the idea that some aspects of the interpretation of noun phrases depend on the position in the sentence in which they are interpreted, whereas my account places the stress on their *internal* structure. However, my idea should really be seen as an extension of theirs, in two ways; first, it provides a syntactic spell-out of what it means for a noun phrase ‘to provide a free variable,’ a crucial concept since Heim (1982) and Reinhart (1987); second, it recursively extends to quantifiers within DP the idea that the same phrase might receive a different interpretation depending on the position at which it is interpreted. In a Kratzer/Diesing-type account, a noun phrase is interpreted existentially in a lower position in S, and quasi-universally in a higher position; in my DP structure, numerals are interpreted as cardinality predicates in a lower position in DP, as strong quantifiers or referential elements in a higher position.

In addition, in the last chapter I will show that a general correspondence between meanings and structural levels can also be found to the little-studied domain of the internal structure of adjective phrases. Overall, the presence of these correspondences across different phrases deepens Abney’s (1987) and Szabolcsi’s (1983, 1987) insight of an overarching organization across different basic categories in human language.

CHAPTER 1

Preliminaries

To construct a working theory of the syntax/semantics interplay in the noun phrase, several preliminaries need to be addressed. On the semantic side, we need to examine the evidence that different semantic types should be assigned to the noun phrases in (1).

- (1) a. [John] smiled
- b. [Every dog] barked
- c. Mary is [a person]

On the syntactic side, we need to introduce a version of the DP hypothesis that I will refer to as the “Multi-Layer DP Hypothesis.”

1.1 Semantics preliminaries: type-shifting

“John” in (1)a seems to refer to a particular individual, while (1)b doesn’t seem to be about any particular individual, but about a totality or collection of dogs, and the most natural interpretation of (1)c is one where “a person” indicates a property that Mary has as a part of her nature; in this case, it makes little sense to ask ‘which person’ Mary is. Yet, these three noun phrases were uniformly assigned by Montague the type of Generalized Quantifiers (GQ), i.e. sets of properties or $\langle\epsilon, t\rangle$, in a purely extensional logic.¹

Adopting a common terminology, I will say that (1)a and b contain *argumental* noun phrases, that “John” is a *referential* noun phrase, “every dog” is a *quantificational* noun phrase, while the post-copular noun phrase in (1)c is *predicative* (a *predicate nominal*).

Evidence that the referential and quantificational noun phrases cannot be readily unified comes from work on discourse anaphora done in Discourse Representation Theory (Kamp 1981) and File-Change semantics (Heim 1982), which shows that

¹I will mostly deal with an extensional fragment in this dissertation. The interested reader should be able to fill in the intensional implications.

quantificational expressions such as ‘every man’ or ‘no man’ do not license intensional anaphora:

- (5) a. {John_i / the man_i, / a man_i} walked in. He_i looked tired.
 b. {Every man / no man / more than one man} walked in. * He_i looked tired.

Notice that the definite and indefinite articles pattern with referential expressions here, not with quantifiers. On the other hand, Williams (1983) discusses the fact that quantifiers like ‘every’ or ‘both’ cannot in general appear in predicate nominals. Assuming that the object of ‘grows into’ is a predicate nominal, we have:

- (6) a. Every acorn grows into [a tree.]
 b. * An acorn grows into [every tree.]

In an influential article, Partee (1987) argues that these contrasts are best accounted for if referential, predicative and quantificational noun phrase are assigned different types, namely e (individuals), $\langle e, t \rangle$ (sets of individuals or *properties*, in the extensional logic used by Partee) and $\ll e, t \gg$ (*sets of properties*, i.e. GQ) respectively. Montague’s program can be made compatible with this stand by assuming that languages have a set of lexical or abstract *type-shifting* operators (cf. Partee and Rooth 1983) that can convert the native types into others, as necessity dictates. A case in point is coordination. If we adopt the strong semantic principle in (7) (Munn 1993):

- (7) **Principle of Same-Type Coordination:** Only categories of the same semantic type can be coordinated.

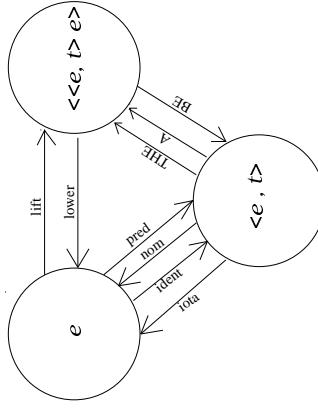
the possibility of (8) is problematic if John directly denotes an individual.

- (8) [John and every woman] entered.

In Partee’s approach, ‘John’ has simply been ‘raised’ to a GQ denotation appropriate to join the quantified conjunct. On the other hand, allowing predicate nominals to denote $\ll e, t \gg$ explains coordinations with adjectives, which undisputedly denote properties:

- (9) a. Mary considers John [competent in semantics and an authority on unicorns.]
 b. That animal in the sun is [a cat and very pleased to be so.]

Partee (1987) also suggests that languages might have the general processing strategy of trying native denotation first, and that some of the type-shifting operators might be more ‘natural’ than others, as reflected in the order in which they are learned and in the amount of lexicalization required across languages. The following is a complete diagram of the operations available in her system:



lift	$j \rightarrow \lambda P[P(j)]$	$\lambda P \lambda x[x \in P]$	BE
lower	maps a principal ultrafilter onto its generator: lower(lift(j)) = j	$(\text{Set-theory definition})$	
ident	$j \rightarrow \lambda x[x = j]$	$\lambda Q \lambda P \exists x[Q(x) \wedge P(x)]$	A
iota	$P \rightarrow \iota x[P(x)]$	$\lambda E(A(\text{man}')) = \text{man}'$	
	ιota(ident(j)) = j	BE	THE
nom	$P \rightarrow {}^\circ P$ (from Chierchia 1984)	$\lambda Q \lambda P \exists x[Q(x) \wedge P(x)]$	
pred	$x \rightarrow {}^\cup x$ (from Chierchia 1984)	$\wedge \forall y[Q(y) \rightarrow x = y]$	
	pred(nom(P)) = P	(Russell)	

Thus, in Partee’s system any of the three basic denotations, e , $\ll e, t \gg$ and $\ll\ll e, t \gg t \gg$ can be converted into any other provided that the relevant operators are available at a ‘low enough’ cost in the language, and that the result of the application is not a degenerate case. For an example of ‘degenerate’ case, consider the operator BE, which Partee associates with copular predication. BE takes a Generalized Quantifier, finds all the singletons in it and collects them into a property. Since quantifiers like ‘most’ do not necessarily contain any singleton,² this account predicts that BE applied to ‘most man’ will be empty, a degenerate case; thus, it explains why *‘those are most men’ is ill-formed. Similarly, BE applied to ‘every man’ will give a singleton only if the domain contains only one man, again a marginal case, which could be more felicitously expressed by ‘the man.’

Partee’s system has a certain degree of naturalness, but it breaks the Montagovian mapping of all noun phrases to an identical semantic category. Abandoning

²Suppose for instance that ‘most’ means ‘at least two thirds,’ and take a model with 3 individuals, **a**, **b**, and **c**, and 3 properties, $P_1 = \{\mathbf{a}, \mathbf{b}\}$, $P_2 = \{\mathbf{b}, \mathbf{c}\}$, $P_3 = \{\mathbf{a}, \mathbf{c}\}$. Now ‘Most X’ would be $\{\{\mathbf{a}, \mathbf{b}\} \cup \{\mathbf{b}, \mathbf{c}\} \cup \{\mathbf{a}, \mathbf{c}\}\}$, which doesn’t contain any singleton and has no generator.

Montague's syncategorematic treatment of determiners, the system embodies several type-shifting functions into lexical determiners: the operator A is one plausible meaning for the English determiner “a,” THE maps to (one of the meanings of) “the,” and BE on the verb “be.” Presumably, one task for the child learning a language will be that of figuring out the type-shifting function associated with each determiner.

But lexical operators are not enough. Type-shifting operators can also be applied ‘invisibly’ to make an NP type conform to the subcategorization requirements of its predicate, since now verbs subcategorize not only for syntactic, but also for semantic ‘categories,’ so the system as a whole is very ‘predicate driven.’ For instance, BE is represented by “is” in the predicative reading of “John is the king” (which gives BE(THE(king))(John)), but there is no word denoting BE in “I consider John the king.” BE is required by the fact that ‘consider’ takes an XP of type <e,t>, either AdjP or NP. So, while the system is beautifully simple in its conception, we have a number of ambiguities to take care of, and therein lurks the possibility of overgeneration. Let me give some examples, all pointing to a certain reluctance on the part of the noun phrase to have its type entirely determined by the predicate selecting it.

1.1.1 Problems for invisible type-shifting operators

First, although the position under “consider”-type verbs seems to be of type <e,t>, and bare common nouns are canonically <e,t>, Partee notices that indefinites cannot be dropped: “I consider John *(an) excellent teacher.” Moreover, the abstract operator BE, which must be operative in English to give “I consider John the king,” cannot apply to many other e-type entities, such as “Diego de la Vega,” “that excellent sword-master,” “he/him”:

- (10) *I consider Zorro {Diego de la Vega / that excellent sword-master / he / him}.

Then we have contrasts such as:

- (11) I consider them the {two / ?few / ?many} kings that best embodied the spirit of their times.

where shifting from a cardinal numeral to “few” or “many” in post-determiner position seems to worsen the applicability of BE.³ In other cases, it is the type of the complement of an NP what conditions the acceptability of that NP. Consider (12), where capitalization means stress, and everything in lowercase is depressed:

- (12) a. I consider him [{a / ?the} good son.]
 b. I consider him [the son of {a / ??the} VERY IMPORTANT man.]

³For some speakers, the “few” case is interpretable in this position, as “I count them among the few kings . . .”

In (12)a a definite introducing the bracketed noun phrase sounds odd, while in (12)b it is the (in)definiteness of the complement of “the son” what seems to affect the acceptability of the whole sentence. Should we conclude that BE is sensitive to the status of the complement of its argument?

1.1.2 Type-shifting and specificity

A second issue for Partee’s system is the following: what is the relation between the three denotations she discusses and the notion of ‘specificity’? It is a commonplace observation that the subject position and the object position of extensional verbs in root clauses tend to be interpreted ‘specifically’ even when they contain indefinites. In contrast, the object position of intensional verbs such as “look for” (14)a is typically assumed to have two readings, (14)b (specific) and (14)c (non-specific).⁴ A specific reading is associated in the literature with modifiers such as “specific,” “particular” and “certain.”

- (13) a. A man entered.
 b. I saw a man.
 (14) a. John is looking for a piece of paper.
 b. “There is a {specific / particular / certain} piece of paper that John is looking for.”
 c. “John is looking for any old piece of paper.”

Various authors (e.g. Fillmore 1967, Saarinen 1981, Hintikka 1986, cf. also Quine 1960) have proposed that the specific reading corresponds to the noun phrase taking wide scope over some operator. Yet, it is hard to see how scope alone could account for the difference in meaning between:

- (15) a. That man is Alvar.
 b. That man is an Alvar.
 c. That man is a certain Alvar Aalto.

Partee analyzes the first one resorting to the identity function **ident** (i.e. $j = \lambda x[x = j]$) which seems to give the intuitively correct meaning, and suggests that the second one is reinterpreted as a ‘salient characteristic’ of the original individual (but default, its name). But (15)c entirely lacks this reading. ‘A certain Alvar Aalto’ seems very much to have the same reading as (15)a, yet there is no visible operator over which “a certain” could take scope.

An interesting alternative within Partee’s system is that the specific/non-specific distinction correlates with different types. For instance, we could hypothesize that a specific reading is triggered by the GQ meaning of “a.” Indeed, Diesing (1992)

⁴This usage of the term ‘specific’ is credited by Ioup (1977) to Baker (1966).

proposes that indefinites in their specific interpretation should be treated as quantifiers like “every” or “both,” which carry a presupposition of existence and undergo the operation of ‘Quantifier raising’ at LF—the formal equivalent of a GQ denotation in the Heimian framework adopted by Diesing. A problem for this idea is that, taking a conjunction such as “both pens and a piece of paper,” where, by the principle of Same-Type Coordination, the GQ interpretation of “a piece of paper” should be forced, we observe the same ambiguity as before: the piece of paper can be a specific one (e.g. “...that he lost yesterday”) or any old one (e.g. “...to try them out”).

- (16) John is looking for [both pens] and [a piece of paper.]

An additional issue for a GQ treatment of specificity, pointed out in Fodor and Sag (1982), is that the specific reading of indefinites can apparently escape ‘scope-islands’ that restrict other clear GQ-type quantifiers.

- (17) a. ??If John sees [every animal in the zoo], he always wants to feed it.
 b. If John sees [a certain animal in the zoo], he always wants to feed it_i.

In (17)a, the scope of “every” in the antecedent is not wide enough to bind the pronoun in the consequent, while no problem arises for (17)b. This effect is not just due to the presence of “a certain/particular/specific,” but to the fact that these ‘terms of specificity’ are used to pick out a specific *individual*. Indeed, Hintikka (1986) discusses cases where “certain” is not used to pick out an individual, but a specific *function* (here ‘mother’), in the scope of another quantifier:

- (18) Every true Englishman adores a certain woman—his mother. *Hintikka*
(1986)

In these cases “a certain N” cannot license a pronoun in the consequent. Compare:

- (19) a. If every true Englishman adores [a certain woman]_i, she_i could be a person that often appears in the popular press.
 b. ??If every true Englishman adores [a certain woman]_i, she_i could be a mother.

In (19)a, the same woman is adored, whereas in (19)b each Englishman adores a different one.

An obvious possibility is that “a man” in its specific reading is after all of type *e*, i.e. referential to an individual in the domain, much like a personal pronoun. Partee (1987) attributes to Kamp’s (1981) and Heim’s (1982) theories of noun phrase interpretation the idea that (in)definites are very similar to bound variable pronouns with additional conditions on their effect in updating the current discourse model.⁵

⁵“the removal of the existential quantifier from the interpretation of indefinites makes their meaning much more like pronoun meanings, and apart from the complication that we are dealing with variables, the meanings are similar to proper noun meaning like $\lambda \text{PIP}(i)$, and *lower* can apply to give a *man* an *e*-type reading...” Partee 1987:129.

Going one step further, one could suppose that definites and indefinites can also be interpreted as pronouns that *directly* refer to an individual, much like proper names—as proposed by Fodor and Sag (1982) to account for (17).

The existence of a referential interpretation of this sort is indeed a hotly debated topic (cf. in particular Ludlow and Neale 1991, Neale 1990, Diesing 1992), and I will defer a full discussion to section 6.1, where I try to show that a referential interpretation for a certain class of determiners is worth assuming, as it accounts naturally for the contrast in (19), and for certain differences in the availability of a referential interpretation for different classes of determiners (essentially, “the,” “a” and bare cardinal numerals vs. “many,” “few” and modified cardinal numerals), once an appropriate syntax-semantics interface is in place. For the time being, I am going to assume that the specific interpretation of indefinites is of type *e*, although this is surely not the only possibility even for subject position.

1.1.3 Quantifiers: *e*-type at LF

Linking specificity to a certain semantic type does not resolve the issue of how it is possible to have specific and non-specific interpretations in (16). Other examples of coordinations show that the problem lies in the GQ -type denotation adopted for quantifiers. Consider:

- (20) a. {A man_i / John_i} came out of the room. He_i looked fatigued.
 b. {Every / Each} woman_i came out of the room. *She_i looked bored.
 c. A man_i and every woman came out of the room. He_i looked fatigued.
 d. Each woman and John_i came out of the room. He_i looked fatigued.

If “John” and “a man” are type-shifted to a $\ll e, t > t$ denotation in order to be conjoined, and GQs such as “every” and “each” do not license intersentential anaphora, how can “John” and “a man” be appropriate antecedents in (20)c and d?

Resorting to the fact that the GQ formed on “John” has a singular generator won’t necessarily work for “a man” (unless we take the extreme position that even non-specific “a man” is translated as a *e*-type element), and in any case it predicts grammaticality for dubious examples like (21), where “every” *does* have a singular generator.

- (21) a. A logician told me that at that point [every current Pope]_i entered the hall.
 ?? He_i was alone.

b. [Every even prime number]_i must be smaller than 7. ?? It is 2.

An apparent alternative is to say that intersentential anaphora are sensitive to the fact that “John” was an *e*-type before undergoing type shifting. However, it seems unlikely that this kind of information should be carried on from one sentence to the next one. Moreover, data from Italian show that this possibility is empirically incorrect.

As we shall see in detail, in Italian the clitic pronoun *lo* “it/one” can pronominalize predicate nominals and adjectives of all genders and numbers. *Lei* “she,” on the other hand, pronominalizes feminine singular human noun phrases that are not predicate nominals. We have the following intersentential possibilities:

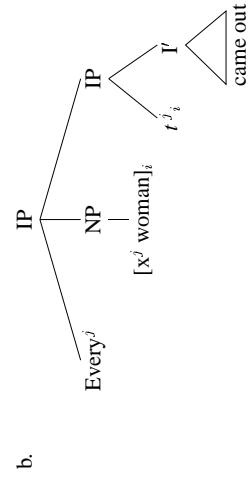
- (22) a. [Un' avvocatessa]_i entrò in aula. Lei potrebbe risolvere il caso.
 [A lawyer]_{F_{S_{Ag}}} entered the hall. She could solve the case
 b. Non considero nessuno [un buon giudice]_j. Gianni certamente non
 I don't consider anybody [a good judge]. Gianni certainly not
 lo_j è.
 one is

In Partee's system, either the predicative reading of the indefinite, in (22)b should be derived from the non-predicative one in (22)a, or vice versa. If pronouns were sensitive to the pre-shifted type of their antecedent, we would expect that one of (23) should be acceptable. Yet both are deviant.

- (23) a. [Un' avvocatessa]_i entrò in aula. ?? Maria invece non lo_i è.
 [A lawyer]_{F_{S_{Ag}}} entered the hall. Maria instead not one is.
 b. Non considero nessuno [un buon giudice]_j. ?? Lui, potrebbe risolvere
 I don't consider anybody [a good judge]. He could solve
 il caso.
 the case.

The approach to quantification taken in Heim (1982), May (1977), May (1985) would fare better both on this problem and on example (16). In this system, quantified noun phrases are allowed to move at LF, to adjoin at sentence-level, forming the “restrictive scope,” the first of the two arguments necessary for diadic quantifiers such as “most.” This operation is referred to as Q(uantifier)R(aising). Next, the quantifier moves out of the raised NP, leaving a trace (Q(uantifier)C(onstrual)). The trace of the NP in its original position functions as the variable for the second argument of the quantifier, the “nuclear scope.” Schematically, the LF representation for (24)a would be (24)b (where I tag the sentence as I(nflection)P(hrase)), indicate movement coindexation by subscripts and variable-operator binding by superscripts), and its logical representation (24)c.

- (24) a. [IP [_{NP_i} Every woman] came out]



- c. $\forall x[(\text{woman}'(x)] [\text{came-out}'(x)])$

The variable left in the nuclear scope by QR (i.e. the trace t^j_i) is of type e , just like ‘John.’ If we adopt the idea that the type at LF is what matters for coordination, ‘John and every woman’ can be seen as a coordination of two NPs of LF-type e , only one of which critically needs to raise at LF. The crucial difference between the two, and one that I take to be fundamental for intersentential binding, is that “every woman” needs QR to be interpreted, while ‘John’ doesn't (though it might vacuously undergo raising, if this is required by general principles).⁶

⁶This mechanism crucially requires that the Coordinate Structure Constraint prohibiting SS WH-extraction such as “*Who did you see *t* and Mary” does not hold at LF. Evidence for this claim is given by echo WH, which can appear in coordination (a), and which are arguably raised at LF (b).

a. SS: You said you saw [Mary and WHO][?]

b. LF: [Whollyou said you saw [Mary and -]]

Of course, it is also possible that at LF the whole coordination [Mary and WHO] has raised; but in this case, we should explain why the resulting structure (c) is ill-formed at SS:
 c. LF: [Mary and WHO] did you say you saw -?
 Second, we can hold the coordination down by conjoining a reflexive and a generalized quantifier (each newcomer) (d), under the assumption that condition A of the binding theory is enforced at LF (cf. Chomsky 1992; wide scope of “each” over “a” is still possible.

d. SS: In hell, a damned soul compares each newcomer and himself (and ships the fellow down if his sins are worse).

e. LF: [Each newcomer]_j [a soul]_j compares *t* and [himself]_j.

Finally, the impossibility of split-scope in “every boy and every girl admired a saxophonist” is sometimes taken to show that Coordinate Structure Constraint holds at LF. As a matter of fact, any account which imposes LF type-identity on the two conjuncts would force extraction of both Qs; what these examples actually show is that a configuration such as “[every boys]_i [some saxophonist]_j [every girl]_k [DP_i and t_k] admire t_j” is impossible. But this could be due to a variety of reasons (e.g. nested paths).

I will therefore adopt the mechanism of QR/QC in the discussion that follows.⁷ This reduces Partee's three possible denotations to two: noun phrases of type $\langle e, t \rangle$ and noun phrases of type e , (which I shall refer to collectively as 'quantificational/referential'); the latter are split into those that require QR to be interpretable (formerly, the $\langle \ll e, t \gg, t \rangle$ -type) and those which do not ("John," and perhaps definites and indefinites in their 'specific' interpretation).

It is important to stress that while diadic quantifiers require QR/QC to be interpreted, for others—in particular definites, indefinites and cardinal numerals—QR/QC might just be one of two ways of being interpreted, the other being direct reference to a singular (or 'plural') individual in the world. Therefore, the puzzle of (1.6) would be solved if we mapped non-specific indefinites onto QR and specific indefinites onto non-QR, both being of type e at LF, like the trace of "[both pens]."

1.1.4 Introduction to the layer system

Can the system be collapsed even further, unifying e -type and $\langle e, t \rangle$ -type? I believe that the answer is no, and that the difference between quantificational/referential and predicative types might be indelebly imprinted in the human cognitive system.

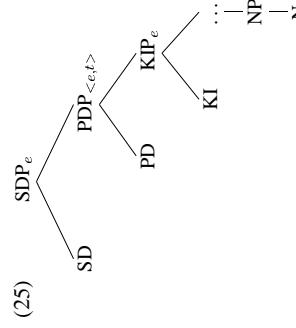
What can be done, however, is to go back to Montague's intuition that the same syntactic category should correspond to the same semantic type, via a completely different route. This is to associate the e and $\langle e, t \rangle$ denotations to different syntactic projections within the noun phrase. In this view, a predicative noun phrase will not be introduced by the same maximal projection as a referential one. As a consequence, we might expect predicative noun phrases to have a different distribution, or show a different pattern of extraction, pronominalization, and agreement than quantificational/referential ones. Indeed, I will try to show that all these differences can be found, cross-linguistically.

This approach, of course, is not untried. In the nominal system, it has been pursued for instance by Bowers (1988), in terms of a DP vs. NP distinction. I believe that the two projections are not enough to capture the full complexity of the noun phrase. Bowers (1993), which states the distinction in terms of DP vs. NmP (the noun phrase equivalent to his PredP projection in the sentence, above NP) is closer to my analysis, although we deal with different phenomena. At the sentential level, work by Rothstein (1983) and Heycock (1992), (1994) has stressed the importance

⁷ Sandro Zucchi (pc.) has pointed out to me that Heim (1987), in a footnote, sketches a GQ-based system that doesn't require Q-raising, but preserves the benefits of treating (in)definites as free variables, achieving the correct intersentential bindings. In this system, "a man" would be translated as a set of properties pertaining to an individual variable. Since the system is not completely spelled out, its implications are not entirely clear to me. Prima facie, the systematic treatment of proper names as variables seems unappealing, given the 'rigid designation' properties discussed by Kripke (1972), but if the system as a whole turned out to be superior I do not see any obstacle to reformulating my proposal along those lines.

of predication as a syntactic licensing mechanism.

The basic schema that I propose for the noun phrase is the layered structure in (25), where SDP stands for *Strong Determiner Phrase* (for reasons that will become clear in the next chapter), PDP stands for *Predicative Determiner Phrase* and KIP stands for *Kind Determiner Phrase*. The latter projection contains the NP proper, with the noun, and some attributive adjectives.



Several things need to be said about this schema.

1.1.4.1 The PDP layer

In the complete SDP structure, the PDP layer denotes a property, which is predicated of the head SD, an e -type object at LF: a pronoun, a proper name, an empty head or the trace of a Q-constrained quantifier. In this view—which dates back at least to Sommerstein's (1972) view of determiners as transitive pronouns—the only referential part of the noun phrase is the element, if any, in determiner position; all the rest is a *qualification* of this element.

The idea that every argumental noun phrase contains a hidden predication can be traced back to Aristotle (*De interpretatione*, 1,16a,10-20). According to Aristotle, a noun cannot be true or false by itself, much like a verb alone; however, a noun is a predication in that it can be negated (with a somewhat artificial flavor, in my judgment), resulting in what he calls an "indefinite noun."⁸ Unlike verbs, nouns are independent of time (*De Int.*, 1, 16a, 20).

(26) [{}Every / No / A / The} non-mammal] has cold blood.

Interestingly, the negation in the bracketed phrase above cannot take sentential scope, meaning for instance "a mammal doesn't have cold blood." Also, it cannot be considered 'constituent negation.' In German, constituent negation can sometimes be due to the fact that "non-man" can be used to designate any category whatsoever, except that of 'man.'

⁸ See *De int.*,1,16a,30-32, and the appendix of Moto (1993). Presumably the term "indefinite" is due to the fact that "non-man" can be used to designate any category whatsoever, except that of 'man.'

expressed with *kein "no,"* while our noun-phrase internal negation in (27)b must be rendered with the sentential negator *nicht "not"* (Alber, p.c.).⁹

- (27) a. Das ist keine Katze, das ist ein Kater!
This is no cat, this is a tom-cat!
- b. Ein Nicht-Linguist versteht nichts von Syntax-Bäumen.
A non-linguist understands not of syntax-trees

Just as it can be negated, the noun-phrase internal predicate can be modalized. Consider the Italian sentence in (28) and its gloss.

- (28) Il dottore ha esaminato una possibile infezione.
the doctor has examined a possible infection

A rough logical translation of (28) must be (29)a, not (29)b, where *possible* takes sentential scope.

- (29) a. $\exists x[\text{examine}(\text{the-doctor},x) \wedge \Diamond[\text{infection}(x)]]$
- b. $\Diamond\exists x[\text{examine}(\text{the-doctor},x) \wedge \text{infection}(x)]$

(29)b is compatible with a situation in which, in the actual world, the doctor hasn't examined anything at all, while (28) implies that the doctor has examined *something*, presumably something having symptoms similar to those of an infection. “Examine,” an extensional verb, triggers a presupposition of existence for its object; the modalized predicate is predicated of this element, which I take to be SD, and it doesn't affect this presupposition in the least.

On the other hand, we can follow Aristotle in assuming that a nominal predication is not tensed, at least if we exclude eventive nominals. As a result, frequency adjectives (cf. Stump 1981) cannot ‘stick’ to it, and they must take sentential scope; the adjectives in (30)a are interpreted as sentence-level adverbials, much as in (30)b.¹⁰

- (30) a. At home, John drinks {a sporadic cup of coffee / an occasional beer}.
- b. At home, John {sporadically / occasionally} drinks {a cup of coffee / a beer}.

To sum up, PDP¹¹, the noun-phrase internal predicate in general expresses a ‘time-less’ property which can be negated or modalized, without affecting presuppositions. As a pure property-denoting element PDP cannot appear in argumental position, just like adjectives. The argument of this property is an *e*-type, pronoun-like element, which I locate in the highest head of the noun phrase, SD.

⁹ An fact that I do not fully understand is why the negative element must be adjacent to N, cf. “*‘a non-old man,’ meaning ‘anything that is not an old man.’” Consider however that even in the sentence negation remain close to VP even when it seem to include the subject in its scope.

¹⁰In some case, the frequency adjective is understood as applying to a tensed modifier that is canonically associated with the noun: “An occasional beer keeps John happy” means something along the line of ‘A beer, *drunk* occasionally, keeps John happy.’ Again, see Stump 1981 for discussion.

1.1.4.2 The KIP Layer

Under the predicative layer, PDP, I posit a layer called KIP, for Kind-Denoting Phrase. ‘Kinds’ should be understood in the sense of Carlson (1977) (or alternatively, Chierchia's (1984) ‘nominalized properties,’ although I will not pursue this direction here)—as ontological primitives. The basic idea is that nouns are not inserted from the lexicon as elements of type $\langle e, t \rangle$. They can be easily turned into properties—indeed I propose that this is one of the functions on the PDP layer—but they do not start out as such.

From a technical standpoint, this treatment seems necessary to give a semantics for N-to-D raising, as described in chapter 4. Empirically, I believe that this arrangement is more promising for the analysis of many adjectives in Italian and other Romance languages that take up a different meaning when they appear in different positions with respect to the noun, as discussed in Zamparelli (1994). This difference corresponds to a lower or higher attachment point within DP, as described in the next sections. Adjectives that appear between a noun and its complement are attached at the lowest possible position, that is, within KIP. However, the semantics of KIP given in this work is rather preliminary, and a detailed study of the interaction of adjectives with KIP is beyond the scope of this dissertation.

Together, SDP and PDP constitute the ‘determiner system’ of a language. Many determiners can appear either within PDP or SDP, but these projections can also be empty, if they are appropriately licensed. I propose that the SDP layer can be absent in predicate nominal, that Quantifier Raising is possible only when SDP is present, and that Quantifier Construal can only extract quantifiers from the topmost maximal projection, SDP. Thus, in canonical copular predictions such as “John is [a man],” “[a man]” is a bare PDP; the property denoted by ‘a man’ is predicated of the copular subject “John,” and no QR takes place. Thus, to the extent undergoing QR and QC determines the ‘meaning’ of a determiner, some determiners will appear to change meaning depending on whether they are interpreted in SDP (where they can undergo QR and QC), or in PDP (where they cannot, and must be interpreted as part of the predicate). Since these meaning variations are common to a whole class of determiners, the approach of this dissertation is to factor them out at a structural level, instead of representing them as lexical ambiguities.¹¹

Since I adopt a rigid version of X-bar theory, SDP and PDP contain in fact four positions that could be occupied by lexical material, two heads and two specifiers. Understanding which elements can go in each of these positions, and what are the semantic implications of each position will be one of the major tasks of this dissertation.

The three-layer hypothesis fits naturally with the existence in Italian of three distinct object clitic pronouns: *Io_{+Agr}* (i.e. *Io/la* ‘him/her’ and *li/e* ‘them_{M/F}’), *lo_{-Agr}*

¹¹The ‘ambiguity’ approach to the semantics of determiners is common, cf. Partee's (1988) two ‘many’ (cardinal and proportional), and Westerståhl's (1985) four meanings of ‘many.’

(glossed as “one” or “such”) and *ne* (imperfectly glossed as “of.it/of..them”). *Io_{+Agr}* pronominalizes full argumental noun phrases (31a); *lo* without agreement markings pronominalizes predicate nominals (31b) but also predicative adjectives, and *ne* pronominalizes a subpart of a full noun phrase which includes the noun and some adjectives, but excludes quantifiers.

- (31) a. Gianni vide [Maria]_i, ma non {[*t_i*] / **lo* / **ne*} riconobbe.
Gianni saw Maria, but (he) not {her_{F,Sng} / one / of.it} recognized
- b. Quelli sono [due linguisti], ma non {**li* / *lo_i* / **ne*} saranno a
Those are two linguists, but not {it_{MPl} / such / of.it} will_be for
lungo.
- c. Gianni e Maria aiutano molti [linguisti], ma {**li* / **lo* /
Gianni and Maria help many linguists, but {them_{MPl} / one /
ne} conoscono [pochi *t_i*].
of.them_i} know [few *t_i*]

The strongest theory about pronouns assumes that they only pronominalize maximal projections (in pre-DP times, *ne* was taken to pronominalize an N', see Belletti and Rizzi 1981; in a DP-framework, Cardinaletti and Giusti 1990 propose that *ne* replaces an NP), and that they are only sensitive to the categorial status of the object they replace. Therefore, I propose as a working hypothesis that the three clitics correspond to the three levels of DP, i.e. that *lo_{+Agr}* is an SDP, *lo* without agreement is PDP and *ne* is KIP.¹²

1.1.5 The semantic contribution

The layer approach sketched above joins a family of theories that attempt to explain the distinction between two classes of determiners (Class I and Class II in Bowers 1988, Bowers 1993, ‘strong’ and ‘weak’ in Milsark 1974, Bawwise and Cooper 1981, Safir 1982, de Jong 1987, de Jong 1991, de Hoop 1992, Diesing 1992, McNally 1992, Zucchi 1995, to name a few), and the prohibition against one of the two classes in *There*-sentences and other contexts known as the ‘Definiteness Effect.’

The specific contribution of this dissertation is the unification of *There*-sentences with locative copular constructions (combining together the approaches in McNally 1992, Moro 1993; Moro 1997b, and Freeze 1992), in a way that takes full advantage of the quantificational/referential vs. predicative distinction, and the idea of layers. Along the way, I will propose a syntactic solution to ‘Williams’s puzzle’ (cf. Williams 1983, Partee 1987), i.e. the fact that quantifiers that normally do not appear

in predicative contexts or in *There*-sentences, and that my theory places in SDP, are not apparently under these restrictions in examples such as:

- (32) a. This house has been every color.
 - b. John has been every kind of doctor.
 - c. There was every type of beer at the party.
- Abstract nouns like “color,” or “size,” which allow the construction in (32)a, are called by Partee (1987) ‘attribute nouns,’ ‘Kind’ and ‘type’ in (32)b and c, apparently also ‘attribute’ nouns, will be shown to participate in a different construction.

1.2 Syntactic preliminaries: the DP hypothesis

On the syntactic side, the analysis proposed in the present work builds on the work by Szabolcsi, Abney, and many others, showing that noun phrases have a much greater similarity to sentences than previously believed. For instance, several languages display agreement between the possessor and the head noun (e.g. Yup'ik, Mayan, cited in Abney 1987 and Hungarian, analyzed in Szabolcsi 1983 (33)).

- (33) a. *Hu: Az en vendegem*
the I-NOM guest-POSS-1PSng
“my guest”
- b. *Hu: A te vendege*
the you-NOM guest-POSS-2PSng
“your guest”
- c. *Hu: (A) Mari vendegg*
(the) Mari-NOM guest-POSS-3PSng
“Mary's guest”

Abney analyzes the English possessive in a parallel fashion, proposing that the possessor phrase is located in the highest specifier of the noun phrase, which he identifies with the projection otherwise occupied by the determiner (DP). With possessives, the head of this projection is presumably occupied by the possessive “-'s” morpheme. The determiner projection becomes the category that introduces the noun phrase, much like IP introduces the sentence; NPs, corresponding to VPs, are embedded inside it. (34) represents a possessive DP with another DP in its Spec.

¹²A likely candidate for KIP in English is the pronoun “one,” which behaves as noun with number agreement features (“one/ones”).

1.2.1 Functional projections

- In Abney's terminology, DP is a *functional* projection, like IP or CP, as opposed to *thematic* ones, like NP or VP. Some relevant distinctions between functional and thematic elements proposed in Abney (1987) are:

 1. Functional elements constitute closed lexical classes.
 2. Functional elements are generally phonologically and morphologically dependent (stressless, clitic, affixes, or phonologically null).
 3. Functional elements permit only one complement.
 4. Functional elements lack what Abney calls 'descriptive content': "Their semantic contribution is second-order, regulating or contributing to the interpretation of their complement."

According to Abney, the last point explains why a verb apparently subcategorizes for the features of the NP (= projection of N) embedded inside DP, not for the determiner itself (i.e. determiners are ‘transparent to subcategorization’). This is not entirely supported cross categorially, since verbs appear to subcategorize for a specific type of CP, and to some extent for certain classes of determiners (36).

- (35) a. I wonder { *{that / whether} } he left.
 b. I think { that / *{whether} } he left.

(36) I consider John {an / *{the}} introvert.

In the approach proposed here, we can dispense with the assumption that determiners are transparent to subcategorization. Verbs do subcategorize for a particular SDP, but

PDP attributes to the SDP head the semantic features that are relevant for subcategorization (or for any equivalent mechanism). The process is parallel to the effect of a restrictive relative on a head like “something.” (37)a and b respect or violate subcategorization, regardless of the presence of “something,” yet it would be very odd to say that they do so because “something” is a transparent functional category that transmits subcategorization down to the relative clause.

- (37) a. John killed {a wolf / something that turned out to be a wolf}.
b. *John killed {a stone / something that turned out to be a stone}.

1.2.2 N-movement

Another important element of similarity between noun phrases and sentences is the possibility of N movement, which parallels the idea of V movement to Infl or TP. In his analysis of Romanian, Grosu (1988), building on Dobrovie-Sorin (1987), proposes that the clitic definite determiners *-ul*, “*the_FM^{Sing}*” and “*a*” “*the_FS^{ng}*” appear after the head noun and before any adjective because N has head-moved to the D position, adjoining to D. This is shown by the fact that if a non-clitic demonstrative replaces the clitic article, the noun appears in its base generated post-adjectival position; furthermore, an adjective can also move to license *-ul/-a*, in which case N remains in place (see also Giusti 1992b for extensive discussion). (38) illustrates the three possibilities:

- (38) a. Ro: Bâiat_i-ul sărac *t_i*
boy-the poor *t*
“the poor boy”

b. Ro: Acest sărac bâiat
this poor boy

c. Ro: Sărăc_j-ul *t_j* bâiat
poor-the *t* boy

Ritter (1988) and (1991) also propose N raising to D in an analysis of the 'construct state' construction in Hebrew, where a D⁰ filled by a raised nominal lexical element becomes able to assign genitive case under government. Ritter's analysis rests on the presence of a functional head, NumP, between DP and NP.

Crisma (1991) attributes to Rizzi the observation that Greenberg's (1966) data on the possible order of articles, demonstratives, quantifiers and adjectives across languages suggest a strict hierarchical order, which can be altered only by the head directionality parameter (initial or final), and by the option of N raising. The only orders found across languages are the three in (30) (cf. Günter 1992b).

- (39) a. Dem Num Agg N
 b. N_i Dem Num Agg t_i

[*Head-initial, No N raising*]
 [*Head-initial, N raising*]

c. N Agg Num Dem

[Head-final, No N raising]

1.2.3 The relative position of N and attributive adjectives

Even languages with no generalized N-to-D movement might exhibit some degree of N movement. Evidence comes from the relative position of the noun and its attributive adjectives.

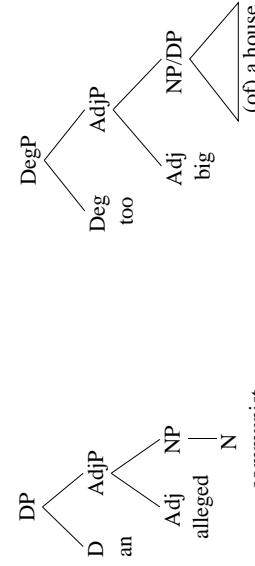
In Abney's (1987) theory, attributive adjectives in pre-nominal position (e.g. "red" in "the red ball") are heads taking NP as their complement. As evidence, Abney (1987), p. 323 gives (40), where the semantics of the adjective alters the semantics of the NP in a non-intersective fashion (an alleged communist may not be a communist, a fake diamond surely isn't a diamond), and (41), where the adjective appears to take a DP as a complement ("%" indicates a possibility available only in certain dialects). The structures proposed are (42)a and b.

- (40) a. An alleged communist
b. A fake diamond

- (41) a. Too big (%of) a house
b. How old (%of) a man

- (42) a. "An alleged communist"

- b. "Too big (of) a house"



There are empirical and theoretical reasons to be skeptical about this analysis. "Too proud of Mary," where "of Mary" is a complement of "proud" would presumably end up having the same structure as "too proud (%of) a man," or "too big (%of) a house," even though the former is a noun phrase and the latter an AdjP. To account for the fact that "too big a house" doesn't have the distribution of an AdjP, Abney proposes that adjectives, too, can be functional projections that are 'transparent' to the category of their complement DP—in violation of his own definition of 'functional category.' Even this stipulation doesn't automatically distinguish 'real' complements of 'proud'—where the AdjP remains an AdjP—from 'transparent' cases.

From a theoretical standpoint, under the hypothesis that adjectives are heads in DP, N-raising past an adjective as we have seen it in (38)a would violate the Head Movement Constraint (Travis 1984) which dictates that an X⁰ cannot 'skip' heads in raising without becoming unable to properly govern its own trace. Bernstein (1993) does in fact presents cases where noun raising is blocked by adjectives, but this phenomenon is only triggered by a small number of adjectives (e.g. Italian *mero* "mere") which can be argued to be heads on independent grounds. We conclude that Abney's proposal is untenable in the general case.

Crisma (1991), Cinque (1992), and (1993) have proposed an alternative model in which adjectives are hosted in the specifiers of multiple functional projections (5 or 6 for Crisma), inserted between the D projection and NP, the abstract functional heads transmit agreement (φ) features to the adjectives via the spec-head relation. Bernstein (1992) and (1993) proposes a variation of this idea in which most prenominal adjectives are adjoined to intermediate functional categories. In either case, the correct relative position of adjectives and nouns in Romance and Germanic is obtained by assuming that in Western Romance, but not in Germanic, the noun raises at SS to one of the intermediate functional heads, leaving one adjective behind.

In Romance, the unmarked position for most adjectives is post-nominal, between N and its complement [Det N Adj Comp], as in (43)a (examples from Italian, adapted from Cinque, 1993); in Germanic (exemplified here by English) the unmarked case has Adj preceding N and its complement, as in (43)b. Adjectives expressing the thematic subject of a nominalization *must* appear post-nominally in Romance and pre-nominally in Germanic ((44) vs. (45)).

- (43) a. Il ritratto grande del re
The portrait_{M^{Sing}} big_{M^{Sing}} of-the king

- b. The big portrait of the king

- (44) a. *It*: La distruzione romana di Cartagine
the destruction Roman_{F^{Sing}} of Cartilage
"The Roman destruction of Carthage" (Subj = Romans)

- b. **It*: La romana distruzione di Cartagine
the Roman_{F^{Sing}} destruction of Cartilage

- (45) a. The Roman destruction of Carthage
b. *The destruction Roman of Carthage

Rather than positing two different configurations for the two language groups, Crisma and Cinque propose that the base structure is identical, and that the ordering difference can be derived from the fact (independently motivated at the IP level, see Emonds 1978, Pollock, 1989, Belletti, 1990) that Italian raises lexical elements to functional heads in overt syntax while Germanic doesn't. (46) shows that the Italian for "the brutal Italian invasion of Albaania" can host at most one non-conjoined ad-

jective between N and its complement, regardless of order.¹³ This suggests that at SS in Romance N must have moved out of NP and past the lowest functional projection, but not higher than the second lowest one.

- (46) a. ??L' invasion_i brutale t_i italiana t_i [NP t_i [PP dell' Albania]]
 The invasion brutal_{F,Sng} Italian_{F,Sng}
 b. ??L' invasion_i italiana t_i brutale t_i [NP_i [NP dell' Albania]]
 The invasion Italian_{F,Sng} brutal_{F,Sng}

The surface form proposed by Cinque (1993) is therefore (47)a for Italian/French and (47)b for English.

- (47) a. Romance SS:



1.2.4 Attributive adjectives in predicative position

Both Abney and Cinque notice that attributive adjectives can also appear ‘predicatively,’ after the noun and its complement (to avoid confusion with post-copular predication, I shall call this position *attributive-predicative*). This is a marked choice in English, reserved to adjectives with complements, (e.g. ‘A man proud of his son’), some heavy coordinations, (e.g. ‘A man bruised and battered’), and a few special adjectives, (e.g. ‘a man alone’) but it is more common in Romance languages, where it effectively brings to two the number of consecutive adjectives that may follow N ((48), adapted from Cinque 1993).

- (48) a. La aggressione italiana (dell' Albania), BRUTALE
 the aggression Italian (of Albania) BRUTAL

- b. La aggressione italiana (dell' Albania), improvvisa e brutale
 the aggression Italian (of Albania), sudden and brutal

- c. La aggressione italiana (dell' Albania), brutale nei suoi effetti
 the aggression Italian (of Albania), brutal in its effects

Evidence that this position is predicative in nature comes from the fact that adjectives like *principale* ‘main’ or *prossimo* ‘next,’ which for some reason cannot appear in the postcopular predicative position (49)a, can go after N (as a result of N rising), in (49)b, but not in the post-complement attributive-predicative slot (49)c.

- (49) a. *Questo motivo è principale.
 this reason is main

Cinque (1993)

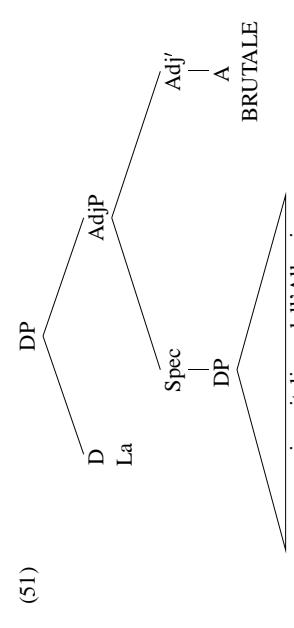
¹³ Modulo Noun-Adjective lexical compounds, like *invasione aeronavale* lit. ‘invasion aeronaval,’ which can be followed by a thematic adjective plus a complement.

- c. *Questo è il motivo della sua partenza, PRINCIPALE.
this is the reason of his departue, MAIN

Similar examples can be constructed in English (Cinque 1993):

- (50) a. An utter indignity
b. *The indignity was uttered.
c. *The indignity, utter and simple

Cf. (48)b
While Cinque doesn't specify the structure of the attributive-predicative position, Bernstein (1993), chapter 2.4.1, suggests that it should be analyzed as the predicate position of a *small-clause*, in the sense of Stowell (1983), i.e. a tenseless predicative structure. More precisely, she proposes, following Chomsky (1992), that the NP is generated in the specifier of AdjP, and that the whole structure is a complement of D (modulo an intermediate agreement phrase, omitted here):¹⁴



Since a similar 'small-clause' structure has also been proposed for copular predictions like the one in (49a) (see chapter 3, section 3.3.1 on page 91), the facts with *principale* and "utter" in (49) and (50) are reduced to the same (unclear) origin.

Positing a small-clause structure behind the attributive-predicative position is very important for the theory to be developed in this dissertation. However, as it is, the idea cannot stand semantic scrutiny. The problem is simple: if both "the man is alone" and "the man alone" are small-clauses where "alone" is predicated of "man," how come they mean two entirely different things? The first one denotes a proposition, which can be true or false, the second one doesn't. We cannot append a determiner to the former one, **"the [the man is alone]," and we cannot interpret the latter as "the fact that the man is alone." Clearly, we need a way to distinguish the

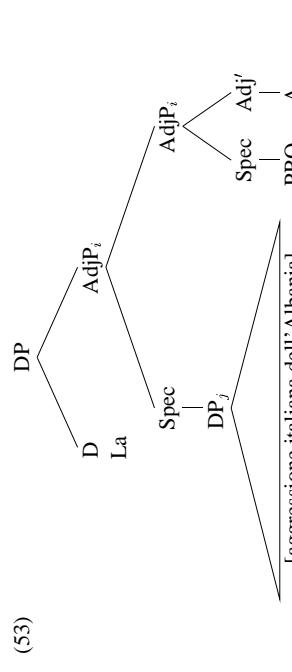
¹⁴The structure is a small-clause *a-lla* (Stowell 1989), different from the small-clause later adopted by other authors (e.g. Moro 1988), which is constructed by adjunction: [XP [Arg] [x Pred]]. Bernstein's structure raises some questions on the position of *moltò* "very," in *L'aggressione italiana dell'Albania*, [*moltò brutale*], for which the discussion in chapter 7 becomes relevant.

two, making the second one (sometimes referred to as "secondary predication," see Rothstein 1983, Heycock 1994) closer in meaning to a relative clause.
Assuming (51), another question is what prevents (52):

- (52) *[DP The [AdjP [Dp John] [Adj' alone]]]

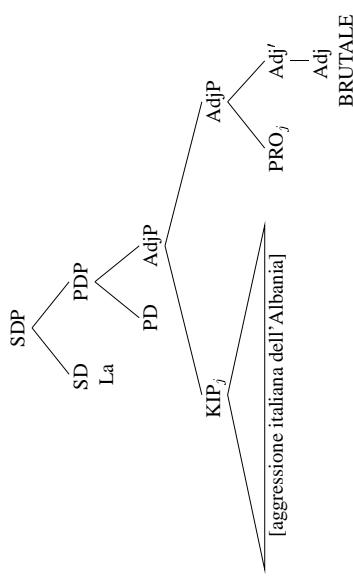
where the DP argument of the small-clause is a proper name (or by that matter, any other full-blown DP).

My proposal is that the modifier is not in a small-clause configuration with N directly, but via a pronominal element, presumably PRO, which is controlled by N. As a first approximation, the idea is to replace (51) with (53):



In this representation, formally similar to the small-clause "I consider [AdjP John_i][AdjP PRO_j faithful to himself_j]," "brutal" is predicated of a PRO coindexed with DP_j. This still doesn't prevent (52). To exclude this possibility, we need to recast (53) in the SDP/PDP/KIP frame introduced in the previous section. Recall that we want to exclude determiners and proper names from appearing in DP_j above. However, the three-layer structure comes with a set of constraints on which lexical elements can appear at which level, and one of the basic assumptions is precisely that determiners and proper names are only realized at the SDP/PDP levels. Therefore, if DP_j is actually a KIP, we obtain the desired result. (53) needs to be revised into:

1.3 What this dissertation is not about



Here, I am leaving open whether KIP contains further functional projections, *a/à la Crisma/Cinque*, to host adjectives. If it does, I take it that they are not relevant for semantic interpretation the way SDP/PDP/KIP are. Notice also that it is perfectly conceivable for the attributive-predicative small-clause to be a category different from AdjP. For instance, it could be a noun phrase, assuming that it can find some way to receive Case. Such small-clauses might be the source for the bracketed noun phrases in “A man, [father of three], came asking for money.” “John, [professor at Yale], hated Harvard” (though these cases have the feel of right-extrapolation). Similarly, one could expect that, with three levels available, the attributive-predicative small-clause could attach somewhere else, perhaps in a way that is dependent on its predicate. Indeed, all these possibilities will have a role in my account of DP-internal XP raising.

This concludes the syntactic preliminaries. In the rest of this work, I will endorse a DP structure with multiple functional heads and the possibility of N movement (at SS or LF), and assume the existence of modifiers in attributive-predicative position. This position will be rendered as a small-clause containing a pronominal element coindexed with KIP, as in (54).

To the general picture I have just sketched, this dissertation contributes an analysis of certain types of nominal modifications as the formal correspondent, within DP, of copular sentences (in the raising analysis given by Moro 1993). English “of,” Italian *di*, and Catalan *de* will be analyzed as the DP-equivalent of the verb “be.” This idea of course requires a theory of XP raising inside the noun phrase; I propose that XP raising to a specifier position is in fact a way to license functional projections with phonologically empty heads.

For reasons of space, various aspects that are relevant to my project have been left out or only addressed in a preliminary way. The final success of this line of inquiry will be measured by whether and how these aspects can be spelled out in a consistent manner.

From a theoretical standpoint, this work doesn't address the issue of how the SDP/PDP/KIP system interacts with the assignment of genitive Case, which is cross-linguistically correlated with a high specifier position in DP (cf. Grosu 1988, Ritter 1988, Giorgi and Longobardi 1991, Ritter 1991, Giusti 1992b, Longobardi 1995, etc.). Presumably, PDP and/or SDP should have a role in the assignment of genitive Case under agreement. Similarly, I do not discuss the issue of theta-role assignment from deverbal nominals to attributive adjectives (cf. Chomsky 1970, Valois 1991, Giorgi and Longobardi 1991, etc.), or the relation between theta-roles and predication (see Heycock 1994).

Moreover, this work does not provide a formal semantic fragment for the whole (non-trivial) set of constructions under consideration. A formal interpretation for the *kind*-construction is given in section 4.6.

I have mostly left out from empirical consideration the family of so-called ‘floating quantifiers’ in Romance and Germanic, on which there exists a sizable body of literature. This literature is so interconnected with the issue of subject/object positions in S that it would have brought this dissertation too far afield. However, since the structural position of floating quantifiers adjacent to DP has consequences for my theory, in section 4.5 on page 165 I will draw the outline of an analysis compatible with my proposal.

I also have to leave out a discussion of null nominal constructions (e.g. Italian *quello alto*, English ‘the tall one’), and several other very interesting facts discussed in Bernstein (1993), chapter 3 (but see my treatment for Catalan *de* in 3.2 on page 76).

Finally, I have mostly dealt with Italian and English data. The semantic conclusions are intended to hold universally, although of course they need to be verified cross-linguistically, particularly on languages lacking overt articles.

1.4 Data

Italian—my native language—recommends itself as an interesting language to study the structure of DP, especially in comparison with Germanic languages, due to the combination of four factors.

First, it is a language where attributive adjectives may appear both before and after the noun, often with dramatic meaning changes—a feature that will make it easy to spot structural differences that in other languages (e.g. English) might be

string-vacuous. Second, Italian has clear gender and number agreement on nouns and adjectives; as we shall see, agreement determines in part the SS position of these items. Third, Italian possessives, unlike English, German, French and Spanish possessives, are apparently adjectives, i.e. they are normally preceded by a determiner (55):

- (55) {Il / Un / Ogni / Questo} mio amico
 {the / a / every / this} my friend

This feature will make it easier to tear apart the definite or indefinite status of phrases containing a possessive pronoun, leaving the structure unchanged. In English, the (in)definite status of (55) is frequently rendered by non-parallel structures: *my friend* and *a friend of mine*, the latter one being arguably analogous to partitive constructions (cf. Barker 1998).

Fourth, Italian comes between French and English in the possibility of licensing 'bare plurals', i.e. determinerless plural noun phrases. English allows bare plurals in all argumentative positions (56), French does not allow them in any one (57), and Italian allows unmodified and non-coordinated bare plurals only in some positions, namely the post-verbal object position (58b), the postverbal subject position with unaccusatives (58c) (marginal for some speakers), the clitic left-dislocated pre-verbal position of objects (in the sense of Cinque 1990) (58)d, the object of prepositions (58)e, but not the pre-verbal subject position (58)a.^{15,16}

- (56) a. Dogs {are here / are omnivorous}.

b. John saw dogs.

- (57) a. *Il y a chiens ici.

b. *Jean a vu chiens.

- (58) a. ??Cani {sono qui / sono onnivori}.

dogs {are here / are omnivorous}

- b. Uscendo, Gianni vide cani per strada.

Going out, John saw dogs in the street

- c. Qui la notte arrivano cani.

here at night come dogs

- d. Cani, li ho visti spesso.
 Dogs, them I have seen often

¹⁵If a bare plural is heavily modified, in particular by a relative clause, it tends to be acceptable in a wider range of positions (see Chierchia 1997). Coordination has a similar effect, licensing even bare singulars in subject position, as in *Cane e gatto sono nemici gurati* 'Dog and cat are sworn enemies,' pointed out in Longobardi (1994). The effect of modification can be attributed to the licensing of the SDP position by a raised bare noun (see section 4.3.2 on page 147 for relevant discussion). I have nothing to say about the coordinate cases.

¹⁶Similar distribution in Spanish, see Rodriguez (1992).

- e. Gianni lavora con cani.
 Gianni works with dogs

Longobardi (1994) proposes that this distribution is due to the presence of an empty determiner, which needs to be licensed via government from a lexical head (P or V). In what follows, I adopt this analysis.¹⁷ In addition, there is an interpretational difference: in English and German, bare plurals can be interpreted quasi-universally or existentially, as discussed in Carlson (1977); in Italian, when they are possible at all, unmodified bare plurals only have the existential reading. Thus, verbs like 'exterminate,' which force their objects to refer to a 'kind,' require a bare plural object in English and forbid it in Italian (cf. (59) and the judgments on its gloss).¹⁸

- (59) Gli europei sterminarono *(i) dodo.
 The Europeans exterminated (*the) dodos

This property will be useful in probing the status of the definite determiner in the two languages, an issue investigated in chapter 4.

1.5 Terminological conventions

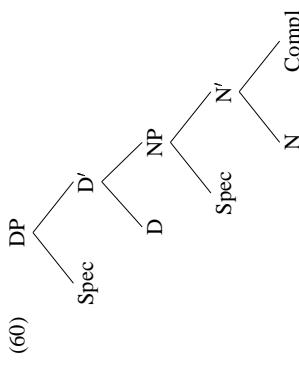
Before we continue, some terminological distinctions are in order. Henceforth, I will use the full term 'noun phrase' or 'adjective phrase' pretheoretically, in their traditional pre-DP meaning (this notion corresponds to Grimshaw's (1991) *extended projection*).

When talking about syntactic trees, I will distinguish between three different entities:

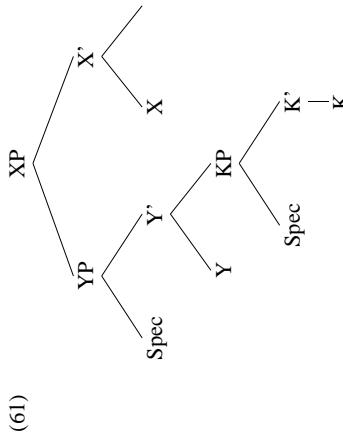
- i. individual (non-lexical) nodes (i.e. 'DP', 'D', 'N', 'NP', 'N' in (60));
- ii. constituents dominated by a node (typically, a maximal node XP), such as the constituent 'DP' represented in (60), which embeds the constituent 'NP';
- iii. projections of a head in the X-bar schema (e.g. 'D^{max}', and 'N^{max}' in (60), composed of the individual nodes {DP, D', D, [SPEC, DP]} and {NP, N', N, [SPEC, NP]} respectively);

¹⁷A potential problem (Longobardi, p.c.) is that the first argument of *considero* "consider," which appears to be governed, doesn't license bare plurals: *Considero *(i) ragazzi responsabili* "I consider (the) boys responsible." However, this could be due to independent reasons, since even indefinites in their non-specific reading (*un ragazzo* "a boy") are not perfect here.

¹⁸Again, certain types of modification make a quasi-universal interpretation possible or even salient. Examples are *Governanti di quelle di una volta sono rare*, "Baby sitters of those of the good old times are rare nowadays" *Foreste così grandi sono in via sparizione* "Forests this big are disappearing," *Animali come questi erano diffusi un tempo* "Animals like these were once widespread," etc. I discuss some of these examples in section 4.2.3.



Tearing apart these notions can be important for maintaining a certain level of indeterminacy while dealing with items that can appear in multiple positions, either in Spec or in Head position. To distinguish between these structural notions, I will use SMALL CAPS for (i) (NP, the individual node); the regular 'XP' notation for (ii) (the whole constituent), and the ' X^{max} ' notation for (iii), (the single X-bar projection with its four individual nodes). '[Spec,XP]' will not always be written in small caps, since it unambiguously denotes the node that is the specifier of an X^{max} . Following normal practice, uppercase letters will be used as variables over lexical items of the corresponding category (thus 'V' will be any lexical verb, and "V-to-C" will indicate movement of a verb to the complementizer position). "D" will be a variable over determiners in SD or PD, and D will be used to mean either SD or PD ("N-to-D" will be correspondingly ambiguous). D^0 will stand for the phonologically null determiner.



To make a concrete example, XP might be a fragment of a DP, and YP might be an expanded projection for the adjective phrase, with two internal layers, the higher to host a degree modifier (Y), the lower one for the adjective itself (K). Now, the adjective could be said to be 'in specifier position,' only as long as it is made clear (by the context, or explicitly), that the point of reference is the DP. Throughout this work, I will feel free to adopt this terminology as needed.

The glosses of examples in languages other than English are designed to point out those aspects of each example that are relevant for the discussion. I will feel free to omit agreement specifications and/or to give an imperfect word-by-word rendering whenever a closer translation would only make the point less perspicuous. Therefore, I do not accept any responsibility for data quoted imperfectly or without the relevant discussion.

Finally, unless otherwise specified, 'numerals' will jointly refer to cardinal numerals ("one," "two," etc.) and what I shall call *vague numerals* ("many," "few," "several," "too many," "too few," "much," "little," "enough," etc.) but not to ordinal numerals.

1.6 Overview of the contents

It is in the linguistic usage to refer to lexical items that are 'heads,' and elements that are 'specifiers.' This of course must be understood as 'heads or specifiers with respect to a certain X^{max} .' Thus, the abstract item K in (61) is (strictly) a head, together with Y, in the constituent YP, but it is (sloppily) a 'specifier' w.r.t. the larger constituent XP.

In the next chapter, devoted to semantic issues, I will introduce the strong/weak distinction, and give a critical review of various accounts of the Definiteness Effect in Existential Sentences (ES). After discussing problems related to the construction "a *certain*" + *proper name* and to the apparent lack of definiteness effect in Italian, I will lay down some desiderata for a theory of ES compatible with the split-DP proposal and capable of dealing with these facts.

In the third chapter, moving from ES, I will focus on the apparently weak usage of "every" in the *kind*-construction "every kind of N" and "N of every kind." The "weak every" will be explained away by arguing that "every kind" in "every kind

of car" is not the head of the DP, but a raised modifier of the noun "car," generated in the attributive-predicative position proposed by Cinque and Bernstein. To explain the *kind*-construction and several other nominal structures amenable to the same treatment, I will make use of the analysis of copular constructions developed in Moro (1988), (1991), (1993), (1997) discussing it in some detail. The parallel between the *kind*-construction and copular sentences will explain the common extraction and agreement facts, both in Italian and in English. The chapter mostly deals with syntactic facts.

In chapter 4 I shall examine in more details the main idea of the dissertation, namely that DP is a layered structure with the three topmost layers corresponding to the referential, predicative and kind interpretation. In the predicative reading of a DP, the referential layer is missing (or semantically empty in some cases, as explained in chapter 5); this predicts that predicative phrases cannot contain as much material as their referential counterpart, a hypothesis that will be tested using the distribution of possessives in English, *ne*-extraction in Italian, the raising of modifiers like "too tall" in "too tall a man" and the possibility of various Italian WH-words to appear under a determiner, with interesting semantic changes. In the second part of the chapter, I will analyze and reformulate Longobardi's idea that the kind reading of bare plurals is licensed by their movement to SD. Finally, I will present a semantics for the *kind*-construction discussed in chapter 3.

In the fifth chapter, I will return to the issue of *There*-sentences. Following Freeze (1992), and a suggestion in Zucchi (1995),¹⁹ I analyze Italian *There*-sentences as colapsing together two similar structures, a locative predication and an existence statement. The main claim is that both constructions involve a locative element ("There" and the Italian *ci*, both of which I do not analyze as expletives, following Moro 1993, but as abstract locatives), and a noun phrase; the only difference is that in one case (the existence statement) the locative is a specific indefinite argument and the noun phrase a predicate, in the other (the locative statement), the locative is the predicate, and the noun phrase its argument. This analysis will be supported by the behavior of bare infinitives in Italian.

In the final part of the chapter, I will deal with some residual issues in the possible shape of 'predicates,' examining a puzzling class of definite predicates that seem to be 'transparent' to the (in)definiteness of their complement. I will compare them to equative sentences and argue that the 'transparency' is actually the result of movement of the complement to license a functional projection in the embedding predicate. The difference in interpretation and extraction facts between these types of predicates and equative sentences such as "Diego de la Vega is Zorro" will be argued to be due to different last-resort strategies in the interpretation of small-clauses.

In chapter 6, I will deal with some issues in the distribution and the semantics

¹⁹ At the time of writing, this work was available to me only in manuscript form, cited here Zucchi (1993).

of numerals. The main syntactic claim is that cardinal numerals are heads of the predicative layer, which can be raised to the referential layer, while 'vague numerals' (e.g. "many," "few," "too many," "several," etc.) are (cross-linguistically) adjetival maximal projections that may raise to the specifier of the referential XP.

I will also consider numerals and indefinites in their specific reading. To account for the possibility of 'specific' indefinites under *There*-sentences and with (Individual-Level) Property Predicates, I present a discourse-based analysis of *specificity*, which examines the semantics and pragmatics of the words "certain," "specific" and "particular;" and of an Italian word with syntax similar to "specific," but with the opposite meaning, i.e. *qualsiasi*.

In the last chapter, I will switch from the DP to the interesting and ill-studied topic of the internal structure of Adjective Phrases, arguing that AdjPs have an extended structure similar to that of DPs, and that in Romance the adjective moves much like N in DP and V in IP, leaving measure phrases behind.

The claim is that some of the principles that I have proposed for DPs (in particular, the possibility for an empty functional head to acquire meaning from its specifier and the interaction between layers and presuppositions) are operative in AdjPs as well—strong evidence that the similarity identified by Abney across DPs and IPs extends to other categories as well.

CHAPTER 2

The Strong/Weak Distinction and the Definiteness Effect

2.1 Introduction

The aim of this chapter is to introduce the distinction between strong and weak quantifiers, and the Definiteness Effect (DE) in Existential Sentences (ES). After giving a survey of some analyses that have been offered to explain this phenomenon, I lay down two desiderata for a correct account of ES, which is developed in subsequent chapters. One is to explain why there appears to be cross-linguistic variation in the definiteness effect. “There is John” is out in English, but its word-by-word translation in Italian is impeccable; if the DE is solely driven by semantic factors, as proposed by some authors, we wouldn’t *prima facie* expect such differences.

A second goal of an appropriate analysis is to make explicit the relation between ES and copular predication, and in particular, locative copular predication, as in ‘John is down there.’ Freeze (1992) has shown that in many unrelated languages, ES make use of the verb ‘be,’ and have a structure closely related to locative copular predication. Indeed, McNally (1992) has given arguments to identify the noun phrase that appears after the copula in ES (“a man” in “there is a man”) and the predicate nominal in copular sentences such as “John is a man.” Adopting this thesis, I will propose that the DE follows to a large extent from the restrictions on the determiners that can appear in predicate nominals, and that ES are cases of predication. This line of analysis immediately raises the issue of how to deal with the so-called ‘Williams’ puzzle,’ and its *There*-sentence equivalent.¹ Williams (1983) points out that sentences like (62) are acceptable; this appears to be a counterexample to the generalization that quantifiers such as ‘every,’ ‘both,’ ‘most,’ ‘each’—prime members of the class of so-called ‘strong’ quantifiers, which I locate in the highest DP projection, SDP—can never function as predicate nominals (see (63)).

- (62) John has been every kind of doctor during his career.

¹The terminology ‘Williams’ puzzle’ is from Partee (1987).

- (63) *Those people seem to be {every / each / most / both} students.

In line with the parallel between predicate nominals and noun phrases in ES, "every kind of doctor" can also appear in the latter environment (Lumsden 1988; McNally 1992).

- (64) There was every kind of doctor at the hospital.

Clearly, these two facts seek a single explanation. Since in my account of copular predication the only projection that could host "every," i.e. SDP, is missing altogether, and I reduce ES to predication, I have a lot at stake on this point; Williams' puzzle seems to break the strong link between syntactic categories (the SDP and PDP layers) and semantic interpretation (e-type or <e,t>-type at LF); before an account of ES can be laid out, I need to account for it in a way compatible with my theory. This will be done in the third chapter.

To anticipate the main idea, following a suggestion in Wilkinson (1991), I propose that both in (62) and (64) above, "every kind" is *not* the head of the phrase "every kind of doctor," but merely a modifier of the head, which happens to precede the head as a result of movement. This analysis has an important side-effect: it links DPs containing the word "kind" to an apparently unrelated set of constructions across languages. Superficially, these constructions have in common the presence of the preposition "of"; underlyingly, I claim that they are all based on a small-clause structure and undergo DP-internal raising. Further analysis of this idea will lead us to a rather surprising result, namely that these constructions are the DP-internal correspondent of a copular sentence like "John is a man."

With the kind-construction out of the way, in chapter 4 I will discuss additional aspects of the multi-layer hypothesis which are relevant for the treatment of existential sentences. The final analysis of the DE will be given in chapter 5.

2.2 The 'strong/weak' distinction

2.2.1 Existential Sentences

In his seminal work on quantifiers, Milsark (1977) showed that determiners can be divided into two classes, *strong* and *weak*, depending on their syntactic behavior. The hallmark of 'weakness' was taken by Milsark to be the possibility of appearing in the post-copular noun phrase of 'Existential Sentences' like (65).

- (65) a. There was a sailor missing.
b. There are some dogs in my yard.

Some terminology is in order. The noun phrase "a sailor," in (65)a, will be referred to as the 'post-copular noun phrase' (or the 'internal noun phrase'). The phrase

"missing" or "in my yard" will be the 'coda.' The coda is optional; witness the acceptability of "there was a man" and "there are some dogs." In some accounts (notably, Barwise and Cooper's (1981)) the coda is always considered part of the internal noun phrase. In others, the coda is taken to be the predicate of a small-clause (e.g. Safir 1982), or an adjunct (e.g. Moro 1993, McNally 1992).

While it is quite plausible that in some cases the coda can be part of the internal noun phrase, this cannot always be the case; for instance, in ES with WHs, the coda appears to have been stranded (66).

- (66) How many people were there waiting in line?

Moreover, we have seen that in English the post-nominal attributive-predicative position of modifiers is restricted to special circumstances (e.g. stress, coordination). Keenan and Stavi (1986) observe that if "missing" in (65)a were part of the internal noun phrase, we would routinely expect sentences such as ?? "A sailor missing was drunk."

Similarly, in Italian *Ci*-sentences (the equivalent of *There*-sentences) codas appear even with proper names (67), even though such phrases cannot accompany names elsewhere, except as parenthetical remarks (68).

- (67) C' è Gianni pronto a darti un passaggio.
there is Gianni ready to give-you a ride

- (68) *Gianni pronto a darti un passaggio è qui.
Gianni ready to give-you a ride is here

In this dissertation I will not be concerned with the position of noun-phrase-external codas. The reader is referred to Lumsden (1988), McNally (1992) for extended discussion, and to Keenan (1987) for further criticism of Barwise and Cooper's position.

The choice of determiners that can appear in the post-copular noun phrase is restricted. (69) and (70) give a non exhaustive sample ("SOME" and "sm" stand for the stressed and unstressed versions of 'some,' respectively). Milsark (1974) called 'strong' those determiners that cannot appear in ES (69), and 'weak,' the ones that can (70).² This restriction on the post-copular noun phrase in *There*-sentences was termed by Milsark the 'Quantification Effect,' but it is currently better known as *Definiteness Effect* (DE), after Safir (1982).

- (69) a. ??There are (the / these / SOME / most / all the / my / John's) pets (playing in the garden).
b. ??There is {the / that / every /each / my / John's} pet playing in the garden.
c. ??There is Mary playing in the garden.

²See Hannay (1985), McNally (1992) for a very complete listing, and footnote 6 for qualifications on partitives in ES.

- (70) a. There are {sm / two / few / many } pets in the garden.
 b. There is a pet in the garden.
- (71) a. There was a sailor {drunk / available / ready to leave / in the room / missing}.
 b. *There was a sailor {tall / Italian / blonde}.

The coda has restrictions of its own. Predicates expressing an atemporal property, such as predicate nominals and adjectives denoting a permanent state (e.g. “tall,” or “Italian,” as opposed to “drunk,” “ready” or “missing”) are impossible as codas. This is known as the *Predicate Restriction*.

- (72) a. {Every / The / This / Each} pet is {a cat / furry}.
 b. {The / All the / These / Most / Both} pets are {cats / furry}.

- c. ??A pet is {an animal / furry}.
 d. ??Sm pets are {cats / furry}.

Following the terminology of Carlson (1977), atemporal property predicates that make impossible codas will be called ‘individual-level’ (IL) predicates. Property predicates that express temporal properties (“ready,” “here,” “available,” “drunk,” etc.), and which are fine in ES codas will be called ‘stage-level’ (SL) predicates.³ Milsark also characterized ‘strong’ quantifiers as those that best appear as subjects of Individual Level predicates, such as “being furry,” “being a cat” or “know English.” The indefinite article “a” and the unstressed, non-contrastive “sm” are odd in these contexts (72)c,d.

- (73) a. In this house, there are {two / few / many } furry pets.
 b. In this house, {two / few / many } pets are cats.

2.2.2 Numerals in ES

Milsark points out, however, that the reading of the numerals in the two contexts is not identical.⁴ Numerals in ES have what he calls a ‘cardinal reading’ (also called

³ See section 4.6.1 on page 169 for a more formal introduction to individual- and stage-level predicates.

⁴ Milsark (1974) only discusses the ability of “many” and “few” to appear with IL predicates. As for cardinal numerals, the discussion below must be taken as an extrapolation from Milsark’s conclusion on vague numerals, based on Lumsden (1988, Herburger (1994, Higginbotham (1987, de Hoop (1992, Safir (1987), and on informants’ judgments.

- ‘adjectival reading’) i.e. they seem to predicate an amount of the nominal after the copula, much as in:

- (74) There are pets that are {two / few / many} in number in the garden.

In the case of vague numerals, the amount is not precisely determined, and its range must be contextually determined, given that “many/few” in “The red stars in the universe are {few/many} in number” and “The pink diamonds in my hand were {few/many} in number” denote different quantities altogether.

Numerals with IL predicates do not allow an adjectival reading. Vague numerals such as “many” and “few” take on a ‘proportional’ reading, i.e. they seem to refer not to any fixed amount, but to the size of the proportion between the denotation of the noun and the intersection between the denotation of the noun and the denotation of the predicate. In other terms, [MANY N are P_{IL}] would be rendered as:

- (75) [MANY N are P_{IL}] = (N / N ∩ P_{IL}) > k, k a contextually determined amount (see Partee 1987 for this formulation, and extended discussion). (73)b can now be paraphrased as:
- (76) (In this house) the proportion of pets that are cats is {low / high}.

This leaves some room to different truth value judgments when—in the case of “many”—the proportion is high, but the actual number of objects involved is low (the opposite with “few”). For instance, in Italian three out of four basic cardinal points have the same initial as in English (N, S, E, but not W). Given this, (77)a is usually judged true, although a borderline case for “many,” while (77)b is definitely considered false.⁵

- (77) a. Many cardinal points have the same initial across English and Italian.
 b. There are many cardinal points with the same initial across English and Italian.

Cardinal numerals cannot take up a proportional reading but are interpreted in IL sentences as if they referred to some particular or specific set of individuals. This reading is naturally accompanied by a list of the individuals the numeral refers to:

- (78) In this house, two pets are cats: Caper and Kaos.

Since this reading is salient with partitives, a common paraphrase for the strong reading is (79), modulo the fact that, compared to (78), (79) has a stronger presupposition

⁵ Westerståhl (1985), discussed in de Hoop (1992), pg 41, actually defines “many” in four different ways. The fact that “many/few” are arguably both ambiguous and context dependent makes intuitions quite shaky. In what follows, I assume that “many/few” are only two-way ambiguous, and vague.

that there ought to be a total of more than 2 pets. This is apparently supported by the commonly-encountered judgment that partitives cannot appear in ES (80).⁶

- (79) In this house, two of the pets are cats: Caper and Kaos.

- (80) ??There are two of the pets in this house.

To be sure, looking back to the indefinites in (72)c,d above with strong numerals in mind, we see that there are ways to make them acceptable even with IL predicates; “some” can be stressed (“SOME”), patterning with vague numerals, as in (81); the singular indefinite, if heavily specified, patterns with cardinal numerals in their specific reading (82).

- (81) [SOME ferrets] are pets, (while others aren’t).

- (82) [A pet I purchased by mail] turned out to be an alligator.

“Some” in (81) asserts that there is a proportion of ferrets that are pets (presumably true even if there turned out to be only one pet ferret), while “a” in (82) is perfect in a situation in which the speaker has a particular pet in mind, much like the cardinals in (78), (79).

As we have seen, Fodor and Sag (1982) show that the specific reading of indefinites (which they call ‘referential reading’) is capable of binding a pronoun across a scope island that restricts a quantifier like “every.” This possibility is open with the singular indefinite, with bare cardinals, with “a few” and “certain” (83), but interestingly not with vague cardinals (84):

- (83) a. If Fido encounters [{* every / * each / a / a certain} child that tormented him when he was a puppy]_i, he bites him.

- b. If Dumbo encounters [{* most / two / four / a few / certain} children that tormented him when he was small]_i, he stomps on them_i.

- (84) If Dumbo encounters [{many / few / several } people that tormented him when he was small]_i, he stomps on them_i.

⁶See Hoekstra (1984, de Jong (1991, Eng (1991); however, McNally (1992) takes partitives in ES to be basically acceptable, admitting the possibility of cross-linguistic variation. Interestingly, one of the examples she uses (*there were many of the same people at both events*, (McNally 1992, p. 9) contains the definite *the same people*, that many speakers (McNally included) find good in ES; another involves *two of us*, an expression that could perhaps be misinterpreted as *the two of us*, which doesn’t seem to be a real partitive (see section 4.5 on page 165). On this point, consider Comorowski’s (1991) suggestion that the acceptability of a partitive depends in part on the acceptability in ES of the internal noun phrase; Comorowski goes as far as accepting “There are most of [yesterday’s exams] left to correct,” if “yesterday’s exams” is a ‘novel definite’ in the sense of Heim (1982); however, for unclear reasons, the presence of a coda seems essential to these cases (Diesing 1992), and we must take into account considerable individual variation on these data. The role of the internal noun phrase in partitives will be addressed in chapter 5.

(84) does have one marginally acceptable reading (open to cardinals as well), i.e. “every time Dumbo encounters people that tormented him, *in a group of many individuals*, he stomps on them.” Here, the vague numeral takes on the ‘adjectival’ reading nominal under ES and the indefinite appears to be bound by an (unrealized) adverb of quantification (in the sense of Lewis 1975) ranging over ‘times’ (or maybe ‘situations’), so that Dumbo may be stomping on different individuals on each event, provided they come in groups of the appropriate size. What is missing is the reading where we are talking about the same group all the times, i.e. “there is a specific group of people, many in number, such that if Dumbo sees *them*, he stomps on *them*.” This is also confirmed by the contrast in “a certain {two / *few} people”; vague numerals cannot be specific.⁷

What is even more surprising is that the last reading is also missing when a cardinal numeral is modified by adverbs such as “exactly,” “approximately” or “at least”; pronoun licensing becomes difficult or impossible:

- (85) If Fido encounters [{exactly / approximately / at least} three children that tormented him], he bites them_i.

Again, a good reading is available, one in which Fido has the habit of attacking his tormenters (whoever they are) only in groups of certain sizes. But a reading in which a single, specific group is talked about seems to be missing.

Pending further discussion on these cases, in chapter 6, I shall refer to the reading of cardinal numerals that can bind pronouns across a scope island as the *referential* reading, in line with Fodor and Sag’s (1982) terminology. We arrive at the following generalization:

- (86) **Generalization:** Referential readings are available for noun phrases introduced by “(a) certain,” “a few,” or bare cardinal numerals, but not vague numerals or modified cardinal numerals.

It is important to keep in mind that ‘referentiality’ is a much narrower notion than ‘specificity.’ “Mother-of” is ‘specific’ in the sense that it denotes a specific partial function mapping an animate individual onto his/her/its mother, but it is not ‘referential.’ This distinction will be crucial in explaining why, as many have pointed out, specific indefinites (e.g., elements introduced by “a certain,” or by the indefinite, non-deictic *this* discussed in Prince 1981) can be found in ES.

- (87) a. There is a certain man at the door who claims to be your cousin from Albania.
(1991)

⁷This raises the issue of “some.” The judgments I have elicited are not entirely clear, but overall they suggest that “some” patterns with “the” or “a,” more than with vague numerals. See section 6.3.2.1 on page 261 for discussion. On differences between various classes on numerals, see also Begelli (1995), (1997).

- b. I enter, and there is this man looking at me with a knife in his hand.

On the other hand, since proper names and pronouns are out in English ES, we could expect true referential readings of determiners to be out. The data are not so clear on this point: examples such as (88)a are odd, but things improve with (88)b, which many speakers are inclined to see as an ES containing a specific indefinite.

- (88) a. ??There must be a certain solution

- b. There is a man at the door looking for you

The situation will be resolved in chapter 5, where a distinction is made between *existential* and *locative* meanings for ES.

The behavior of numerals can be summarized in the following table.

	Adjectival Reading	Specific Reading	Referential Reading	Proportional Reading
In ES	<i>all numerals</i> "d," "sm"	<i>cardinal</i> "numerals" "(a) certain" "some (specific)"	∅	∅
Subj. of IL Predicates	∅	<i>cardinal</i> "numerals" "(a) certain" "some (specific)"	<i>bare cardinal</i> <i>vague</i> <i>numerals</i> "(a) certain" "a few" "some (?)"	<i>vague</i> <i>numerals</i> "SOME"

In the next sections, I turn to a review of some of the explanations proposed for the DE.

2.3 Treatments of the Definiteness Effect

2.3.1 Milsark (1977)

Milsark's explanation for the strong/weak difference rests on the contrast between 'quantificational' and 'cardinal' determiners. Strong determiners, including vague numerals in their proportional reading, are true quantifiers, while weak determiners are cardinality predicates. *There*-sentences are interpreted as existential quantifications; the reason, then, why no strong determiner is allowed inside them is that the post-copular NP would be quantified twice. If cardinality predicates do not count as quantifiers but merely as modifiers, a noun phrase containing them can still be quantified over by the existential. Milsark's final rule is:

- (89) **E Rule** *There* AUX (*have -en*) /be Q NP X is interpreted: the class C denoted by NP has at least one member c such that P(c) is true, where P is a predicate and P is the reading of X and the set of such members c is of cardinality Q.

In this account, ES with strong determiners are ruled out by the same constraint that prevents (90).

- (90) *Mary just had *those few* drinks (cf. *Mary just had those few* drinks)

There are two problems with this analysis. First, (90) is far worse than the typical ES violation. Second, as noticed in Lumsden (1988) and discussed at length in McNally (1992), some strong quantifiers can appear in ES, provided that they do not quantify over ordinary individuals, but over nouns like *kind, flavor, type, sort, variety*, etc. (*kind-nouns*, in McNally's (1992) terminology).

- (91) a. There were those kinds of books at the library.
b. There was every flavor of ice cream for sale.
c. There were both wines available for tasting.

2.3.2 ES in Generalized Quantifier Theory

The aim of much subsequent work on ES has been to inscribe the definiteness effect into a general theory of determiner meaning. Paradigmatic of this approach is the work on ES by Barwise and Cooper (1981) (hereafter B&C), Keenan and Stavi (1986) and Keenan (1987). In what follows, I only focus on the formalization of the strong/weak distinction.

2.3.2.1 Barwise&Cooper (1981)

In B&C's theory of generalized quantifiers (GQ), the DE is transferred into the domain of pragmatic felicity conditions. Borrowing the terminology from Milsark, B&C define their own 'strong/weak distinction,' formalized as follows. Strong determiners are divided into 'positively' and 'negatively' strong. A determiner is positively strong if the generalized quantifier that it generates in combination with a common noun (CN) contains the property denoted by CN in *all* the models where the quantifier is defined. It is negatively strong if in all the models it *does not* include the property denoted by CN. Weak DPs are defined as those that are not (positively or negatively) strong. Thus, to test the strength of a determiner D it is necessary to decide whether a sentence of the form:

- (92) D CN is/are (a) CN(s)

is always valid, always contradictory, or contingent on the model.

There-sentences of the form *There is DP* are then taken to mean 'the denotation of DP exists,' i.e. the property of existence is contained in the generalized quantifier denoted by the DP. If the D in DP is weak, the assertion is sound and informative, but if D is positively or negatively strong the assertion is, respectively, redundant, or contradictory. Hence, a pragmatic infelicity is derived.

This idea has both empirical and conceptual problems, pointed out in Keenan and Stavi (1986) and Keenan (1987). On the empirical side, the definition of ‘strong’ clusters together universals like “all or not all” with coextensive vacuous complex determiners, such as “zero or more than zero.” They should pattern the same in ES, while in fact the latter is acceptable but the former isn’t.

- (93) a. There were either zero or else more than zero students at the party.
- b. ??There were either all or else not all students at the party.

In addition, B&C acknowledge the possibility of a double reading of numerals, but do not try to resolve it, and do not consider the subject position of an II-predicate as an additional test-bed for their characterization of ‘strong’.

On the conceptual side, B&C’s account has the opposite problem as Milsark’s. Where Milsark was predicting for ES a stronger ungrammaticality than actually found, B&C predict a tautological or contradictory status for ‘bad’ ES that shouldn’t necessarily lead to ungrammaticality, witness the perfect acceptability of cases such as: “War is war,” “He is clever and at the same time he is not clever,” “Either you are with me or not” and the like. This does not mean, of course, that truly uninformative tautologies or contradictions ought to be invariably felicitous; a brief examination of the examples given shows that they are in fact interpreted in a way that does not violate Gricean principles. For instance, “either you are with me or not” can function as a reminder to someone that intermediate courses of actions are not viable, etc. The question, then, becomes: why is it that tautological or contradictory ES cannot receive some kind of pragmatically ‘useful’ interpretation?

2.3.2.2 Keenan (1987)

As Keenan points out, part of the problem lies in defining ‘weakness’ purely in the negative, as ‘lack of (positive or negative) strength.’ Keenan’s remedy is to resort to a semantic property that he calls *existentiality*, taking it as a characterizing feature of determiners that can appear in ES. Existentiality is defined directly for ‘basic’ determiners, essentially, one-word determiners plus ‘at least N,’ possessives and comparatives ‘more...than ...’: a basic determiner D denoting a function f is *existential* iff:

- (94) For every $N, X, f(N, X) \equiv f(N \cap X, 1)$, where 1 is the property of existence.

In other words, to evaluate “D Ns are Xs” with D existential (e.g. “three cats are pets”) we only need to consider whether Ns that are also Xs (i.e. the cats that are pets) have the property of existence; the assertion must be true in the same circumstances in which “D Ns that are Xs exist” is true. However, with D = “every,” the existence of an instance of a non-pet cat will establish falsity for “every cat is a pet,” but not for

“every cat that is a pet exists.”⁸ Hence, “every” is not existential. With “every,” the basic determiners “the,” “both,” “most,” “each,” “neither,” “all,” plus the proportional determiners (e.g. “more than half”) are non-existent, numerals, “no,” and equality comparatives (“as many X as Y”) are existential. It can be easily verified that these determiners correspond to the set acceptable in the post-copular noun phrase in ES.

To complete this, a recursive procedure is produced, to build up complex determiners out of basic ones, using Boolean combinations (e.g. ‘Det₁ and Det₂’) and other operations (e.g. ‘composition with adjective phrases,’ returning strings such as ‘most liberal and all conservative,’ ‘exception determiners’ such as ‘every CN₁ but CN₂,’ ‘partitive determiners’ ‘Exactly two of the ten,’ etc.). A complex determiner is existential if it has been built out of basic existential determiners with one or more of the procedures above. This compositional approach allows Keenan to get around the problem of coexistential determiners which lead to the wrong prediction in B&C’s theory. “Zero or more than zero” is a complex existential determiners, while “all or not all” isn’t.

It must be kept in mind, here, that Keenan’s (1987) goal is not to give an explanation for the ill-formedness of ES with certain kinds of determiners, but rather to give a semantic characterization of the determiners that, inserted in a sentence of the form “there are D NP XP” yield the reading “D NP that are XP exist.”⁹ From this perspective, the existence of definites in list readings of ES simply falls into one of the non-existential uses of ES. Admittedly, this account has very little to say about the oddness of ES with non-existent/strong quantifiers, let alone the possibility of ‘every’ and other non-existential determiners with kind-nouns, in (91).

Moreover, Rothstein (1988) criticizes Keenan’s account on syntactic ground, pointing out that the construction of complex determiners out of basic ones generates ‘determiner’ strings that may be discontinuous, and that arguably do not correspond to any syntactic category, such as “not every,” “all...but John,” “exactly two of the three.” For instance, the following contrasts suggests that “not” in “not every” is actually a sentential operator external to the DP, possible only in subject position, and with additional restrictions yet to be spelled out.¹⁰

⁸Keenan’s judgments. I can get an interpretation for “every cat that is a pet exists” only if “exists” means “exists in the real world”; but this is clearly not the meaning Keenan has in mind, since ‘three characters are present in Northern sagas’ is not equivalent to “three characters that are present in Northern sagas exist in the real world;” even though ‘three’ should be existential. The problem arises from the fact that “every” already presupposes existence, as discussed in later sections.

⁹Cf. “I am not claiming (much less explaining) that ET [= Existential There] sentences with non-existent NPs are ungrammatical. I claim only that such expressions, if grammatical, are not understood on an existence assertion reading.” Keenan (1987) p. 299.

¹⁰Keenan recognizes the syntactic unlikelihood of some of his ‘determiners’, and seems open to alternatives: “Those who wish to analyze the internal structure of these NPs differently are free to do so and to modify the definition of existential NP accordingly” Keenan 1987, p. 290. However, it remains unclear how to deal with elements that contribute to the meaning of Keenan’s ‘determiners’ from outside the NP. For instance, should the idea of generating ‘All ... but John’ (in ‘All the linguists

- (95) a. Not every student passed.
 b. *I met not every student.
 c. *Not each student left.

2.3.3 Heim on WHs in ES

In her own words, the discussion of *There*-sentences in Heim (1987) is not to be taken as a worked out explanation for the DE, but as a way to constrain any viable treatment of the issue. As a background, I need to introduce two new phenomena: the narrow scope constraint for determiners in ES, and the behavior of extracted WH-phrases in existential contexts.

Milsark (1974) noticed that the determiners possible in ES can never take wide scope over epistemic operators, or negation. Thus, (96a) can never take the interpretation (96b), and (97a) cannot take the most salient reading of (97)b, with "many" taking wide scope. This is known as the 'Narrow Scope' constraint.

On the other hand, overt extraction from the post-copular position is possible; some WH-noun phrases can move from this position at SS. However, as pointed out in Safir (1982), the strong/weak distinction extends to the type of WH-phrase extracted. The following sentences, from Safir (1982) and Heim (1987), show that "which" and

- (98) a. What is there in Austin?
b. How many soldiers were there {in the infirmary / drunk}
c. ??Which one of the two men was there {in the room/*drunk
d. ??Which actors were there {in the room /*laughing}

The pattern is not surprising in and of itself; WH-operators that in some intuitive sense are more ‘definite’ or ‘referential’ pattern with strong determiners. The special status of “which” has been pointed out elsewhere in the literature (cf. Cinque 1990 and the notion of “D-linking” in Pesetsky 1987).

If the data are not entirely unexpected, spelling out an explanation is complicated by two facts: first, the WH-word is out of the domain which seems to be affected by what John knew Chinese³ as a discontinuous determiner be extended to cover "Setting John aside, all the linguists knew Chinese."⁴

DE; second, in various current theories of the semantics of questions, (notably Karttunen 1977) all the WH examples above would be uniformly rendered as existential quantifications over sets of possible answers, and existentials are normally good in

There seem to be two ways to go, either "which" is assimilated to an existential plus some additional properties, such as 'definiteness' or 'referentiality,' which conspire to make it impossible in existential contexts (in this case, the contrast between "which" and "what" in ES could be parallel to the contrast between "the" and "a" in the same environment); or alternatively, the oddness of "which" is explained as a violation of the narrow scope constraint. Since all WH-phrases take wide scope, the difference between "what/how many" and "which/who" would need some additional explanations in this case.

Heim (1987) takes the second route, and proposes that both the narrow scope constraint and the WH difference is due to a general prohibition against *e-type variables* in EC expansions in two cases.

- (99) ***[There be x]** where x is an individual variable

Heim (1987:23)

The prohibition against individual constants such as proper names is assimilated to the prohibition against variables. Since A-bar traces are prime examples of individual variables in natural language, the formulation in (99) rules out traces left by quantifier raising, and WH traces as well. On the other hand, it doesn't prevent an individual variable to appear *inside* the internal noun phrase in ES. In other terms, the scheme [**There be [Inp x]**] is perfectly well formed. To allow "how many" and "what" back in the existential field, Heim appeals precisely to the position of their trace, proposing that the trace does not replace the entire noun phrase at LF, as in (100)a, but is located inside a complex determiner in the noun phrase (for "how many," see (100)b) or under an unrealized 'kind' modifier, in the case of "what" (100)c. "What is there in Austin?" is treated as if it were, syntactically and semantically, "what kind of things

(100) a. i. ??Which person is there?
 ii. WHAT x [person(x)] [there is x]

ii. WHAT n [number(n)] [there are [[x-many] people]]
 c. i. What is there?

¹¹ Here I have placed the additional material present in the WH-phrase in the restrictor clause, and assumed, with Hein, that some syntactic process (e.g. reconstruction or copy-deletion) is capable of bringing the WH-phrase fragment ‘many people’ back into its DS position.

is embedded in it. As a matter of fact, proper names and definites are fine in ES once embedded in a complement of the internal noun phrase (101), as are strong quantifiers (102).¹²

(101) There were portraits of {Santa Claus / the ancestors} hanging in the corridor.

(102) a. There was a portrait of each of my ancestors hanging in the corridor.

b. There was a photo of most deans from the past 60 years published by the school paper.

c. There was a biography of {each / every / most} politician(s) on sale.

Compelling as it is, Hein's generalization falls short of being a worked-out account of ES (as Heim herself notes). In later sections, I will combine it with an account developed by Andrea Moro, deriving (99) from other, independently motivated facts of grammar. For the moment, we can assume for further testing that “which” and perhaps “who” pattern with strong determiners, while “what” and “how many” pattern with weak ones.

2.3.4 Presuppositional Set Theories of ES

Next to be considered is a family of theories for the DE that will refer to collectively as *Presuppositional Set* theories. The first account of this type is probably in Jong and Verkuyl (1985), and the idea has also been adopted in de Jong (1987, Lumsden 1988, de Jong (1991) and Zucchi (1995). Here I use Lumsden's characterization of the facts.

Building on an observation in Barwise and Cooper (1981), Lumsden (1988) points out that, in opaque contexts, weak quantifiers in the sense of Milsark do not carry a presupposition that the set of objects over which they quantify is non-empty, while strong quantifiers do.

(103) a. Did you manage to take a picture of {a / sm / three/ many / a lot of} unicorns?

b. If you find {a / sm / three/ many / a lot of} mistake(s) I'll give you a fine reward.

c. It isn't true that I took a picture of {a / sm / three/ many / a lot of} unicorns.

(104) a. Did you manage to take a picture of {both / the / all the / most / every / all} unicorns?

b. If you find {both / the / all the / most / every / all} mistake(s) I'll give you a fine reward.

¹²For some speakers, the embedded strong quantifier cannot take an *inverse linking* reading, in the sense of May (1985), namely, the reading where they take scope over the determiner in the noun phrase in which they are embedded. Other speakers don't seem to have particular problems with this reading.

- c. It isn't true that I took a picture of {both / the / all the / most / every / all}
- unicorns

In (103), (with the weak determiner unstressed) there is no presupposition that there actually are unicorns or mistakes, while this presupposition is maintained in all the strong cases. When stressed, the weak determiners, too, seem to carry a presupposition of existence:

- (105) If you try to take a picture of {ONE / SOME / THREE / MANY} unicorn(s), they get frightened.

Thus, strong determiners can be characterized as those that are presuppositional regardless of matters of stress, while weak determiners are presuppositional only in certain environments in which they receive stress.¹³ The generalization appears to be:

- (106) **Presupposition Generalization:** The set of determiners acceptable in ES is the set that doesn't presuppose the existence of the set of objects denoted by the common noun.

Both de Jong and Zucchi accept this generalization. Here I only discuss the most recent theory based on it, i.e. Zucchi (1995).¹⁴ Zucchi proposes that the DE is the result of contradictory requirements posed by the felicity condition of *There-sentences* and strong quantifiers. He proposes that *There-sentences* have associated the following felicity conditions:

- (107) **FELICITY CONDITIONS OF THERE-SENTENCES** *There-sentences* are felicitous only in contexts which entail neither that the intersection of the set denoted by the Nⁿ of the postverbal NP with the denotation of the XP is empty, nor that it is non-empty.

where XP is the coda of the post-copular noun phrase, when present. Nⁿ the common noun plus restrictive adjectives. On the other hand, strong quantifiers are appropriate only in contexts where the set denoted by the CN is assumed to be non-empty in the *contextually salient domain*. To see why the last qualification is important, consider (108):

- (108) ??There is [every student] [xp in the garden]

¹³A slightly more elaborate story has to be told for “few.” In “if you find few mistakes I'll reward you,” “few” does seem to imply that there are *some* mistakes. However, Lumsden argues—convincingly in my opinion—that this presupposition is derived via scalar implicatures. “Few” and “no” are in a scale, with “no” being more informative than “few.” If the speaker uses “few,” the hearer infers by Gricean principles that the speaker is not in a position to use “no,” and therefore, that the set over which “few” quantifies is non-empty.

¹⁴At the time of writing, this work was available to me only in manuscript form, as Zucchi (1993)

Zucchi's account explains the ill-formedness of this sentence as follows. Felicity conditions on *There*-VP require for the common ground not to entail the existence or the non-existence of students that are in the garden. On the other hand, “every student” requires that the common ground entails that the set of students is non-empty (this is due to the presuppositional properties of strong quantifiers). So far, no contradiction arises: the sentence is compatible with a situation in which we know that students do exist, yet we do not know whether there are any in the garden. But universal quantification is always understood with respect to a contextually salient domain: “every student came to the party” does not mean that literally every student in existence came. Zucchi, then, proposes that the role of the XP-coda is that of restricting the domain of quantification of the quantifier in the post-copular NP. If this is correct, “every student” requires for the set of “students *in the garden*,” not just “students,” to be non-empty, which is indeed contradictory with the felicity condition of the *There*-sentence. Hence, a clash.

Now the problems. First, as McNally (1992) observes, this theory has nothing to say on why strong determiners can appear in ES with kind-nouns (e.g. 91 on page 45). Second, it is not clear how the system is capable of dealing with the negative determiner “no.” Consider:

- (109) a. Dodos have died out.
 b. So, unfortunately, there are no dodos.

Uttered in the context of (109)a, (109)b sounds like a mildly pointless, yet perfectly grammatical continuation. It is clear, however, that the first sentence sets up a common ground where the set of dodos is empty in the current world. How are we supposed to interpret the second sentence? Zucchi (1995), in reply to Milsark's proposal, argues that “no” has quantificational force, observing that, for instance, it doesn't license donkey anaphora just like ‘every’:

(110) ??If no man, owns a donkey, he, beats it.

Zucchi (1995)

If this is correct, the felicity condition for *There*-sentences prescribe that the context should be neutral with respect to the set denoted by the CN “dodos,” after “no.” In (109) this is clearly violated. The account wrongly predicts ungrammaticality.¹⁵ An alternative position is that “no” is either quantificational or non-quantificational.¹⁶ In this approach, one could try to treat “no” as if it were an indefinite numeral in the adjectival reading, bound by some external operator (e.g. Kraizter/Diesing's Existential Closure). It isn't in fact entirely clear that “no” doesn't license donkey anaphora:

¹⁵Zucchi (p.c.) tells me that in the published version of the paper this problem is recognized and addressed. Unfortunately, at the time of writing, have had no access to this version.

¹⁶That “no” must have a quantificational reading is also shown by its appearance with IL predicates: “No man is an island,” “No dogs had red fur,” etc.

- (111) a. If a house comes with no bathroom_i, the owner wants to install it_i immediately.
 b. If you find no red box, it must be inside another one.
- Whatever the significance of these cases, we could try to treat “no” as if it were, essentially, “exactly zero,” and assume the structure proposed for indefinite numerals in Zucchi (1995), arriving at the following representation:

- (112) a. [$\lambda p \, [\text{SPEC } \emptyset] |_{N^*} \text{ no students}]$
 b. $\| \text{no students} \|^{M,g,c} = \{X \subseteq E \mid g(x_i) \in \| \text{students} \|^{M,g,c} \wedge g(x_i) \in X\}$
 made up by zero atoms $\wedge g(x_i) \in X\}$

(with M a model, c a context, g a function to assign a value to free variables). This logical form raises several (philosophical and technical) questions, and still doesn't model DE correctly, since if the common ground from (109a) entails that the set denoted by “dodos” is empty, then surely this set won't contain any plurality formed by zero individual dodos—if such an entity exists.¹⁷

Setting these problems aside, the Presupposition Generalization is compelling, and any account of ES should have something to say about it. However, there is an interesting counterexample, which cast doubts on presuppositional set theories at large. Consider the non-acceptability of proper names in ES in English.

- (113) *There is Alvar Aalto at home

The presupposition generalization predicts, correctly, that in intensional contexts the name Alvar Aalto will presuppose the existence of an individual by that name.

- (114) If you find Alvar Aalto, tell him to call me.

The problem is that sentences like (115), where the name is preceded by “a certain,” are perfectly acceptable. Yet, the same expressions in opaque contexts do not presuppose that there exists an individual by that name any less than their bare counterparts (116).

- (115) a. There is a certain Alvar Aalto at home.
 b. There was a certain Edmond Collins looking for you a moment ago.
 c. There was a certain Arlo Guthrie, son of a certain Woody Guthrie, playing at the radio right now.

- (116) a. If you find a certain Alvar Aalto, send him to me.

¹⁷Of course, even if one doesn't want to treat “no” as “zero” the problem of how to deal with “zero,” which is fine in ES, remains. Two syntactic facts against unifying “no” and “zero” are that only the latter can be predicative, and only the former may have singular agreement; Viviane Deprez (p.c.) has pointed out to me that in most and maybe all languages where it exists, “zero” takes plural agreement.

- b. By any chance, did you try to take a picture of a certain Arlo Guthrie, son of a certain Woody Guthrie?
 - c. It isn't true that I forgot to take a message from a certain Edmond Collins.
- The same effect was noticed by Eng (1991) with descriptions introduced by “*a certain*” (117)a. Here, too, the noun phrase is strongly presuppositional; sentences where the presupposition it carries is canceled definitely sound odd (117)b.

- (117) a. There is a certain man from Albania who claims to be your younger cousin.
 b. ??I was looking for a certain man from Albania who claims to be your younger cousin, but it turns out that such person doesn't exist.
- A possible line of reply to this counterexample is that (115) and (117) are cases of ‘specific indefinites.’ It has been noticed at least since Ioup (1977) that even though specific indefinites seem to take wide scope (cf. Quine 1960; Fillmore 1967; Fodor 1970), they do not always imply existence of their referent in the real world. Thus, the sentences in (118) do not imply that unicorns or dragons exist.

- (118) a. Mary believes that a certain unicorn comes at night to eat her petunias.
 b. John is trying to find a particular unicorn he has read about in a medieval book.

Likewise, one could try to argue, the ‘specific indefinites’ in (115) and (117) appear to be presupposing existence, but in reality they do not.

Whatever its merits for true specific indefinites, this defense is very weak in our case, for the simple reason that the noun phrases in (115) and (118) are *not* ‘specific indefinites.’ In particular, they are not interpreted as ‘*a certain card*’ in ‘Peter is trying to find a certain card in his sleeve’—which I take to be a genuine case of specific indefinite.¹⁸ The proof is that a genuine specific indefinite can be introduced with little semantic difference by ‘*a certain*,’ ‘*a specific*,’ ‘*a particular*,’ while only ‘*a certain*’ is good with proper names (119).¹⁹

- (119) a. John is looking for a {certain / specific / particular} document.
 b. John is looking for a {certain / ?specific / ??particular} Alvar Aalto.

If there is a reading in which *a particular Alvar Aalto* is good, this is in a odd context in which there are a number of people with this name, and I am trying to find the right one. This reading can be eliminated by adding further information, as in (120), so as

¹⁸The difference between these two uses of ‘*a certain*’ was noticed in Hintikka (1986); see the discussion in chapter 6.
¹⁹The pattern is identical with the Italian *un certo*, while in Spanish (Laka, p.c.) ‘*un tal*’ can be used with proper names but not common nouns: ‘*un tal Pedro*’ vs. *‘*un tal hombre*.’

to constructs a noun phrase that uniquely picks out a single possible referent. Such further specification ‘doesn't bother ‘*a certain*’ in the least, but it makes “*a specific*” and “*a particular*” entirely redundant.

- (120) A {certain / ??specific / ??particular} Birgit Alber born in Meran on the second of November, came to my office today to deposit a written declaration.
- Names can be used as common nouns or as rigid designators, denoting the same individual across all possible worlds (Kripke 1972). (121) shows cases where a name is used as a common noun, and can be paraphrased by “*a person named X*.” I take the occurrences of “*particular/specific*” with proper names to fall in this category.
- (121) a. For some reason, I always talk about Johns.
 b. If I have a baby girl, I would like her to be a Mary.
 c. I will call the thirtieth John Smith in the phone book.
 d. I am looking for a {specific / particular} John Smith: the first one to be born in 1995.

On the other hand, this is not the primary usage of proper names. Normally, they are in the same class with deictics and personal pronouns in their referential use. The presence of ‘*a certain*’ doesn't alter their indexical character. Uttering (122) I am saying that there is an accessible possible world where the same individual, named Larry Johns in this world (and perhaps otherwise in other possible worlds) doesn't have three dogs and is my perfect house-mate. Here, I am using “*Larry Johns*” to refer to the same individual across worlds, despite “*a certain*.”

- (122) A certain Larry Johns, who called me today, could have been a perfect house-mate, if it weren't for his three dogs.
- Similarly, it is not contradictory to say:
- (123) The IRS told me that I was going to receive the visit of a certain Larry Johns, but eventually he didn't come. Another guy showed up, who—oddly enough—was also named Larry Johns.

- Next, “*a certain Larry Johns*” cannot be pronominalized with “*one*”:
- (124) a. How odd! Yesterday I met a Larry Johns, and half an hour later I met another one.
 b. ??How odd! Yesterday I met a certain Larry Johns, and half an hour later I met another one.

Last, in some cases of specific indefinites, “*other*” can be inserted after “*a certain*” (125)a. As shown in (125)b, “*other*” is not as felicitous before a proper name (even when Larry Johns is understood to be in the class ‘management people’ just like a form is in the class ‘documents’).

- (125) a. I have collected almost all the documents, but I still need to get a certain (other) form to complete the file.
 b. I have met almost all the management people, but I still need to meet a certain (? other) Larry Johns.

To sum up, there is a use of “a certain” with proper names which is distinct from its more common ‘specific’ reading, and which preserves the rigid-designator character of proper names. Other terms of specificity do not allow this usage; their semantics will be discussed in section 6.4 on page 263.

2.3.4.1 The “A Certain PN” Construction

So, if “a certain” in these cases is not a mark of specificity, what does it do? To understand it, we need to look at the two components that make up the notion of definiteness, according to Heim (1982). These components are a *Familiarity Condition* (FC), and a *Descriptive Content Condition* (DCC).

Familiarity Condition: The descriptive content of definite noun phrases must be already familiar at the time at which these noun phrases are uttered.

Descriptive Content Condition: Definite noun phrases presuppose their descriptive content (i.e. presuppose the existence in the real world of objects corresponding to the description)

Thus, upon hearing “John is looking for the mistake in his proof,” a hearer should assume that (a) there indeed is one mistake in the proof (the DCC at work), and (b) this particular mistake has already been introduced in the discourse (perhaps someone pointed it out, or marked it)—the effect of the FC. Proper names are no exception; they also obey both the FC and the DCC. By saying “I am looking for Alvar Aalto,” I am conveying the presupposition that such person exists, and that he should be familiar to (some of) the hearers. This is why uttering “Larry Johns walked in my office today” out of the blue, in the presence of people who have no idea of who the guy is, is not felicitous. As Peter Lasersohn pointed out to me, a FC violation is not as strong with proper names as with definite descriptions because, in a certain context, it is relatively easy to accommodate a proper name.

My claim now is that the semantic effect of “a certain” used with proper names (and possibly with descriptions like the one in (117)a) is that of suspending the Familiarity Condition, (and in fact enforcing a requirement of ‘Novelty’, see the discussion in section 5.2.5.1 on page 191) without suspending the Descriptive Content Condition. Thus, uttering (126) out of the blue is perfectly felicitous, *unless* the speaker knows that Larry Johns is already familiar to the audience.

- (126) A certain Larry Johns walked into my office today.

But as we have seen in (116), (117), “a certain” does not suspend the DCC, nor does it turn the proper name into a non-rigid description, like “a” does. This behavior is reminiscent of noun phrases introduced by the indefinite “this,” discussed in Prince (1981), with a difference: “this” can introduce a discourse referent that is new to the hearer of an utterance, but not one that is new to the speaker as well (this is precisely how “this” differs from “a,” which can be new to both). On the other hand, “a certain PN” can introduce a referent that is unfamiliar to both speaker and hearer, as in (123). Thus, this construction is perhaps the only member of the class of ‘Novel Definites.’ As Zucchi (1995) notes, the presupposition generalization in (106) can be recast in terms of the DCC: strong determiners are those that obey the DCC (even though they might not obey the FC); weak determiners are those that don’t. But “a certain Alvar Aalto” is exempted by the FC, yet it still obeys the Descriptive Content Condition, and is good in ES. Therefore, the presupposition generalization (and the analyses that depend on it) fails.

Let’s take stock. I have reviewed an approach to the DE that is rooted in the observation that ‘strong’ determiners (in the sense, ‘determiners impossible in ES’) presuppose the existence of the set of objects they quantify over, while weak determiners don’t (the generalization in (106)); in Heimian terminology, only strong determiners obey the Descriptive Content Condition. We have seen that a theory that uses this generalization to build a pragmatic account of *There-sentences* encounters problems in certain contexts where the content of the internal noun phrase is presupposed. Besides, I have discussed a construction (“a certain PN”) which arguably satisfies the DCC as proper names do, yet it is acceptable in ES.

It is important, at this point, to ask ourselves: if these cases are acceptable in ES, what do they mean exactly? If proper names preceded by “a certain” already presuppose their existence, what does the *There-sentence* environment do for them? In the pair (127) the first sentence can be used in a context in which a baby has just been named Alvar Aalto, to inform that a bearer of this rare name is now in existence; it is a complete statement all by itself. But the second one cannot be used in this situation, there is something incomplete about it: we want to know *where* or *in what situation* this Mr. Alvar Aalto is. Without some continuation, the assertion is not resolved.

- (127) a. There is an Alvar Aalto.

- b. There is a certain Alvar Aalto.

One could surmise that (127) goes with so-called ‘presentational’ readings of *There-sentences*, (cf. Milsark 1977; Rando and Napolitano 1978; Abbott 1992, etc.)

- (128) a. Who could play Hamlet?
 b. Well, there’s (always) John.

But there is an important difference. McNally (1992) observes that presentational readings cannot be questioned or negated (129).

- (129) a. ??Is there John?
- b. ??There isn't John.

No problem arises when the “a certain Alvar Aalto” construction is questioned (130)a. (130)b seems less than perfect; however, this could be due to the independent fact that for some reason “certain” is generally not felicitous under negation. There seems to be something odd in ? “I didn't see certain chairs,” “I don't know a certain person,” etc.

- (130) a. Is there a certain Alvar Aalto {on the phone? / living in Tampere?}.
- b. ?When I went back to the study, there wasn't a certain Alvar Aalto, an architect I was supposed to talk with.
- c. ??A certain Alvar Aalto is not at the door.

In conclusion, I take it that presentational readings and “a certain *Proper Name*” cannot be collapsed together. We are back to the difference between (127)a and b. In chapter 5 I will give a characterization of the two meanings.

2.3.5 McNally (1992)

McNally's (1992) dissertation stands out as a recent attempt to embody a large range of phenomena connected to ES into a formal semantics account based on ‘Property Theory’ (Chierchia 1984; Chierchia and Turner 1988, hereafter C&T). The three points of McNally's proposal that most concern the present work are:

- a. The post-nominal noun phrase of ES behaves semantically as a predicate nominal, denoting a ‘property’ (modeled as an ontologically free-standing ‘Nominalized Function’, in the technical sense of C&T).
- b. The Definiteness Effect is the result of the combination of two effects; (i) a discourse-level felicity condition, due to the expletive “there,” requiring the elements introduced with the post-copular noun phrase to be *novel* (in the technical sense of Heim 1982); (ii) an interpretation for *There*-sentences which turns them into assertions that the property referred to by the internal noun phrase is instantiated at some index. The first part of this conjunctive formulation is meant to exclude definites and proper names from ES; the second part accounts for the ill-formedness of strong quantifiers ranging over ‘regular’ individuals in ES (but not over kind-nouns) is accounted for by adopting Quantifier Raising, and c. The impossibility of strong quantifiers ranging over ‘regular’ individuals in ES appealing to a mismatch in the sort of the variables that fall in the scope of the Q-constrained quantifier, across the restrictive and the nuclear scope.

2.3.5.1 Predicate nominals and ES-internal noun phrases: some similarities

In the third chapter of her dissertation, McNally lists various similarities between predicate nominals and post-copular noun phrases. To begin with, both cannot take wide scope, as already noted for ES.

- (131) a. There weren't two people drunk. $\text{Neg} > 2, *2 > \text{Neg}$
- b. John and Mary aren't two students I know. $\text{Neg} > 2, *2 > \text{Neg}$

Second, in both cases strong quantification is possible only when it ranges over kinds, etc.

- (132) a. There was every kind of wine available for tasting.
b. ??There was every worker ready.

- (133) a. John has been every kind of doctor.
b. *John has been every doctor.

Third, for many speakers, post-copular noun phrases and predicate nominals can only be relativized with *that* or a null complement, never with a WH relative pronoun.²⁰

- (134) a. The people {* who / that / D⁰} there were at the party were drunk.
b. They dressed like the eccentric women {* who / that / D⁰} they were.

2.3.5.2 A split analysis of DE

These facts suggest that the internal noun phrase in ES may be close or identical to a predicate nominal (analogous conclusions are reached in Safir 1987). The problem, now, is how to account for the clear intuition that while a predicate nominal may not refer to or quantify over any particular individual, *There*-sentences are typically used to report the existence of an individual, introducing it in the discourse. McNally writes:

“The existential predicate in English is interpreted as a property of a description of an entity, specifically the property that the description is instantiated by some entity at some index. The addition of an existential sentence to the context entails the introduction of a discourse referent that corresponds to the instantiation of the description-argument into the domain of the discourse model. An additional felicity condition requires this referent to be novel.” (McNally, 1992:62)

²⁰ McNally presents a fourth similarity between post-copular noun phrases and predicate nominals, i.e. the possibility of being modified by bare ‘tensed VP’ in some dialectal varieties of English (*contact clauses*, in Jasperson's terminology).

a. There's a student in my class went to America
b. I'm the only one knows how to act.
However, as evidence for the similarity between the two constructions, this one seems to me rather inconclusive, as canonical predicate nominals cannot be so modified: *Bill is a man owns one (McNally 1992, p. 68, fn.45). I leave the issue open.

To this effect, McNally translates the “be” of ES as the predicate **be_{exists}**, which takes a nominalized function as argument. “There is a dog” receives the translation **be_{exists}(dog_{nf})** (or more precisely, **be_{exists}(ent!dog)**), where **ent!** is an operator returning the nominalized function corresponding to “dog,” see below), which is true if and only if there exists an individual in the extension of *dog_{nf}* at the current index (i.e. the set of dogs currently in existence).²¹ Thus, on her approach, ES are not ‘about’ an individual, but ‘about’ a property.

Turning to the discourse part of this split analysis of DE, McNally points out cases like the following, which do allow non-quantificational definites but are otherwise much like ES in rejecting strong quantifiers with IL codas (* *there was a man intelligent*):

- (135) a. It's Mary {at the door / *intelligent}.
 - b. That was the girl {next door / *out of her mind}.
- (136) a. *It's each child at the door.
 - b. *That was every child next door.

Moreover, the main difference between ES-internal noun phrases and predicate nominal is that definites and proper names are well-formed in the latter:

- (137) a. Zorro is Diego de la Vega.
- b. ??There is Diego de la Vega.
- c. Zorro is the fastest sword-master.
- d. ??There is the fastest sword-master.

Since the main lexical difference in these examples is the presence of “there,” McNally proposes that the expletive “there” is associated with the following felicity conditions:

- (138) **Felicity Conditions for “There”:** “The discourse referent corresponding to the instantiation of the nf-argument of the existential predicate must be novel.”

Since definites, proper names and pronouns (but not, in general, strong quantifiers) obey the Familiarity Condition, they are ruled out from ES by this formulation. The role of “there” is confirmed by the fact that the same definiteness restriction appears in another construction with “there”: compare (139), with simple cases of inverted subject (140), where “there” is missing and again **definites are possible**:

²¹ At various points of her dissertation, McNally seems to claim that her approach can do without an existential quantifier, which appears in a garden-variety translation of ES such as $\exists x(\text{dog}(x))$. She writes: “Mikask (1977) and others suggest that the existential construction contains as a part of its interpretation a special existential operator. [...] In the interpretation presented here, no such operator is posited at all” p. 91. This is quite misleading, since the existential reappears in the logical translation of the predicate **be_{exists}**, cf. her definitions (199) and (200), chapter 3.

- (139) a. There exists {an / *the} *x* such that *x* left at noon. *McNally (1992)*
 - b. There hung {a / *the} portrait of the queen behind the counter.
 - c. There appeared {a man / *Jane} at the door.
- (140) a. In walked Bob.
 - b. Out in the corridor stood the candidate.
 - c. Voting in favor of a strike were the Hist Con and Lit students.

Interestingly, a discourse approach makes the right predictions with our Alvar Aalto cases. In the analysis I have given, the semantic effect of “a certain” plus a proper name (or a sufficiently rich description, see (117)) was that of enforcing a Novelty Condition. A consequence is that “a certain Alvar Aalto,” but not “Alvar Aalto” would pass the felicity conditions above. Notice, however, that this does not automatically entail that the construction should be all right in ES: a proper name should also satisfy the other half of the DE, i.e. it should be able to be interpreted as a nominalized function.

As a matter of fact, in some languages proper names are perfectly acceptable in ES, as McNally herself notices. In Catalan, proper names can appear under *hi havia* ‘(there was,’ strongly quantified DPs cannot, but strongly quantified DPs with ‘kind’ nouns are acceptable again.

- (141) a. *Hi havia la Joana a la festa del departament.*
 there-was the Joana at the party of the department
- b. **Hi havia cada uns dels cotes a la cursa.*
 there-was each one of the cars at the race
- c. *Hi havia tota classe de cotes a la cursa.*
 there-was all class of cars of the race

Italian is like Catalan in this respect; sentences like (142), for instance, are absolutely normal.

- (142) a. *C' è Gianni sulla porta pronto a partire.*
 there is Gianni at the door ready to leave
- b. *C' è Maria che ti può aiutare.*
 there is Maria that you-cl-obj can help
- c. *C' è il concerto di Maria questo pomeriggio.*
 there is the concert of Maria this afternoon
- d. *C' è il mio amico Fabio disposto a darti un passaggio.*
 there is my friend Fabio available to give you a ride

McNally’s analysis of these facts is that Catalan, with *hi havia* (and presumably, Italian, with *c'è*) is a language where the felicity conditions above are inactive; in

this language, whatever remains of the DE should be entirely due to the constraint against strong quantifiers.

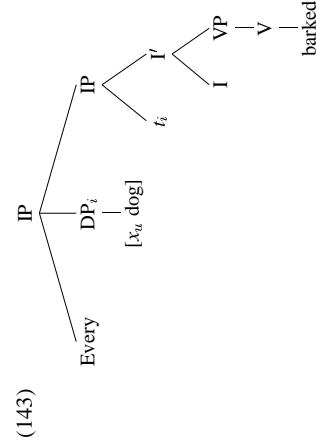
We shall see in a moment that the picture of Catalan and Italian as languages with ‘relaxed’ DE is on the wrong track. But first, let’s see how quantification over kind-nouns is treated in McNally’s system.

2.3.5.3 Semantics of McNally (1992)

Let’s take a closer look at the semantics used in McNally (1992). After Chierchia (1984), McNally assumes an ontology including a set of ‘Urindividuals’ (the set \mathbf{U} , including individuals like John and me) and a set of *Nominalized Functions* (**NF**). Nominalized functions are the individual entities correlated with properties in their use as arguments, rather than as functions. Thus, in “writing is amusing,” “writing” is interpreted as a nominalized function, while “is amusing” is mapped onto a function. To convert nominalized functions into functions, a predication operator **pred**(ication) is available (\cup in C&T’s formulation); to move from functions into nominalized functions, we have the operator **ent**(ity) (\cap in C&T).

McNally interprets bare nouns as functions. Functions can be turned into *nominalized* functions by **ent**, which is assumed to be one of the possible translations of the singular indefinite “a,” and is also associated with the other ‘weak’ determiners that may appear in ES (numerals and “some”). The copula and the “be” of ES (translated as **be_{exist}**) select a nominalized function as their argument.

What is the situation with strong quantifiers such as *every*? Unlike weak determiners, strong quantifiers never introduce the operator **ent**, and are obligatorily interpreted by QR and QC. A sentence such as “every dog barked” gives rise to the following LF:



This LF is ill-formed due to a sort mismatch. **be_{exist}** requires for the trace of the DP

raised by QR to be a nominalized function (sort NF). But the translation of “dog” in the restrictive clause is a function from ‘urindividuals’ (sort U) to truth values, hence the variable in the restrictive scope must be of sort U. Since the same quantifier cannot unselectively bind variables of different sorts in the restrictive and nuclear scopes, a sort mismatch occurs.

What happens in the presence of kind-nouns (145)b? McNally assumes that “every” may also quantify over variables of the NF-sort, and that the string “breed of dog” or “kind of local wine” denotes a function ranging over element of the NF-sort.²³ Now the variables in the restrictive and nuclear scope can both be of sort NF, and the sort mismatch disappears.

²²The mechanism used by McNally actually involves the intermediate step of ‘informational units,’ for which see C&T.

²³This can be achieved compositionally by translating “kind of” as a function from common noun denotations to sets of nominalized functions, i.e. an object of type $\langle\!\langle e,t\rangle\!\rangle < \text{nf}, t \rangle$.

values.²²

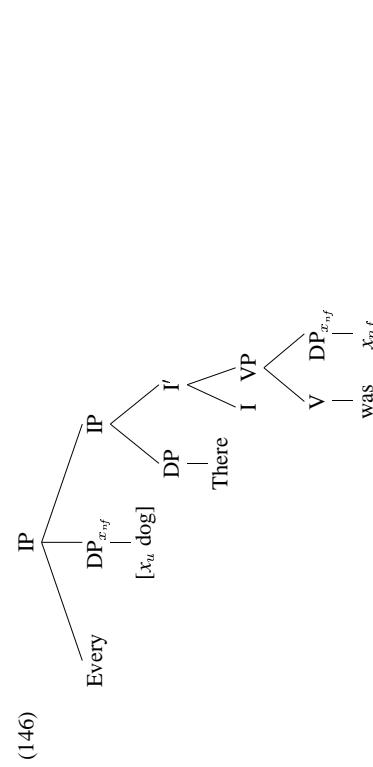
In our example, “every” unselectively binds both the variable x_u restricted to range over dogs, and the trace of the DP in the original subject position, the nuclear scope, giving the correct logical translation:

$$(144) \quad \forall x[\text{dog}'(x)][\text{barked}'(x)]$$

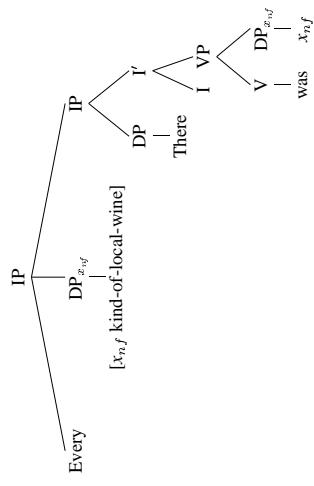
Now we are in a position to introduce McNally’s explanation for the contrast:

- (145) a. There was {a / *every} dog.
- b. There was {a / every} breed of dog.

The LF for “there is every dog” would be:



(147) There was [every kind of local wine]



2.3.6 Criticism of McNally's account

Although quite successful at dealing with a large array of data, McNally's account has its own empirical and conceptual problems.

2.3.6.1 Two "be"?

On the conceptual side, a shortcoming of the analysis is the fact that, within an approach that nicely stresses the parallelism between the complement of the copula in 'normal' predicate nominals (*John is a teacher*), and in ES (*there is a teacher*), this similarity is not drawn to its full consequences. McNally analyzes the existential "be" and the copula as different elements (the existential being translated as **be_{exists}**, the copula as a meaningless element that simply conveys the *time* of the predication). It remains obscure *why*, in several languages, a meaningless "be" plus a meaningless expletive subject should be interpreted in such a meaningful way, as an 'assertion of instantiation.'

Mutatis mutandis, this criticism applies of course to all the treatments I have reviewed so far, even when the similarity with a predicate nominal is not an issue; "there is" remains an idiosyncratic construction, dealt with by means of special rules. One could wonder why the same interpretation is not generally available with other expletives; for instance, in standard English, *it is a man* cannot be interpreted as *there is a man*, while this is the canonical form of ES in Black English (Labov 1972, p. 270).

- (148) It is a policeman at the door.
 there is a policeman at the door

An identical construction is used in other Germanic languages (e.g. German, Icelandic, etc., see Freeze 1992, p. 573).

Many and maybe most languages, in fact, use either a form of "be" or "have" in ES, when a distinction between the two forms exists. Even in English, "have" can be

used in predicative constructions, (cf. Freeze 1992 and Kimball 1973), with a clear definiteness effect:

- (149) a. The table has {a / *every / *each} hole in it!
 b. The table has { D⁰ / sm / two / *most / *both } holes on it.

This suggests that the distinction between "have" and "be" copula might be relatively superficial, and that the similarity between the ES-internal noun phrase and a predicate nominal cannot be easily dismissed for lack of parallelism between the two constructions in some languages (e.g. French, Catalan or Spanish). I will come back to this point in chapter 5, where I propose a system, based on Moro (1993) and Freeze (1992), in which the ES-internal noun phrase is a predicate nominal, and the word "there" is not treated as an expletive.

2.3.6.2 On the subkind reading for common nouns

Second, let's go back to quantification over kind-nouns. It is well-known that common nouns under quantifiers of any type can be interpreted as subkinds. Consider for instance (150).

- (150) a. Most insects live on average 10 months.
 b. Nowadays, every computer is available in at least two models.
 c. Each car sold in the U.S. undergoes thorough crash tests.

In this sentences, the predicate is a typical kind-level predicate; consequently, the quantifier cannot range over ordinary individuals, it must range over 'kinds' of insects, computers or cars; on McNally's approach, it must range over nominalized functions. Now compare (151) with (152).

- (151) a. ?Yes, there are those insects in the Amazonic Forest.
 b. ?There was every car at the exhibition.
 c. ?There was each product individually wrapped
- (152) a. Yes, there are those kinds of insects in the Amazonic Forest.
 b. There was every type of car at the exhibition.
 c. There was each kind of product individually wrapped

Native speakers tend to agree that, if hard pressed in order to find a good reading for the sentences in (151), they will make them synonymous with those in (152). Yet, in general they do not find sentences in (151) as natural as the corresponding cases were the kind-noun is overt. It is significant, in fact, that of all the examples of subkinds under ES in McNally's dissertation, only one ("there were both wines available for tasting") doesn't have an overt kind-noun. Considering how natural it is to get the subkind reading in (150), this fact is a bit surprising. If all that was required to save

an ES from the DE was switching to a subkind interpretation for the common noun, existential sentences with strong quantifiers should simply be known to linguists as constructions that force the kind reading, just like (150), and the definiteness effect as a *grammaticality* issue might have never arisen.

It seems that to obtain an acceptable strong quantifier under ES, something more is necessary than a switch in the interpretation of the lexical items “insect,” “car” or “product.” I suggest that the speaker tries to interpret “every insect” as having exactly the same syntax that would be assigned to “every kind of insect.” The reason for this has to do with the role that I shall assign to syntax in the acceptability of strongly quantified kind-nouns.

2.3.6.3 On the sortal uniformity of ES-internal noun phrase

McNally assumes that in languages like Catalan, the Felicity Condition that rules out definites, proper names and pronouns is void, and these noun phrases are interpreted according to the normal rule of the *There*-construction, i.e. as assertions of instantiation of Nominalized Functions (see McNally 1992:110). This allows McNally to have a uniform account of all ES, but only at the expense of making all types of noun phrases sortally identical (in part, as a result of type-raising, see Partee 1987).

There are two issues here. First, can the ‘uniformity-of-ES’ approach capture the full range of meanings of noun phrases which can appear in ES? For instance, how can the difference between (153)a and b be characterized in this system? One possibility is to say that all proper names are ambiguous between a ‘being N’ and a ‘being named N’ reading, but it is not entirely clear what ‘being N’ consists of. In this dissertation, I follow Longobardi (1994) in his assumption that this ambiguity doesn’t exist at the level of the lexicon.

- (153) a. There was a certain Alvar Aalto at the party.
a rigid designator
 any person named so
 b. There was an Alvar Aalto at the party.

Second, is it appropriate to assume a possible NF-sort even for proper names and pronouns²⁴—the paradigmatic cases of individual-denoting constructs—without making Nominalized Functions a sortal grab-bag, containing ‘all that’s good in ES’? What kind of Nominalized Function could “he” be? How come it cannot appear in canonical predicative positions like the argument of “consider” (cf *“I consider Zorro he/him”)? The fact that proper names may appear after copular “be” (“That man is John”) is no evidence for a functional interpretation of “John.” In section 5.3 on page 212 I argue, following Reed (1982, Doron (1988) and others, that these cases are identity statements where “John” does not directly function as a predicate. The alternative is to say that an NF-sort isn’t after all a *necessary* condition for appearing in ES.

²⁴In Italian, C’è lui “there is he” is also perfectly acceptable.

Is it a *sufficient* condition? The answer is again no. Consider the behavior of bare infinitives in Italian:

- (154) a. Camminare è sano.
 walk-INF is healthy
 “Walking is healthy”
 b. Camminare cura le vene varicose.
 walk-INF cures the veins varicose
 “Walking cures varicose veins
 c. La cosa importante è camminare.
 the thing important is walk-INF
 “The important thing is to walk”

The bare infinitive form of any verb can appear as subject of copular or main verbs, (154)ab, and as a predicate nominal (154)c, but is outright ungrammatical in the Ci-construction (the Italian ES) (155).

- (155) a. *C’ era camminare per la strada.
 there was walk-INF in the street
 b. *C’ è chiacchierare di profumi costosi dal parfumiere.
 there is chat-INF about perfumes expensive at the hair-dresser

Since the bare infinitive is the prime candidate for a native NF-Sort (cf. Chierchia 1984 p. 267) I conclude that having a NF-sort is not a sufficient condition, and arguably not a necessary one to appear in ES. One could reply that perhaps the bare infinitive is excluded on purely syntactic ground from ES. The possibility of bare infinitives to appear after copular “be” (154)c casts doubts on this solution. More importantly, bare infinitives *can* go in Ci-sentences, but only if a context is set up in which the activity denoted by the infinitive can be ‘located’ among a larger set of activities.

- (156) a. Tra le cose per cui eravamo puniti al collegio.
 Among the things for which we were punished at boarding school,
 c’ era [parlare nel dormitorio].
 there was talk-INF (in.the dorm)
 b. Tra le attività che mi ha consigliato il dottore, c’ è
 Among the activities that to me has not advised the doctor, there is
 [guardare la televisione].
 watch-INF the television
 c. Tra le cose da fare quando ci vedremo, ci sarà
 among the things to do when we will meet, there will be
 [ricordarsi di cose passate insieme].
 remember-INF of things past together

It is now time to give a more careful look at languages where definites are possible in ES. Examination of the Italian facts reveals a rather complex pattern.

2.3.6.4 Italian ES: locatives and existentials

We have already seen that in Italian, just like in Catalan, definites, proper names and pronouns are perfectly fine in *Ci*-sentences (see (142) above and (157)).

- (157) a. C' è Gianni alla riunione?
there is Gianni at.the meeting?
“Is Gianni at the meeting?”
- b. Se non c' è Maria, non vengo.
if not there is Maria, (I) not come
“If Mary isn't there, I won't come”

However, Moro (1993), p. 69 and (1997b), and Zucchi (1995), have noticed that ES like C' è *Gianni* have a strong *locative* flavor, which is rendered in the glosses above. Zucchi (1995) points out that if we pick entities that can hardly have any physical realization, definite descriptions in ES worsen even in Italian.²⁵

- (158) a. ??Ci sono le due soluzioni di questa equazione.
there are the two solutions of this equation

- b. ??Ci sono i problemi complessi che conosci nella mia teoria.
there are the problems complex that you.know in.the my theory

The locative character of the *Ci*-construction, however, is considerably abstract. Unlike “here,” in “John is there!” *ci* can never function as a deictic. Typically, *ci* is accompanied by a full-fledged locative, as in *A casa c'è Gianni* “at home there is Gianni.” Saying C' è *Gianni* always presupposes the existence of some contextually salient place (at home, at the door, etc.) where Gianni is.

DE resurfaces with strong quantifiers, but again with a difference in interpretation. If the coda is a locative, strong quantifiers are basically acceptable (though sometimes slightly odd to my ear).²⁶

- (159) a. C' è ogni bambino nella stanza.
there is every child in.the room

- b. C' è ciascun insegnante, all' assemblea.
there is each teacher at.the meeting

²⁵Zucchi's original example has *tutte le soluzioni* “all the solutions.” There are reasons not to introduce “all” in the picture at this point (see section 4.5). In my judgment a level of deviance remains with the de finite article alone.

²⁶Notice that Italian doesn't have a single word for “most,” which is replaced by *la maggior parte* “the greatest part,” in (d).

- c. Finalmente ci sono qui entrambi!
Finally there are here both.of.them
“Finally, both people are here”
- d. Sullo scrittoio, c' era la maggior parte delle lettere.
On.the desk, there was the greatest part of.the letters

Selecting objects that do not admit a locative interpretation, or removing the coda, strong quantifiers worsen considerably (160), with the possible exception of quantifiers over kind-nouns (161).²⁷

- (160) a. ??C' è [ogni problema complesso attuale] risolto.
there is [every problem complex current] solved

- b. ??C' è [ciascuna speranza di soccorso].
there is [each hope of help]

- c. ??C' è {ognuno / ciascuno}.
there is {everybody / each-person}

- (161) a. C' è ogni tipo di problemi in questa proposta.
there are every kind of problems in this proposal
- b. ?C' è ciascuna varietà di rosa.
there is each variety of rose

Interestingly, ‘floatable’ quantifiers like *entrambi* “both” and *tutti* “all” pattern like definites, (159)c and (162) clearly contrast with (160)c. The special status of floatable quantifiers will be addressed in section 4.5 on page 165.

- (162) Ci sono {tutti / entrambi}.
there are {all / both}
“We are {all / both} (here)”

Unlike in English, in Italian the noun phrase in ES can also appear before *ci*, in pre-verbal position. In this position, definites are acceptable (163)a, while quantified phrases are impossible (163)b, even with kind-nouns (164).

- (163) a. Maria sa che {Gianni / il dottore} c' è.
Maria knows that {Gianni / the doctor} there is
- b. ??Maria sa che {ciascun / ogni} bambino c' è.
Maria knows that {every / each} child there is

- (164) a. Maria sa che c' è ogni tipo di birra (in quel locale).
Maria knows that there is every kind of beer (in that pub)

²⁷I am using two adjectives after the noun to make sure that the third one belongs to the coda. See the discussion in chapter 1.

- b. *Maria sa che ogni tipo di birra c' è
 Maria knows that every kind of beer there is (in that pub)
- (165) a. Che c' è *t*?
 what there is *t*?
 "What's there? What's happening?"
- b. Chi c' è *t*?
 who there is *t*?
 "Who goes there? Who's here?"
- c. ??Quale soluzione c' è *t*?
 which solution there is *t*?
 d. *Quale delle soluzioni c' è *t*?
 which of the solutions there is *t*?
 (166) Gianni non sa {chi / cosa / ??quale} c' è.
 Gianni doesn't know {who / what / which-one} there is

The pattern also holds for WH-phrases, matching *chi* "who" and *cosa* "what" with a proper name or personal pronoun, and *quale* "which" or "which one," with a strong quantifier such as "every"—a match confirmed by the fact that only *quale* "which" may take a noun complement.

(165) a. Che c' è *t*?

what there is *t*?

"What's there? What's happening?"

b. Chi c' è *t*?

who there is *t*?

"Who goes there? Who's here?"

c. ??Quale soluzione c' è *t*?

which solution there is *t*?
 d. *Quale delle soluzioni c' è *t*?

which of the solutions there is *t*?
 (166) Gianni non sa {chi / cosa / ??quale} c' è.
 Gianni doesn't know {who / what / which-one} there is

One might suspect that definites, proper names and pronouns in ES could be reduced to the so-called 'presentational-reading' of definite noun phrases under ES in English, studied in Milisank (1974), Rando and Napoli (1978), Abbott (1992), and McNally (1992), chapter 5 (cf. (128) above).

It is possible that Italian definites have this interpretation as well, but this cannot be all there is to them. As discussed in McNally (1992), chapter 5, list readings in English cannot be questioned or negated, (except with rhetorical negation: *Wasn't there Alice?*), and they are marginal with codas.

- (167) a. ??Is there Alice?
 b. ??Well, there isn't Alice.
 c. ?Well, there is Alice ready to help you.

The examples in (157) show that none of these restrictions holds for Italian. The situation in this language is summarized in the following table:

	TYPE OF DPS	EXAMPLE	POST-COPULA: C' è ...	PRE-COPULA: ...c' è
A.	INDEFINITES	<i>Un uomo</i> "a man"	ok	ok
B.	DEFINITES PROPER NAMES	<i>L'uomo</i> "the man" <i>Gianni</i>	ok ok (locative) ok (locative)	ok ok (locative) ok (locative)
C.	STRONG Q& KIND-NOUNS	<i>Ogni tipo di birra</i> "every kind of beer"	ok	*
D.	STRONG Qs	<i>Ogni bambino</i> "every child"	?ok	*

What shall we make of this complex distribution? Following Zucchi (1995), in chapter 5 I will argue that Italian *Ci*-sentences collapse together two constructions, one locative, one existential. The novel part of the analysis is that the two constructions are maximally similar, differing only in which of the two constituents of the small-clause under "be" functions as the predicate (syntactically, a PDP in my system) and which, as the argument (an SDP). At this stage, the examples given in this section show that a unified account of noun phrases under ES that tries to treat Italian (and presumably Catalan) as a 'relaxed' form of English is implausible.

2.3.6.5 Summary

Let's summarize the last points. A small cross-linguistic survey has shown that being a Nominalized Function is not a sufficient condition to be in ES (witness Italian infinitives) and it might not be necessary, either, if one wants to preserve a sortal distinction between pronouns/proper names and the entity correlate of functions, in the sense of Chierchia (1984).

Moreover, we have seen that strong quantifiers in ES are better when they quantify over kind-nouns than over common nouns in their subkind interpretation. To the extent cases like 'there were both wines available for tasting' are acceptable, I suggest that they involve reanalysis as if they contained a non-overt (but syntactically present) kind-noun.

Last, we have seen that treating definites under ES (in languages that admit them) in a way parallel to indefinites has little to say about the facts of Italian *Ci*-sentences.

A different type of explanation is called for. In the next chapter, I focus on the issue of the syntax and the interpretation of 'kind-nouns', relating them to various other constructions in Italian, English and Catalan.

The *kind*-construction and its relatives

We can begin our exploration of noun phrases like “every kind of car” by recalling Heim’s explanation for the acceptability of “what” in ES. In her analysis (section 2.3.3 on page 48) “what”—unlike “who”—does not leave a trace that replaces the post-copular noun phrase but is extracted from under an invisible ‘kind’ modifier, yielding the structure (168)b, and a logical interpretation *a-la* Karttunen, as in (168)c.

- (168) a. What is there in Austin?
b. FOR-WHAT $x[\quad]$ [there is [something of kind x] in Austin]
c. { p : There is a kind x such that p is true and p is the proposition that there are (is) something of kind x in Austin}

Since (168)b does not match the forbidden structure * [There *bet*], “what” extraction is fine. The question is, can Heim’s structural constraint be extended to kind-noun cases?

3.1 Two orders of kind-nouns

To answer this question, let’s consider more carefully the syntactic structures associated with kind-nouns, and in particular, the relation between the order where the kind-noun introduces the noun phrase (the *kind-initial* order), and the order where it appears at the end of the phrase (the *kind-final* order).¹

- (169) a. This kind of car
b. A car of this kind

kind-initial
kind-final

¹There is a third ‘kind’ construction, which has been pointed out to me by Whitney Tabor (p.c.), i.e. the quasi-adverbial colloquial usage of the frozen form ‘kind of/sort of’, in cases such as “he sort of smiled to her” or “She was kind of blonde.” This form seems to be derived from the productive construction in ways that will not be investigated in this dissertation.

Hereafter, I shall also use the term ‘kind-nominals’, to include adjectives that may accompany the kind-noun, and I shall refer to the noun “car” above as the ‘content-noun’ (and respectively, ‘content-nominal’).

Strong quantifiers are allowed when the kind-noun is embedded under the internal noun phrase in ES (170), but they are not good when they introduce the whole internal noun-phrase, as in (171). This is of course unremarkable, given that, as we have seen, strong quantifiers are generally good once embedded (172).

- (170) a. There is ice-cream of {every / most / each} flavor on sale.

- b. There are cars of every kind at the exhibition.

- (171) a. ??There is most ice-cream of this flavor on sale.

- b. ??There was every car of this kind at the exhibition.

- (172) a. There are pictures of {every / each} ancestor of mine hanging in the hallway.
b. There will be representatives of most denominations at the meeting.

Is it possible to unify the three cases in which strong determiners are acceptable in ES—embedded objects, kind-final constructions and kind-initial constructions—and resolve them in a Heimian vein, as cases where the offending element, the strong quantifier, is too deeply embedded to trigger DE? This unification could be carried out if one could give bracketings like the following:

- (173) a. [There are [Q_{strong} ancestors]]]

- b. [There are [pictures of [Q_{strong} kinds]]]

- c. [There are [[Q_{strong} kinds] of pictures]]]

The problem is (c). The correct bracketing is generally thought to be (174) (cf. for instance Carlson 1977).

- (174) [There are [Q_{str} kinds [of pictures]]]

In her dissertation, Wilkinson (1991) has proposed that the string “every kind” or “that kind” is in fact a modifier of “pictures” regardless of order, and that the head of the construction is always “pictures.”

If this idea is correct, the problem is how to insure that the kind-noun modifier applies to the content noun. Technical details aside, Wilkinson’s solution is that, in kind-final position, “of” takes the denotation of “that kind” (a GQ) and turns it into a modifier of the CN (much as in constructions like “a dress [having that color]”). To explain why “that kind” functions as a modifier even in pre-N position, she appeals to Partee’s analysis of a class of nouns including “size,” “color,” “length,” which may appear in constructions such as.²

² Actually, Partee’s examples give optionality for the “of” in “this shirt is (of) a nice color,” not in “that size (of) dress.”

- (175) a. {A dress that size / That size (of) dress} is hard to find. Wilkinson (1991)
b. That length (of) skirt will be in style.
c. They don’t make {that color (of) paint / paint (of) that color} anymore.

According to Wilkinson, kind-nouns fall in the same class, and are interpreted by the same idiosyncratic rule, the “of” in the kind-initial case being translated a meaningless element.

While I find Wilkinson’s analysis interesting and convincing from a semantic standpoint, syntactically it leaves a lot to be explained. For instance:

- The fact that other modifiers of N can appear prenominally is, of course, not a syntactic explanation that extends to all modifiers. Compare kind-nouns with canonical PP modifiers of DPs (presumably, adjuncts):

- (176) a. A car with that option

- b. *(With) that option (of/with) a car

- (177) a. A man of great ambition

- b. *Great ambition (of) a man

- The fact that “of” is meaningful in kind-final position (where it is clearly optional, cf. “a dress (of) that size”) and meaningless in kind-initial position (where it is less clearly optional, according to some speakers) is a stipulation.
- The fact that the content nominal under “of” in the kind-initial construction must essentially be determinerless, while the kind-noun, still under “of,” can be introduced by just about any determiner remains unexplained.³

- (178) a. A kind of {D⁰ / ?a / *the / *every / *each} car

- b. Two kinds of {D⁰ / *some / *the / *most / *all} cars

³ The question mark for the indefinite article with a singular content-noun is apparently falsified by the perfect acceptability of “what kind of a man” or “that kind of an idiot” (cited in Wilkinson 1991). A deeper look reveals that these are not true cases of kind-initial construction, but rather akin to the N-of-an-N construction “that fool of a man,” “what marvel of a car!” Thus, while “what kind of car are you driving?” can be answered with “A Ford,” “what kind of a car are you driving?” isn’t really a question, but an exclamative statement, used to suggest that one is driving a car that doesn’t seem or behave like a car at all. While this is not true for all speakers, I have found substantial agreement on the fact that the insertion of the indefinite article is limited to the kind-nouns “kind” and “sort,” witness “what flavor of (*an) ice-cream did you buy;” “what model of (*a) car are you driving;” “that variety of (*a) monkey is rare;” etc. In addition, only “what” can be used in this construction (cf. “which kind of (?:a) car”). One suggestion is that in these cases “a” is realized at the K_{max} level; the fact that Italian doesn’t have this use of the indefinite could then be related to the idea that Italian raises N to K1 by surface structure, while English does the same at LF (cf. Longobardi 1994).

- c. A car of {a / the / that / *D⁰} kind (that ...)
- d. Cars of {the / those / every / most / each / both / ?D⁰} kind(s) (that ...)

In addition, we may ask why other PP adjuncts do not tolerate bare nouns (witness ‘I saw this kind of car,’ ‘what kind of car do you have’ vs. ‘*I saw a man with car’).

- Carlson (1977) and Wilkinson (1991) observe that ‘every’ in ‘every kind’ must take wide scope. Regular DP adjuncts do not allow wide-scope raising of their quantifiers. Thus (179)a cannot mean (179)b, while (180)b is the only possible reading for (180)a.⁴

- (179) a. I would like to see a car with every option installed.
 b. For every option I would like to see a car with that option installed.
- (180) a. I saw a car of every kind.
 b. For every kind of car, I saw a car of that kind.

My answer to these problems is that the kind-initial and the kind-final nominals are derived via raising from the same DS source, which is the attributive-predicative small-clause introduced in section 1.2.4 of chapter 1.

3.2 The family of ‘pivotal’ constructions

To understand the *kind*-construction, it is in fact necessary to step back a moment and consider a family of constructions that are related to it in important and interesting ways.

Descriptively speaking, there is no single property shared that all these constructions, aside from the fact of being composed of two adjacent phrases; yet, they bear a certain ‘family resemblance,’ linked to four (not necessarily cooccurring) features:
 (i) the fact that what seems to be, syntactically and semantically, the head of the construction is not in its canonical position; (ii) the appearance of a ‘linking element’ between the two members of the construction—usually the preposition ‘of,’—with no perceptible semantic content; (iii) a different semantic and syntactic status between the two phrases participating in the construction (DP and ‘bare-NP’ Det and AdjP, Q and the operator ‘more’); (iv) the appearance of a nominal that is determinerless or only preceded by the singular indefinite.

The following twelve constructions share one or more of these features.

⁴For reasons I don’t understand, QR from adjuncts seems to be available when the adjunct is attached to a verbal agreement projection, as in ‘John sang duets with every friend from high school.’

- A. *Pseudo-partitives* (Selkirk 1977). Wilkinson explicitly relates the *kind*-construction to the pseudo-partitive construction:

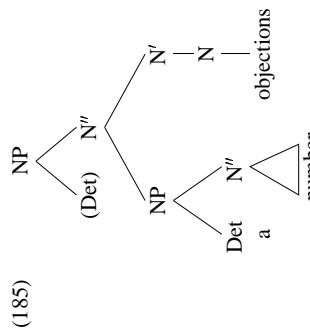
- (181) a. A number of objections
 b. Three pounds of stew meat
 c. A bushel of apples

This construction differs from true partitive (where a definite determiner must appear after ‘of’) in not allowing extraposition (182)b vs c, in the optionality of ‘of’ with comparatives (183)a vs b, and in providing a single attachment point for non-restrictive relatives (184)a vs b (examples from Selkirk 1977),

- (182) a. A lot of { D⁰ / the } leftover turkey has been eaten.
 b. A lot has been eaten of the leftover turkey.
 c. *A lot has been eaten of leftover turkey.
- (183) a. I met a larger number of the high-school students than I did *(of) the college students.
 b. I met a larger number of high-school students than I did (of) college students.

(184) a. In the Uffizi they saw [a lot of [the famous paintings]], several of which were by Sieneese artists.
 b. In the Uffizi they saw [a lot of famous paintings], several of which were by Sieneese artists.

Selkirk proposes the structure (185) where ‘of’ would be inserted by a final transformation.



B. *The "N-of-an-N" construction* (Napoli 1989, Janda 1980).⁵ This construction is available in English (186), Italian (187) and French (188), with differences that will not concern us here.

- (186) a. A jewel of a girl
 b. A fool of a man

c. This monster of a machine

- (187) a. Un gioiello di ragazza
 a jewel of girl
 b. Quel mostro di (una) macchina

that monster of (a) machine

Napoli (1989)

- c. Quel matto di (un) Giorgio
 that madman of (a) Giorgio

Rivet (1982)

(188) Cet imbécile de salaud de tyran de Staline

that imbecile of slut of shrew of Stalin

All these phrases have the full distribution of noun phrases (cf. Napoli 1989) and “of/di” is not optional.

C. *The "Too-much-of" construction in English* (cf. Bresnan 1973, Abney 1987).

- (189) a. He was/became {too much / enough / more} of a scholar.
 b. {Enough / Too much / More} of a scholar would change the reputation of the school.

- c. I want to see {enough / too much / more} of you.

This construction can appear in argument position (b, c) as well as in predicative position (a). Notice the expressions “too much,” “enough” and “more” alone can also appear in argumental position:

- (190) I saw {too much / enough / more}.

“Of” is not optional:

- (191) He will become {too much / enough / more} ??(of) a scholar.

D. *The "Too-AdjP-a" construction* (cf. Bresnan 1973, Abney 1987); unlike the “Too-much-of” construction this one can mostly be found in predicative position, as noted in Bresnan (1973).⁶

- (192) a. He became {too tall / tall enough} a basket-ball player (to play well).
 b. *{Too tall / Tall enough} a basket-ball player (to play well) entered the room.
 c. *I want to see {too tall / tall enough} a basket-ball player (to play well).

Consider that “too tall,” “tall enough,” too, cannot appear in argumental position:

- (193) *I saw {too tall / tall enough}.

Abney (1987) reports that in some dialects of English, “of” can be inserted before the indefinite (“too tall of a basket-ball player”), cf. the discussion in section 1.2.3 on page 22.

Analogous construction in colloquial Southern Italian, again restricted to predicative position; *di* “of” is impossible.

- (194) a. Gianni era troppo un mascalzone per non ottenerne il lavoro.
 Gianni was too_much a jerk to not get the job
 b. Maria è diventata molto una brava ragazza.
 Maria is become much a nice girl

E. *The "Q-of-AdjP" construction in Italian*. In this construction, the preposition *di* “of” appears between the quantifier *qualcosa* “something” and an adjective.

- (195) a. Gianni berebbe qualcosa di fresco.
 Gianni would_drink something of cool
 “Gianni would drink something cool”
 b. Qualcosa di leggermente alcolico aiuterrebbe la digestione.
 something of slightly alcoholic would_aid the digestion
 “Something slightly alcoholic would aid digestion”

The construction has the full distribution of a DP. “Of” can be present only if the quantifier *qualche* “some” is amalgamated with the noun *cosa* “thing,” but not with *uno* “one” (*qualsiasi*, “someone”), or followed by a different noun, as discussed later, in section 4.2.4.2.

⁵Caroline Heycock, p.c. points out that “too tall” can in fact appear as the object of *intensional* verbs, e.g. “One should never marry too tall a man,” or “too tall a man wouldn’t do.” See the discussion in footnote 19 on page 144.

- (196) a. Ho visto qualche persona (*di) simpatica.
I have seen some person (of) nice
b. Qualcuno (?) di simpatico ci sarà pure.
Someone (of) nice there will be for_sure

(197) is the corresponding extraction case. The WH *cosa* “what” or *che* “what” have been extracted, stranding the preposition followed by the AdjP. The WH *chi* “who” is more marginal and *quale student* “which student” is out.

- (197) a. {Cosa / Che} vuoi *t* di fresco?
{what / what} you want *t* of cool?
b. {Cosa / che} hai *t* di leggermente alcolico?
{what / what} you have *t* of slightly alcoholic?
c. {? Chi / * Quale student} hai conosciuto *t* di simpatico?
{ who / which student} you have met *t* of nice?

(198) is corresponding the *ne*-cliticization case. *Ne* must refer to some contextually salient mass noun.

- (198) a. Ne hai *t* di fresca?
Of_it you have *t* of cool?
roughly: “(of the stuff we were talking about) do you have any that is cold?”
b. Ne hai *t* di leggermente alcolico?
Of_it you have *t* of slightly alcoholic?

French has a corresponding construction (Azoulay-Vincente 1985, cited in Kayne 1994), with a wider distribution, since it also includes focused constructions as in (200), which are out in Italian:

- (199) quelqu'un de célèbre
someone of famous
(200) Jean a acheté TROIS voitures de rouge (pas quatre)
Jean has bought three cars of red (not four)

F. *The “of-more” construction in Italian*. *Di* “of” can precede the word *più* “more” in Italian. The operator *più* can introduce an object DP, just like in English (201)a. In this case, it cannot be preceded by *di*. However, when the noun is missing, *più* must be preceded by the preposition *di* to appear in object position (201)b. *Di* is also preferred when *più* functions as a verbal modifier (201)c.

- (201) a. Voglio (*di) più carote che patate.
I want (of) more carrots than potatoes
b. Voglio *(di) più.
I want (of) more
c. Ho dormito ? (di) più altre volte.
I have slept (of) more other times
- In the same environments, *di più* can also be preceded by some quantifiers: *molto di più* (“much more,” lit. “much of more”), *poco di più* (“a little more” lit. “a-little of more”) *parecchio di più* (“a lot more” lit. “a-lot of more”), etc. Notice that the construction cannot be a partitive; if it were, it would be hard to explain why “di” becomes impossible as soon as “più” introduces a full DP with a nominal head, as in *voglio di più* (**carote*) lit. “I want of more (carrots).” Also, it seems unlikely that “di” is inserted to Case-mark “più,” considering that “più” alone cannot appear under prepositions different from *di*: **con più*, “with more;” *senza più* “without more,” etc., and that *di* cannot be inserted when a noun follows *più*.

G. *The “D-de-AdjP” construction in Catalan*. (Bernstein 1993). In this language, indefinite null nominal constructions with adjectives corresponding to the English “a red one” insert *de ‘of’* before the adjective.

- (202) Un de vermill és millor que un de blau.
one of red is better than one of blue
“A red one is better than a blue one”

Since *de* is incompatible with regular singular masculine suffix *-o* on the indefinite *un* “one” (**uno de vermill*, cf. Italian *uno rosso*, lit. “one red”) and with the feminine suffix *-a* in (203)a, Bernstein argues that *de* is the FP spell-out of a ‘word-marker’ (in the sense of Harris 1991), which normally cliticizes on N as a gender morpheme. Notice however that *de* cooccurs with feminine suffix *-a* in (203)b, and also with the clitic *ne* in (204) (parallel to the Italian example in (197)), even though *ne* is widely assumed to pronominalize an N’ (in pre-DP times, see Belletti and Rizzi 1981) or an NP (Cardinaletti and Giusti 1990).

- (203) a. *Fa molta calor.
it makes a.lot_{F,Sng} of heat_{F,Sng}.
b. Una de vermill
one_{F,Sng} of red
“A red one.”

- (204) N' he vist un de vernell.
L.of.it have seen one of red
"I have seen a red one"

In all the examples seen so far, the linking element is (some translation of) "of"; the constructions involved are noun phrases (sometimes with limited distribution, see [D]) where the semantic head is often the element after "of" (in [A], [B], [C] [D]). All these cases are *non invertibile*, in the sense that it is not possible to switch the two elements around "of" and obtain a well-formed expression with similar semantics. The next four members of the family are *invertibile*, in this sense.

H. *Complex bare noun in Italian*. We have seen that, unlike English, Italian doesn't normally allow determinerless nominals in subject position, particularly with predicates that require kind-denoting arguments (e.g. "being rare," "being widespread," etc.). The definite determiner is required in these cases:

- (205) *(I) cani feroci sonor rari.
(the) dogs ferocious are rare

An exception is represented by the following cases:

- (206) a. Governanti di quelle di una volta sono ormai rare.
baby-sitters of those of the.old.times are now rare
"Baby-sitters like those of the good old times are now rare"
b. Botte di quelle serie non erano infrequent.
fight of those serious not were infrequent
"Fights of the most serious kind weren't infrequent"
c. Scarpe di quelle buone si vendono ormai solo in quattro misure.
shoes of those good are sold nowadays only in four sizes
"Nowadays, good-quality shoes are only sold in four sizes"

Bare nouns in the kind-final construction (e.g. *governanti di questo tipo* "baby sitters of this kind") have identical distribution.⁷

These constructions are 'invertible' in the sense that can be put in relation with:

⁷ These cases should probably be related to bare nouns with relative clauses in the subjunctive (a) and with adjectives introduced by *così* 'so' (b).

a. Cani che abbiano 20 anni sono rari.
b. Foreste costi estese non sono comuni.
"dogs that have 20 years are rare"
"forests so extended are not common"

In this work I will not try to extend the analysis to these cases

- (207) a. Quelle di una volta, di governanti, sono ormai rare.
those of the.old.times, of baby-sitters, are now rare
b. Quelle serie, di botte, non erano infrequent.
those serious, of fights, not were infrequent
c. Quelle buone, di scarpe, si vendono ormai solo in quattro misure.
those good, of shoes, are sold nowadays only in four sizes.

The semantics is identical to (206), save for the fact that the adjective in initial position is more focused, and the "di N" feels like a right-dislocation. Analogous construction in French Kayne (1994):

- (208) Le rouge, de crayon
the red, of pencil

I. *The kind-construction*. As we have seen, the *kind*-construction has two possible orders:

- (209) a. Three kinds of cars
b. Cars of three kinds

Semantically, the denotation of the two phrases above is the same. As discussed in Wilkinson (1991), both can be interpreted as referring to 'kinds' of things, or to ordinary individuals, with each interpretation forced by an appropriate predicate.⁸

- (210) a. Three kinds of dogs {used to be common / suddenly appeared in my yard}.
b. Dogs of three kinds {used to be common / suddenly appeared in my yard}.

The kind-level reading for the kind-final order is lost if a determiner like "a" or "the" is prefixed.

- (211) a. ?A dog of this kind is rare.
b. *The dogs of those kinds are rare.

⁸In later work (Zamparelli 1998) I have come to regard the object-level reading of the kind-initial structure ("this kind of book is on my bed") as an inference (inferring from the presence of a particular object the presence of a kind of which the object can be seen as a representative.

This would be as expected if the domain of inversion was the one delimited by brackets in “A [dog of this kind],” “The [dogs of those kinds].” Let’s assume that the string in brackets is treated as a single CN; now the generalization is: if the bracketed material can refer to a kind, and the determiner outside doesn’t block this reading, then the DP as whole can refer to a kind. The problem, of course is to rule out “A [this kind of dog]” and “The [those kinds of dogs],” which is what one should get by switching “those kinds” and “dogs.” I will come back to this issue in section 3.4.

J. *Italian measure phrases*: This construction is related to pseudo-partitives, but can appear in both orders, with the same meaning.

- (212) a. Tre metri di lunghezza
three meters of length
b. Una lunghezza di tre metri
a length of three meters

K. *The “All-of-us” construction*. A ‘semi-invertible’ construction is the pair:

- (213) a. We {all / both} went
b. {All / Both} of us went

The “of” that appears in (b) is not a mark of partitivity; in a real partitive such as “three of the boys,” the total number of boys must be higher than three (Barker’s (1998) ‘Proper Partitivity’ constraint), while “both of us went” is felicitous *only* if ‘we’ refers to two individuals in total.

L. *Copular sentences with definite predicates*. (Heggie 1988, Moro 1988, Moro 1991, 1997b, Heycock 1994, Heycock and Kroch 1998 etc.). This is the only construction in the family I am considering that is, syntactically, a sentence. The linking element is “be,” not “of.” Aside from this, this construction is very much like the others.

- (214) a. A picture of the wall was the cause of the riot
b. The cause of the riot was a picture of the wall

These two sentences have identical truth conditions, though their discourse function is different.

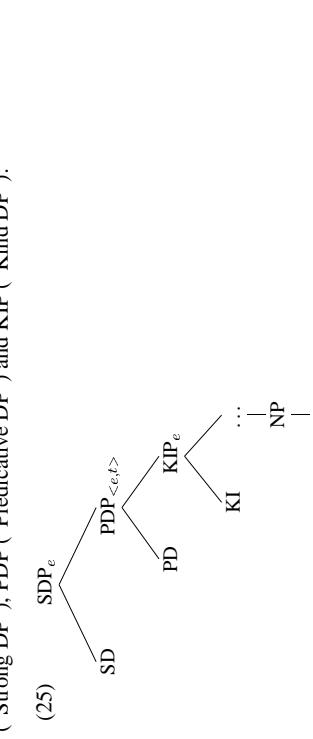
The constructions that I have briefly reviewed do not seem to fit well in any well-established frame. Some remind one of partitives, but with features of their own (cf. [A] and [K]); they appear to involve modification, but in a strange position, and with

peculiar restrictions (e.g. [C] vs. [D]); they use the Case-marker “of,” but in front of elements that are not known to require Case, e.g. bare adjectives and operators ([E], [F] and [G]).

A claim of this dissertation is that this apparently haphazard collection is the expression of a single basic syntactic configuration: a small-clause predicative structure, plus raising. The main difference between the last case, with “be,” and all the others, is whether the small-clause expresses predication (as in the copular case) or modification (the attributive-predicative position of modifiers, discussed in chapter 1).

This does not mean, obviously, that these structures are all identical. Three dimensions that may vary are the point of attachment in the extended DP structure for the attributive-predicative modifier, the point internal to DP to which a constituent may raise, and the syntactic type of the element functioning as the ‘predicate’ of the small clause (e.g. AdjP, PP, SDP, PDP, in my system). Considerable cross-linguistic variation must be admitted as well—not all the constructions above are documented or identical even across the Romance and Germanic languages I have had access to. In the present work, I will try to justify the general picture, focusing mostly on the copular case and on the *kind*-construction.

Recall that I am proposing a structure for DP with a three-layer distinction: SDP (“Strong DP”), PDP (“Predicative DP”) and KIP (“Kind DP”):



My aim, now, is to argue that *di/of* is realized as a phonetic spell-out of the features of the intermediate functional head KIP (Kind-Phrase).⁹ “Of/di/of” takes as a comple-

⁹An alternative possibility is that KIP takes an “of” PP as its complement, *P* takes the small-clause as its complement and then head-raises to KI in order to license the element in [Spec, KIP] by spec-head agreement.

1. **DS**: [sdp ... [kip ki [pp of [sc [car] [this kind]]]]]
2. **SS**: [sdp ... [kip [car] of_j [pp f_j [sc f_i [this kind]]]]]

This option makes “of” analogous to the verb “be” in theories where this verb is generated in V and raised to INFL (see footnote 14 on page 89). Each hypothesis needs some extra assumptions. In the

ment a small-clause containing an argument (the content nominal) and a modifier (the kind-nominal, e.g. "this kind," an SDP containing a pronominal element coindexed with the argument). At S_i, either one or the other raises to the specifier of one of the functional projections above the small-clause i.e. [Spec, SDP], [Spec, PDP], [Spec, KIP]. Additional constraints on where an element can raise to, discussed in section 4.3, make predictions about some puzzling differences between the constructions in [A]-[L] above. Since the raised elements seem to 'pivot' around the preposition, I dub this phenomenon 'pivotal-'of' raising,' and call the preposition 'pivotal-'of'

¹⁰

In the next two sections, I lay down a few general aspects in which these constructions are similar, namely their 'invertibility' and the pattern of agreement between the two elements composing them.

3.2.1 Invertibility

Let's first consider the three cases that can be clearly inverted with roughly the same semantics: copular sentences with definite predicates, Italian measure expressions, and the *kind*-construction.

It should be stressed stress again that saying that the semantics is 'the same' across the two orders doesn't imply that the two orders also have the same use or the same discourse function. It is easy to verify that they don't. First, some orders might have a preferred reading. In the kind-initial constructions, the kind-level interpretation is probably more salient than the interpretation as ordinary individuals. Second, (214)a and b, the canonical and the inverse copular sentence, have a very different informational content. If I utter (a), I am presupposing that the existence of a cause of the riot is part of the conversational background, and I am augmenting the discourse model with knowledge about this cause. If I utter (b), the participants are expected to know about a picture on the wall, and learn that it has been the cause of something. This different discourse function is also made visible by anaphora facts. For instance, the kind-initial construction in (215) cannot introduce a novel referent who is an individual student,¹¹ only a kind-level referent.

¹⁰ In the insertion story, the preposition must still be capable of Case-marking. The movement story, coupled with a rigid version of the X-bar theory, makes available two specifier position as potential targets of movement, [Spec, PP] and [Spec, KIP]. As far as I know, there are no cases where P has moved to K_i, some XP is in [Spec, PP] and some DP is the complement of P, giving an order $k_i P_i \text{XP}^f_i \text{DP}^f$ with DP clearly Case-marked by P. In what follows I stick to the insertion hypothesis, although I believe nothing critically hinges on this choice.

¹¹ Note that I have to evidence to claim that every instance of "of" in the language is a case of pivotal-'of,' or that "of" is always inserted in a nominal functional projection. However, see the discussion in Den Dikken (1995), (1998) where the "of" = "be" equivalence is independently proposed.

¹² The examples are from McNally (1992), though she doesn't discuss the fact that the kind-initial construction can introduce a kind-level discourse referent, in (c).

- (215) a. There is a student of that type in the class. She does better than most.
- b. There is that type of student in the class. ??She does better than most.
- c. There is that type of student in the class. It is close to a type that I hated when I was in school.

3.2.2 Agreement facts

Next, let's consider the agreement relation between the two nominal elements and with the central functional element, "of" and "be," in English and Italian. In copular sentences, Italian and English have a divergent agreement pattern. In the unmarked case, both the subject and the predicate nominal must have the same number (witness "John is a doctor," "John and Mary are doctors," but **"John is/are doctors," **"John and Mary are/is doctor"). With some singular collective predicates (e.g. "committee," "couple," "cause of something"), the subject can also be plural (e.g. "John and Mary are a happy couple"). However, the opposite is in general not true, which leads to the following generalization:¹²

- (216) **Generalization:** *[Arg_{sng}, Pred_{plur}]: In a predication relation, if the argument is morphologically singular, its predicate cannot be plural.

What does the copula agree with, in the non-matching cases? In Italian, in one of the two orders, it can agree with either the pre-copular noun phrase or the post-copular one (217)a, while in the other it obligatorily agrees with the pre-nominal phrase (217)b. In English, the copula always agrees with the pre-nominal element (see the judged glosses in (217)).

- (217) a. [La causa della rivolta] {sono / è} [Gianni e Maria]
[the cause of.the riot]_{+Sng} {*are / is} [John and Mary]_{+Plur}
- b. [Gianni e Maria] {sono / *è} [la causa della rivolta]
[John and Mary]_{+Plur} {*are / *is} [the cause of.the riot]_{+Sng}

In Italian measure expressions, in one of the two orders, the number for the whole phrase can either go with the measure phrase *tre piedi* "three feet," or with the (invariably singular) content noun, (218); in the other, it always goes with the content noun. This is the same pattern we have seen with the copula.

¹² There are exceptions. In British English, nouns such as "committee" or "group" can be optionally combined with plural predicates: "This committee are to meet tomorrow" (see Schwarzschild 1996 for discussion); in British and American English, coordination under a singular D can trigger plural agreement "This man and woman are in love" (Heycock and Zamparelli 1999). Both cases can be shown to be semantically plural, while it is unclear that this is always true of morphologically singular predicates ("John and Mary are the cause of their parents' problems") doesn't mean the same as "...the causes of their parents' problems"). Moreover, both cases are impossible in a variety of languages (e.g. the Romance group) which accept a singular subject with a plural predicate.

- (218) a. Tre piedi di lunghezza {è / sono} abbastanza.
 Three feet of length {is / are} sufficient
 b. Una lunghezza di tre piedi {è / *sono} abbastanza.
 A length of three feet {is / are} sufficient

Turning to the *kind*-construction, the agreement possibilities are illustrated in the following table for Italian and English.

	Ita.	Eng.	First pos.	Second pos.	Eng. Example:	V agr.
a.	ok	ok	KIND-Sing	CONT-Sing	This kind of car	is
b.	ok	ok	KIND-Plur	CONT-Plur	Those kinds of cars	are
c.	ok	*	KIND-Sing	CONT-Plur	This kind of car	is/are
d.	??	*	KIND-Plur	CONT-Sing	Those kinds of car	is/are
e.	ok	ok	CONT-Sing	KIND-Sing	A car of this kind	is
f.	?	??	CONT-Plur	KIND-Plur	Cars of those kinds	are
g.	ok	*	KIND-Sing	CONT-Plur	Cars of this kind	are
h.	??	*	CONT-Sing	KIND-Plur	A car of those kinds	is/are

The generalization is that the kind-noun cannot be plural when the content-noun is singular (d) and (h)). Once again, Italian and English differ, in the (c) entry: in Italian, a singular kind-noun in initial position is fine with a plural content-noun, while in English it isn't. Finally, both languages display a rather puzzling prohibition against “cars of those kinds,” in (f), which vanishes as soon as the kind noun is quantified (219), suggesting that the problem is not agreement, but perhaps the presence of a plural deictic. Unfortunately, I have nothing special to say to explain this.¹³

- (219) a. John saw cars of all kinds at the exhibition.
 b. Gianni vide automobili di tutti i tipi alla mostra.

Keeping these facts in mind, in the next section I introduce the necessary technical tools for my analysis by reviewing in detail a recent theory of copular sentences, the most studied of all invertible structures.

3.3 Copular sentences

Stowell (1978) introduced the idea that a copular sentence such as (220)a, should be represented as a ‘small clause,’ namely the minimal predicate, untensed clause, in

¹³ Graham Katz and Birgit Alber (p.c.) independently pointed out to me that (d) improves when the content-noun is a term that makes a good definite singular generic (e.g. ‘horse’ in ‘the horse is common in Arabia,’ but not ?? ‘the quadruped is common in Arabia’). Thus, ‘those kinds of horse’ would be better than ‘those kinds of quadruped.’ If correct, this could be explained by attributing a more ‘mass’ status to these nouns, so as to make the construction pattern with ‘those kinds of water.’ This is supported by later work (Zamparelli 1998, pg. 292, where the agreement possibilities are checked against those attested in the British National Corpus).

(220)b. At SS, the subject is raised to the [Spec, IP], to receive Case and to satisfy the Extended Projection Principle, yielding (220)c.¹⁴

- (220) a. John is a professor
 b. [IP [r is [sc [John] [a professor]]]]
 c. [IP [John]_i [r is [sc _t_i [a professor]]]]]

The idea has also been supported in Couquaux (1982) for French and Burzio (1986) for Italian, on the basis of the distribution of clitics. In general, the French clitic *se* ‘him/her/it-self’ or ‘themselves,’ and the corresponding Italian clitic *se* must refer to the subject of the sentence.

- (221) a. [Pierre at Odile]_j s_i écrivent du longues [Pierre and Odile] self write of long letters.
 b. [Pierre and Odile] write long letters to each other

“[Pierre and Odile] write long letters to each other”

- Italian
 a. Essi si_i amano.
 they self love
 b. *Essi si_i resemblerent each other”
 “they love themselves”

With copular constructions, *si/se* becomes impossible.

- (222) a. *[Pierre at Odile]_j se_i sont semblables.
 [Pierre and Odile] self are similar
 b. *Essi si_i erano fedeli.
 they self were faithful
 “they were faithful to themselves”

The phenomenon is analyzed by both authors as evidence that the surface subject is derived from a post-copular DS position. This is confirmed in Italian by the fact that “be” in Italian selects *essere* as its auxiliary, a typical property of unaccusative constructions, where the surface subject is also generated in object position.

- (223) Gianni {è / *ha} stato felice.
 Gianni {is / has} been happy

¹⁴ Evidence reviewed in Heggie (1988) suggests that “be” is not generated in I directly, but moved there from a VP taking the small-clause as its complement. Since the presence of the VP is orthogonal to my discussion, I will follow Moro in disregarding it in the structural representations that follow.

Assuming this analysis as a starting point, what shall we do with symmetric cases such as (214), repeated below?

- (214) a. A picture of the wall was the cause of the riot.
 b. The cause of the riot was a picture of the wall.

One possibility is that (214)a and b come from different phrase structures, represented in (214'a) and b.

- (214') a. [Ip was [sc [^{arg} a picture of the wall] [^{pred} the cause of the riot]]]
 b. [Ip was [sc [^{arg} the cause of the riot] [^{pred} a picture of the wall]]]

Here, “a picture of the wall” and “the cause of the riot” ‘take turns’ at being, semantically, the argument and the predicate of the internal small clause. A minor problem with this representation is that it contrasts with the intuition that the two orders in (214) are truth-functionally equivalent. What does it mean to be an ‘argument’, or a ‘predicate’? How can these roles be inverted so easily?

Indeed, in her dissertation, Heggie (1988) analyzes the status of what she calls ‘pseudo-equistive’ sentences such as ‘John is the teacher’ and ‘the teacher is John’ (symmetric sentences like the ones above would fall under the same rubric), concluding that “the teacher” is a predicate in either position. The predicative status of “the teacher” is determined on the basis of its behavior with French predicative clitics and intensive reflexives, as well as by discourse facts and comparative control properties of the two noun phrases; since many of these arguments will be presented for Italian, I will not enter into details here. Heggie adopts a small-clause structure under “be,” and suggests that the order in which the predicate “the teacher” precedes the argument “John” is derived by movement of the predicate to [Spec, CP], triggering V-to-C raising of “be”:

- (224) a. The teacher is John
 b. [cp [sp the teacher]_i [_{C'} is_k [Ip [NP John]_j [_{I'} t_k [NP t_j [Sp t_i]]]]]]] Heggie (1988:78)

However, the idea that “the teacher” is in [Spec, CP] is open to two serious problems. First, it predicts that this type of copular sentences should be impossible in embedded contexts (since “that” and “be” would compete for the C position), which is clearly wrong:

- (225) a. I believe that the teacher is John.
 b. I wonder if the teacher is John.

Second, it predicts that ‘John’ should appear between “be” and a past participle, since only the auxiliary moves to C in other English V-to-C raising constructions. Compare:

- (226) a. Has the teacher been John, in the past year?
 b. *[The teacher]_i has_k John, _j t_k been t_j t_i
- Heggie notices the first problem, and suggests that the landing sites for “[the teacher]” and “is” might be the maximal projection between C^{max} and IP hosting “never” and the auxiliary in:

- (227) a. I thought that never would she agree to such a move. Heggie (1988:91)
 b. We believe that rarely have people undergone such trauma.

But this won’t help. First, this position is always emphatic, which is not the case with ‘the teacher is John.’ Second, predicate-initial copular sentences are also possible under the XP hosting “rarely” and “never”:

- (228) a. I swear that rarely has the origin of my darkest sins been John alone.
 b. I claim that never has the cause of my actions been John alone.

Given these problems, I suggest that we need a better syntactic rendition of Heggie’s intuitions.

3.3.1 Moro’s theory of copular sentences.

A good candidate is a theory proposed in Moro (1988), Moro (1991) and refined in Moro (1993) and (1997b).¹⁵

Working on the Italian sentences corresponding to (214), Moro begins by pointing out a number of asymmetries between the two orders that reveal a very different status for *the cause of the riot* and *a picture of the wall*. This result does not square with a symmetric pair of representations like (214), and suggests—in agreement with Heggie’s results—that *the cause of the riot* remains the ‘predicate’, and *a picture of the wall* remains its ‘argument’, regardless of their position. Let’s then identify the two DPs with their apparent semantic roles, and briefly review Moro’s asymmetries, which I have adapted to English.

The first asymmetry is that the argument DP can be WH-extracted from subject position (an empty C^{max} is required in English in this case), but not from object position (229). This contrasts with extraction from a regular object position (230).

- (229) a. [Which picture of the wall] do you think *t* was [the cause of the riot]?
 b. *[Which picture of the wall] do you think [the cause of the riot] was *t*.
 (230) [Which picture of the wall] do you think [the cause of the riot] made us forget *t*?

¹⁵The main ingredients of Moro’s analysis are in Moro (1988), in Italian; an article that also contains the first ‘split-INFL hypothesis’; the discussion in the present work is drawn from Moro’s dissertation, also in Italian (Moro 1993), translated and updated in Moro (1997b).

Second, WH-extraction of a DP from *inside* the object is possible from the predicate *the cause of the riot*, but not from the argument *a picture of the wall*. Again, this contrasts sharply with regular extraction from object position (e.g. ‘of which picture did John see a photo *t*?’).

- (231) a. [Which riot] do you think [a picture of the wall] was [the cause of *t*?]
 b. *[Which wall] do you think [the cause of the riot] was [a picture of *t*?]

Third, LF-raising of quantifiers is possible from the predicate in object position, in (232)a, but not from the argument in object position (232)b. As a result, (232)a is ambiguous (in particular, it can mean ‘many students finally chose every book by E.D.’ where, following May 1985, I take *many students* to have raised from the predicative DP to a position where it has scope over the argument DP *every book by E.D.*; (232)b is not ambiguous, a sign that LF-raising is impossible.

- (232) a. [Every book by E.D.] was [the final choice of [many students]]
 $\vee > many, many > \vee$
 b. [The final choice of [many students]] was [every book by E.D.]
 $* \vee > many, many > \vee$

Similarly, raising of a quantifier in object position past negation is possible from the predicate, but not from the argument. (233)b cannot mean ‘many walls are such that the cause of the riot was not a picture of them.’

- (233) a. [A picture of the wall] was not [the cause of [many riots]]
 $\neg, \neg > many$
 b. [The cause of the riot] was not [a picture of [many walls]]
 $\neg, \neg > many$

Fourth, we have two clitic asymmetries specific to Italian. The clitic *ne* ‘of-it/them,’ which can normally be extracted from within an object (as we see with the predicate in (234)a), cannot be extracted from within the argument (234)b. Also, the clitic *lo* ‘one,’ which can pronominalize the object, can only do so when the object is the predicate ((235)a) vs. b.).¹⁶

- (234) a. [Una foto del muro] ne fu [la causa *t*].
 [a picture of..the wall] of-it was [the cause *t*]
 b. *[La causa della rivolta] ne fu [la foto *t*].
 [the cause of the riot] of-it was [the photo *t*]

- (235) a. [Una foto del muro] lo fu *t*.

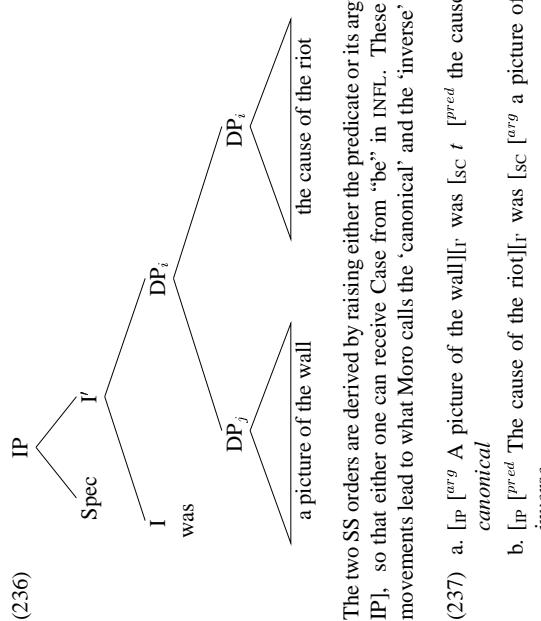
[a picture of..the wall] one was *t*

¹⁶Recall that ‘*lo*’ displays no agreement, and should not be confused with the masculine singular ‘him,’ as in *se vedo Gianni, lo, saluto* ‘If I see Gianni, I greet him,’ which can stand for full DPs.

- b. *[La causa della rivolta] lo fu [the cause of the riot] *t*.

To sum up, Moro provides abundant evidence that what I have called the ‘argument’ and the ‘predicate’ of invertible copular sentences have a different syntactic status. Basically, the argument in object position does not lend itself to WH-movement or to extraction of a subconstituent, neither at SS nor LF, while the predicate (or at least the kind of predicate that Moro considers) has the extraction possibilities of a regular object.

Moro’s explanation for these facts is straightforward: the two possibilities in (214) (= (237)) derive from a single DS, where *the cause of the riot* is predicated of *a picture of the wall* (236), inside a small clause.



- The two SS orders are derived by raising either the predicate or its argument to [Spec, IP], so that either one can receive Case from “be” in INFL. These two alternative movements lead to what Moro calls the ‘canonical’ and the ‘inverse’ surface orders.
- (237) a. [Ip [^{arg} A picture of the wall]]r was [sc *t* [^{pred} the cause of the riot]]
canonical
 b. [Ip [^{pred} The cause of the riot]]r was [sc [^{arg} a picture of the wall] *t*]
inverse

Moro proposes that when the predicate is raised, Case is assigned to it; in this circumstances, he also assumes that Case is transmitted to the argument that remains in the SC-internal position via the relation of ‘predication’ holding between the argument and the predicate. The trace left by the subject in the canonical order is properly governed by the copula, which Moro, following Rizzi’s (1990) account of subject extraction, takes to be ‘activated’ by the presence of the agreement φ -features of the subject in [Spec, IP].¹⁷

¹⁷In Rizzi (1990), *Who do you think saw Mary* is grammatical because *who* moves leaving a trace

While this account doesn't run into the problems noted for Heggie's V-to-C account of predicate-initial constructions, how does it explain the asymmetries noted above? The observation that the argument cannot be extracted from object position (see (229)) follows from the ECP. Since we are talking about an *inverse copular sentence*, [Spec, IP] is occupied by the raised predicate, which transmits its own φ features to the copula. Hence, [Spec, IP] is filled, and cannot be used as a landing site for the WH-extracted argument. As a consequence, the argument cannot transmit its features to the copula, and in turn the copula is not able to properly govern the trace of the subject t_i .

- (238) * [Which picture]_i do you think [_{IP} [the cause of the riot]_j [_r was [_{SC} t_i t_j]]]

The second fact to explain is that nothing can be extracted from the argumental DP in the inverse copular sentence. Moro assumes that this is due to the same constraint that blocks extraction from inside a subject position, namely, a subjacency violation. In the formulation of Chomsky (1986a), subjacency violations arise when a constituent is extracted through two clause boundaries that count as 'barriers.' Simplifying, a phrase boundary may count as barrier for two reasons: because it doesn't receive a theta-role form a governing head, ('inherent barrier') or because it immediately dominates a phrase that is an inherent barrier ('barrier by inheritance').

Looking at the DS proposed for (231)b, i.e. (239) below, we notice that the DP *a picture of t_i* is an inherent barrier, since no head assigns a theta-role to it; in turn, the small clause is a barrier by inheritance, since (regardless of the details of its internal structure) it immediately dominates the argument DP, an inherent barrier. Hence, extraction from inside the argument should proceed across two barriers (marked by double brackets in (239)), and is predicted to be ungrammatical.

- (239) * [Which wall]_i do you think [_{IP} [the cause of the riot]_j [_r was [_{SC} [_{DP} a picture of t_i]_j t_j]]]

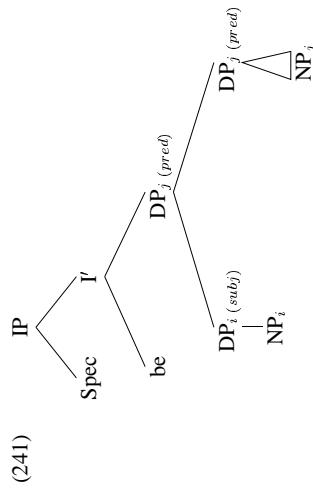
This leaves open the issue of why extraction *from* the predicate (but not extraction *of* the whole predicate, see (240)) in object position is acceptable.

- (240) * [Which cause of the riot] do you think [_{IP} [a picture of the wall]_j was t_j ?

Moro proposes that the small clause boundary, being an adjoined structure, doesn't count as a separate maximal projection with respect to subjacency, but rather, as an extension of the predicative DP. If this is the case, extraction of NP_j from the subject should pass two barriers (the non theta-marked subject DP_i, and the predicative DP_j), while extraction of NP_j from the predicate passes the DP_j border twice, resulting in a single barrier violation.¹⁸

¹⁸In the specifier of the empty COMP, thus making it possible for the non-overt C⁰ head to properly govern the trace left in the subject's original position. The structure is: "[IP who, [C⁰ [IP [t_i saw Mary]]]]".

¹⁹See Moro (1993) p. 25 for alternative possibilities.



This explanation can be extended to cover the acceptability of an apparent WH-extraction of the whole predicate.

- (242) What do you think the picture of the wall was t_j ?

Here, we need to assume that *what*, is not a full predicative DP, but that it corresponds to a subpart of the predicative DP. Thus, the extraction of *what* reduces to extraction of a subconstituent and it is acceptable for the same reason. Notice that this agrees with Heim's explanation for the status of *what* as a weak WH-element (section 2.3.3 on page 48). The correct SS representation for (242) should then be (243)a, not the impossible (243)b.

- (243) a. [What]_i do you think [_{IP} [the picture of the wall]_j [_r was [_{DP} D⁰ t_i t_j]]]
- b. * [_{IP} What]_i do you think [_{IP} [the picture of the wall]_j [_r was [_{DP} t_j t_i]]]

It remains for us to explain the different pattern of agreement in the Italian and English copula, presented in (217), and repeated below. In Italian, the copula in the inverted construction agrees with the post-verbal subject, while in English it agrees with the predicate.

- (244) [la causa della rivolta] {sono / è} [le foto].
[the cause of the riot]_{i,Sing} {*are / is} [the pictures]_{j,Plur}

Moro suggests that the solution is to be found in the well-known fact that Italian has the possibility of a non-overt DP pronominal, *pro*, which is absent in English. The idea is to explain the agreement by looking at similar sentences, where the subject is post-verbal, but no predicate is visible.

- (245) a. Sono io (ad essere il problema).
am I (to be the problem)
"It's me (that is the problem)"

3.3. COPULAR SENTENCES

- b. Sono le foto (ad essere sfocate).
- Are the pictures (to be blurry)
- “It’s the pictures that are blurry”

These are not garden-variety cases of post-verbal subjects. Moving the pronoun *io* “I” or the DP *le foto* “the pictures” before the copula results in ungrammaticality (cf. **le foto sono* “the pictures are”), clearly deriving from lack of a predicate for the copula “be.” If at all interpretable, *io sono* “I am” is an assertion of existence—as in “I think, therefore I am.” But the semantics of *solo io* has nothing to do with this.

Solo io is, if anything, a ‘remind of presence,’ as shown in the English glosses: “it’s me,” the canonical answer to the question *Chi va là* “who goes there?” Moro’s idea is that the ‘missing predicate nominal’ is nothing but a *pro*, which at DS holds the position of the predicate in the small clause (246). Just like the predicate, *pro* moves to [Spec, IP] at SS, and is thus able to transmit the agreement features from the verb to the subject, left *in situ* in the small clause.

- (246) [IP *pro_i* [r *solo* [sc [bp *io*] *t_i*]]]

Under this assumption, he analyzes the initial DP in (244) as a base-generated adjunct to the whole IP, too high to transmit its own features to the verb (247a). In English, on the other hand, the lack of *pro* forces the structure (247b) for “the cause of the riot is the pictures on the wall.” This is a much simpler structure, where the DP “the cause of the riot” has actually raised to [Spec, IP], triggering its own agreement.

- (247) a. [IP [bp la causa della rivolta]_{+SNG} [IP *pro_i* [r *solo* [sc [bp *le foto*]_{+P_{INT}} *t_i*]]]]]
- b. [IP [bp the cause of the riot]_i [r is [sc [bp the pictures]_{+P_{INT}} *t_i*]]]]]

3.3.2 On empty pro-predicates

A comment is in order. A fact that contradicts Moro’s analysis of *pro solo io* is that this sentence is not at all synonymous with *lo sono io* lit. “one-Cl am I,” which means “I am one/it.” In a context that sets up a predicate nominal, e.g. *un dottore* “a doctor,” only (248)c is an appropriate answer.

- (248) a. A: Lui è un dottore?
he is a doctor?
“Is he a doctor?”
- b. *B: No, sono io.
No, am I.
“No, I am one” (= I am a doctor)
- c. B: No, lo sono io.
No, one am I.
“No, I am one” (= I am a doctor)

On the other hand, in a context of an identification, *lo sono io* is out.

- (249) a. A: Chi va là?
who goes there?
b. B: Sono io!
c. *B: Lo sono io!

Since “*Io*” with no agreement is the canonical form to pronominalize a predicate nominal (in my framework, “*Io*” = PDP) it would seem that Moro’s *pro*-predicate and “*Io*” should be parallel to the overt and non-overt forms of subject pronouns, e.g. *lui* “he” and *pro*, both pro-SDP. (248) and (249) show that they aren’t. A moment of reflection shows that it would be odd if they were, since, according to Moro, the *pro* in *solo io* is in subject position, while a PDP *cannot* appear in subject position, as clearly shown by the fact that copular predication with indefinites, bare singulars or adjectives, all supporting *Io*-pronominalization, are *not* invertible, in Italian as in English.

¹⁹

- (250) Maria pensa che Gianni sia {un semplice commesso / professore / alto}
Maria thinks that Gianni is {a mere clerk / professor / tall}.

- (251) a. *Maria pensa che un semplice commesso sia Gianni.
Maria thinks that a mere clerk is Gianni
b. *Maria pensa che {professore / alto} sia Gianni.
Maria thinks that {professor / tall} is Gianni

From this perspective, Moro’s invertible predicate nominals are the exception, rather than the rule. I will examine them in detail in chapter 5. Here, it is sufficient to point out that “*solo io*” should be related to copular sentences like *Io sono Gianni Schicchi* “I am Gianni Schicchi,” not to “I am a doctor”; it is not expressing a *property of the speaker*, but his or her *identity*. *Solo io* can be used as a reply to a request of identification because it means, elliptically: “(that person you are trying to identify) is me,” wishfully relying on phonetic clues for identification.

In a system that distinguishes between SDP and PDP layers, this means that the correct D-structure of *solo io* is (252a), not b.²⁰

¹⁹ All the judgments refer to distressed readings. *Alto e’ Gianni* “tall is John” does have a good reading (accompanied by a particular intonation on the adjective), which can be paraphrased as “tall is what John is” (a definition of what it is to be ‘tall’, or how much height one must have to count as ‘tall’). Unsurprisingly, this reading is impossible to get with negation: **Maria pensa che alto non sia Gianni*. “Maria thinks that tall isn’t Gianni.” Moro’s definite predicates, on the other hand, are perfectly compatible with negation, see *Maria pensa che il colpevole non sia Gianni* “Maria thinks that the culprit isn’t Gianni.”

²⁰ *Lo sono io*, on the other hand, is a canonical post-V subject, with structure: [IP [pro_i [I *lo* sono] *io*]]]. Moro (1993) points out that *chi sono (io)?*

- (252) a. [IP sono [SDP [SDP io] [SDP pro]]]
 b. [IP sono [PDP [SDP io] [PDP pro]]]

Deferring a discussion on how (252)a is interpreted, I note here that this structure is a welcome result, since it frees us from having to assume the existence of a second type of non-overt pronominal, i.e. a pro-PDP. In what follows, I will stick to the idea that *pro* is only pro-SDP.²¹

3.4 The microstructure of the *kind*-construction

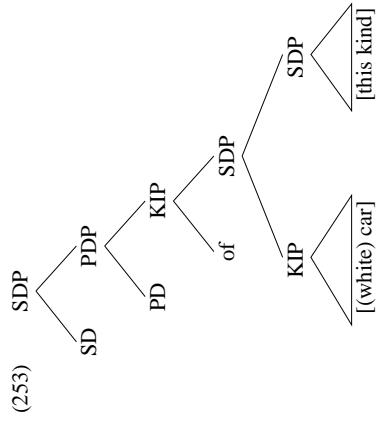
After this introduction to Moro's (1993) theory of copular sentences, let's return to other cases of pivotal-raising, and to the *kind*-construction in particular.

My aim is to argue that “a car of this kind” and “this kind of car” are, respectively, the canonical and the inverse surface order of a raising construction which is identical to the structure proposed by Moro for copular sentences.²² I propose that “of” in these constructions is one of the possible heads of KIP which takes as a complement a small-clause containing an argument and a modifier (the attributive-predicate). Since in the *kind*-construction the content nominal may contain adjectives, but not determiners, I take it to be of category KIP as well:

“who am (I)” must be questioning the predicate nominal, and not the (optionally present) argument *io*—since we know that WH-questions of first person singular subjects are strongly out (**Chi arrivo?* “who arrive-1PSing”, “who do I arrive?”). This correctly predicts the ungrammaticality of **chi lo sono (io)* lit. “who one am (I)”, where both “chi” and “io” try to function as predicates. It remains the find out whether *chi in chi sono*’ is a WH-SDP, WH-PDP or WH-KIP. There is some evidence that the answer is SDP. *Chi* can be replaced by *qualsiasi studente* “which student” (e.g. in a context in which someone is trying to identify himself in a group picture from school), and we have seen that *qualsiasi*N must be a WH-SDP, since it triggers DE both in Italian ((165) on page 70) and in English ((98) on page 48).

²¹A puzzle that remains unsolved is why *pro* in [Spec, IP] and the adjunct DP [*la causa della rivolta*] can after all *not* agree with each other, since the adjoined structure proposed is akin to Clitic Left Dislocation (in the sense of Cinque (1990), see also section 5.2.9 on page 203), where the dislocated element must agree with the clitic it binds.

²²The idea of using Moro's system to treat some constructions in the ‘pivotal’ family is also present in Kayne (1994) and Den Dikken (1995). The ideas in this dissertation were developed completely independently; in the current version I have tried to incorporate a discussion of a few of Kayne's points.



To account for the basic semantic difference between the *kind*-construction and the copular sentence, we need to assume that the kind-nominal, an SDP, contains a pronominal element coindexed with the content-nominal, much as I have proposed for attributive-predicative adjectives.

One of the theoretical consequences of the existence of such raising structures inside DP is that the parallelism between sentences and noun phrases is extended, continuing a line of research initiated by Szabolcsi (1983), Szabolcsi (1987) and Abney (1987). On the empirical side, the raising analysis of semi-symmetric constructions offers a unified explanation for the peculiarities noted in section 3.2, and for the behavior of kind-nominals under ES.

I need to give evidence for two claims: that both the XPs containing “of” and the content nominal are KIPs, and that in the small-clause the kind-nominal corresponds to the predicate, and the content noun, to its argument. Let's begin with the latter.

3.4.1 Predicate and Argument in the *kind*-construction

Recall that in copular sentences, a quantifier embedded in the post-copular argument DP cannot raise, while a quantifier embedded in the predicate noun phrase can raise and take scope over the subject. This was shown in (232)a. vs. b, repeated below. “Every” in (232)b cannot take scope over “many.”

- (232) a. [Every book by E.D.] was [the final choice of [many students]]
 *V > many, many > V
 b. [The final choice of [many students]] was [every book by E.D.]
 *V > many, many > V

Now consider (254).

- (254) There were two cars of every kind at the exhibition.
 V > 2

The only possible reading is one where “every” has wide scope. This is only possible if, following Moro’s analysis for the possibility of extraction out of predicates, the SS structure is (255) (mapping Moro’s DP onto SDP). In this hypothesis, the double (S)DP boundary doesn’t count as a double barrier with respect to further (LF) extractions of “every” by the rule of Quantifier Construal.

- (255) [kp[ktp car]_i [kr of [spp t_i [spp every kind]]]]

Second, consider the agreement pattern. Recall that English and Italian both reject cases where the kind-noun is plural, and the content-noun is singular.

- (256) a. ?? [questi tipi] di [fotografia]
 * [These kinds] of [picture]
- b. * [una fotografia] di [questi tipi]
 * [a picture] of [these kinds]

This parallels the already noted fact that, while there are cases of singular predicate nominals with plural subjects, the opposite is seldom found. If the kind-noun is indeed playing the syntactic role of the predicate in copular sentences, the data in (256) would be automatically derived.

In fact, if we accept Moro’s explanation for the post-copular agreement in Italian, discussed above, we could extend it to the kind construction to derive the English/-Italian asymmetry in (257).

- (257) Questo tipo di persone
 * This type of people

Why is this agreement pattern impossible in English, but available in Italian? The difference is that Italian has the possibility of inserting a plural *pro* in the [Spec, KIP], bound by the singular “questo tipo,” in a higher specifier position, [Spec, SDP] (258a). Since English doesn’t have the possibility of a *pro* predicate, the corresponding phrase in English (258)b is not well-formed, due to whatever blocks plural predicates with singular arguments.²³

- (258) a. [spp [Questo tipo] ...[kp pro_i [kr di [spp [persono] t_i]]]]]
 b. *[spp [This kind] ...[kp t_i [kr of [spp [people] t_i]]]]]

Next, consider agreement between the verb and a pivotal “of” DP in subject position, focusing on cases in which the argument and the appositive-predicate do not have the same number. The verb can take both plural and singular forms, but only in the ‘inverse’ order (i.e. modifier first, the (a) case):

²³ One could wonder why the same solution couldn’t be adopted to save, at least in Italian, ??una persona di questi tipi “a person of these types,” with structure [sop una [pop [personal] kp pro_i [kr di t_i [questi tipi]]]. The reason is that the content nominal is not a full SDP but a subpart (KIP, proposed) with no corresponding empty pronominal element. As discussed in section 3.3.2 on page 96, *pro* is only an SDP, and can pronominalize only SDPs.

- (259) a. Questo tipo di persone {è / sono} ...
 This kind of people {is / are} ...
Italian, kind-initial
- b. Le persone di questo tipo {*è / sono} ...
 the people of this kind {is / are} ...
Italian, kind-final
- (260) a. Tre metri di altezza {è / sono} abbastanza.
 3 meters of height {is / are} enough.
Italian, MP-initial
- b. Una altezza di tre metri {è / *sono} abbastanza.
 a height of 3 meters {is / are} enough.
Italian, MP-final

Pseudopart.

- (261) A bunch of those flowers {was / were} thrown out.

Assume that agreement is a relation between functional heads in the ‘extended projections’ of noun and verb—in particular SD and INFL. In the normal case, SD is singular if the noun it embeds has singular morphology, and vice-versa. This gives the singular agreement of V in (259)a, (260)a and (261). However, a non-overt SD⁰ can also be sensitive to the presence of an SDP (kind-nominal or MP) appearing in its specifier, and adopt the number specifications of this element, even when they are in contrast with the content noun.

In the canonical order, the content nominal, a KIP, has raised. KIP cannot contain determiners, thus the determiner that introduces the whole noun phrase in (259)b and (260)b is not part of the raised XP, but is base generated in one of the two positions normally available for D, either SD^{max} or PD^{max}. I take it that no modifier with contrasting agreement can move to the specifier of a filled determiner, much as in doubly-filled C^{max} cases. Hence, SDP cannot follow the agreement features of the modifier.

Finally, the possibility of a *pro* in the *kind*-construction makes the prediction that in Italian there should be a case where a content noun is not preceded by any kind-nominal. In parallel with the copular construction “[*pro* sono io / *t*]” we would expect to find a construction “[*pro* di persone.]” A very plausible candidate is the constituent that appears in (left or right) clitic-dislocated position with the clitic *ne* (see Cardinaletti and Giusti 1990, Cinque 1990, and the discussion in chapter 5).²⁴

For ease of illustration, consider first a case where the dislocated element is a full SDP, binding the SDP-pronform *lo+Ag* (that is *lo/la* “him/her” and *il/le* “them_{MPV/FPN}”):

- (262) a. I ragazzi, Gianni li_i ha visto *t*.
 the boys, Gianni them_{M^{Sng}-CL} has seen *t*
- b. Gianni li_i ha visto, i ragazzi_i *t*.

Both cases can roughly be translated as: speaking of the boys, Gianni has seen them. No Case marking preposition accompanies the external DP. In my variety of Italian, a bare nominal is also marginally possible with clitic “li;” but only in initial position.

²⁴ I am indebted to Vieri Sanek for discussions on this section.

- (263) (?Ragazzi), li ho visiti t_i , (*ragazzi).
 (boys), them (I)-have seen t_i , (boys)

Turning to the clitic *ne*, which is moved from a DP-internal position preceded by a numeral, we see that the only dislocated constituent available in both initial and final position is a bare noun preceded by *di* “of.” *Di* is optional in initial position, but obligatory in final position.

- (264) a. (Di) ragazzi, Gianni ne $_i$ ha visiti [tre t_i].
 (of) boys, Gianni of _them has seen [3 t_i]
 b. Gianni ne $_i$ ha visiti [tre t_i], *(di) ragazzi $_i$.
 Gianni of _them has seen [3 t_i], (of) boys.

Once again, if “di” was a Case-marker, its optionality would be surprising. If the topic needed Case, “di” should be necessary also when the topic is a full SDP. In my approach, the presence of *di* can be explained by analyzing the CLL-dislocated phrase as precisely the case we were looking for, i.e. “[kip *pro*_i di ragazzi t_i]”.

Now, the possibility of the left-dislocated bare nominal in (264)a can be explained by relating it to the one that appears in (263), in a peripheral position distinct from the target of CLLD and which, for some reason, is only available sentence-initially. Once we have adopted the idea of a DP-equivalent of [*pro sono io*], we can apply the same technique to the analysis of pivotal construction [F] “of-more”:

- (265) Gianni vuole di più.
 Gianni wants of more
 “Ginni wants more.”

Compare Moro’s analysis of *solo io*, in (266), with (267). In the latter, *pro* replaces measure modifiers like *molto* “much,” *poco* “a little,” *parecchio* “a lot,” but also measure phrases such as *due metri* “two meters”—all of which can be overtly present, as illustrated in (268).

- (266) [np *pro*_i fr solo [sc [bp io] t_i]]
 (267) [kip *pro*_i [kr di [sc [or più] t_i]]]
 (268) [kip {molto / poco / parecchio / due metri} ; [kr di [sc [or più] t_i]]]

Without any stipulation, we are able to capture two peculiar forms of noun phrases using an analysis originally devised for copular sentences.

3.4.2 Identification with KIP

The examples above strongly support that idea that both the content nominal and the XP headed by “of” are the same category, which I have dubbed KIP (Kind Phrase).

²⁵ If “of” where not in KIP^{max} but in PD^{max} or SD^{max} we would also have to explain why only “of” (and not any other determiner, or the possessive marker ‘s’) can appear in the *kind*-construction.

Recall that KIP is the portion of the DP that includes the noun and its adjectives (with the exception of adjectives in the attributive-predicative position), but not determiners. The explanation for the double pattern of verbal agreement (singular or plural) relies on the content nominal being KIP. Also, if predicate nominals are of category PDP, kind-final noun phrases functioning as predicate nominals must have the indefinite determiner in PD^{max} . In Italian, the predicative *kind*-constructions can be pronominalized with the invariable pronoun *lo*, just as any other predicate.

- (269) a. O Gianni è [un dottore] $_i$, o non lo $_i$, è.

Either Gianni is a doctor, or (he) not it-CL is

- b. O queste sono [due auto dello stesso tipo] $_i$, o non lo $_i$, è.

Either these are two cars of the same kind, or (they) not it-CL are

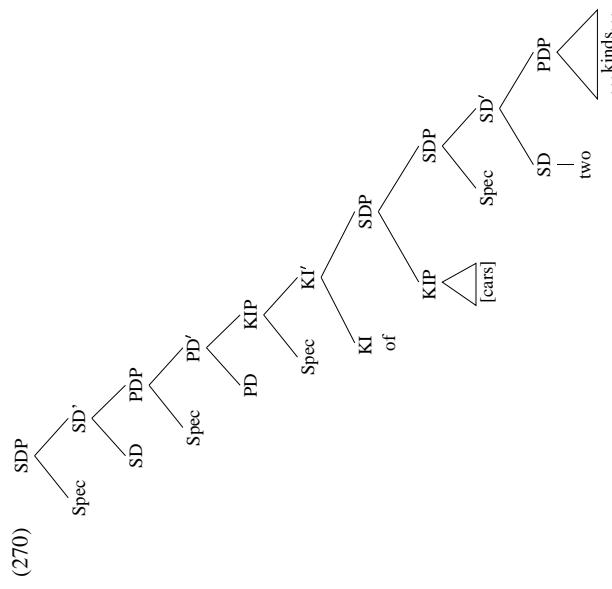
- c. O Gianni è stato [ogni tipo di dottore] $_i$, o non lo $_i$, è stato.

Either Gianni has been [every kind of doctor], or (he) not it-CL is been

Since the determiner cannot be part of the content nominal, this must have raised to a specifier *below* PD^{max} . The obvious choice is [Spec, KIP], with “of” = KI^{25} .

KIP can be pronominalized with *ne* in Italian (*en* in French, *n(e)* in Catalan). The analysis for the optionality of *di* in (264) given above hinges on the fact that *ne* can be coindexed either with a bare nominal *ragazzi* or with a minimal pivotal-“of” raising structure *di ragazzi* precisely because they are one and the same category, i.e. [kip *pro*, [kr di [sc [kip ragazzi] t_i]]].

To sum up, evidence from *ne*-pronominalization and agreement facts suggest a D-structure (270), with a recursive KIP.



3.5 Extraction possibilities

Next, let's consider more closely the extraction possibilities of the *kind*-construction. The aim is to show that they are parallel the extraction pattern out of copular sentences, or that they differ in predictable ways.

In all those cases in which one of the raised constituents is hosted in [Spec, "of"], no movement operation targeting XPs should be able to dislocate "of" and what follows. This is correct for both orders and a whole range of nominal constructions that can be analyzed as 'pivotal'-*"of"*: *kind*-constructions, measure-phrase constructions, N-of-an-N constructions, and 'much-of' constructions, in WH-extraction with pied-piping:

- (271) a. *Of what did you see a kind?
 (from "... a kind of car")
 b. *Of which kind did you see a car?
 (from "... a car of this kind")
- (272) *Of what does it measure three feet?
 (from "... three feet of length")
- (273) *Of what did you see a monster?
 (from "... a monster of a machine")
- (274) *Of what did you see too much?
 (from "... too much of a scholar")
- (275) *Of what did he bought a dozen?
 (from "... a dozen of roses")

and in right dislocation:

- (276) a. ?Many kinds have been seen of cars.
 b. *A car has been seen of this kind.
- (277) *Three feet have been measured of length.
- (278) *A monster has been seen of a machine.
- (279) *Too much has been seen of a scholar.
- (280) *A dozen has been bought of roses.

In Italian, preposition stranding is impossible and extraction of the PP out of an (indefinite) DP is in general acceptable, regardless of whether the DP is used as a regular object (as in (281)a, b) or predicatively (281)c,d.

- (281) a. Di chi pensi che Gianni conosca una sorella *t*?
 of whom you.think that Gianni knows a sister *t*?
- b. Di cosa pensi che Gianni abbia visto una foto *t*?
 of what you.think that Gianni has seen a picture *t*?
- c. Di chi pensi che Gianni sia un alleato *t*?
 Of whom you.think that Gianni is an ally *t*?
- d. Di cosa pensi che Gianni sia il più grande esperto *t*?
 Of what you.think that Gianni is the most great expert *t*?

Now, we have an interesting contrast. When the kind-final or kind-initial construction is used predicatively, neither content-noun nor kind noun 'PPs' are extractable.

- (282) a. *Di che tipo pensi che questa sembri una farfalla *t*?
 Of which kind you.think that this seems a butterfly *t*?
- b. *Di che tipo pensi che questa sia un auto *t*?
 Of what kind you.think that this is a car *t*?
- (283) a. *Di cosa pensi che Gianni sia un tipo comune *t*?
 Of what you.think that Gianni is a kind common *t*?
- b. *Di cosa pensi che Gianni sia stato ogni tipo *t* nella sua carriera?
 Of what you.think that Gianni has been every kind *t* in his career?

However, extraction improves considerably for the kind-initial construction alone, when it moves from argumental position, i.e. object of extensional verbs such as "see," "collect" or "check."

- (284) a. Di cosa pensi di aver visto un tipo raro *t*?
 (from "... a kind rare *t*")
 of what you.think to have seen a kind rare *t*?
 (from: *Penso di aver visto un tipo raro di farfalla*
 "I believe to have seen a rare kind of butterfly")

- b. Di cosa Gianni ha raccolto tre tipi t ?
of what John has collected 3 kinds t ?
- c. ?Di cosa pensi di aver controllato ogni tipo t ?
Of what you.think to have checked every kind t ?

Same difference between argumental and predicative extraction with *ne*-pronominalization. In Italian, it is possible to pick up an 'of' PP complement of a noun, using *ne* (285)-(287).

- (285) a. Gianni conosce ogni mossa del suo avversario.
Gianni knows every move of his opponent
 - b. Gianni ne conosce ogni mossa t .
Gianni of_him knows every move t
- (286) a. Gianni {è / conosce} un patito del calcio.
Gianni {is / knows} a fan of soccer
 - b. Gianni ne {è / conosce} un patito t .
Gianni of_it {is / knows} a fan t

- (287) a. Maria e Gianni {sono / conoscono} i padroni di quel castello.
Maria and Gianni {are / know} the owners of that castle
- b. Maria e Gianni ne {sono / conoscono} i padroni t .
Maria and Gianni of_it {are / know} the owners t

This is impossible when the apparent PP follows a kind-noun, (288)-(290) or a measure phrase (291):

- (288) a. Gianni è stato ogni tipo di dottore.
Gianni is been every kind of doctor
“John has been every kind of doctor”
- b. *Gianni ne_i è stato ogni tipo t_i .
Gianni of_it is been every kind t

- (289) a. Fido è un bel tipo di cane.
Fido is a nice kind of dog
- b. *Fido ne_i è un bel tipo t_i .
Fido of_it is a nice kind t

- (290) a. Questi sono tre tipi di vino.
These are three kinds of wine
- b. *Questi ne sono tre tipi t .
These are of them three kinds t

- (291) ??Di lunghezza, ne misura tre metri t_i .
of length, (it) of_it measures 3 meters t

Again, *ne* extraction improves considerably if the kind-initial nominal is in argumental position (292)-(294), particularly if the kind-noun is preceded by an indefinite.

- (292) a. Gianni conosce tre tipi di torta.
Gianni knows three kinds of pie
- b. Gianni ne_i conosce tre tipi t_i .
Gianni of_it knows three kinds t
- (293) a. Gianni ha sempre incontrato un solo tipo di amici.
Gianni has always met a single kind of friends
- b. Gianni ne_i ha sempre incontrato un solo tipo t_i .
Gianni of_them has always met a single kind t
- (294) a. Gianni fabbrica ogni tipo di sedia.
Gianni makes every kind of chair
- b. Gianni ne fabbrica ogni tipo t .
Gianni of_them makes every kind t

Extraction from the kind-final nominal (i.e. extraction of *di ogni tipo* “of every kind” from under a content-noun) remains very bad in all cases:

- (295) a. Queste {fanno / sono} torte di tre tipi.
These {make / are} pies of three kinds
- b. *Queste ne {fanno / sono} torte t .
These of them {make / are} pies t
- (296) a. Fido {attaccò / è} un cane di questo tipo.
Fido {attacked / is} a dog of this kind
- b. *Fido ne {attaccò / è} un cane t .
Fido of_it {attacked / is} a dog t

Pending an explanation for the difference between predicative and non-predicative environments, which will have to wait until section 5.2.6 on page 196, the fact that at least in some environments it is absolutely impossible to extract the strings “of car” and “of every kind” confirms that these are not regular PPs.

Under the analysis I am proposing, we would also expect that when one of the elements has been raised to the equivalent of a subject position for copular sentences, it should be extractable, as long as the subject trace is properly governed. Recall that in Italian the subject of copular constructions can be extracted quite freely from [Spec, IP] (297). In a parallel fashion, Italian allows extraction of the kind-noun from [Spec, PP], stranding the predicate (298)a. WH-extraction of the content noun using *che/cosa* “what” is also perfectly acceptable (298)b.

- (297) Chi pensi che t sia pronto?
who you.think that t is ready?

- (298) a. Che tipo hai visto *t* di cane?
what kind have.you seen *t* of dog?
- b. Che/Cosa hai visto *t* di quel tipo?
what have.you seen *t* of that kind?

In parallel, the content-noun can be pronominalized with *ne* in the raised position; the raised kind-noun cannot be pronominalized with *ne* (as predicted by its SDP status).

- (299) Gianni ne conosce *t* di ogni tipo.
Gianni of..them-CCL knows *t* of every kind
“Gianni knows all kinds of them”

(300) *Parlando di tipi diversi, Gianni ne conosce *t* di auto.
Speaking of kinds different, Gianni of..them knows *t* of cars
“Speaking of different kinds, Gianni knows (some) of cars”

To sum up the evidence presented in this section, we have seen that the apparent PP “of this kind” and “of car” are not extractable, while the element preceding “of” is extractable in some cases. All these facts have parallels in the copular domain. There is one extraction case where the parallel breaks down, but the theory outlined so far can account for this, given independently motivated differences between the copula “be” and the preposition “of.”

In English, the content-noun can be extracted in the kind-initial construction (301)a, while the corresponding copular element, i.e. the argument of the predication, cannot be extracted (301)b. Kind nouns in the kind-final position cannot be extracted either (301)c.

- (301) a. [What car] did you see a funny kind of *t*?
b. *[What picture of the wall] did you say [the cause of the riot] was *t*?
c. *[What kind] did you see a car of *t*?

Recall that in Moro’s theory (301)b is ruled out by the ECP. The copula is in spec-head agreement with the raised predicate, from which it receives φ -features, therefore it cannot properly govern the trace of an extracted argument. The assumption behind this is that the copula doesn’t assign Case to the small-clause, so something extra is necessary to make “be” work as a proper governor. Just as for COMP in Rizzi (1990), this ‘extra’ is spec-head feature sharing with the element whose trace is to be governed. With a small-clause selecting verb like “consider,” which exceptionally Case-marks the argument of the small-clause, extraction is in fact possible:

- (302) a. I consider [sc him wise]
b. Who do you consider [sc *t* wise?]

But “of” is a preposition, and as such, capable of Case marking. Constructions like (303) show that prepositions can Case-mark the argument from outside a SC.

- (303) [With [sc him drunk]], stealing the money will be a breeze

Thus, the trace of the content-noun in (301)a is governed by P. The difference between copular structures and *kind*-constructions falls out of the different lexical properties of “be” and “of.”

3.5.1 Summary

Let’s take stock. The analysis I have proposed for “every kind of car” allows us to maintain the generalization that noun phrases headed by strong determiners are never predicative. This is as expected if strong quantifiers are invariably generated in SD^{max} , and predicate nominals are PDPs. To achieve this result, I have followed Wilkinson’s intuitions that “every kind” in kind-initial position is not the head of the predicate nominal, but a modifier. The raising analysis proposed here avoids the problems that I had raised with Wilkinson’s approach. Let’s review them.

First, the fact that these modifiers can appear both pre- and post-nominally is no longer an isolated fact, but it is linked to the double raising possibilities of copular sentences and other constructions.

Second, in this approach “of” plays no semantic role in either order, much as “be” in copular sentences (modulo tense information).

Third, the content noun is determinerless (modulo the discussion in footnote 3 on “what kind of [a car]”) because the string “[of N]” is not a PP (and therefore, it doesn’t have the extraction and pronominalization properties of a PP). The content noun is bare because it is a KIP; the reasons for this will be looked at in more details in the next chapter.

Last, the fact that a strong determiner in the kind-nominal may take wide scope when regular adjoined modifiers block QR can be explained by the fact that “of every kind” is not an adjunct. I will deal with some technical aspects of QR out of attributive-predicates in the next chapter.

In first approximation, the full S-structure for the argumental “a book of every kind,” and “every kind of book” is:

- (304) a. a book of every kind

next chapter.

3.5.2 Reasons for raising

The last general question to address in this chapter is what triggers movement of either the KIP “car” or the DP “every kind.”

One possibility is that the movement is Case-driven. The raised element would receive Case by being in a spec-head relation with “of.” This would have the advantage of explaining why some adjectival modifier cannot raise; that is, why we don’t have:

- (305) a. *Bello di qualcosa
Nice of something
b. *Vermeill d’ un
red of one

On the other hand, we do have:

- (306) a. Quello rosso, di vestito
That red, of dress
b. Too tall (of) a man

The former case could be assigned the structure:

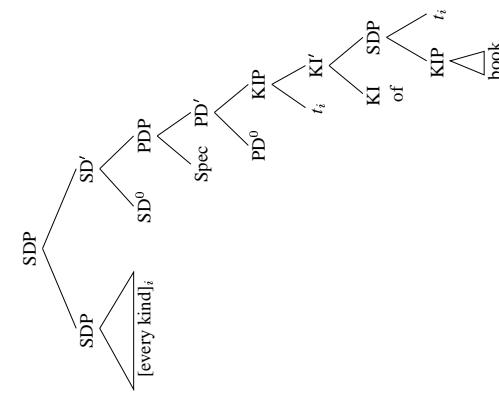
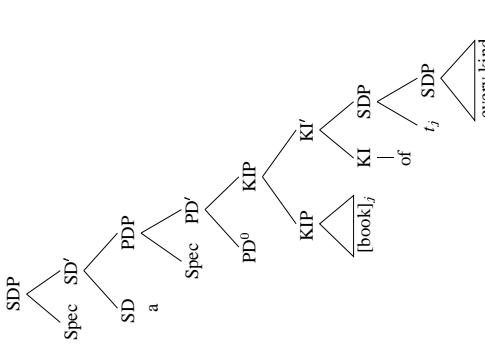
- (307) [SDP [SDP Quello rosso] ... [KIP pro_i di [SDP [KIP vestito] t_i]]]

That is, not as movement of the adjective alone to a post-D specifier position (the analysis proposed in Kayne 1994), but as movement of a *pro* bound by a the SDP *quello rosso* “the red one” in a CLLD-type construction within DP. Since Italian adjectives in N-less noun phrases must generally be preceded by *quello* “that/the” or *uno* “one,” this would explain the limited range of determiners that can accompany the adjective. The presence of *pro* would give a relative degree of freedom to the lower part of the construction, which requires a pause, and can also appear in fronted position: *di vestito, prendo quello rosso* “of dress, I take the red one” (modulo LF-reconstruction, or copy-deletion).

Movement within the construction “too tall a man” probably happens for entirely different reasons. The generalization here is the following:

- (308) Generalization: An AdjP raises in a pivotal-“or” configuration if and only if it is such that it can license a purpose/extent clause.

By purpose/extent clause I mean clauses such as “...to fit in a submarine” or “... that he couldn’t fit in my bed” in (309). *Mutatis mutandis*, the generalization extends to elements that are not adjectival, e.g. “enough,” “too much,” etc. Consider:



Here, “every kind” has raised to [Spec, SDP], via [Spec, KIP]; alternatively, “every kind” could have remained in [Spec, KIP], though this raises some question concerning the licensing of the empty heads SD⁰ and PD⁰, which will be addressed in the

- (309) a. Too tall a man (to fit in my bed)
- b. So tall a man (that he had to bow on the basket)
- c. Such a deft man (that he could light matches on his unshaved chin)
- d. Enough of a man (to know how to tie his shoes)
- e. More of a man (than his mother)
- f. Too much of a man (to mind mosquitoes)
- g. *tall a man (* to/that ...)
- h. *very tall a man (* to/that ...)
- i. *six feet tall a man (* to/that ...)

I hypothesize that licensing clauses of this type requires LF raising of the operators “too,” “such,” “so,” “enough” etc. to a position where they C-command the purpose/extent clause, perhaps adjoined to the attachment site of the clause. This would be in line with Azoalay-Vincente (1985) idea (cited in Kayne 1994) that the *de*-construction in French is possible only in cases where the raised element is replaced by a variable at LF. Thus, in *quelqu'un de célèbre* lit. ‘someone of famous,’ *quelqu'un* plausibly undergoes LF-raising, leaving a trace; in other cases, the raised element is topicalized, as construction that plausibly produces an operator-variable configuration (Chomsky 1977). Topicalization can also be invoked in the N-of-an-N construction listed under [B] in section 3.2, i.e. “a jewel of a girl,” “this monster of a machine,” etc., since “jewel” and “monster” are often focused (as Napoli 1989 observes, this construction is typically used for insulting). The operator approach could also be adopted in a case that apparently violates the generalization above, i.e.:

- (310) He was*(n't) much of a man (* that / to ...).

Here, “much” doesn’t license a purpose/extent clause, but it behaves as a Negative Polarity Item (NPI), licensed by negation. If we follow the idea that NPIs behave like variables bound by a negative operator (cf. Ladusaw 1992) or even that they involve movement of an abstract operator ([IP much]_i of [[a man] _{t_i}]), we could collapse (310) with other cases of operator-variable configuration—though of course this needs to be spelled out in more detail.

The idea that raising is linked to the presence of an operator that has to raise at LF doesn’t extend easily to raising of content nouns. The hypothesis that raising is Case-driven is discredited by the fact that, as we have seen, the argument can receive Case from “of” *in situ* (to account for extractions such as “What did you see an odd kind of?”). Of course, even in the copular construction, sentences such as “under the bed is a nice place to hide,” or “slowly is how everybody should drive” cast doubt on the idea that the element raised to [Spec, IP] (PP or AdvP) moves for Case reasons. In these cases, the necessity of raising is stipulated by appealing to the Extended Projection Principle.

- An interesting alternative is that pivotal-“of” raising insures agreement between the content noun and the functional projections SDPP/DP/KIP. This is in line with Bernstein’s idea that Catalan *de* might be an FP manifestation of a word-marker—though there are several differences between her approach and mine.
- In general, agreement-based raising doesn’t cover other pivotal-“of” constructions, e.g. “molto di più” or “A jewel of a girl.” Therefore, at this stage I suggest that pivotal-“of” raising might be triggered by (at least) two distinct factors: the need to provide a certain operator-variable configuration, and the need to transmit agreement features. More research is necessary to see whether there is a connection between these two functions.

3.5.2.1 Williams’ puzzle revisited

Let’s return to Williams’ puzzle, considering the two sentences in (311) and their translation into Italian (312).

- (311) a. This house has been every color.
- b. John has been every kind of doctor.
- (312) a. Questa casa è stata *(di) ogni colore.
- b. Gianni è stato (*di) ogni tipo di dottore.
- Gianni has been (of) every kind of doctor

In Italian, in the first case, the preposition *di* “of” is obligatory. In the second, it is impossible. Removing *di* in (312) gives a sentence meaning: the color red, the color green, the color blue, etc. have all been this house, at some time or another. This is clearly related to the fact that, as noted in Partee (1987), English has a bare attributive construction with nouns such as “color,” “size,” “length,” “weight,” “age,” “price,” which in other languages (e.g. Dutch or Italian) are not possible. In Italian, this modification must be expressed with a *di*.

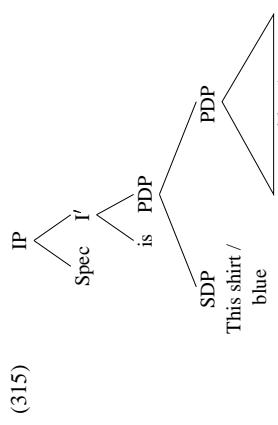
- (313) Un vestito *(di) quel {colore / cost/o / formato / ...} a dress (of) that {color / cost / size / ...}

Let’s take a closer look at what (312)a means. Partee (1987) correctly points out that the root of the problem lies in the difference between (314)a and b, where (a) is synonymous with the (redundant) “blue is (of) a nice *kind of* color.”

- (314) a. Blue is (*of) a nice color.
- b. This shirt is (*of) blue.
- c. This shirt is (of) a nice color.

‘Blue’ in (314)a denotes a nominalized property. ‘Nice color’ denotes a set of such nominalized properties: ‘blue,’ ‘red,’ etc. On the other hand, the extension of ‘blue’

in (314)b is a set of blue objects, such as ‘this shirt.’ Now, (314)c must be in some way a combination of (a) and (b), mediated by the introduction of an empty pronominal element. Suppose that in Italian this element is *pro*, which can appear in the governed position under *di*. The D-structure for (314)a and b will be identical:



On the other hand, the D-structure for (314)c in Italian will contain both a predicative small-clause (selected by “*è/is*”) and an attributive-predicative small-clause (selected by “*di/of*”):

a nice color

blue /

PDP

—

This shirt /

blue /

SDP

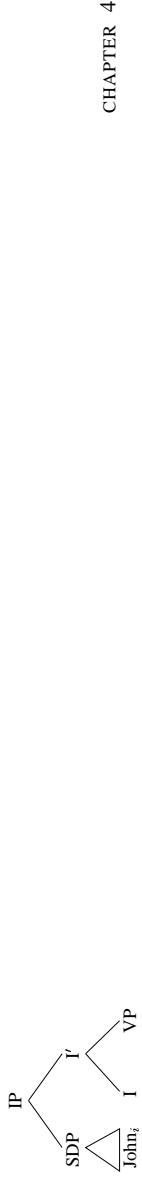
—

Here, *bel colore* ‘nice color’ is predicated of the strong indefinite in the lower SDP, coindexed with *pro* (alternatively, the indefinite is in PDP, and *pro* is coindexed with the empty SD⁰). The lower attributive-predicative small-clause is interpreted as ‘something that is a (certain) nice color’ (e.g. blue). At SS, *pro* has moved to [Spec, PDP] or [Spec, KIP], and the larger PDP denotes the property of being a nice color, e.g. being blue, or red, the extension of which are objects having a nice color. Turning to English, where *pro* is not present, I hypothesize that the relevant pronominal is big PRO, and that the lack of the preposition is linked to the requirement that PRO is not governed. However, the optionality of “of” in some cases remains a mystery.

The structure for “this house has been of every kind of color” will now be like (316), but with the lowest PDP replaced by a more elaborate structure, containing a third attributive-predicative small-clause, where “every kind” modifies ‘color.’ (311)b corresponds to a relatively simpler structure, with only two small-clauses; assuming for the time being movement of ‘every kind’ to [Spec, PDP], we have:

- (316) Questa maglia è *pro* di un bel colore.
 this shirt is *pro* of a nice color

(317) John has been every kind of doctor (S-structure)



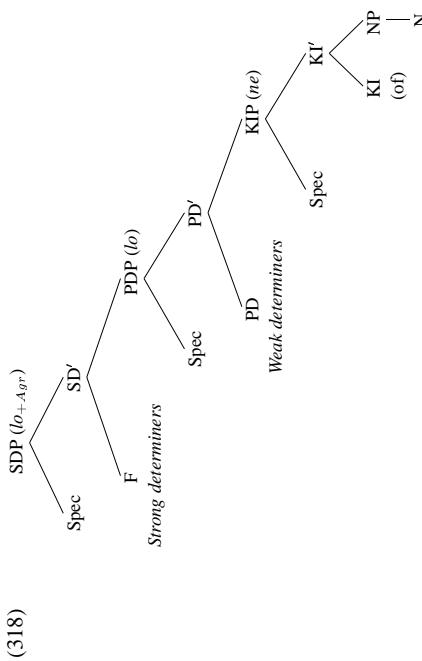
The layers of DP

4.1 Introduction

The purpose of this chapter is to evaluate the evidence for the idea that the DP is divided into three layers, SDP, PDP and KIP, in a more systematic fashion. The facts that I will bring to bear on this issue are predicate coordination, the semantics of possessives in English, *ne* extraction in Italian and the ability of WH-quantifiers to appear after determiners. The next step will be to sort out which elements can appear at each level. The technique that I use relies on the working hypothesis that Italian has a different pronoun for each layer; looking at the possibility of coindexing various types of phrases and each pronoun we derive the category of the phrase under consideration. Returning to pivotal raising, a principle will be proposed, linking the possibility of an element YP to appear in [Spec, XP] to the fact that Y and X share certain features (e.g. ‘predicative’, ‘referential’, but also ‘quantificational’). This principle explains the extraction pattern and the agreement pattern of the *kind*-construction, as well as why some pivotal-“of” structures are necessarily predicative.

In the second part of the chapter, I discuss a variation of Longobardi’s N-to-D movement analysis from the standpoint of the multi-layer distinction. The N-to-D movement of proper names will be taken as further evidence that the topmost layer of DP, i.e. SDP, is the only locus for an interpretation of semantic type *e*. Finally, in section 4.6, I introduce Carlson’s (1977) and Wilkinson’s (1991) ontology for representing ‘kinds’ and the semantic of kind-nominals, and propose my own semantic representation for kind-nominals.

Recall that the structure I am defending is:



The idea of correlating the predicative / argumental meaning of noun phrases with a structural difference is by no means new. The proposal has been put forth by Bowers (1988), (1993), using a Property-Theoretic semantics; Hudson (1989) and Mandelbaum (1994b) developing ideas by Higginbotham 1987, just to name the most spelled-out proposals. To the extent ‘predicative’ can be equated with ‘non-argumental’, Longobardi (1994) can also be construed as advocating a split-DP hypothesis.¹

The structure defended in the present study makes available three levels, and stresses the importance of fact that heads and maximal projections may move within DP. As for any scientific theory, its adequacy can be gauged by calculating the proportion between empirical coverage, on the one hand, number and magnitude of stipulations required to achieve it, on the other. But stipulations are not all created equal; some can be formulated more naturally than others in the vocabulary already provided by the theory.

4.1.1 Some general principles

Consider for instance how the approach pursued here can deal with two basic issues emerged from the previous discussion: why weak determiners can be ‘promoted’ to be strong (by means of focus, a referential or proportional interpretation), while—if my analysis of “every kind of dog” is correct—there is no way to ‘denote’ a

¹ By ‘Split-DP’ here I mean a family of hypotheses in which the topmost projection of the category named ‘noun phrase’ differs depending on syntactic contexts and/or semantic usage. I am not including in this term the vast number of proposals suggesting that there are functional categories (possibly with different semantic import) between D^{max} and the NP proper, or the idea of multiple X-bar layers (Jackendoff 1977, Rothstein 1988), even though the Split-DP hypothesis rests on this work.

strong quantifier to be weak; second, why indefinite and adjectival predicates are not invertible (in Moro’s sense), that is, why ‘beautiful is Mary’ and ‘people are Mary and John’ are out.

The structure above gives us a very natural way to formulate the answers. The fact that strong quantifiers cannot become weak follows from standard constraints on movement, once some very general principles of interpretation are laid out. Suppose, first of all, that *all* SDPs which do not already denote an *e*-type element undergo Quantifier-Raising at LF.² This includes SDPs with strong quantifiers (but not, for instance, deictics, which can directly denote individuals) but also weak SDPs, i.e. those having an empty SD^{max} layer and material in PD^{max}. The idea that weak DPs also undergo QR contrasts with Diesing (1992), where only strong (= presuppositional) DPs undergo QR. However, this choice is forced, in my system, by the need to assign an *e*-type denotation to all noun phrases at LF. If weak DPs were left *in situ*, the denotation of the PDP (headed by a cardinality predicate, an indefinite, or whatever) would be predicated of the empty SD⁰ head according to standard functional application, and the SDP would acquire the denotation of an open formula, e.g. 3-boys(x), which turns into a truth value as soon as the free variable is bound. However, a *r*-type object is not what we want as our final result, as it would make the semantics of strong and weak DPs surprisingly different, and the semantics of weak DPs and CP complements surprisingly similar. Therefore, I will stay closer to Heim’s (1982) original formulation, and adopt the idea that QR applies to all non-referential (i.e. non *e*-type) argumental noun phrases. The distinction between two layers, however, gives us the possibility of restricting its application to *arguments*, excluding PDPs, which are predicates:

- (319) **QR Principle:** All and only non-referential SDPs undergo QR at LF.
 (where QR is understood in the sense of Heim, 1982, Diesing 1992, as adjunction to IP). The point where strong and weak DPs differ is Quantifier Construal. I propose that QC, which extracts a determiner from a Q-raised SDP and adjoins it to IP, is possible *only* with determiners in SD^{max}.³ Therefore, to be interpreted according to Heim’s (1982) rules of LF construction, a determiner generated in PD^{max} must move to SD^{max}, leaving a trace. Once in SD^{max}, it undergoes QR, and it can undergo QC; alternatively, it is interpreted referentially in SD. On the other hand, to become ‘weak’, a strong element generated in SD^{max} should lower to PD^{max}. This movement is impossible, since it would leave a trace ungoverned.

²In (Zamparelli 1995) I had suggested that even *e*-denoting SDPs might undergo QR. Semantically, the operation would be vacuous. In this version I stick to the more economical assumption that QR is performed one when necessary to derive an *e*-type denotation, not any time an SDP is present.

³Note that throughout this section I will talk about movement to the ‘SD^{max} layer’ in order to preserve a degree of ambiguity as to whether movement targets a head or spec position. The issue will be addressed directly in chapter 6.

How can we interpret a weak DP, since QC is not available? One way is to adopt the idea that an empty SD^0 functions as a variable, in conjunction with some form of Existential Closure (EC), as proposed by Kratzer (1989) and Diesing (1992). Since weak SDPs undergo QR, this cannot be implemented as an unselective existential quantifier hovering over VP (or in general, over some internal subpart of the sentence) and binding SD^0 , since the Q-raised SDP would be outside its scope at LF.⁴ An alternative is to see EC as a default LF operation which assigns an existential interpretation to an SD^0 that hasn't been bound by other operators (especially, adverbs of quantification). In Kratzer/Diesing's theory, EC comes with certain assumptions about the position of the subject with Individual Level and Stage Level predicates: with the former, a weak subject must be interpreted outside the scope of EC, and therefore it cannot be interpreted existentially. If the subject is a bare plural, it must receive a 'generic' interpretation, as a result of binding by a 'generic' adverb of quantification, according to the theory of quantification developed by Heim (1982), Krifka et al. (1995), and others (see also section 4.4.3.1). With stage-level predicates, the subject is interpreted in a more internal position, where EC can apply.

While this theory makes correct predictions for bare plurals, it has some problems dealing with all the readings available for numerals. For instance, de Hoop (1992) has pointed out that in (320) *zwei Wildschweine* "two wild boars" and *zwee eenhoorns* "two unicorns" can have what she calls a "partitive" (= specific or referential) meaning even after *ja doch* "indeed." According to Diesing, adverbs such as *ja doch* mark the edge of VP, inside which only an existential reading should be available:

- (320) a. *Ges*: ... weil ja doch zwei Wildschweine intelligent sind.
 ... since indeed two wild-boars intelligent are
 "since two (of the) wild boars are intelligent" *de Hoop* (1992)
- b. *Dit*: Els segt dat er twee eenhoorns in de tuin lopen.
 Els says that there two unicorns in the garden walk
 "Els says that there are two (specific) unicorns walking in the garden"

Mapping de Hoop's 'partitive reading' onto a reading in which the numeral has moved to SD^{max} , we must conclude that this possibility is open at any point in the sentence. German native speakers have also told me that, with appropriate stress on the numeral, (320)a can be interpreted as '... since boars are intelligent *when they*

⁴There is actually a way of making Diesing/Kratzer's formulation of Existential Closure compatible with the QR assumption for weak SDPs. Since QR for weak SDPs is not due to the need of building an appropriate Nuclear-Restrictive Scope structure, but solely by the need of leaving a trace of the appropriate *e*-type, we could propose that for weak elements, QR is a 'local' raising operation, that is, it simply adjoins the SDP to some XP *within* the scope of the unselective existential. This would have the positive consequence of insuring narrow scope to weak determiners and it would preserve the simplicity of Kratzer/Diesing's EC, at the expense of a more selective QR operation. I leave it open as a possible option.

come in pairs', a reading which is usually associated with a weak numeral quantified over by the generic adverbial (i.e. $GEN \times [boar(x) \wedge \text{group-of-two}(x)]$) [*intelligent(x)*], see for instance Link 1987, Verkuyl 1981). This suggest that either Diesing's tests for VP-internal/external position in German are not reliable, or adverbs of quantification can reach a variable within VP, contrary to what she claims (though the role of focus remains to be accounted for here, see Herburger 1994). On the other hand, as de Hoop notes, the fact that the existential interpretation is impossible with II predicates (that is, the fact that "dogs are intelligent" cannot mean "there are intelligent dogs") remains quite solid across languages, suggesting that there are cases where EC truly *cannot* apply.

Given these fact, I want to maintain that an SD^{max} interpretation for weak determiners is always potentially available, but I prefer to remain neutral on how Existential Closure as a default LF operation can be limited to subjects of SL-predicates.⁵ Note, in addition, that in some external subject position an empty SD^0 head may not be allowed on syntactic grounds, as discussed below for Italian.

A point in which my system runs parallel to Diesing's is the issue of presuppositions. Diesing (1992) proposes that the quantificational reading of numerals, the one where they undergo QR in her system, induces a presupposition of existence: the strong reading of "three unicorns" presupposes that unicorns do exist. In my system, this can be cast as a property of a syntactic layer, rather than a property of a special reading of a class of words:

- (321) **SD^{max} Presuppositions:** A filled SD^{max} layer triggers presuppositions of existence.

It is crucial, of course, that SD^{max} is *filled*. Weak DPs with a determiner in PD^{max} and an empty SD^0 head have no such presuppositions. I will discuss the matter in section 4.4.3.1.

Returning to the prohibition against predicates in [Spec, IP], we can now assume that it follows from a general principle:

- (322) **Argumenthood Principle:** Only SDPs can appear in Argument Position.

This is essentially an elaboration of a proposal put forth in Longobardi (1994) within a "DP" vs. "NP" context. An immediate consequence is that only full SDPs can appear in [Spec, IP]; PDPs can appear only where they are allowed by subcategorization from special verbs like "consider," in a position that will not be counted as 'argumental' for the present purpose.

⁵A possible implementation to restrict EC to a subpart of IP would be to see it as an operation that, at SS or LF, 'tags' SD^0 within a certain domain with a feature that is eventually interpreted as an existential quantifier after all other binding possibilities are exhausted.

4.1.2 The structure of weak argumental noun phrases

What is, we may ask, the precise structure of a weakly quantified DP in the object position of a main verb? This position is argumental, so it cannot be a PDP, which would be interpreted as a property. It must be a full SDP, interpreted as a (variable or constant) individual at LF. Since the determiner is weak, it must be in PD^{max} , and SD must contain an empty head, SD^0 . Following standard assumptions about empty categories in syntax, I take it that phonologically non-overt material needs something ‘extra’ in order to be licensed. This ‘extra’ can be lexical government (e.g. by V or P as proposed in Longobardi 1994) or some form of ‘identification,’ in the sense of Rizzi (1986), given for instance by certain φ -features, by lexical selection or—I propose—by the spec-head relation with a lexically overt XP of the appropriate type. The structure for weak “two people,” with SD⁰ licensed and identified by V under government, is then:

- (323) I am looking for [SPP SD⁰ [PP two [KIP ... people]]]

We have already seen that in Italian V and P are capable of licensing an empty determiner in bare plural DPs, and I have adopted the idea that bare plurals are only possible in (lexically) governed positions (see section 1.4 on page 29). Bare plurals differ from other weak DPs because their PD^{max} contains no over determiner; therefore, with bare plurals there are *two* empty heads in need of licensing; if the higher one, SD⁰ is licensed under government by V, P, or maybe I, the lower one must be licensed in some other way. I want to propose that this way is the predication relation holding between PD^{max} and SD.⁶ Specifically, a PD⁰ head is licensed in a predication with an argument which is independently licensed (e.g. by being a Case-marked lexical element, or an appropriately governed empty head). In Romance and Germanic, this is also conditioned upon identification by means of plural or mass features in PD: no ‘bare singular count’ is possible in argumental position. The advantage of this predication-based approach is that it can also capture the fact that PD⁰ is also possible in canonical small-clause predicative constructions, such as:

- (324) [Quel canile sono [PP t_i [PP PD⁰_{+P_{lit}} animali di Maria]]]
those dogs are t PD⁰ pets of Maria

Moro (1993) points out that in inverse copular construction, the argument cannot lack a determiner, a sign that, by itself, the copula cannot license an empty head:

- (325) Gli animali di Maria sono ??(i) cani.
the pets of Maria are (the) dogs

Therefore, the PD⁰ in (324) is presumably licensed by being predicated of *quei cani*.

On the other hand, the structure for argumental bare plurals must be:

⁶On predication as a means of syntactic licensing see Heycock (1994).

- (326) I am looking for [SPP SD⁰ [PP PD⁰_{+P_{lit}} [KIP ... people]]]

SD⁰ is licensed under lexical government. PD⁰ is jointly licensed by being predicated of SD⁰ and by the plural/mass φ -features identification. From an intuitive standpoint, the need for this ‘feature identification’ can be regarded as a remedy to the fact that an empty SD head is incapable of *selecting* a PDP under lexical government in the same way V selects a complement. Once the SD^{max} contains lexical material, the need for plural/mass features on PD⁰ vanishes.⁷ The structure for “every man” is in fact:

- (327) [SPP Every [PP PD⁰_{+S_{ng}} [KIP man]]]

The necessity of special features on the PD head can be shown in other ways. We have seen that the Italian pronoun *ne*, corresponding to KIP, is extracted from a position licensed by a quantifiers, plural, singular mass, or singular count (328). This quantifier can also be phonologically null, as in (329), but in this case it is clearly understood as an unspecified *plural* numeral (329a), or *mass* singular (329b). As clearly shown by the agreement pattern, the singular count interpretation is entirely impossible (329c).

- (328) a. Di cani, ce ne_i sono [tre t_i].
of dogs, there.of.them-CL are [three t]

“dogs,, there are three of those,_i”

- b. Di vino, ce ne_i è [molto t_i].
of wine, there.of.it-CL is [much t]

“wine, there is a lot”

- c. Di cane, ce ne_i è [uno t_i].
of dog, there.of.it-CL is [one t]

“Dogs, there is one”

- (329) a. Di cani, ce ne_i sono [Q⁰ t_i].
of dogs, there.of.them-CL are [Q⁰ t]

“dogs,, there are some”

- b. Di vino, ce ne_i è [t_i].
of wine, there.of.it-CL is [Q⁰ t]

“wine, there is a certain amount”

- c. *Di cane, ce ne_i è [Q⁰ t_i].
of dog, there.of.it-CL is [Q⁰ t]

It should mean: “Dogs, there is one”

⁷Notice that since *quei cani* in (324) is adjoined to PDP, it cannot identify PD⁰ under government the way ‘every’ does, so plural/mass features on PD⁰ are still required. This correctly predicts *“John is PD⁰_{+S_{ng}} child.”

4.1.3 Weak quantifiers as adjectives: the problem of negation

Beginning with Milsark (1974), the idea that weak determiners are nothing but adjectives modifying a bare plural has been frequently put forth, and it is commonly held in semantic circles (e.g. Link 1987, Verkuyl 1981). To make it work, we need two important qualifications, that are not always made in the literature. First, it is crucial that we distinguish between two empty heads, my SD⁰ and PD⁰, with independent licensing conditions. Failure to do this will predict that a language like French, which has no bare plurals, should have no weak quantification either, which seems very unlikely. In the system I have proposed, the French problem can be pinpointed in the licensing conditions for PD⁰, not for SD⁰. For instance, we could assume that in French an (empty) SD⁰ head is not sufficient to license a plural or mass empty PD⁰ head, whereas an SD⁰ can be regularly licensed by V or P, just like in Italian or English. This would be sufficient to rule out French bare plurals preserving a structure like the one in (323).

The second qualification concerns the interpretation of the empty SD⁰ head in the presence of a negative element. In line with the assumption that SD carries pronominal elements, I have assumed that an empty SD⁰ is interpreted as a variable at LF, which may receive an existential interpretation via the default LF operation of Existential Closure. The PDP denotation is predicated of this variable.

This situation becomes complex with weak determiners that are not upward entailing on their first argument ('non-persistent' or 'non left-monotone-increasing' determiners). Suppose that "four" means "at least 4," which is persistent. Now, if the weak reading of "four Italian students" in (330)a is, roughly (330)b, this logical formula correctly entails (330)c.

- (330) a. John seeks [four Italian students]
- b. $\exists x (\text{student}'(x) \wedge \text{Italian}'(x) \wedge \text{at-least-}4'(x) \wedge \text{seeks}'(John, x))$
- c. $\exists x (\text{student}'(x) \wedge \text{Italian}'(x) \wedge \text{at-least-}4'(x) \wedge \text{seeks}'(John, x))$

However, it is easy to verify that replacing "at least four," with "at most four," "exactly four," "no" or "few," the entailment doesn't hold: the fact that John seeks no Italian students doesn't mean that he seeks no students. The solution of this problem is in two steps; first, we can reduce the problematic determiners to the combination of a negative operator and a positive quantifier, deriving "not more than four," "not more and not less than four," "no," "not an average amount and not an above-average amount" respectively. Second, we can follow theories developed to account for the phenomenon of negative concord, e.g. Ladusaw (1992), in assuming that the negative operator in DP is merely a place holder for a sentential operator expressing negation, which may or may not be explicitly realized. The negative determiner "no" ends up having the meaning of a negative polarity item like "any," in the scope of sentential negation; "Peter saw no cops" becomes equivalent to "Peter didn't see any cops." There are various ways to implement this proposal; for reasons discussed in

section 5.2.5.2 on page 193, on negation in *There*-sentences, the one I find more convenient involves raising of the negative quantifier/NPI to a position above VP where the active negative operator is placed. The base position of the negative operator/NPI is interpreted as an indefinite (cf. McNally 1992 for a similar treatment). Now, (331)a becomes (331)b, which *does not* entail (331)c.

- (331) a. John seeks [at most four Italian students].
- b. $\neg \exists x (\text{student}'(x) \wedge \text{Italian}'(x) \wedge \text{more-than-}4'(x) \wedge \text{seeks}'(x, John))$
- c. $\neg \exists x (\text{student}'(x) \wedge \text{more-than-}4'(x) \wedge \text{seeks}'(x, John))$

(331)b must be supplemented with a pragmatic explanation, based on scalar implications, for why (331)a cannot be used in a situation in which John seeks no Italian students. I will not spell this out here (but see footnote 13 on page 51).

4.1.4 On the absence of multiple determiners

The idea that determiners may be in two positions within DP and that the lower one should be assimilated to a pre-NP adjectival position of some sort has the immediate advantage of explaining why numerals may appear after a definite determiner, in "the two boys," or in predicative position: "the boys were two (in number)". The first construction will be taken up in some detail in chapter 6. Here, I want to discuss a potential objection, which is why weak *a* and *sm* can never appear *after* another determiner. Why are all the possibilities in (332) bad?

- (332) a. *['The / Some / All] a man
- b. *{One / Every / Each} a man
- c. *Two sm⁸ people

Some of these cases, e.g. (332)a, are simply ruled out by inconsistent specifications for number or definiteness features on the two adjacent determiners. (332)b and c could also be accounted under the assumption that the high position of numerals is derived via movement from the lower one, but this would not take care of every *a*, since there is no reason to assume that *every* has ever occupied a PD^{max} position. An alternative is that (332) is ruled out by a principle of *redundancy* of function words:

- (333) **REDUNDANCY:** two functional words F_i, F_j within the same DP give an impossible representation if the meaning of F_i entails the meaning of F_j or vice-versa.

I am not entirely sure of where in the theory of grammar this principle should fit, whether pragmatics, or rather some broadly-understood version of economy of representations (Chomsky 1989).⁹ In any event, the intuitive generalization this principle

⁸Recall that I using the spelling *sm* for the weak, depressed reading of "some."

⁹A more structural account is favored by the fact that cases of double determiners like **"many 300 guests," **"2 sm boys" etc. do not have the relatively mild status of pragmatic violations.

tries to capture is that two determiners are possible only when each one adds something to the meaning of the other. “The two” is acceptable because “the” adds information about definiteness, “two” information about cardinality; “many 300 guests” is out because the information about cardinality is provided by both determiners. If, following Perlmutter (1970) we take *one* to be the stressed form of *a*, the pair in (332)b becomes entirely redundant. Analogous considerations hold for ‘every a’ (the universal entails the existential) and for (332)c—*two* entails *some*.

If the problem is redundancy, we should also expect that inverting the order of the two determiners should not make a difference. Indeed, (334) has only a non-redundant reading where *some* means ‘approximately,’ functioning as a modifier of the cardinal numeral.¹⁰

- (334) Some twenty men arrived

4.2 Evidence for three levels

Let’s now consider further evidence for the existence of three layers, based on bare predicates, the interpretation of possessive phrases, the distribution of “he” and the systematic ambiguity of a class of Italian quantifiers.

4.2.1 Coordination and bare predicates

The existence of three distinct projections at the top of DP makes predictions as to which noun phrases can be coordinated. Consider equative statements such as (335). It is well-known that, without a pause after the first post-copular noun phrase (which suggests elliptic sentence coordination), coordination with other predicate nominals is not felicitous (336)

- (335) a. Mark Twain is Samuel Clemens
- b. The “Gran Zebù” is the “Königs spitze”
- c. Diego della Vega is Zorro
- (336) a. ??Mark Twain is Samuel Clemens and a writer
- b. ??The “Gran Zebù” is a mountain and the “Königs spitze”
- c. ??Diego della Vega is Zorro and the cause of the turmoil

In the multi-layer hypothesis “Zorro,” “Königs spitze” and “Samuel Clemens” are necessarily full SDPs, while “a doctor” is of category PDP, if read non-specifically. The conjunction is impossible by the Principle of Same-Type Coordination in (7) (or by a syntactic counterpart prohibiting mixing syntactic categories).

¹⁰This apparently idiosyncratic reading is less of a quirk of English than it might seem at first: analogous constructions appear in Dutch (de Jong 1991) and Italian with singular indefinites. See a brief discussion in section 6.3.1 on page 251.

In Italian, bare count singular names of professions (e.g. *dottore* “doctor,” *professore* “professor,” etc.) can routinely appear as predicate nominals, but a bare count singular nominal and a singular indefinite nominal (*un dottore* “a doctor”) cannot be coordinated.

- (337) a. Gianni è (un) professore
Gianni is (a) professor
- b. Gianni è (un) avvocato
John is (an) attorney
- c. *Gianni è avvocato e un professore
John is attorney and a professor

This is quite significant in light of the fact that both in Italian and in English bare plurals and noun phrases introduced by overt determiners *can* be coordinated, suggesting that the two are after all instances of the same category, SDP or PDP (338).

- (338) a. I saw brown cows and some cowboys riding beside them.
- b. I have to buy two onions, olive oil, beats and a can of tuna fish.
- (339) a. Ho visto mucche, alcuni cani, ed i bovari che le conducevano
I have seen cows, some dogs, and the cow-boys leading them

The structure for the two types of singular predicate nominals in (337) should be:

- (340) a. Gianni è [kp professore]
Gianni is [] professor
- b. Gianni è [pp un [kp professore]]
Gianni is [] a [] professor]

What about determinerless plural predicates? It is easy to show that they can be PDPs: singular bare predicates in Italian in general do not tolerate pre-nominal adjectival modification, while this is possible, at least in some cases, with bare plural predicates:

- (341) a. Gianni è un (esperto) chirurgo
Gianni is an (expert) surgeon
- b. Gianni è (*esperto) chirurgo
Gianni is (expert) surgeon
- c. [Gianni e Luigi] sono (esperti) chirurghi
Gianni and Luigi are (expert) surgeons
- d. [Gianni e Luigi] sono (famosi) esploratori
Gianni and Luigi are (famous) explorers

Therefore, a possible structure for *professori* “professors” is (342), while this structure is impossible for bare singulars, where PD⁰ does not have the plural or mass features that are necessary for identification.

- (342) [Gianni e Luigi] sono [PDP PD⁰ [kip professori]]
Gianni and Luigi are [PD⁰ [professors]]

We need to decide whether (343) is also a possible structure.

- (343) [Gianni e Luigi] sono [kip professori]
Gianni and Luigi are [professors]

There is limited evidence that this structure is possible, too. Bare count nouns are good across languages in other non-argument positions aside from predicative contexts, i.e. vocative, exclamatory contexts, and topicalized position (see the Italian cases in (344)c, attributed by Longobardi 1994 to Luigi Burzio).

- (344) a. Caro amico, vieni a trovarmi
dear friend, come to visit me
b. Maledetto tenente!
damn’ lieutenant!
c. Amico di Maria, sembra essere Gianni
Friend of Mary seems to be Gianni

These positions are presumably ungoverned. Since we have assumed, with Longobardi (1994), that empty determiners require government, the dislocated element must be a KIP. To test this, we can go back to the predicate in (341). Moving *chirurghi* to the topicalized, ungoverned position we have a good sentence only if an adjective doesn’t precede the noun:

- (345) a. Gianni e Luigi sembrano essere {esperti chirurghi / fedeli amici di Gianni and Luigi seem to_be {expert surgeons / faithful friends of Maria}}
b. (?Esperti) chirurghi, sembrano essere Gianni e Luigi
(expert) surgeons seem, to_be Gianni and Luigi
c. (?Fedeli) amici di Maria, sembrano essere Gianni e Luigi
(faithful) friends of Maria, seem, to_be Gianni and Luigi

Recalling that bare singular predicates like *chirurgo* in (341)b, presumably KIPs, do not tolerate pre-N adjectives, we can conclude that in (345)b, c the adjective blocks the possibility that *surgeons* is a bare KIP; hence, the sentence becomes ill-formed. French can now be analyzed as a language where the plural/mass features are not sufficient to identify the empty determiner in PDP, but where the KIP possibility

is still open, since [*Jean et Louis*] *sont medecins* “Jean and Louis are doctors” is good.¹¹

4.2.1.1 The interpretation of predicative KIP

The discussion so far shouldn’t lead one to jump to the conclusion that bare singular count predicative KIPs are freely licensed in languages like Italian or French. The range of nouns possible in a ‘bare KIP’ is restricted, excluding most count nouns, such as:

- (346) *Questo è {tavolo / paesaggio / avvenimento}
this is {table / landscape / event}

Among the nouns that make possible bare singular predicates in Italian we have all names of professions (*chirurgo* “surgeon,” *avvocato* “lawyer,” etc.), as well as predicate with some kind of (possibly, situation-bound) uniqueness conditions attached.¹² Parallel to the following English cases:

- (347) a. Bill is president of the United States
b. The queen appointed her lover treasurer of the realm
c. They elected John king of Marvin’s gardens

Names of professions work quite the opposite way with respect to uniqueness:

- (348) a. Gianni è dottore
Gianni is doctor
b. Gianni è dottore del Papa
Gianni is doctor of the Pope
c. ??Gianni è dottore di Giovanni Paolo II
Gianni is doctor of John Paul II

Being ‘doctor of John Paul II’ is certainly ‘more unique’ than just being ‘doctor’—yet the sentence gets worse. Correspondingly, *Papa* in (348)b can only be interpreted *de dicto*, meaning: no matter who the Pope is, Gianni’s profession is to cure that person. One way to express this is to say that a bare singular predicate must express a ‘role’ which any individual could be capable of carrying out.

A third type of bare singular predicates appears at a high stylistic level with certain relational nouns (in the sense of Barker 1991), such as *causa* ‘cause’ *motivo* ‘reason,’ always with a complement.

¹¹ Starting from similar assumptions on the DP status of bare plurals Delfitto and Schrotten (1992) have proposed that an empty determiner analysis can in fact provide an explanation for the English–French contrast above. In their theory, the English D is filled at LF by the plural morpheme -s (or by an abstract mass noun morpheme). The impossibility of bare plurals in French should then be derivable by the fact that the different morphological shape of the French inflectional affixes does not allow LF-excorporation, and raising to D of the appropriate licensing element.

¹² See Stowell (1989), and criticism in Mandelbaum (1994b), pp. 121–135.

- (349) Questo fatto fù motivo *(di preoccupazione)
this fact was reason (of worry)

I will consider these cases in section 5.4.2.

From the syntactic side, the following English/Italian contrast is worth a few words. Compare the sentences in (350) with their judged glosses:¹³

- (350) a. Gianni funge da (*un) dottore.
Gianni functions as % (a) doctor
b. Maria fa da (*un) giudice per l' intera vicenda.
Mary acts as % (a) judge for the whole issue
c. Gianni si è travestito da (*un) barbone.
Gianni dressed-up as *(a) homeless man

The same singular indefinite appears in the N-of-an-N pivotal construction (out in the meaning under consideration):

- (351) Un gioiello di (?[?]una) ragazza
A jewel of *(a) girl

The fact that for some speakers “as doctor” is out could be linked to the idea, discussed in chapter 1, that Italian raises the noun at SS, while N-raising to functional projections is presumably done at LF in Germanic languages. I have assumed so far that KIP is the target of N-movement. So, KI is occupied by N in Italian, whereas English may choose to insert a semantically empty “a” to escape the strictures of proper government/identification for an empty KI⁰ head.¹⁴

To sum up, the fact that different kinds of predicate nominals cannot be coordinated suggests that they belong to different syntactic and semantic types. KIP can be used predicatively under special uniqueness conditions (“president of the club”), with names of professions that can be interpreted as ‘roles’ in Italian or French, or, apparently, with certain relational nouns.

4.2.2 Predicative possessives

I have assumed, following Abney (1987), Barker (1991), that in the English possessive construction “Harrold’s tools,” the possessor phrase “Harrold” is in the specifier

¹³I have found considerable cross-speaker variation in the acceptability of English bare singular predicates, hence the %.

¹⁴An intriguing hypothesis concerning the complete ill-formedness of “a N” when adjectives intervene between ‘a’ and the noun (cf. (c) above) is that English speakers for whom the adjective-less “as N” case is fine might be raising N to KI in syntax just like Italian. This strategy would become impossible as soon as an adjective intervenes. The question remains, of course, of why an “as N_i Adj_i” order is not derived.

of DP, and the “-s” morpheme is in D. Since now the determiner position has been split into two categories, we may wonder whether a possessor phrase should be located in [Spec, SDP] or [Spec, PDP].

To answer this question, we should establish whether possessives have a predicative usage; since most predicates we have seen so far are indefinites (setting aside Moro’s definite predicates, to be addressed in the next chapter), a related question is whether possessives can be indefinites. The issue has been the matter of some debate. Traditionally, possessive phrases have been considered to be definites (see for instance Barker 1991). According to this view, (352)a means (352)b and not (352)c (where ‘some relation’ may be the possession relation, or another lexically or contextually determined relation).

- (352) a. John’s dog entered
b. The dog that bears some relation with John entered
c. A dog that bears some relation with John entered

However, Mandelbaum (1994a), (1994b) has shed doubts on this assumption, pointing out that a predicative possessive such as (353)a can have the definite reading in (353)b but also the indefinite one in (353)c.

- (353) a. Those are Harrold’s tools.
b. Those are the tools that belong to Harrold.
c. Those are tools that belong to Harrold.

In the latter reading of the possessive, (354)a is felicitous (compare with (354)b where an explicit definite doesn’t find the necessary uniqueness presuppositions satisfied).

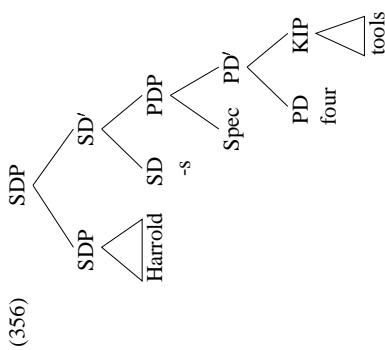
(354) a. These are Harrold’s tools, and those, too, are Harrold’s tools.
b. ??These are the tools that belong to Harrold, and those, too, are the tools that belong to Harrold.

This suggests that “Harrold’s” might be in [Spec, PDP] in these cases. Now consider the following (to my knowledge, unnoticed) contrast:

- (355) *These are Harrold’s four tools, and those, too, are Harrold’s four tools.

When a numeral is inserted after the possessive, the indefinite reading disappears. “Harrold’s four tools” is good, but can only mean ‘The four tools that belong to Harrold.’ In the multi-layer hypothesis that I am pursuing, this has a natural explanation.

The head of the projection hosting the possessive must contain the ‘s’ morpheme, therefore it cannot host a numeral. Thus, “Harrold” cannot appear in the specifier of PDP, since now PD is occupied by the numeral. “Harrold’s” must remain above, in [Spec, SDP], where it is forced to have a strong (definite) reading.



Suppose that Harrold only owns bad tools. Thus, “Harrold’s tools” is synonymous with “cheap, low-quality tools.” In this context, various native speakers have reported that (357)a is much better than (357)b, c and d.

- (357) a. Unfortunately, there are Harrold's tools, nothing better
b. ??Unfortunately, there is Harrold, nothing better
c. ??Unfortunately, there are the tools that belong to Harrold
d. *Unfortunately, there is every tool that belongs to Harrold

This fits with the general parallel between predicate nominals and noun phrases that may appear in ES.

10

I have proposed that the Italian clitic pronoun *ne* corresponds to KIP. Following Kayne (1989), I adopt the idea that *ne* is first extracted as an XP, probably via an intermediate specifier position, then head-adjointed to V in INFL. In this section, I want to show that the pattern of extraction of *ne* gives evidence for a multi-layer

approach to *DR*.
Ne can be extracted from direct object position or post-V subject position of unaccusative (e.g., *Ne sono arrivati [tre t]*) lit. “of them are arrived three”), both positions where the trace of *me* can be both lexically governed and antecedent governed. In fact, the distribution of the *ne*-trace is reminiscent of the distribution of Italian bare plurals; compare (a) and (b):

- (358) a. * [Tre *t*] ne sono qui.
 3 *t* Of them are here

- b. ??[D⁰ Cani] sono qui.
 D⁰ dogs are here

(359) a. Gianni ne vide [tre t] per strada.
 Gianni of-them saw 3 t in the street
 b. Gianni vide [D⁰ cani] per strada.
 Gianni saw D⁰ dogs in the street

(360) a. Qui la notte ne arrivano [tre t].
 here at night of-them come 3 t
 b. Qui la notte arrivano [D⁰ cani].
 here at night come D⁰ dogs

(358)a doesn't provide evidence that the *ne*-trace curred, since this example could be out because the

(358)a doesn't provide evidence that the *ne*-trace crucially needs to be *lexically governed*, since this example could be out because the relevant trace is not even C-commanded by *ne*. Correspondingly, (358)a is considerably worse than a simple pre-verbal bare plural, where all that fails is lexical government. To see cases where *ne* C-commands (and therefore antecedent-governs) its trace, but the lexical government requirement still fails, we need to turn to sentences where V has moved to COMP, past the subject. One example is gerundival clauses (361)a, discussed in Rizzi

- (61) a. *(Di questi libri), avendo-ne [due *t*] meritato il premio ...
 (of these books), having-of them [two *t*] deserved the price ...
 b. *Avendo libri meritato il premio ...
 having books deserved the price ...

Another is exclamative WH-phrases (e.g. *quando mai* “when on Earth”) where the auxiliary has moved to C, retaining the subject in its regular [spec, IP] position (see

- (62) a. Quando mai hanno tre ragazzi sconfitto un cavaliere?
 When on-Earth have three boys defeated a knight?

b. [C_P [Quando mai][C_C hanno_j [I_P tre ragazzi][I_T *t_j*] · [V_P sconfitto un cavaliere]]]]

c. * Quando mai ne_i hanno_j [tre *t_i*] *t_j* sconfitto un cavaliere?
 When on-Earth of them have three *t* *t* defeated a knight?

d. ??Quando mai hanno ragazzi sconfitto un cavaliere?
 When on-Earth have boys defeated a knight?

these cases, *ne* cannot be extracted from the subject to yield (361)a and (362)c. Since *ne* has cliticized onto the auxiliary that C-commands the subject from C, the *ne*-ace is now antecedent governed (*pace* Belletti and Rizzi 1981, footnote 3). However, it is probably not *lexically* governed, as shown by the fact that bare plurals are so out in these positions ((361)b and (362)d).

The next question is: if *ne* requires lexical government, which is the head that provides it? If it is V, we need to explain the role of the numeral that typically precedes *ne* traces (e.g. *tre* in (359)). Why for instance, *ne* cannot be extracted from under a demonstrative, yielding the outright ungrammatical *Ne vedo [quelli t]* ‘I of them see [those t]’? An apparent answer is that *ne* corresponds to the definite DP in partitives: (359a) would be the pronominal form for *Gianni vede tre [di loro]* ‘Gianni sees three [of them].’ Just as with *ne*, partitives must be introduced by a numeral head, or by *alcuni* ‘some.’

The *ne*=partitive-DP generalization is tempting, but incorrect. Giusti (1992b) points out that in fact *ne* doesn’t obey Jackendoff’s Partitive Constraint. Partitives require a definite after ‘of,’ while when *ne* appears in CLLD constructions, it picks up either a bare noun or the string ‘of + N’ (but not ‘of + PRONOUN’), which are out in partitives. Contrast:

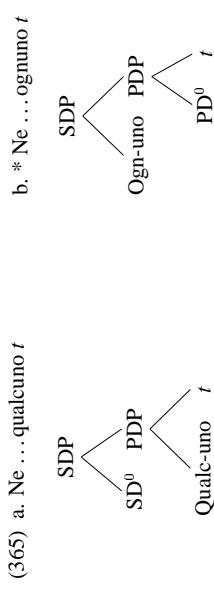
- (363) a. Ho visto tre {dei / *di} ragazzi.
I have seen three {of.the / of} boys
- b. Ho visto tre di loro.
I have seen three of them
- c. {*Dei / di) ragazzi, ne ho visiti tre.
{of / of} boys, ne-CL I have seen three
- d. *Di loro, ne ho visiti tre.
of them, ne-CL I have seen three

On the basis of this type of evidence, Giusti (1992b) proposes instead that *ne* corresponds to a bare NP. I accept this proposal, mapping the NP + agreement features onto my KIP.

A stronger reason not to equate *ne* with partitives is that there are quantifiers that allow partitives but not *ne*. Consider:

- (364) a. {Qualcuno / Ognuno / Ciascuno} dei participants
{some-one / every-one / each-one} of.the participants
- b. Ne conosco {qualcuno / *ognuno / *ciascuno} t.
of.them I know {some-one / every-one / each-one} t

The facts are clear: the partitive is licensed by the weak quantifier ‘some’ + the numeral ‘one,’ but also by the strong quantifiers ‘every’ and ‘each’ + ‘one.’ *Ne*, on the other hand, is licensed *only* by the weak quantifier. In the multi-layer approach, the explanation is straightforward: the trace of *ne* is not lexically governed by the verb, but by the head of PD^{max}, a numeral. If instead of a filled PD we have a filled SD (home of ‘each,’ ‘every’), the lexical filler is too far away to govern the trace of *ne*:



Notice that the Italian quantifier *qualcuno* is ambiguous. When *ne* is not present, it means “someone,” and it can only refer to one or more human beings (though it always goes with singular morphology). When *ne* is present, as in (365a), it simply means “some”; it can refer to non-humans, and it *must* be plural in meaning. Since the first reading is impossible with *ne*, I propose that *qualcuno* (a compound of *qualche* ‘which/some’ + *uno* ‘one’) partakes of the strong/weak alternation of ‘one,’ and that the [+human] features are associated with its SD^{max} position, where *qualcuno* is too far away to govern the trace of *ne*.

4.2.3.1 On unifying *Ne*

Aside from replacing a KIP under a weak quantifier, *ne* has another apparent function, replacing certain PPs headed by *di* ‘of’ (366) or *da* ‘from’ (367) (see Belletti and Rizzi 1981; Cinque 1980; Cardinaletti and Giusti 1990)

- (366) a. Gianni conosce la sorella di Mario.
Gianni knows the sister of Mario
- b. Gianni ne conosce la sorella t.
Gianni of.him knows the sister t
- (367) a. Da questa equazione si deriva che ...
from this equation one derives that ...
- b. Se ne deriva che ...
one from.it derives that ...

The question is whether these two cases can be unified under the *ne*=KIP analysis. Richard Kayne has recently proposed that a possessive such as French *La voiture de Jean* ‘the car of John’ should be given a structure similar to the pivotal construction defended in this dissertation:

- (368) La [D_{DP} [voiture_j] [D_{PP} de [Ip Jean [I⁰ t_j]]]] Kayne (1994), p. 103
- Kayne’s D/PP category, hosting *de*, corresponds to my KIP. The problem is that here extraction/pronominalization of *de Jean* should target D/P’. An alternative in my framework is that *voiture* is actually either adjoined or in [Spec, PDP], with a pronoun *ne*:

(perhaps PRO, though this would force a PRO=KIP correspondence which must be verified) raised to [Spec, KIP], and bound by *vuiture*. French *en* “of_it” would now pronominalize KIP (see section 3.5.2 on page 111)

- (369) [_{SDP} La [_{DPD} [*vuiture_j*] PD⁰ [_{KIP} PRO_j de [_{SDP} Jean *t_i*]]]]

On the other hand, I do not see ways of deriving *ne*-pronominalization of *da* “from” PP in (367), short of saying that *da* is another pivotal preposition. Since I haven’t found any evidence for this, for the time being I leave open the issue of a fully unified analysis of *ne/en*.

4.2.4 Quantifiers under indefinites in Italian

The fourth paradigm I want to present in support of the three-level hypothesis comes from the ability of various Italian quantifiers to appear after the definite or indefinite article (*il/la* and *un/un’/una* respectively, in the singular). These quantifiers are *quale* “which” *qualsiasi* “some_{Sng}” *qualsiasi* “any_{Sng}” and *qualunque* “any_{Sng}.” The appearance of the article goes with a meaning shift. With the article, *quale* and *qualsiasi cosa* lose the possibility of being interpreted predicatively; in the case of *qualsiasi* the article also forces an existential reading of the quantifier. This is naturally explained by my theory, assuming the schema:

- (370) [_{SDP} Det [_{DPD} Quantifier [_{KIP} … N_i]]]

With a determiner in *SD^{max}*, this layer cannot be missing, therefore the DP cannot be predicative; moreover, the quantifier cannot move to *SD^{max}* to undergo QR/QC and obtain the universal meaning. Let’s see the cases of *quale* and *qualsiasi*. Due to some additional complexities, *qualsiasi*, which patterns in a way similar to “qualsiasi,” will be discussed in the section on specificity and its opposite, in chapter 6.

4.2.4.1 (*Il*) *qualsiasi*

When preceded by the definite determiner, *qualsiasi* “which/who” functions as a relative pronoun in appositive relatives. The definite is obligatory.

- (371) a. Il ragazzo, *(il) quale non sapeva nulla, accettò.
the boy, the who not knew anything, accepted
“The boy, who knew nothing, accepted”
b. Gianni incontrò Maria, *(il) quale aveva appena preso lo stipendio.
Gianni met Maria, the who had just gotten the paycheck
“Gianni met Maria, who had just gotten her paycheck”

Quale can also appear in relative clauses that pick up a predicate nominal. Its meaning here is similar to *come* “as.” The article becomes completely impossible.

- (372) a. Considero Gianni [un idiota]_i, (*il) quale, infatti è.
I consider Gianni [an idiot]. (the) which in fact is
“consider Gianni an idiot, which in fact he is”
b. Maria è [una bambina viziata], (**la*) quale era anche sua madre.
Maria is [a girl] spoiled], (the) which was also her mother
“Maria is a spoiled girl, as her mother was, too”

Since the relative clause introduced by a bare *qualsiasi* only modifies predicates, we can use it to discriminate between the weak and the strong reading of indefinites. Consider:

- (373) a. Maria non aveva mai conosciuto un pilota di aerei (quale Gianni).
Maria not had ever met a pilot of airplanes (as Gianni)
b. Maria ha or ora conosciuto un pilota di aerei (?) quale Gianni.
Maria has just met a pilot of airplanes (as Gianni)
c. Maria ha or ora conosciuto un pilota di aerei, (il quale è Gianni).
Maria has just met a pilot of airplanes, (the which is Gianni)

In (373)a the indefinite is weak: Maria had never met someone having the property of being a pilot to match Gianni; (373)b, on the other hand, favors a reading in which “a pilot” is referential, with *un* in *SD^{max}*. Reintroducing the article, we can now use *il quale* in a RC referring to the pilot. Leaving open the exact structure of the relative, we can assign the following structures to (373)ab, and c:

- (374) a. ... [_{SDP} SD⁰ [_{DPD} un pilota] ... [_{DPD} quale] Gianni]]
b. *... [_{SDP} Un [_{DPD} pilota] ... [_{DPD} quale] Gianni]]
c. *... [_{SDP} Un [_{DPD} pilota] ... [_{SDP} il [_{DPD} quale]] è Gianni]

4.2.4.2 (*Un*) *qualsiasi*

Qualsiasi is always singular and it only applies to count nouns, like “some” in “some book.” It is transparently a compound of *qualsiasi* “which” and *che* “that,” and it can amalgamate with the nouns *cosa* “thing” or *uno* “one” giving *qualsiasi* “something,” and *qualsicuno* “some/someone.” Alternatively, it can precede a noun (e.g. *qualsiasi bevanda* “some drink”). Let consider the non-amalgamated case first.

Qualsiasi + N can appear under an indefinite (definites are out), with a semantic shift: *qualsiasi* + N means: one or more indeterminate Ns, while *un qualsiasi* + N means: a single, indeterminate N. Nothing can be inserted between *un* and *qualsiasi*—unlike between *un* and the amalgamated form *qualsiasi cosa* “something”:

- (375) a. Provo un (certo) qualcosa.
I feel a (certain) something

- b. Provo un (*certo) qualche sentimento.
I feel a (certain) some feeling

This suggests that *un qualche* might be a fixed idiom, analogous to *un certo* “a certain.” The nominal [*un qualche N*] can be used argumentally (376), but not predicatively (377). Coreference is possible with the SDP-proform *lo_{+Agr}*, but not with the agreementless PDP-proform *lo* ((376)a versus (377)b),¹⁵ and the phrase cannot appear in a small-clause under “consider.”

- (376) a. Una qualche bevanda, la troverò.
[a some drink_{f,sng}], it_{f,Sng} I-will-find
“I will find some drink or another”
- b. Un qualche errore comparirà presto sullo schermo.
A some error will appear soon on the screen
“An error of some sort will soon appear on the screen”
- (377) a. Maria diventerà [una (?qualche) dottressa].
Maria will-become [a (some) doctor]
- b. [Una (*qualche) dottressa], Maria lo_i potrebbe essere.
a (some) doctor_{f,Sng}, Maria it-CL could be
- c. Considero Mario un (*qualche) veterinario, più che un (*qualche)
Lo considero Mario a (*some) veterinary, more than a (*some)
dottore.
doctor

However, even without the article, *qualche + N* cannot be predicative. In other terms, removing the indefinites in (377) doesn’t improve grammaticality. This suggests that even when no determiner occupies SD^{max} , *qualche* cannot remain in PD^{max} , but it must be in SD^{max} to undergo QR. The data suggest the following schema:

	SDP	PDP	KIP/NP
a.	Un. qualche		N
b.	Qualche		N

Can KIP ever contain a quantifier? The answer is positive. To see examples, we need to turn to the class of *bare quantifiers* studied in Cinque (1990), Chapter 2. We have already seen that the amalgamated form *qualscosa* “something” can appear side by side with *ne* as a KIP in a pivotal-“of” construction (Q-of-AdjP: *qualscosa di fresco* “something of cool”), to which I have assigned D-structure:

¹⁵“Un qualche” + N is good in equative sentences such as *Maria Rossi potrebbe essere una qualche dottore dell’ospedale* “Maria Rossi could be some doctor from the hospital” (cf. “That man could be John Smith”). In this case *una qualche dottoresca* is arguably argumental.

- (378) ... [kp di [AdjP [kp ne/qualscosa] [AdjP fresco]]]

Now, we see that the possibility of appearing in Q-of-AdjP correlates with the possibility of being preceded by an indefinite article. *Qualscosa* “something” can appear in both constructions (379), while *qualscuno* “someone” is not perfect either in the Q-of-AdjP construction (380)a or after the indefinite (380)b.

- (379) a. Qualscosa di pesante something of heavy

b. Gianni stà cercando un qualcosa (di pesante) per battere un chiodo.
Gianni is looking_for a something of heavy to hammer a nail

- (380) a. qualcuno (?? di simpatico) verrà sicuramente.
someone (of nice) will_come for sure

b. (*Un) qualcuno verrà sicuramente.
(a) someone will_come for sure

(380)b is unexpected, considering that in (364)b on page 134 we have seen this bare quantifier licensen the trace of *ne* from PD^{max} , a position which normally leaves room for an indefinite in SD^{max} . Remember, however, that *qualscuno* follows the structural ambiguity of *uno*. In the PD^{max} position, the one that could in principle host an indefinite, *qualscuno* appears to be a modifier of an expression of cardinality (the number 1). Therefore, we can rule out **un qualcuno* “a some-one” in the same way we rule out **un uno* “a one,” i.e. via the principle of redundancy stated in (333) on page 125.

The situation is different for *qualscosa (qualscuno “thing”)*. At SS, *cosa “thing”* has raised to K1, where it is amalgamated to form *qualscosa* in $K1^{max}$.¹⁶ From here, *qualscosa* appears in the Q-of-AdjP construction, cannot license the trace of *ne*, since it replaces *ne* witness **Ne conosco qualcosa* “of_it I know something”, and can be preceded by an indefinite in PD^{max} , yielding a fine predicate nominal:

- (381) a. Considero [questo progetto] [un qualcosa di estremamente interessante].
I consider [this project] [a something of extremely interesting]
- b. Se usi pistole vere, questo gioco potrebbe diventare [un qualcosa if you_use guns real, this game could become [a something di molto pericoloso].
of very dangerous]

We are now in a position to extend the table above to include the new cases:

¹⁶ Alternatively, and maybe preferably considering the English “something,” *qualscosa* is inserted as a unit in N and raised to K1.

	SDP	PDP	KIP/NP	Predic. Read.	No-Extraction?
a.	Un_qualsche		N	NO	NO
b.	Qualche		N	NO	NO
c.	Qualc-uno [+human]			NO	NO
d.		Qualc-uno	YES	YES	YES
e.	Qualc-cosa			NO	NO
f.	Un	quals-cosa	NO	NO	NO
g.		quals-cosa	YES	NO	NO
g.		quals-cosa	YES	NO	NO

This table predicts that *qualscuno* should have a predicative reading only as a KIP (case (d)); indeed, this is the most salient reading of *Gianni e Luigi volevano dis-ventare qualcuno* “Gianni and Luigi wanted to become someone,” where *qualscuno* means ‘someone important/famous,’ not just “some person.” Here *qualscuno* cannot take wide scope, and can take a plural argument, as many predicates. The absence of *qualsche* in the whole PDP column is of course not accidental. When I discuss the parallel examples with *nessuno* “nobody,” I will attribute it to the impossibility of QR from that position.

Further evidence comes from facts noted in Cinque (1990), p. 76. Cinque attributes to Benincà (p.c.) the observation that *qualscuso* can be CL-dislocated in two ways: without a clitic (382)a, or with *la* (= *lo* + FSng), due to the fact that the amalgamated noun *cosa* “thing” is feminine (382)b.

- (382) a. Qualcosa, prima o poi, farò.
Something, sooner or later, I shall do
b. Qualcosa, prima o poi, la farò.
Something, sooner or later, it_{FSng} I shall do

He points out that in the clitic case, *qualscuso* is more ‘referential’ than in the clitic-less dislocation. Suppose, then, that in the clitic case, the noun *cosa* has moved to SD, together with *qualsc-* (case (e) above), while without the clitic, *qualscuso* is in KIP. This is confirmed by the fact that when *qualscuso* participates in Q-of-AdjP, the clitic is out (383)a; when the quantifier is preceded by *un* (383)b the feminine clitic *la* is out due to gender mismatch (*un* is masculine), the clitic-less case is ruled out because *un qualcosa* cannot be a KIP, and the only remaining possibility, at least to my ear, is the PDP-pronoun *lo* in (383)c.

- (383) a. [KIP Qualcosa di importante], prima o poi, (*!) la farò.
[Something of important], sooner or later, (it_{FSng}) I shall do
b. ??[SDP/PDP Un qualcosa], prima o poi, (*!) la farò t.
[A something, sooner or later, (it.FSng) .shall do
c. [PDP Un qualcosa di importante], prima o poi, ??(lo) sarà.
[a something of important, sooner or later, (it) he-will-be

The last question is why the clitic can be omitted with KIPs. I suggest that (382)a is not a case of CL-dislocation, but a real case of WH-movement, much like topicalization, with structure:

- (384) [KIP qualcosa]_i ... farò [SDP t_i]]

Unlike Clitic Left Dislocation, topicalization does not allow clitics. The evidence is the fact that, unlike real CLLD in (385)a but like WH-movement (cf. Cinque, 1990:63), the null-clitic case with *qualscuso* is subject to weak island constraints; (385)a is acceptable only with *la*, and a specific meaning.

- (385) a. [In ufficio], Maria non si domanda neppure se Mario *(ci) sia [to the office], Maria doesn't wonder even if Mario (there) has mai arrivato *t* ever arrived *t*
b. [Qualcosa], Maria non si domanda neppure se Mario *(la) abbia mai fatto/a *t* done *t*

Returning to English, the asymmetry between ‘some-thing’ and ‘some-one’ (replied by the contrast “he is something of an idiot” vs. “*he is someone of an idiot,” and in “what an idiot” vs. “*who an idiot”) brings us back to the already noted asymmetry between “who” and “what.” “Who” behaves on a par with personal pronouns; having placed pronouns and strong determiners in the highest DP projection, I conclude that “who” must be with them in *SD^{max}*. “What,” on the other hand, is lower in DP, dominated by a *PD^{max}* with an empty head. In cases of extraction, “who” cannot function as the content noun, while “what” can.

- (386) a. A: I saw an odd kind of lady. Her mustache was red.
b. B: Pardon, what did you see an odd kind of *t*?
c. *B: Pardon, who did you see an odd kind of *t*?
Similarly, in echo-question “what” but not “who” can be embedded under a determiner:

- (387) a. A: There was a professor of parapsychology giving a talk about traces.
b. There was a WHAT??
c. *There was a WHO??

If “who” were identical to “what” plus a requirement to range over humans, these facts would be unexpected.

4.2.5 Conclusions

To sum up, we have seen four arguments in favor of a multi-layer DP structure. First, different types of predicate nominals, argued to be SDP, PDP and KIP cannot be coordinated. Second, an SDP/PDP distinction plus standard assumptions about possessives explains why possessives with a numeral ('John's four wishes') lose their predicative reading. Third, the idea that the trace of *ne* must be governed by a quantifier, plus the idea that quantifiers can be generated at different levels naturally explains the fact that *ne* can only be extracted from under weak quantifiers. Fourth, the possibility of some Italian WH quantifiers to appear under a determiner, and the corresponding meaning shifts are as predicted by a three-level system.

4.3 Spec/head licensing

In this section, I want to return to one form of licensing for null SD heads, namely *spec-head licensing*, and explore its constraints. The idea of spec-head licensing can be informally stated as:

(388) Spec-Head Licensing:

- a. An empty head X^0 is licensed if [Spec, X^0] is filled by a phrase of the appropriate type.
- b. Spec-head licensing is adopted whenever possible.
- c. $XP \in \{SD^{max}, PD^{max}, \dots\}$

Let's begin by looking at the case of SDP. Here, the rationale behind spec-head licensing lies in the often mentioned parallel between D^{max} and C^{max} (cf. Abney 1987, Szabolcsi 1983, 1987). Szabolcsi points out an interesting similarity between determiners and complementizers: cross-linguistically, overt determiners are frequently obligatory with noun phrases in argumental position (389)a, but become optional or impossible when the noun phrase is in non-argumental position, such as vocative contexts (389)b. This correlates with the fact that in many languages, matrix sentences do not require, or tolerate, the presence of overt complementizers (390).

- (389) a. John calls *(the) soldier.
 b. (*the) soldier, come here!
- (390) a. I regret *(that) John was here.
 b. (*That) John was here is surprising.

In the same spirit, Melvold (1991) observes that strong determiners in the sense of Milsark presuppose the existence of their objects in much the same way complementizers of factive predicates like "regret" or "remember" presuppose the truth of the embedded sentence. This leads her to analyze definiteness islands (391) and factive islands (391) as different facets of a common phenomenon (see also Stowell 1989).

(391) a. *Who did you see the picture of?

- b. *Who did you regret left?

Rizzi's (1990) analysis of C^{max} holds that the head C can either be overtly filled, or it can contain an abstract, +WH agreement element, in spec-head relation with (the trace of) a WH-element.

(392) a. You think [$CP | C'$ that [$[IP | he | will | win]$]]

- b. You know [$CP | who_i | [C' C^0_{+wh} | [IP | t_i | will | win]]$]]

c. Who_i do you think [$CP | t_i | [C' C^0_{+wh} | [IP | t_i | will | win]]$]]

However, in many languages, the specifier and the head of CP cannot be both filled by lexical categories (cf. in particular the impossibility of "whether if," assuming with Kayne 1991, that "whether" is a specifier, and that "if" and "whether" do not bear contradictory semantic features). Let's then adopt the idea that SD^{max} is the cccorrespondent of C^{max} . We have seen that SD^0 can be licensed under lexical government, and that PD^0 can be jointly licensed by predication and identified by plural/mass features. Part (a) of spec-head licensing expresses the idea that SD^0 and PD^0 can also be licensed if an 'appropriate element' appears in their specifiers.¹⁷ The general idea is that it takes a referential category (i.e. an XP of semantic type *e* at LF) to license a referential or a predicative layer (i.e. an empty SD^0 or PD^0); on the other hand, a purely predicative category like an AdjP may move to [Spec,PDP], but cannot by itself license an empty PD^0 head. More specifically:

- i. SD^0 and PD^0 can be licensed by lexical SDPs in their specifiers. After QR, SDP has left a trace which is an *e*-type element. KIP has been claimed to denote an individual kind (see the discussion in section 4.4.4); as a consequence, this category will also be able to license SD^0 and PD^0 via a spec-head relation (though in this case plural/mass identificational features seem to be necessary). The resulting structures are [$SDP | SDP/KIP | SD | SD^0 \dots$] and [$PDP | SDP/KIP | PD | PD^0 \dots$].
- ii. A PD^0 cannot be licensed by a purely predicative category (in particular, an AdjP) in its specifier. However, the insertion of the 'light determiner' 'a' in PD will allow [Spec, PDP] to host AdjPs, giving [$PDP | AdjP | [pd | a \dots]$].
- iii. Both SD^0 and PD^0 will also be licensed by a quantificational XP, i.e. an element which undergoes Q-construal at LF, again leaving an *e*-type trace.¹⁸

¹⁷The solution presented in this section is an elaboration of the one proposed in the original 1995 dissertation.

¹⁸The generalization that the licensing QP must always leave a trace might be too strong for quantifiers in [Spec, PDP]. An alternative would be to make licensing dependent on quantificational feature sharing between the QP and SD^0/PD^0 .

An example of the latter case is provided by complex determiners; the bracketed element in “[more than 4 but less than 6] people” seems in many ways to behave like “5” in “5 people,” yet presumably we do not want to expand SDP with 6 additional (but normally unavailable) slots to accommodate all the extra material. My solution, to be discussed in chapter 6, is to assume that complex determiners are QPs in the configuration “[PP [QP more than 4 but less than 6] [PP PD⁰ people]], with PD⁰ licensed by theQP in the spec-head configuration.

In the next section, I deal with some empirical results made possible by the first two possibilities.

4.3.1 AdjP raising and predication

I have already remarked on the fact, noted by Bresnan (1973), that the construction “too tall (% of) a man” can be predicative but cannot appear as the argument of extensional verbs.¹⁹ The mechanism of spec-head licensing can explain why this should be so.

- (393) a. *Too tall a man entered the room.
- b. ??I watched too tall a man to serve.
- c. He was too tall a man to serve.

In section 3.5.2, I have proposed that operators such as “too tall,” “so tall,” “too much,” “enough” etc. raise from the appositive-predicative position of a pivotal “-or” structure in order to move to a position from where they can C-command a purpose/-extent clause, presumably adjoined to DP. AdjPs that do not license such clauses do not raise (cf. **{tall / 6 feet tall / hardly tall} (of) a man’). This movement appears to be necessary even when the purpose/extent clause is not overtly realized in the syntax.

What projection has the AdjP raised to? Testing with QPs and with additional material in SD^{max}, we see that the target of raising is probably the highest available DP position; in particular, it cannot be the [Spec, PDP] under an SD^{max}, since from this position no extent/purpose clause can be licensed (394)c:

- (394) a. He smokes [too many] cigarettes [to remain healthy].
- b. The [too many] cigarettes turned his lungs black.

¹⁹ As pointed out by Caroline Heycock, p.c., such constructions are possible in intensional contexts (e.g. “One should never marry too tall a man’). One possibility is that these contexts allow verbs like ‘marry’ to select a bare PDP; a more interesting idea to pursue is perhaps that these contexts void the need of the “too” operator to C-command an external purpose/extent clause, thus allowing it to remain in PD^{max}; the SDP receives a regular weak reading, with SD⁰ licensed by the main verb. In fact, “too tall” in “one should never marry too tall a man” specifically means ‘too tall to be eligible for marriage’; inserting a different, explicit purpose/extent clause reduces acceptability: “One should never marry too tall a man to fit in a car.”

- c. *The [too many] cigarettes [to remain healthy] turned his lungs black.
- (394)b shows that the post-determiner position is not precluded in general for phrases of the form “too+Q” when they can be interpreted as cardinality predicates, i.e. ‘absolute’ measures which do not depend on (implicit or explicit) external causes in order to be interpretable. Determiners such as “enough” or “too tall,” which more strongly require purpose/extent clauses, cannot appear in post-determiner position precisely because from there they cannot license their clause: **“The {enough / too tall} people (*to …).” Notice, next, that the impossibility of licensing purpose/extent clauses is not linked to the [Spec, PDP] position in and of itself, but to the fact that PDP is embedded under an SD^{max}, since “too tall a man” does license such clauses as a predicate nominal, where it is not embedded in SD^{max}.

- (395) a. He was too tall a man (to fit in a submarine).
- b. He was [PP [too tall], [PP a [kp man] *t_i*] (to fit …)
- c. I consider him [PPP [too great, [PD a [kp painter] *t_i*] (for this exhibit).

The problem with (394)c seems to be the fact that, in order to raise out from “the [too many] N,” the QP “too many” has to use [Spec, SDP] as an intermediate landing site, but the determiner in SD^{max} makes this specifier unavailable, perhaps due to φ -feature mismatch. This hypothesis is confirmed by the fact that in Italian *ne* extraction is impossible when SD^{max} is filled by a determiner.

- (396) Ne_i conosco [SPP (*i) [PP molte *t_i*]]
of.them I.know [(the) [many *t_i*]]

Whatever the precise reason of this effect, the facts can be stated as:

- (397) **Proposal:** The specifiers of a lexically filled SD^{max} cannot be used as an (intermediate) landing site.

At the moment, this is a stipulation, and one with dire consequences, since, as we shall see, SD^{max} and PD^{max} are also barriers in the system of Chomsky (1986a). It is possible that this filter should be relaxed, in light of other facts related to *ne* extraction, discussed in section 5.4.4 on page 228. In any event, in chapter 6 I will show that in many cases the effect of (397) can be derived from independently motivated consideration on the X-theoretic status of determiners.

Even with this constraint in place, we couldn’t rule out an AdjP in the specifier of an empty SD^{max}. Consider two S-structures for the impossible argumenital use of “too tall a man.”

- (398) a. I saw [SDP SD⁰ [PP [too tall], a [[kp man] *t_i*]]]
- b. I saw [SDP [too tall]_i SD⁰ [PP a [[kp man] *t_i*]]]

(398)a is not possible because “too tall” is in the embedded [Spec, PD_P] position from where it cannot license purpose/extent clauses. But (398)b should be fine: “too tall” is in a position where it should be able to license its clause, much as “too many” in (394)a. Also, in (398)a, the SD head is not lexically filled, therefore a filter relying on the presence of an overt determiner in SD^{max} cannot be invoked to prevent “too tall” from raising via [Spec, SD_P].

This is where the second part of the spec-head licensing condition in (388) plays a crucial role. The critical fact is that the phrase “too tall” is not a referential element, nor a quantifier to undergo QC,²⁰ but a predicative category. Its requirements are contradictory: on the one hand, it should move to the highest DP position available to license purpose/extent clause; on the other, if it moves to [Spec, SD_P], it cannot license SD⁰ because it does not correspond to a semantic type *e*. Assuming that the presence of an element in [Spec, SD_P] ‘closes off’ any other type of licensing (in particular, by V), ungrammaticality results.

Contrast now “too tall” with “too much,” “enough” and “more,” which license purpose/extent or comparative clauses, but can appear in argumental position and therefore must be SDPs (witness “I saw { too much / enough / more }” repeated from (190) on page 78). Raising constructions containing these phrases have the distribution of full arguments:

- (399) a. {Enough / Too much / More} of a scholar would change the reputation of
the school.
b. I (don’t) want to see {enough / too much / more} of you.

This is expected in my account: being arguments, therefore SDPs, “too much,” “enough” and “more” can appear in [Spec, SD_J], and license the SD⁰. For similar reasons, the N-of-an-N construction, too, can be either argumental or predicative, since ‘a girl’ can be either an SDP or a PD_P.

- (400) a. A jewel of a girl entered the room and smiled at me.
b. I watched a jewel of a girl walk by.
c. She was a jewel of a girl.

A final point needs to be addressed. “Of” is generally omitted with the operator “too tall,” but must be present with operators that are SDPs (cf. “enough ??(of) a man,” in the reading under consideration). Now, suppose that the origin of “too tall a man” is the attributive-predicative position occupied by “alone” in “a man alone,” and that the AdjP small-clause can be inserted directly under the maximal projection hosting

²⁰Copular constructions like (395a) block movement of operators such as “any” from PD^{max} (cf. “John isn’t any American,” and the discussion in section 5.2.5.2 on page 193); the fact that “too tall” can easily appear in this position (cf. “John isn’t too tall for Mary”) shows that “too tall” does not need to raise from it.

“a” (PD^{max}), taking as its argument a KIP, without reduplication of categories. At S-structure, “too tall” may or may not move to [Spec, “a”], forming the two structures, attributive-predicative and raised, in (401)a and b.

- (401) a. ... [PDP [PDP a [AdjP [kIP man] [AdjP too tall]]]]]
b. ... [PDP [AdjP too tall][PDP a [AdjP [kIP man] tall]]]]

For cases that admit “of,” we should adopt a configuration closer to the *kind*-construction, which I will not spell out here.²¹

In conclusion, the conditions on spec-head licensing with predicative categories explain why “too much,” “enough,” “a jewel” but not “too tall,” “so tall” can participate in a fully argumental pivotal-“of” construction.

4.3.2 On some differences between SDP and KIP

Let’s now return to raising within the *kind*-construction, to see how it interacts with spec-head licensing.

One thing I had left unexplained so far was why, if both the kind- and the content-noun can move to [Spec, KIP], only the latter must be preceded by a determiner.

- (402) A [car of this kind]
(403) (*A) [this kind of car]

Being an SDP, the kind-nominal can always move past [Spec, KIP], to [Spec, SDP], licensing an SD⁰.

- (404) [SDP [every kind]_i [SD_P SD⁰ ... [kIP t_i of [kIP car] t_i]]]]

The specifications of spec-head licensing given above predict that the bare KIP [car] should also be capable of licensing SD⁰, and the whole *kind*-construction, without a determiner. This is indeed possible, yet there is a subtle difference between KIP and SDP licensing. Recall the assumption that an empty head requires both formal licensing and identification. C-selection by V or P satisfies both conditions for SD⁰, while for PD⁰ the two requirements are split: SD⁰ receives its formal licensing via the relation of predication, but in languages like Italian or English it is identified by mass/plural features, or under lexical government by a filled SD head (cf. section 4.1.2). Now, unlike an SDP or a quantifier, a singular KIP cannot identify a PD⁰ head, perhaps for lack of the appropriate syntactic features; plural/mass features are also needed. We have:

²¹A possibility is that the appearance of “of” facilitates LF-movement of the raised SDP out of a left branch of the main DP. Since adjectives do not move out, “or” is not needed. See Den Dikken (1995) for discussions.

- (405) [SDP [kip ears] SD⁰ [pp_P PD⁰ + P_{LUR} [kip of t these kinds]]]

In English, this looks identical to an uneventful bare plural; in Italian, its distribution is much wider than ‘normal’ bare plurals. For instance, it can appear as the subject of IL-predicates, even with predicates like *raro* “rare” or *diffuso* “widespread,” which normally force the definite article. Contrast the (a) cases (normal bare plurals with a complement) with (b), the corresponding kind-constructions.

- (406) a. *Scrittori di questi romanzi sono {rari / diffusi / intelligenti}.
writers of these novels are {rare / widespread / clever}

- b. Scrittori di questo tipo sono {rari / diffusi / intelligenti}.
writers of this kind are {rare / widespread / clever}

- (407) a. *Uccelli delle fattorie moderne sono {rari / diffusi / stupidi}.
birds of the modern farms are {rare / widespread / stupid}

- b. Uccelli di queste varietà sono {rari / diffusi / stupidi}.
birds of these varieties are {rare / widespread / stupid}

Note that in (b) the SD⁰ head doesn’t need to be lexically governed externally: licensing comes from KIP plus plural features.

4.4 The SD^{max} level

Having reviewed the distribution of various quantifiers and operators across the three highest DP projections, I now turn to discuss the ‘referentiality’ that I have associated with the highest projection, SDP, and the notion of N-to-D movement.

The idea of associating ‘referentiality’ to a section of the noun phrase distinct from the noun itself is once again not a new one. In syntax, it is typically associated with the issue of the position of personal pronouns, going back, at the very least, to a debate between Postal and Sommerstein on the nature of determiners and pronouns. On the basis of distributional analogies between pronouns and articles, Postal (1966) proposed that pronouns in English are actually definite articles followed by the deleted nominal head “one”; “he” would be the suppletive form for “the one.” In reply, Sommerstein (1972) proposed that the definite articles are actually pronouns, and that the noun following them is a reduced relative clause. Sommerstein’s view is inspired by data from Ancient Greek (408) and Malagasy, where a noun phrase can be construed by appending to the article any phrase that can appear in post-copular predicative position.

- (408) a. Oi peri Cléôna
the around Cleon
“The associates of Cleon”

- b. Oi ekeî
the there
“the people there”

Since sentences of this sort can be construed as ‘the entities that are around Cleon/there,’ why couldn’t “the man” be interpreted as ‘the entity that is a man?’ Adapted to modern terminology, Sommerstein’s position is that the article is just a form of the pronoun that requires for some property to be predicated of it.²²

Abney (1987), following Emonds (1985), proposes that pronouns are syntactically ‘intransitive determiners.’ Pronouns are incompatible with determiners (*“the he,” **“that she”), but marginally compatible with nouns, in constructions such as ‘we doctors,’ “you amusing comedians” (see Postal 1966, Cardinaletti 1993). In several languages, the similarity between determiners and pronouns is apparent at the morphological level; thus, in English, the system of strong deictic pronominals (“this / that / these / those”) doubles as a system of determiners (“this/that house,” “these/those houses”).

These facts, although suggestive, do not tell us anything about the role played by the SD^{max} level in and of itself. Pronouns and deictics are surely prime examples of referential elements, but this doesn’t rule out the possibility that they may appear in noun phrase positions different from SD. I would like to move a step further in the direction of a strong mapping between syntactic structure and meaning, and argue that, in order to obtain a referential reading, an element *must* be interpreted in SD^{max}, and more precisely in the head SD.

4.4.1 Noun movement to SD^{max}

A case in point is proper names. Consider (15):

- (409) a. That man is an Einstein.
b. That man is Einstein.

(409)a can either mean ‘that man has some properties that are typical of Albert Einstein, the discoverer of the Theory of Relativity,’ or ‘that man is a member of the Einstein family.’ (409)b, can mean either ‘that man is the genuine Albert Einstein,’ or ‘he is playing the role of Einstein (e.g., in a movie).’ Yet, (409)a and (409)b have no common meanings; replacing “the” for “a” in (409)a doesn’t help. Both meanings of (409)a are *properties*; the interpretations for (409)b are a rigid designator and the corresponding role.

Two questions arise; first, what triggers the rigid, referential interpretation typical of proper names, and why cannot this interpretation be selected in (409)a? Second, if like “the [up to a year] that it takes students to complete this requirement,” noted in Abney (1987),

²²Even in English, where this predicational element must normally be a noun, there are exceptions like “the [up to a year] that it takes students to complete this requirement,” noted in Abney (1987).

"Einstein" is a noun in (409)a, how come it can appear as a 'bare singular' in (409)b, violating a widespread prohibition against these constructs (cf. *“this is table”)?

Longobardi (1994) proposes that these two problems have the same answer: a certain class of nominal expressions, proper names *in primitis*, must secure their referential status by moving to the position normally occupied by the determiner, in the highest head position of DP; by doing so, they resolve the prohibition against empty singular determiners, allowing an apparent bare singular. As evidence for a determiner position of Romanee proper names, Longobardi shows that in Southern varieties of Italian, proper names can appear either after or immediately before the possessive adjective:

- (410) a. Il mio Gianni ha finalmente telefonato.
the my Gianni has finally called
- b. Gianni mio ha finalmente telefonato.
Gianni my has finally called

Since Italian possessive adjectives in argumental DPs are always preceded by a determiner and usually adjacent to it, and argumental bare singulars are impossible, it is reasonable to conclude that in (410)b, the name has replaced the determiner. In this respect, this operation must be carefully distinguished from the N-to-D movement that we have seen in Romanian (also present in Semitic languages, see Ritter 1988), where N is *joined* to the D head, without replacing it. Semantically, the Romanian head-adjunction is inert, while according to Longobardi movement by substitution has important semantic consequences.

More evidence for N-movement to the D position in Italian comes from the adjective *solo* ("solo/a/i/e" MSng/FSng/MPL/FP). *Solo* can appear either before or after the noun, with different meanings; pre-N *solo* means "only," post-N *solo* means "alone."

- (411) a. La sola ragazza presente era antipatica.
the only girl present was nasty
- b. La ragazza sola presente era antipatica.
the girl alone present was nasty

With proper names, *sola* has the "only" meaning both in pre-N position and after the proper name. The "alone" meaning is generally impossible.

- (412) a. La sola Maria si è presentata.
the only Maria showed up
"Only Maria showed up"
- b. Maria sola si è presentata.
Mary only showed up
"Only Mary showed up"

Given that the semantic shift in adjectival meaning in Romance typically correlates with a different position (see Crisma 1991; Crisma 1996, Giusti 1992b, Zamparelli 1994), the contrast between (411) and (412) can plausibly be a result of the fact that the relative position of *sola* with respect to the noun is the result of the noun raising to D, past *sola*.

In the same vein, Cardinaletti (1993) has proposed that so-called *strong* (= *tonic*) pronouns in Romance languages (e.g. *lui/he_{MSng}*, *lei*, *she_{FSng}* in Italian) differ from *clitic pronouns* (*lo/la* "him/her" and *lì/l'e* "them_{MP/FP}") in that the latter are heads of D^{max}, the former heads of NP, which raise to the D position in syntax. The test with *sola* can in fact be adapted to strong pronouns.

- (413) a. Solo lei
only-0Agr she_{FSng}
- b. Lei sola
she_{FSng} only-0Agr
- c. [Q] lei_i [Q solo + Agr [NP t_i]]

In pre-N position, *solo* lacks agreement, while when it follows the pronoun, it preserves the "only" meaning and it agrees with the pronoun in gender and number, a fact that Cardinaletti interprets as the sign of raising of the pronoun to the specifier of a Q(uantifier)P(hrase) hosting *solo* in its head (cf. Giusti 1992b, Shlonsky 1990). Given that pronouns are canonical non-predicative categories, in my theory D^{max} will be mapped onto SD^{max}, not PD^{max}.

It remains for us to show the other side of the proposal: that not only referential elements *can* be interpreted in (S)D^{max}, but that they *must* be. Longobardi (1994) notes that a few Italian common nouns (e.g. *camera* "room," *casa* "home") share with proper names the possibility of raising to D, accompanied by a semantic alternation.

- (414) a. L' ufficiale sperava che gli fosse riassegnata la sua camera.
the officer hoped that to_him would_be reassigned the his room
 - b. L' ufficiale sperava che gli fosse riassegnata camera sua.
the officer hoped that to_him would_be reassigned room his
- (414)a can mean: the officer hoped that he would be reassigned a room all for himself (a private room), or: the same room that he used to have before. But (414)b can only have the latter meaning, where *camera sua* functions as a rigid designator. Other Italian nouns exhibit a similar alternation:
- (415) a. {Lo scorso / Il prossimo / Il primo / Il precedente} giovedì
{the past / the next / the first / the previous} Thursday
 - b. Giovedì {scorso / prossimo / *primo / *precedente}
Thursday {past / next / first / previous}

- (416) a. Si è mascherato da Cameresi vecchio.
 he has disguised himself as Cameresi old
 "He disguised himself as Cameresi when he was old"
- b. Si è mascherato da vecchio Cameresi
 he has disguised himself as old Cameresi
 "he disguised himself as an old member of the Cameresi family"

In (415), "the next/past Thursday" deictically (hence, rigidly) identifies a day given the time of utterance, while "the first/last Thursday" doesn't (it could be the first Thursday of the month, the year, etc.); accordingly, *gioredi* can raise to D past the former adjectives, but not past the latter one. In (416), taking a family name, *Cameresi*, we see from the translation that only when the name precedes it can the adjective *vecchio* "old" be attributed to a particular member of the family.

Similarly, only *Giorgio primo* in (417)b unambiguously refers to a certain king.

- (417) a. Il primo Giorgio
 the first Giorgio
 "The first person named Giorgio"
- b. Giorgio primo
 Giorgio first
 "Giorgio the first"

4.4.2 Longobardi's (1994) theory

These data induce Longobardi to adopt a view close to Sommerstein's, which is shared in this dissertation with respect to the class of strong determiners, namely that the structure in (418)a can be (informally) interpreted as (418)b. The determiner D (for us, a *strong* determiner) acts as an operator over a variable provided by the (S)D-position itself, of which the content of the CN is predicated.²³

- (418) a. [D [N]]
 b. D(x), such that x belongs to the class of Ns

Personal pronouns are directly referential to objects, and proper names are directly referential to objects in their unmarked usage, while when they do not appear in SD they must be interpreted by accessing some of the salient properties associated with an individual by that name (as in (409)a).

From these premises, Longobardi (1994) sets out to explain the following contrasts between English and Italian:

²³In the following sections, I will keep using big D as a variable over (strong) determiners, and D to indicate the structural head of D^{max}. For consistency with Longobardi's system, I will not adopt the SDP notation, but the reader should map D onto SD.

- (419) * Vecchio Gianni entrò.
 Old John came in
 "The John came in"
- (420) Il Gianni entrò.
 * The John came in
- (421) *(I) grandi castori costruiscono dighe.
 (*The) big beavers build dams

(419) and (420) show that a proper name must move to the D position at SS in Italian, and that in doing so it may leave some adjectives behind.²⁴ In some Northern varieties of Italian (as well as in Catalan and in several Southern varieties of German), a definite determiner is strongly preferred before a proper name. In English, on the other hand, adjectives can precede a proper name even when it is interpreted rigidly, and determiners are entirely impossible before proper names.

The common restriction against bare singulars in the two languages suggests that a singular empty D head is impossible in either language.²⁵ Given this assumption, Longobardi interprets the contrast above as meaning that the prohibition against D⁰ is checked at LF in English, but at SS in Italian. English can delay proper name (PN) movement to fill D to LF, while in Italian this movement must occur by SS.

To extend the analysis to the bare plural case in (421), Longobardi adopts two ideas from the literature on genericity: that bare plurals interpreted generically as referring to 'kinds' are 'rigid' like proper names—that they are in other terms, 'proper names of kinds of things,' as proposed in Carlson (1977)—and that Italian and Romance languages in general have a form of definite article which is semantically vacuous, functioning as an 'expletive' inserted in D to avoid a D⁰ at SS (Ramat 1985, Vergnaud and Zubizaretta 1992). This is the premise to a strong syntactic parallel between proper names and kind-denoting noun phrases; in English, both types of nominals raise to D at LF, licensing it, and making the DP denote individuals in the domain: kinds, in the case of bare plurals, singular ordinary individuals in the case of proper names.²⁶

What happens in Italian, where proper names seem to move at SS? Longobardi proposes that Italian inserts in D a semantically vacuous definite determiner whose sole purpose is to form an expletive-argument CHAIN (in the sense of Chomsky 1986b) with the kind-denoting noun in N.²⁶

²⁴The class of adjectives that can be pass by noun movement in Italian is very limited. See Longobardi (1994) for details.

²⁵Recall that I have obtained the same result by splitting the problem of empty D positions across SDP^{max} and PDP^{max}.

²⁶The underlying assumption here is that the denotational status of the determiner position affects 'chains,' not single elements. Longobardi posits an interpretational difference between proper names and bare plurals: in the latter, both the foot (N) and the head (D) of the chain are interpreted, while with proper names, the foot of the chain is not interpreted. The rationale is that N is the locus for the kind interpretation, while the D position is reserved for the denotation of *singular* individual objects

Independent evidence for the existence of a ‘vacuous’ form of determiner abounds. First of all, the definite article that surfaces in Italian kind-denoting noun phrases, in (421), lacks any kind of familiarity presupposition. The kind ‘beavers’ here needs no previous introduction, and it may be novel in the strongest possible sense, as with composite kinds built on the fly, such as *i castori riintrodotti in una regione senza vaccinazione antirabbica* “beavers reintroduced in a region without vaccination against rabies.” Second, the class of adjectives that can be interposed between this definite determiner and the noun is very limited, essentially a subset of the class of pre-N adjectives for which Bernstein (1993) proposes head status within DP (422)a.

As soon as non-restrictive pre-N adjectives and numerals are inserted (422)b, the noun phrase immediately takes up a ‘subkind’ interpretation, and the Familiarity Condition is reinstated, as shown by the glosses. Similarly, any determiner different from the definite (e.g. *questi* “these”) triggers the sub-kind reading.

- (422) a. I {veri / finti} politici sono rari.
 the {true / fake} politicians are rare
 “true/fake politicians are rare”
- b. ??I (due) disonesti politici sono comuni.
 the (two) dishonest politicians are common

Only marginal meaning: “the (two) kinds of dishonest politicians are common”

A vacuous determiner appears before proper names, too, in many varieties of Italian and German dialects, and in Catalan. The Catalan case is particularly interesting, since the expletive determiner is morphologically distinct from the contentful one:

Catalan, Longobardi (1994)

- (423) a. El gos
 the dog
 b. En Pere
 the Peter

Finally, the dialect of Frisian spoken in the island of Föhr provides direct evidence for the idea of a single ‘expletive’ determiner that surfaces with proper names and kind-denoting noun phrases. In this dialect, the latter two types of noun phrases use a special form of determiner (*a/at Sing, a Plur*) (see Longobardi 1994, citing Ebert 1970).

It remains to be addressed the issue of the *existential* interpretation of bare plurals, the only one available in Italian in the (lexically governed) positions where unmodified bare plurals are possible. Longobardi’s proposal is that this interpretation is a (whence the necessity of the determiner for *plurals* proper names: “(the) United States’). Leaving the foot of the chain uninterpreted amounts to restricting the proper name interpretation to singular individuals.

‘default value’ for D⁰ heads which are not filled by proper names, common nouns raised in the kind interpretation, expletive or regular determiners. Once this existential interpretation is assigned, D⁰ enters LF without content, and it is subject to the lexical government requirement. This is potentially problematic for pre-verbal position of stage-level verbs as (424)a, since in this case Italian yields an ill-formed sentence (424)b. Building on Diesing (1992), Longobardi proposes that in English the subject of Stage-level predicates may reconstruct to a VP-internal position in which it is lexically governed by V or by I itself. In Italian, where unmodified pre-verbal bare plurals range from impossible to very marginal even with stage-level predicates, we need to assume that reconstruction of this sort is unavailable, hence the ungrammaticality of (424)b.

- (424) a. Dogs barked
 b. ?Cani abbaiaono.

4.4.3 A minimalist implementation

I will now give a more schematic overview of Longobardi’s (1994) final implementation, cast in the minimalist framework of Chomsky (1992), and move from it to some possible improvements in the multi-layer system.

Longobardi proposes that D may contain a feature ±R(eferential), which is used to distinguish between ‘object-denoting’ (i.e. proper names and pronouns) and ‘kind-denoting’ (i.e. common nouns) LF-occupants of D. The feature ±R must be checked. This is done when a chain (or an expletive-argument CHAIN, in the sense of Chomsky 1986b—I will gloss over this distinction here) of the appropriate type is established with D. Chains containing (or constituted by) a pronoun or a proper name are appropriate checkers for +R D; chains containing (or constituted by) a common noun or a D⁰ with existential interpretation are appropriate checkers for a -R D. The level at which checking must occur is a parameter that differs across languages. In Italian, checking must occur before the sentence is pronounced (the SPELL-OUT phase); in English, this constraint is not enforced, therefore—following a general principle that delays movement operations as long as possible, the so-called ‘Procrastinate’ principle—the chain licensing D is established only at LF.

There are potentially five ways of forming the chain: (a) generation of a non-operator element in D, (b) generation of a regular determiner in D (c) movement of an element in D, (d) interpretation of D as a ‘default existential,’ and (e) generation of an expletive determiner in D, coindexed with an element of the appropriate type (common noun or proper name) in NP. Of these strategies, the last one is limited in English, which lacks a plural expletive “the.” Finally, let’s assume that the lexical government requirement on empty D universally applies at LF.

Let’s now consider all the possible combinations, with PR = *pronoun*, PN = *proper name*, CN = *common noun*.

Case 1: D is +R(eferential)

a. Base-generation in D:

- i. $[\text{D}_P \text{PR}^{+R}]$

b. Determiner in D:

- i. * $[\text{D}_P \text{D}_i [\text{NP} \text{PN}_i^{-R}]]$

c. Raising to D:

- i. * $[\text{D}_P \text{PN}_i^{+R} [\text{NP} t_i]]$

- ii. SS: $[\text{D}_P \text{CN}_i^{-R} [\text{NP} t_i]]$

d. Existential interpretation of D:

- i. LF: $[\text{D}_P \text{D}^0 [\text{NP} \text{CN}_i^{-R}]]$

e. Expletive determiner in D:

- i. * $[\text{D}_P \text{D}_{\text{expl}}^i [\text{NP} \text{PN}_i^{+R}]]$

- ii. $[\text{D}_P \text{D}_{\text{expl}}^i [\text{NP} \text{CN}_i^{-R}]]$

PR(onoun) is +R, a single member chain generated in D. If Cardinaletti (1993) is correct, PR must also be a clitic.

Impossible: PN cannot restrict the range of D, and a normal determiner cannot form a chain with PN. Impossible: R-feature mismatch.

c. Raising to D:

- i. LF: $[\text{D}_P \text{PN}_i [\text{NP} t_i]]$

- ii. * $[\text{D}_P \text{CN}_i^{-R} [\text{NP} t_i]]$

d. Existential interpretation of D:

- i. *LF: $[\text{D}_P \text{D}^0 [\text{NP} \text{CN}_i^{-R}]]$

e. Expletive determiner in D:

- i. * $[\text{D}_P \text{D}_{\text{expl}}^i [\text{NP} \text{PN}_i^{+R}]]$

- ii. $[\text{D}_P \text{D}_{\text{expl}}^i [\text{NP} \text{CN}_i^{-R}]]$

This schema gives the possible combinations for all cases, correctly excluding the possibility for simple Italian bare plurals to take the kind interpretation. However, the use of the $\pm R$ feature seems to go against the spirit of the Kinds = PNs idea. In the picture above, the kind-reading of common nouns corresponds to the same R-feature setting of the quantificational usage of determiners. Kinds do not pattern with proper names any more.

In what follows, I propose a different approach, in which the proper names/kinds parallel is reinstated. I adopt Longobardi's idea that both proper names and common nouns raise to D to be interpreted, and that there exists the possibility of an 'explicative determiner', but I do not make use of a $\pm R$ feature. The same result is obtained by assigning to D the status of a variable.

4.4.3.1 Proper names and strong quantifiers

Consider the raising-to-D approach in the perspective of multiple layers, with D mapped onto SD—the projection that hosts strong and referential uses of determiners.

In the discussion on ES, (section 2.3.4 on page 50), I mentioned the widespread observation that strong determiners are presuppositional (de Jong 1991, Barwise and Cooper 1981, Lumsden 1988, Zucchi 1995). This important feature has been captured by saying that a filled SD^{max} level triggers a presupposition of existence for the objects the variable SD ranges over. The presuppositional behavior of strong determiners closely resembles the presupposition carried by the proper name and by pronouns in their referential usage—their Descriptive Content Condition. Negative statements such as “I didn't find {Jack Johns / him / every unicorn}” preserve the presupposition that Jack Johns exists, that the man referred to by “him” in the context of utterance exists, and that a non-empty set of unicorns exists.²⁷ This is an important similarity, which the N-to-D approach should try to capture.

²⁷It is not clear whether bare plurals have to obey the Descriptive Content Condition. If they do

Case 2: D is -R(eferential)

a. Base-generation in D:

- i. * $[\text{D}_P \text{PR}^{+R}]$

b. Determiner in D:

- i. $[\text{D}_P \text{D} [\text{NP} \text{PN}]]$

- ii. * $[\text{D}_P \text{D}_{\text{expl}}^i [\text{NP} \text{CN}_i^{-R}]]$

Possible only if PN is reinterpreted as a property, thus restricting the range of D.

The ‘normal’ case: D quantifies over a variable constrained by CN.

Next, consider the way the existential meaning is obtained in the system described above. Longobardi assumes that the D position can be assigned a ‘default’ existential meaning. Critically, this is a possible *lexical* meaning of D⁰, since English and Italian do not differ in this possibility, and they both require lexical government at LF for empty heads; their contrast in (424) must be attributed to whether lexical government is or isn’t possible. However, this two-way distinction doesn’t capture the fact that the Italian situation is more graded: bare plurals in object position are fine in the existential meaning (425)a, bare plurals in subject position of stage-level predicates are very marginal, but can be improved by heavy modifiers (425)b, and bare plurals in subject position of IL-predicates are entirely out in the existential reading, just like in English, and cannot be saved by heavy modification (425)c (setting aside coordination and the class that I have analyzed as pivotal ‘of’ raising in section (4.2.3)).

- (425) a. Ho visto soldati.
I have seen soldiers
- b. Soldati ??(che si reggevano a stento in piedi) {erano appena
soldiers (that could hardly walk on their feet) {had just
arrivati / camminavano per le strade}.
- c. *Soldati (che si reggevano a stento in piedi) erano {alti / italiani}.
soldiers (that could hardly walk on their feet) were {tall / Italian}

The difference between (425)b and c suggests that, above and beyond the syntactic problem of an unlicensed empty D, (425)c is uninterpretable for the reasons suggested by Kratzer/Diesing’s Mapping Hypothesis, namely that the bare plural provides a variable which needs to be bound by an operator external to DP, and with IL-predicates, the subject is (presumably) in a position where such binding is impossible. Following Diesing and Kratzer, I have taken this operator to be some form of Existential Closure, available only with subjects of SL-predicates, perhaps due to their internal pre-QR position ([Spec, VP], according to Diesing 1992, but see Déchaine 1994). Evidence from German in Diesing (1992) suggests that this position is available only with SL-predicates like ‘be here’ or ‘have arrived,’ not with IL-level predicates. Under this hypothesis, (425)b would be out only because SD⁰ is unlicensed, but (425)c would be out because it is both unlicensed *and* unbound. Saying that an empty SD is a variable rather than an existential quantifier has two additional advantages. First, it dovetails with the well-known fact that pronouns (other possible occupants of SD) can function as variables, as in “no student_i thinks that he_i is smarter than his professor.” Second, it makes room for a treatment of genericity as the one advocated in Wilkinson (1991), Diesing (1992), Krifka (1995), not, this could be accommodated by appealing to the modal character of the notion of ‘kind,’ as in Diesing (1992), chapter 4. See also Putnam (1970) for a discussion of ‘natural kind terms’ as rigid designators.

Krifka et al. (1995) and others, in which the generic reading can be either a genuine predication over kinds (as in Carlson’s original proposal), or the result of quantification by a ‘generic’ quantificational operator, Gen, over a free variable associated with the bare plural. In these ‘mixed’ theories of genericity, Gen is regarded as an adverb of quantification (in the sense of Lewis 1975) with context-dependent force, meaning something along the lines of “in most normal cases.”

4.4.3.2 Tests for ‘kindhood’ and their results

In the literature on genericity in natural languages, three types of predicates have been proposed to test whether a noun phrase is interpreted ‘generically.’ They are:

- (426) a. **Generic predicates (GPr):** Books are (typically / usually) made of paper.
- b. **Cumulative predicates (CPr):** Books are {numerous / common / rare / widespread / decimated / coming in short supply / decreasing in number ...}
- c. **Natural-kind-predicates (NKPPr):** Dinosaurs {died out / were exterminated / first appeared in that era / are extinct / evolved from fish ...}

Of these, only the first type can be modeled using a quantificational operator (Gen). The translation of (426)a using Gen would be:

- (427) Gen(x)[book'(x)][made-of-paper(x)]

No such translation is possible for the other two types of predicates, CPt and NKPt. The only appropriate way of treating them remains Carlson’s (1977) approach which makes them predicates of kind-level objects:

- (428) a. common'(books^k)
b. extinct'(dinosaurs^k)

Carlson (1977), Reinhart (1987) and others note that generic sentences with indefinite (and numeral) determiners allow GPr, but not CPt or NKPt.

- (429) a. An Italian {usually} plays the mandolin / * is widespread / * evolved from fish}
- b. Eleven soccer players {(always) form a team / * are common / * evolved from gorillas}

Thus, Krifka et al. (1995) and Wilkinson (1991) propose that generic sentences with GPr should be treated quantificationally, while generic sentences with CPt and NKPt should be treated as predictions over kinds.

On the other hand, all the examples in (426) are rendered with the definite plural article in Italian. How does the split treatment of genericity interact with the existence

of ‘expletive articles’? I shall examine two cases, German and Italian, and conclude that in both languages the occurrences of the expletive definite determiner in generics signals true kind-level predication and absence of **Gen**.
 In Southern German, generic sentences like (430) may or may not insert the definite determiner. The determiner doesn’t change the meaning, and it doesn’t carry any familiarity presupposition, so it is plausible to regard it as semantically inert, like the determiner preceding proper names in Southern dialects of German, and in Northern Italian. The predicate in (430) is a GPr; Brugger (1993) points out that with NKPr, as those in (431), the article becomes obligatory. If the definite article is missing, the only possible reading is subkind.

- (430) ... daß (die) Elefanten wertvolle Zähne haben
 ... that (the) elephants precious teeth have
- (431) a. ... daß Dinosaurier dabei sind auszusterben becoming extinct
 dots that dinosaurs ‘indeed’ are
Only: that subkinds of dinosaurs are becoming extinct
- b. ... daß Insekten nicht aussterben können
 ... that Insects not become-extinct can
Only: that subkinds of insects cannot become extinct

In English, one can obtain the same effect by combining an overt adverb of quantification (playing the part of **Gen**) with a NKPr like “originate”:

- (432) a. Apples often originate in northern regions.
 b. Often(x)[apples^k(x)][originate-in-N-regions^k(x^k)]
- c. In-no-cases(x)[insects^k(x)][can-become-extinct^k(x^k)]

Therefore, Brugger (1993) suggests that in German, bare plurals cannot denote kinds; only nominals preceded by the expletive determiner can. Bare plurals can be bound by **Gen** and thus ‘emulate’ the behavior of kind-denoting nominals at least with respect to GPr.²⁸

In Italian, combining an overt adverb of quantification with a NKPr or CPr yields marginal or ill-formed results (433). (433)a cannot mean: ‘many varieties of modern dogs have been bred from the jackal,’ which would be the only sensible meaning, and is available for the English ‘Modern dogs have often been bred from the jackal.’ In (433)b and c, the adverb of quantification can quantify over subkinds of insects/-reptiles only when the demonstrative is used.

- (433) a. ??I cani moderni sono stati spesso selezionati dallo sciacallo.
 the dogs modern are been often bred from.the jackal

- b. {Questi / ??Gli} insetti sono spesso molto comuni sulla Terra. CPr
 {These / the} insects are often very common on Earth NKPr
 c. {Questi / ??I} rettili in molti casi sono estinti.
 {these / the} reptiles in many cases are extinct

This evidence suggests, that with the expletive article present, there is no variable left for **Gen** to bind, and the resulting DP is a true kind-denoting entity. Recalling that the expletive definite must be adjacent to the noun, we can build a contrast where the definite determiner is *not* expletive, and quantification over subkinds is possible again:

- (434) a. I primi cani domestici sono stati spesso selezionati dallo sciacallo.
 the first dogs domestic are been often bred from.the jackal
- b. I molti insetti della zona sono spesso comuni su questo continente.
 the many insects in.the area are often common in this continent

It is not entirely clear what treatment should be appropriate for adverbs of quantification in this case. ‘Situations’ (in the sense of Kraizer 1987) come to mind. Whatever the mechanism used, they don’t seem to bind the expletive determiner, in line with the idea that this determiner is merely a place-holder for a noun.

It is now time to spell out a theory about the ‘special connection’ between nouns and the D position.

4.4.4 An analysis for proper names and kind-denoting common nouns

To begin with, let’s put forth the following assumptions:

- (435) **Assumption 1:** Proper Names denote individuals in the domain.

- (436) **Assumption 2:** Common Nouns denote individual ‘kinds of objects’ in the domain.

Assumption 1 needs no comments. Assumption 2 is more controversial, mostly because it requires a certain amount of machinery so that we may derive, from a kind, its extension (i.e. the set of individuals that are instantiations of that kind). However, this seems to me a forced choice if we want to give a unified semantics for the operation of raising-to-D. If we assume that common nouns and proper names denote, respectively, ordinary individuals and kinds when in SD, it is hard to imagine that they acquire this denotation *in virtue* of their movement to D. On the other hand, proper names and common nouns are clearly distinguished by the fact that only the latter have a *descriptive content*, i.e. they can be effortlessly turned into properties (their extension) by two operators: **KO** (from Kinds to Objects), which constructs the set of all the individuals that instantiate the kind, and **SKK** (from Kinds to SubKinds)

²⁸However, the use of CPr in this test yields unclear results (Brugger, p.c.).

which constructs the set of all the subkinds of a given kind. I give the formal definitions of these operators at the end of this chapter.

(437) **Assumption 3** Nominals must be coindexed with D at LF in order to function as elements of sort *e* (kind-denoting or ordinary-individual denoting).

(438) **Assumption 4** An SD head must be licensed at SS in Italian and at LF in English.

Assumption 3 is a variation on Longobardi's system that lumps together proper names (+R in his system) and common nouns (-R in his system). There are two ways to satisfy the coindexing requirement. One is to insert a semantically vacuous definite determiner, 'expletive' in the sense that it is coindexed with the proper name or common noun *in situ* inside KIP/NP. The second one is to move the noun to SD, at LF or SS.

Assumption 4 (essentially from Longobardi 1994) states that, if movement is the solution of choice, it must occur at SS in Italian, but it can be procrastinated until LF in English. It remains to say *what* can license an SD head, and what it means for SD to be licensed. Here, I want to hold on to the idea that, semantically, SD is first and foremost a variable. Thus, there are two issues: how this head is going to be bound by an operator, and how it is going to be licensed syntactically, particularly when it is empty. My claim is that in some cases, the element that syntactically licenses SD binds it, too. In other cases, binder and licenser are different.

Syntactic Licensors for SD

- a. Head-Government from V, P (perhaps I);
- b. Spec-Head licensing, as specified in (388) on page 142;
- c. Expletive Determiners;
- d. Bound Pronouns.

Syntactic Licensors and Binders for SD

- a. Strong Determiners;
- b. Pronouns (referential);
- c. Proper names (raised at SS or LF);
- d. Common nouns (kind-denoting, raised at LF).

²⁹I will disregard PD in what follows. Head movement of the noun, and/or the presence of a determiner in SD, expletive of not, should be sufficient to license an empty PD head.

³⁰The "the" in "the United States" might be an expletive that is inserted as a last resort for the problematic case of a plural proper name. Cf. the discussion in Longobardi (1994).

³¹I hypothesize that the plurality of a kind-denoting common noun (*viz.* "...(the) United States," "...(the) Bahamas," etc.) is relevant to explaining why raising to SD at SS is not an option in Italian, a fact for which Longobardi stipulates an R-feature mismatch.

'expletive definite determiners'—vacuous semantic elements coindexed with a referential element in their complement—together with Abney's idea that pronouns are intrinsitive determiners, the idea that the bound reading of pronouns is just the expression of an 'expletive' function of the pronoun, where the SD variable remains free for an external operator to bind is—I believe—the most natural extension (see also Zamparelli 1996). This can be stated as:

(439) **Proposal:** Bound readings of pronouns are expletive readings of pronouns.

The second class of licensers are at the same time syntactic and semantic licensors. Strong quantifiers bind the variable SD and require Q-raising of the DP at LF and Q-construal to be interpretable. In some cases, they are generated in SD^{max} (all unambiguously strong determiners); in others, they are moved to SD^{max} from PD^{max}, a possibility discussed further in chapter 6.

Proper names, common nouns and pronouns in their referential usage are anchored to specific individual entities. Something unifies all the strong cases: the Descriptive Content Condition. As noted, with strong determiners, referential pronouns, proper names and maybe bare plurals, there exists a presupposition that the set SD ranges over is non-empty in the current world. No such presupposition exists in the other cases. This uniformity can be captured by stating that a proper name or non-expletive pronoun must be able to pick out its referent from the range of SD, which therefore must contain at least one individual. Alternative solutions are possible, but I will not speculate on them.

Let's now consider various possible cases. The first possibility is a proper name PN *in situ*, nothing in SD and nothing in PD²⁹. The two possibilities are raising of PN to SD or insertion of an expletive determiner. English either lacks expletive determiners, or it does not use them for reasons of economy (in the sense of Chomsky 1989, Chomsky 1992), movement at LF being typically regarded as more economical than lexical insertion.³⁰

If NP contains a common noun, to be interpreted as a kind, this will remain *in situ* at SS and will raise at LF in English; in Italian and Romance in general, an expletive determiner has to be inserted instead.³¹ But common nouns have one more option than proper names: they can remain in place and become properties by application of the operator KO; as properties, they constrain the range of SD, while the variable is bound in some other way (by a strong quantifier, by Existential Closure or via a Generic Operator). These cases are represented below:

- (440) a. **Proper names:**
- i. SS: [_{SDP} *e* ... [_{NP} *PN_i*]] English: PN *in situ*, to raise at LF.
 - ii. SS: [_{SDP} *PN_i* ... [_{NP} *t_i*]] Southern Italian: PN raised at SS
 - iii. SS: [_{SDP} *D_i^{exp}* ... [_{NP} *PN_i*]] Northern Italian: Expletive inserted at SS
- b. **Common nouns:**
- i. SS: [_{SDP} *e* ... [_{NP} *CN_i*]] English: Bare Plural *in situ*, to raise at LF.
 - ii. SS: [_{SDP} *D_i^{exp}* ... [_{NP} *CN_i*]] Italian: Expletive inserted at SS
 - iii. SS: [_{SDP} *D_{str}* ... **KO**([_{NP} *CN*])] Italian/English: **KO** applied to CN to yield a property, strong D in SD
 - iv. SS: [_{SDP} *SD⁰* ... **KO**([_{NP} *CN*])] Italian/English: **KO** applied to CN to yield a property, SD free, to be bound by external operators.

Next we have the possibility that SD is filled by a pronoun, either referential (in which case, the situation will be analogous to (440)a. ii), or ‘expletive’ (in the sense stated above), which will give a case similar to (440)b. iv. Moreover, we have admitted the possibility of specific indefinites and numerals (see section 2.2.2 on page 40), which must have moved to SD from PD. We can assimilate them to pronouns (see also Fodor and Sag 1982), but for two facts: (i) they do not presuppose that their referent is familiar to the hearer, as referential personal pronouns do, and (ii) they carry along descriptive content, which may contribute to fix the denotation of the referential element, together with context.³²

There is an apparent objection to this analysis of bound pronoun, which I should dismiss. While bare plurals and indefinites can provide a variable for adverbs of quantification, bound pronouns do not seem open to this possibility. Consider for instance:

- (441) a. Diamond cutters are {always / often / typically} Jewish
 b. A diamond cutter is {always / often / typically} Jewish
 c. *He is {always / often / typically} Jewish

³²Even with proper names, descriptive material such as ‘the first’ in “John the first” can be interpreted, so to speak, ‘restrictively’. Pragmatic factors may determine if and how the material in KIP (e.g. “men” in “two men,” “two” referential) is used by the hearer to identify a referent.

However, this seems due to fact that the variable that appears in the restrictive scope of the adverb of quantification must provide some restrictive material, which the noun doesn’t carry. In fact, first and second person plural pronouns admit descriptive material (see Perlmutter 1970, Cardinaletti 1993), which makes adverbial quantification perfectly felicitous:

- (442) a. You diamond cutters are {always / often / typically} Jewish.
 b. We doctors always graduate with high marks.
- The descriptive material “diamond cutters,” “doctors” doesn’t need to be overt. A speaker can say “we are often Jewish,” but this cannot mean: ‘I and a certain fixed set of people are often Jewish,’ only ‘whoever has (or will have) some property X, which I have, is likely to be Jewish.’ In this reading “we” is not a rigid designator: if in a different world the speaker is not a diamond cutter, he would not count in the generalization.³³

4.5 A note on floating quantifiers

So far, I have carefully left out of the discussion a class of determiners that appear to pose a problem for the theory as it stands. This is the class of quantifiers that can appear in dislocated positions with respect to the DP, in Romance and Germanic:³⁴ English “each,” “all,” “both,” Italian *ciascuno, tutti, entrambi*. I will refer to the class as ‘floatable quantifiers,’ reserving the term ‘floating quantifiers’ to cases where they actually appear non-adjacent to DP.

The problem with floatable quantifiers is that some of them can precede the definite determiner, which I have placed in the highest DP projection, SD^{max}.

- (443) a. All the many cigars that he smoked
 b. Tutti i molti sigari che lui fumava

Where is “all/tutti”? Why doesn’t it trigger a Redundancy violation with “many/molti,” just like **“twenty many people”? How come it can float, as in:

³³It remains to be seen if this is a quantificational reading or a genuine kind-denoting one. This tests on tests with cumulative predicates, like:

- a. You diamond-cutters are {hard to find / rare}
 b. We doctors are {easy to spot / common}
 c. ?You with red hair are {not infrequent in Ireland / great lovers}
 d. ?We that can write in Cobol {? are dwindling in number / get the best jobs}

Unfortunately, the judgments I have elicited are too shaky to grant any conclusion.
³⁴This qualification is important: in languages like Japanese, all numerals appear to float (Fujita 1994).

- (444) a. I ragazzi avevano {tutti / entrambi} telefonato a casa
 The boys had {all / both} called home
 b. I ragazzi avevano mangiato un gelato ciascuno
 the boys had eaten an ice-cream each

There are two basic treatments for floatable quantifiers. One makes them VP-adverbials, in their floated position (Dowty and Brodie 1984, Dowty 1986, Fujita 1994). Their semantic contribution is derived via modification of the denotation of VP. The other treatment makes them (universal) quantifiers generated with the DP, which have been stranded in one of the intermediate positions that the DP occupies on its way to the SS subject position (floating quantifiers cannot be associated with objects). Within this last approach, some authors (e.g. Sportiche 1988) propose that floatable quantifiers are adjuncts to the noun phrase; others (Giusti 1992b), that they are heads within the noun phrase.

Prima facie, the latter analysis appears to be more in line with the multi-layer idea. Perhaps floatable quantifiers could be treated by means of an additional structural level above SDP. Yet, positing such a projection would cause problems of various sorts whenever no floating quantifier is present,³⁵ and it seems antieconomical on general grounds.

In fact, Giusti (1992b) proposes that floatable quantifiers are generated in the same position as numerals, i.e. heads of a Q^{max} taking DP as its complement.

- (445) [Q⁰ {tutti / molti} [DP (i) [NP ragazzi]]]

The difference between floatable and numeral quantifiers would be that the latter assign Partitive Case (roughly in the sense of Belletti 1988) to the DP, while the former simply transmit whatever case the QP receives down to DP. Under the assumption that Partitive Case is incompatible with definiteness, hence with “/the,” the lack of “many the people” is derived. Unfortunately, there is no independent evidence that quantifiers directly assign Case, and this account doesn’t explain why “*tutti/all*,” unlike numerals, is compatible with a post-determiner quantifier (“all the many” vs. “*twenty many”).

Turning to the adverbial hypothesis, evidence in favor comes from the existence of other dislocated quantificational expressions (446)a that do not have any corresponding well-formed position adjacent to DP (446)b. In Italian, we have the construction *in* + NUMERAL (*in molti* “in many,” *in tre*, “in three,” etc.).

- (446) a. I ragazzi hanno passato il fiume [{in molti / in tre}].
 the boys_{SMP} have crossed the river {in many_{MPL} / in three}
 “the boys have crossed the river in a group of {many / three} people”

- b. *Ho parlato con [(in) {tre / molti}] i ragazzi.
 I have spoken with (in) {three / many} the boys

³⁵For instance, SDP would no longer be selected by V.

On the other hand, *in molti* agrees with *ragazzi*. This suggests some type of coindexing between the DP and its quantificational modifier, capable of transmitting agreement, which doesn’t show up in other VP-adverbials. Suppose that *in molti* contains a pronominal element, which I indicate as PRO, for the time being.

- (447) [I ragazzi]_i hanno passato il fiume [in molti PRO_i]. (cf. (446)a)

What can we say for canonical floatable quantifiers? Let’s begin from the puzzle of (443)b, the compatibility with numerals. The most natural solution, I believe, is that “*tutti/all*” is compatible with quantifiers because it is *not* a quantifier, but (for instance) an operator that distributes the sub-entailments carried by the predicate, as proposed in Dowty (1986), to which I refer the reader for details. If “all” is not a (universal) quantifier, it cannot appear in the position of strong quantifiers, at least under the strict syntax-semantics connection that I have pursued so far. Indeed, examples like (448) show that when combined with weak “this,” which is fine in ES, ‘all’ is also acceptable in ES, unlike true universal quantifiers like “every.”

- (448) There’s all this MESS in my room! (cf. Mc Nally (1992))

Italian shows that, when *tutti* precedes a determinerless noun phrase, this noun phrase behaves as a bare plural, i.e. it is possible only under V or more marginally P.

- (449) a. Alla festa ho incontrato [tutte persone strane].

at_the party I have met all people funny
 b. ?Alla festa ho ballato con [tutte persone strane].
 at_the party I have danced with all people funny

- c. *[Tutte persone strane] erano alla festa.
 All people funny were at the party

This shows that not only is *tutte* not in SD^{near}, but it is not even in a position from where it can license the D⁰ that seems to be responsible for the ill-formedness of Italian pre-verbal bare plurals. Suppose, with Sportiche (1988), that this is an adjunct position to SDP. But now, what is the link between the operator *tutti* and the SDP? Can we hypothesize that this link goes through a pronominal coindexing relation capable of transmitting agreement, like the one I have hypothesized for *in molti*? Interesting evidence comes from Italian comparatives. A classic analysis of comparatives (Chomsky 1977) posits an invisible WH Operator (OP), A-bar moved to the [S_{Spec}, CP] of the clause that forms the second term of the comparative. This WH is in fact visible in some dialects of American English:

- (450) John is taller than what Mary is. (Chomsky (1977b))

In Italian, the operator is always visible when we are comparing the quantity/number of two noun phrases. It is the WH *quanto/che* (“how much_{MPL/FSG} / FSG,” “how-many_{MPL/FPl}”).

- (451) Gianni ha mangiato più mele di [quante] ne abbia mangiato
 Gianni has eaten more applies then how_many of_them has eaten
 Maria t .
 Maria t

The obligatory presence of *ne* gives a fairly precise clue of the structure. *Quante* must have been extracted from PD^{max} , (presumably through [Spec, SD^0]) where it has contributed to licensing the trace of *ne* (see chapter 6 for more details of this structure):

- (452) ... [cp quanti, [vp ne_j ha [vp mangiate [sdp t_i [pd t_i [pd t_j]]]]]]]

Now, the same WH *quanti* optionally appears after *tutti* “all,” in all its positions. Its presence makes no semantic difference.³⁶

- (453) a. Tutti (quanti) i ragazzi hanno telefonoato
 All (how_many) the boys have phoned
 b. I ragazzi hanno telefonoato tutti (quanti)
 The boys have phoned all (how_many)

The hypothesis I want to propose is that this quantificational WH, visible in Italian, invisible in other languages, is the link between the operator “all,” adjoined to SDP or dislocated, and the cardinality of the DP. With the other floatable elements, *ciascuno* and *entrambi* (and their variants *ogni_uno* and *ambidue*), which do not take *quanti*, the same role could be assigned to the cardinal expressions *uno* “one,” *amb* (from Latin cumulative “both”) and *due* “two,” of which these floatable quantifiers are transparently compounds.

- (454) [SDP [qp tutti OP/quantii] [sdp i ragazzi] $_i$...]

This is of course just the beginning of an analysis. The relation between *OP/quanti* and the DP remains to be spelled out, and there are many questions to address. However, the possibility that I have sketched doesn’t require a fixed fourth level, nor stipulations about Case.

If “all” is a modifier of DP, the possibility arises to treat “all/both of us” and “we all/both” as cases of pivotal raising (perhaps with “we” originating in KIP, *a-là* Cardinaletti 1993), i.e.:

- (455) a. [sdp we_i [all t_i]]
 b. [sdp ... [all_j] of t_j us]]

³⁶The only exceptions I have found, and which I will not try to analyze here are the constructions *tutti e tre* lit. “all and three,” cf. “all three,” and *not tutti* “we all.”

4.6 Semantic aspects of the multi-layer hypothesis

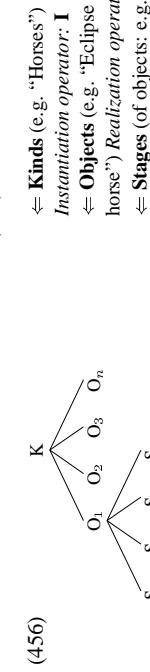
In this section, I shall first give a semantics for cases of simple predication, and then construct an LF and a semantics for the *kind*-construction.

4.6.1 Ontological preliminaries

The semantic treatment of ‘kinds’ that I adopt does not make use of Nominalized Functions, as McNally (1992) does, but rather assumes the ontology for the interpretation of ‘kinds’ developed in Carlson (1977). In this work, a distinction is made between *individuals* and *stages*. Individuals are further subdivided into *objects* (i.e. individuals like me, you, this chair, Julius Caesar, etc.) and *kinds*.

Individuals do not appear directly in everyday life. Rather, they manifest themselves as ‘stages’, spatiotemporal ‘slices’ of individuals, a concept originally introduced in Quine (1960). Some predicates, such as ‘be in this room,’ ‘be ready,’ ‘be tired’ may only apply to stages of individuals, and go under the name of ‘stage-level’ predicates.

Individuals, objects and kinds are interconnected by two relations: *instantiation*, (**I**), and *realization*, (**R**). Kinds are ‘instantiated’ by objects (corresponding to ‘ordinary individuals’ in Chierchia and Turner’s 1988 ontology) or by other kinds in some special cases.³⁷ For example, the object John is an instance of the kind ‘people’ (or fictitious linguistic characters)—kinds can also be composite, and a single object can be an instance of multiple kinds). Individuals (both objects and kinds) are ‘realized’ by stages, via the ‘realization relation’ **R**. **R(a, b)** is read “a is a realization of the individual b.” The situation is illustrated in (456).



In the ontology, we have at least a set of entities \mathcal{E} , partitioned into a set of individual kinds K , a set of individual objects O , and a set of stages S .

Carlson (1977) takes English bare plurals to rigidly denote kinds across worlds, much like proper names rigidly denote individuals. However, unlike with proper names, the relation between the bare plural and the kind is mediated by the descriptive

³⁷This possibility will be relevant for the interpretation of the term ‘kind’ on page 177. Assuming, with Carlson, that English bare plurals denote kinds, a complex DP such as “zoological species counting more than 10000 members” will denote a ‘kind of kinds’ whose realizations are animal kinds, e.g. (in the current world and time) ‘beavers,’ ‘mice,’ etc., not individual objects like ‘Jack the beaver.’ In turn, its subkinds will be things like “zoological species counting more than 5000 members,” not ‘beavers.’ So, the subkind and the **R** relation are not interchangeable.

content of the bare plural. Thus, for Carlson, if α is a bare plural common noun that translates as α' , the interpretation of the phrase immediately containing α is the generalized quantifier $\| \alpha \|^{M,g,w}$.

$$(457) \quad \| \alpha \|^{M,g,w} = \lambda P \vee P(\iota x^k \forall z^o \square [R'(z, x) \leftrightarrow_{\alpha'}(z)])$$

(With M a model, w a world and g , an assignment of values to variables). For instance, the bare plural “dogs” denotes a unique kind level individual such that all and only the realization of that kind are dogs:

$$(458) \quad \| \text{dogs} \|^{M,g,w} = \text{dogs}' = \lambda P \vee P(\iota x^k \forall z^o \square [R'(z, x) \leftrightarrow \text{dog}''(z)])$$

The common noun itself can also receive a subkind interpretation. In (150), repeated below as (459), the favorite reading given the presence of a kind-level predicate is one in which the determiners range over different kinds of insects, computers, and cars. (460) shows that this interpretation is preserved in predicative position and in ES.

- (459) a. Most insects live on average 10 months.
 - b. Nowadays, every computer is available in at least two models.
 - c. Each car sold in the U.S. undergoes thorough crash tests.
- (460) a. Wolves and foxes are two animals that were once abundant in the Northern Plains.
 - b. There were only two cars available in five models at the exhibition.

4.6.2 Semantics of simple predication

Given the syntax that I have proposed for proper names and common nouns, I will depart from Carlson’s ontology in assuming that the basic denotation for common nouns is that of ‘kinds of things.’ This means that the property reading and the subkind reading of CNs will be the result of the application of two operators, one, **KO**, deriving the set of individuals that are current realizations of a kind, the other one, **SKS**, the set of subkinds of a given kind.

$$(461) \quad \mathbf{KO}(\| \mathbf{KIP} \|^{M,g,w}) = \lambda x^o [\vee R(x, \| \mathbf{KIP} \|^{M,g,w})]$$

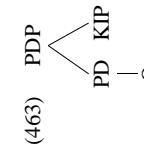
$$(462) \quad \mathbf{SKS}(\| \mathbf{KIP} \|^{M,g,w}) = \lambda x^k \forall z \square [R(z, x) \rightarrow R(z, \| \mathbf{KIP} \|^{M,g,w})]$$

Depending of which of these meanings is selected, we will get the denotation of a set of objects ‘car’ or a set of kinds ‘car’ (e.g. Toyotas, Corvettes, Oldsmobiles, etc.). Since **KO** and **SKS** apply to KIPs, the most natural assumption is that they are part of the meaning of the head PD.

Next, we need to deal with plurality. Link (1983) and (1987) has proposed that together with ‘regular’ singular individuals, like “John” and “that house,” a suitable

ontology for natural language should also contain ‘plural individuals’ as the basic denotation of plural noun phrases such as “John and Mary,” “those houses,” etc. The denotation of the plural PDP ‘boys,’ in this approach, will be a set containing both singular and plural instantiations of the kind “boy,” i.e. the set of singular individual boys plus all the plural-individual boys that can be formed by Link’s operation of plural sum (i-sum). Each plural individual will then be associated with an ‘arity’ equal to the total number of singular individuals of which it is composed; singular individuals have arity 1. Now, we can assume that the relation **R** is also true of plural realizations of a kind, and **I**, of plural instantiations of an individual.

A guiding principle of this dissertation is that what appears to be a ‘lexical’ meaning is actually the result of the interaction between the meaning that a linguistic expression carries from the lexicon and the position in which it is interpreted. In this spirit, I take it that the node PD has a functional meaning, which takes as arguments both the denotation of the lexical elements or φ -features that may occupy it and the denotation of its complement KIP. Thus (omitting X’ nodes), we have:



$$(464) \quad \| \text{PDP} \|^{M,g,w} = \| \text{PD} \|^{M,g,w} (\| \text{Q} \|^{M,g,w}) (\| \mathbf{KIP} \|^{M,g,w}) = \\ \text{i. } \lambda x^o [\vee R(x, \| \mathbf{KIP} \|^{M,g,w}) \wedge \vee \| \text{Q} \|^{M,g,w}(x)], \\ \text{ii. } \lambda x^k \forall z \square [R(z, x) \rightarrow R(z, \| \mathbf{KIP} \|^{M,g,w})] \wedge \vee \| \text{Q} \|^{M,g,w}(x)]$$

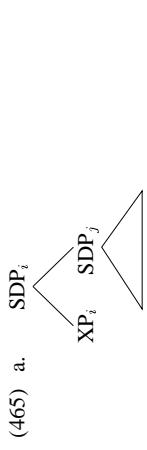
with Q a cardinality predicate, or a null head with plural/mass features.

When PD_{max} contains a determiner, this acts as a filter that eliminates from the set of realizations of KIP all the plural individuals with an arity that is incompatible with the specifications in the determiner. An indefinite singular will filter all individuals with arity greater than one; “two” in PD will return a set containing only plural individuals with arity equal to two,³⁸ and so forth.

4.6.2.1 Other translations

In first approximation, an SDP small-clause could be treated using coordination. Some pronominal element in the modifying SDP, typically the SD head, must be coindexed with the modified XP (analogous structure for adjectival attributive-predicates, with PRO the coindexed element ‘a man_i [PRO, alone]’)

³⁸Or ‘equal or greater than two,’ depending on one’s view of the ‘exactly’ interpretation of numerals.



b. $\| \text{SDP}_i \|^{M,g,w} = \| \text{SDP}_j \|^{M,g,w} \wedge \| \text{XP} \|^{M,g,w}$

However, this is too simplistic. If I say, in Italian:

- (466) Una farfalla variopinta molto grande
a butterfly colorful very big

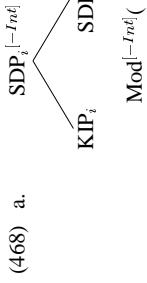
molto grande “very big” must be in the attributive predicative position, since it appears in the second post-N position (see section 1.2.3). Now it is well-known that ‘big’ is a modifier that returns a size which is entirely dependent on the type of object it modifies: a “big butterfly” has a very different size than a “big elephant.” A common way to account for this variability is to treat adjectives of this sort as functions applying to (or assigning a theta-role to, see Higginbotham 1985) the noun they modify, aiming at a translation: ‘butterfly(x) \wedge big/(butterfly)(x)’. In some way, the information that we are talking of ‘very big *for a butterfly*’ must make it to the attributive-predicative clause.

This can be implemented by requiring that, with a certain class of non-intersective modifiers KIP is coindexed with the semantic argument of the modifier (Mod), inside SDP_j, perhaps via some kind of empty category (cf. the indexical Δ in Siegel 1976).

A related problem arises with non-subjective adjectives such as *finto* ‘fake,’ in (467).

- (467) Un fucile automatico finto
a rifle automatic fake

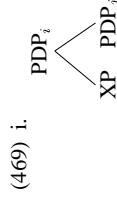
Again, *finto* ‘fake’ must be in the attributive predicative position. Yet, a translation as ‘rifle(x) \wedge automatic(x) \wedge fake'(rifle')(x)’ (with function application of ‘fake’ onto ‘rifle’) is undesirable, if we want to hold on to the assumption that a fake rifle is not a rifle. We need to get rid of the coindexation between the KIP ‘automatic rifle’ and its modifier ‘fake (rifle),’ drawing the interpretation from the modifier alone: ‘fake'(rifle' \cap automatic’). This can be implemented by saying that certain modifiers are marked by the feature [-Int]. The feature is transmitted to the whole SDP, which is interpreted according to the rule:



b. $\| \text{SDP}_i \|^{[-Int]} \|^{M,g,w} = \| \text{SDP}_j \|^{[-Int]} \|^{M,g,w}$

Notice that the representation above (with KIP coindexed with an argument of the modifier) satisfies in a more abstract way the requirement that in an attributive-predicative configuration a coindexing relation must exist between the modifier and the modified object. At the same time, with this representation I want to leave open the issue of whether the coindexing is mediated by an empty category (the route taken in Siegel 1976) or rather realized only at a semantic level (the level at which the function denoted by the modifier is applied to its argument).

Next, both a PDP small-clause and a regular [SDP [PDP]] noun phrase are translated as function application. The latter can denote an open formula, as in Heim (1982).

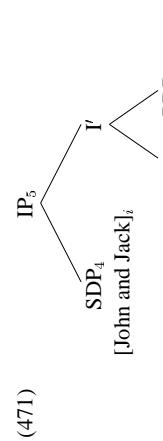


- (470) i. $\| \text{PDP}_i \|^{M,g,w} = \| \text{PDP}_j \|^{M,g,w} (\| \text{XP} \|^{M,g,w})$
ii. $\| \text{PDP}_k \|^{M,g,w} = \| \text{PDP}_l \|^{M,g,w} (\chi)$

The free variable is normally bound by Existential Closure, by an adverb of quantification, or, if SD^{max} is filled, by a quantifier undergoing QC at LF. Alternatively, SD may contain an element denoting a constant in the domain. This is the case where either a (none-explicative) pronoun, a (referentially interpretable) determiner, a proper name or a common noun (kind-denoting) occupies SD at LF. Obviously in the first two cases, the context plays a large role in determining the denotation of the pronominal element.

Finally, I will assume that the functional heads that have not been mentioned so far (K1, INFL, etc.) are transparent to the semantic derivation (at least with respect to the aspects on meaning considered in the present work). As for the various [Spec, FPs], their semantic contribution is indirect, mediated by the relation of spec-head agreement with their head, and in a sense indistinguishable from the semantic contribution of the head itself.

With these rules in place, I can give the LF for a simple case of predication: “John and Jack are two doctors.”



- (472) i. $KIP_1 = doctor^k$
ii. $PDP_2 = \lambda x^o [R(x, doctor^k) \wedge two(x)]$
iii. $SDP_4 = JJ = j_{32} \vee_i j_{86}$ Link's (1983) i-sum of Jack and John
iv. $PDP_3 = R(JJ, doctor^k) \wedge two(JJ)$ by (469)ii
v. $IP_5 = \text{same as } PDP_3$, modulo tense

4.6.3 The interpretation for “kind”

Carlson (1977) takes the syntactic structure of the kind initial construction to be (473), and the denotation of “kind” to be that of a common noun modifier (CN/CN).

- (473) $[_{SP} [det \text{ that}] [CN [kind] (of) [CN moose]]]$

The semantics for “kind” captures the fact that “kind of car” denotes a set of kinds of cars, just like “car” denotes a set of objects.

$$(474) \parallel \text{kind}^{M,g,w} = \lambda Q \lambda x^k [[\forall z^o \square [R(z^o, x^k) \rightarrow ^o Q(z^o)] \wedge [\Diamond \exists y^o [\forall Q(y^o) \wedge \neg R(y^o, x^k)]]]]$$

Here Q is identified with the property denoted by the internal CN. The second part of the conjunction insures that the kind itself is not also one of its subkinds, i.e. that kinds are properly subordinate: ‘doctors’ is not a subkind of ‘doctors.’ Carlson (1977) discusses an additional condition on subkinds, namely the fact that the same individual cannot count as belonging to more than one subkind for the purpose of quantification. Thus, if a dog in the next room is a collie and a watch-dog, I cannot say that there are two types of dogs in the next room. I will not represent this condition in the current formulation.

Carlson (1977) doesn’t deal with the kind-final structure “a dog of that kind,” but his account has been extended in Wilkinson (1991) to cover these cases. As we have seen, Wilkinson treats the word “kind” as ambiguous between two possible translations; in kind-initial position, “kind” is translated as in Carlson (1977); in kind-final position, “kind” is translated as $\wedge kind'_2$, predicate over kind level individuals. To turn “that kind” into the (apparent) PP “of that kind,” she assumes that “of” denotes Chierchia’s (1984) predication operation, $\pi \cdot \pi(x)(y)$ means: “apply the property corresponding to the individual x to the individual y ” (Wilkinson 1991, p. 94). Treating ‘that’ as a determiner that generates an individual-sort noun phrase, we have:

$$(475) \quad a. \text{“Kind”} = kind'_2 \langle e^k, t \rangle$$

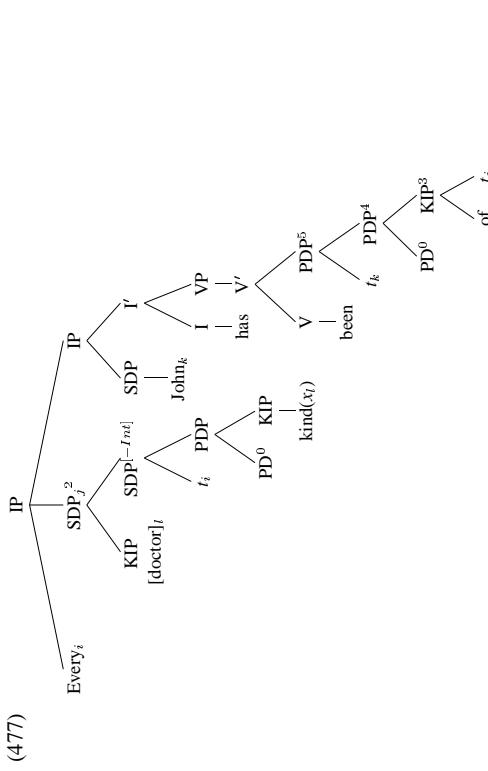
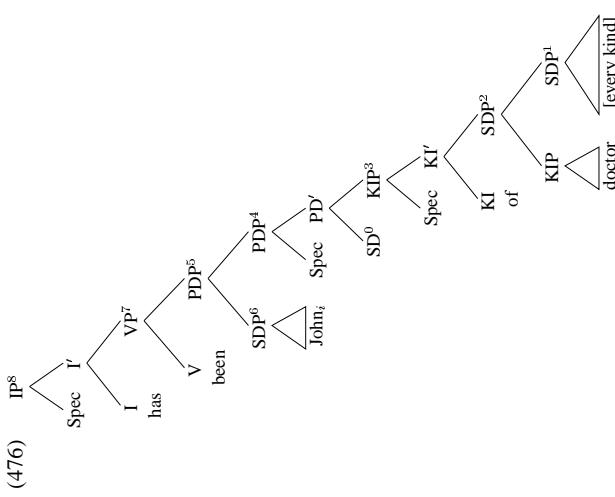
- b. “That” = $\text{that}_i' = \lambda Q [y \models \forall Q(x_i) \wedge y = x_i]$
- c. $\text{that}_i \text{ kind}'_2 = [y \models \forall kind'_2(x_i) \wedge y = x_i]$
- d. $\text{of that}_i \text{ kind}'_2 = \pi(y \models \forall kind'_2(x_i) \wedge y = x_i)$
- e. animal of that, $\text{kind}'_2 = \lambda z [\text{animal}(z) \wedge \pi(y \models \forall kind'_2(x_i) \wedge y = x_i)l(z)]$

4.6.4 “Kind” and Quantifier Raising

In the approach defended in this work, there is no need to assume that kind-nouns are ambiguous. However, we do need to assume that, for the purposes of semantic interpretation, both argument and predicate are *in situ* (regardless of which one has raised) before undergoing QR.³⁹

In the syntax I have proposed the KIP hosting the *kind*-construction is embedded under a PDP with head either empty (if the kind-noun has raised up to PD^{max}), or containing a weak determiner (if the content noun has raised to KI^{max}). Starting from:

³⁹The problem of interpreting the raised predicate in its original position, of course, is also present at the level of copular sentences. Probably the best way to address it is via Chomsky’s (1992) copy system, but I will not do it here.

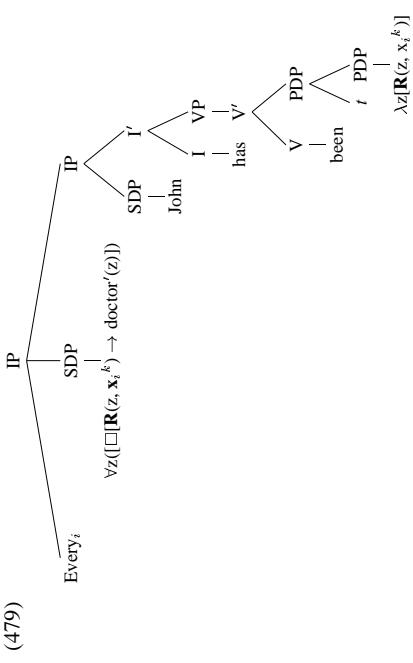


“Kind” will be the kind corresponding to the function from a kind to all its (plural) subkinds, i.e.

$$(478) \quad \llbracket [\text{KIP kind}] \rrbracket^{M,g,w} (\llbracket \text{KIP} \rrbracket^{M,g,w}) = t_x^k (\forall y^k [\forall z \square [\mathbf{R}(z, y^k) \rightarrow \mathbf{R}(z, \llbracket \text{KIP} \rrbracket^{M,g,w})] \\ \leftrightarrow \mathbf{R}(y, x)))$$

I assume Quantifier Raising of SDP^2 and Quantifier Constral of “every” out of SDP^2 . Let’s assume, further, that “kind” has feature $[-\text{Int}]$, and that, following the rule (468), it takes an argument which is semantically identified with the denotation of the KIP “doctor.”

With $\text{KIP} = \text{“doctor”}$, this will be the kind whose realizations are all subkinds of doctors. From this, PD extracts the extension of ‘kind-of-doctor’ (by (463)), the **KO** route) and predicates it of the trace of Q construed “every.” Next, SDP^2 is interpreted via the non-intersective rule in (468), giving an open formula: $\forall z \square [\mathbf{R}(z, x^k) \rightarrow \mathbf{R}(z, \text{doctor}')]$, with x^k free, to be bound via unselective quantification by ‘every.’ As its second argument, “every” also binds the free variable under KIP^3 . The head of PDP^4 takes this kind-denoting variable and returns a property (rule (463)), the property of being an instance of a kind of doctor. This property is predicated of John via the rule in (469)i.



Abstracting away from tense information, we obtain the desired translation.⁴⁰

$$(480) \quad \forall x^k [\text{kind-of-doctor}(x) \rightarrow R(\text{John}, x)]$$

Existentials, Locatives and Identity

CHAPTER 5

5.1 Introduction

In the first part of this chapter I will give a structure for existential sentences which can explain the definiteness effect taking into account the differences between Italian and English seen in chapter 3. The explanation hinges on the predicative / referential distinction. I have proposed that this semantic distinction corresponds to two different possible syntactic structures for the noun phrase: a predicate is a PDP, while an argumental noun phrase is an SDP. In the last sections I will deal with noun phrases introduced by definites, which syntactically resemble SDPs, but appear in positions typically occupied by predicates, such as:

(481) Mark Twain is [Samuel Clemens].

(482) The picture was [the cause of the riot].

My proposal is that the these two sentences are not parallel. The second noun phrase in (481) does not denote a property at LF, but an individual, which is equated with the individual denoted by the first noun phrase through a general principle of small-clause interpretation. The second noun phrase in (482), on the other hand, will be argued to receive an ambiguous interpretation, either as a property or as a referential noun phrase. This ambiguity explains in part why sentences such as (482) have been quite difficult to analyze.

Turning to the treatment of ES, the discussion in the previous chapters gives us a set of desiderata that any adequate treatment of ES should satisfy. They are:

1. To capture the similarity between the internal noun phrase in ES and predicate nominals. Every good ES-internal noun phrase makes a good predicate nominal, although the converse is not true.
2. To treat copular and existential sentences, in languages where both constructions are realized around the verb ‘be’, in a syntactically parallel fashion. If copular ‘be’ is a semantically empty element that takes a small-clause, then ideally ‘existential’ ‘be’ should do the same.

⁴⁰ A more precise translation would be:

a. $\forall x^k (\text{kind-of-doctor}(x) \rightarrow \exists y^k [R(y, \text{John}) \wedge \mathbf{I}(y, x) \wedge \text{PAST}(y)])$

That is, for every kind of doctor there has been a stage which was an instantiation of John and an instantiation of that kind of doctor.

3. To explain why, in Italian *Ci*-sentences, definites can appear both before and after the copula, and strongly-quantified noun-phrases can only appear after the copula, with a special *locative* meaning (see section 2.3.6.4 on page 68).
- The account I am going to give meets these requirements. It is based on four simple ideas.

- First, I follow Moro in claiming that ES in English and Italian have the same structure as copular sentences, where “there” and the corresponding Italian clitic *ci* are not expletives, but proforms raised from inside a predicative small-clause to, respectively, [Spec, IP] or the INFL head.
- Second, I will claim, departing from Moro, that “there/*ci*” can pronominalize either the subject or the predicate of the small-clause.
- Third, I propose that existential sentences are simply the opposite of a locative predication. The idea that ES have strong ties with locatives has been put forth by Kimball (1973) and recently, by Freeze (1992). Saying that ES are the *opposite* of a locative predication means that while in “John is there,” a typical locative predication, “there” is the predicate, “John” is the argument, and we are predicating of John the fact that he is in a certain (deictically specified) location—in saying “there is a man,” “there” is the argument, “a man” is the predicate, and we are predicating of a certain (possibly abstract) spatial continuum, that *that space*, is a man.
- Fourth, I propose that Italian definites in ES, such as *C’è Gianni* “there is John,” are *pseudo-existential* locative predictions, where *Gianni* is the argument and *ci*, the predicate. The same analysis is given to the English “a certain Alvar Aalto” construction.

The distribution of quantified noun phrases and Italian infinitives in ES will fall out from these four ideas, plus well-known independent properties of Italian and English, like the possibility of a *pro* subject and the clitic status of *ci* but not “there.”

5.2 An analysis for ES

5.2.1 Moro’s (1993) treatment of *There*-sentences

In Milsark (1974), (1977), a deep-structure relation is postulated between *There*-sentences and copular sentences.

- (483) a. There is a man in the room.
b. A man is in the room.

Stowell’s small-clause analysis of “be” as a raising verb provides the technical tools to formalize this analysis as in (484).

- (484) a. [IP [there_i [sc [a man], [in the room]]]]
b. [IP [a man]_i [sc *t_i* [in the room]]]

The element “there,” coindexed with the subject, is an ‘expletive,’ a semantically null element which transmits the Case assigned to [Spec, IP] to the argument in the small-clause (see also Safir 1982). In Chomsky (1986b), it is proposed that at LF, the subject raises to replace the expletive. In more recent work (Chomsky 1989), “there” is not deleted at LF but the subject raises to adjoin to it. As Williams (1984) notices, deletion of “there” at the level in which quantifier scoping is carried out would hide the fact that, as we have seen, a weak quantifier under ES cannot take wide scope (unless it is embedded). Hence the proposal that the purpose of “there” at LF is that of marking the scope of quantifiers.

In Italian, the correspondent of “there” is the clitic *ci*, which at SS appears on the INFL head “be.” [Spec, IP] is assumed to be occupied by a *pro*, coindexed with the argument in the small-clause (see Burzio 1986):

- (485) a. [IP [IP [molte copie del libro]_i [erano [sc [*t_i* [nello studio]]]]]
many copies of the book were *t_i* in.the study
b. [IP [pro_i [c’_i erano] [sc [bp [molte copie del libro]_i [nello studio]]]]]
pro there were many copies of the book in.the study

All these analyses assume that the internal noun phrase is the subject of the small-clause, and that the subject is raised at LF. Moro (1991), (1993) and (1997) points out that this is problematic, considering that raising from inside the internal noun phrase is possible both at SS and LF (see (486), partially translated into English, from Moro 1993, p. 36).

- (486) a. [which book] do you think there were [many copies of *t*] in the study.
b. There weren’t [copies of [MANY BOOKS]] in the study.
 ¬, ¬ >many
c. Ce ne sono [molte copie *t*] nello studio.
There ne-CL are [many copies *t*] in.the study
 ne-extraction
“There are many copies of it/them in the studio”

We have seen that raising is not usually possible from the argument left *in situ* in inverse copular sentences; also, (LF) raising should be impossible from any constituent in subject position, which is the destination for the embedded argument at LF in the standard theory of expletive replacement/affixation at LF. Moro discusses additional problems with the theory of expletive “there.” In (487) (adapted from Moro

1993:37), it is shown that the presence of a predicate is obligatory in copular sentences, but optional in the correspondent *There*-sentences (487a); that a post-copular predicate nominal becomes in fact impossible in the *There*-sentence (487b) (see also Heggie 1988); that in Italian, the pro-clitic predicate *lo*, which appears in the copular construction (487c). i becomes impossible in (487c). ii (which should be analyzed as having a *pro* subject, in parallel with the well-formed *pro c' erano* "there was (them)"); finally, that a phonologically realized expletive is necessary with "be," but impossible with other unaccusative verbs, such as *arrivare* "to arrive." Why should this be so?

- (487) a. i. Many copies of the book were **(in the study)*.
ii. There were many copies of the book *(in the study)*.
- b. i. Many copies of the book were the cause of the riot.
ii. There were many copies of the book (* the cause of the riot).
- c. i. Molte copie del libro *lo_i* erano *t_i*.
Many copies of the book it-CL were *t*
ii. *Ce *lo_i* erano *t_i*
there it_i were *t*
- d. i. *(C)i sono molte copie del libro nello studio.
(there) are many copies of the book in the study
ii. (*C)i arrivaronon molte copie del libro.
(there) arrived many copies of the book

Moro's answer to these problems is that "there" is not an expletive, but a pro-predicate, generated inside the small clause and raised. *There*-sentences should then be analyzed as inverse copular sentences, optionally followed by an adjunct PP. The proposed representation is (488)a for English and (488)b for Italian.

- (488) a. [IP [IP there_i were [SC [DP many copies of the book] *t_i*] [in the study]]
b. [IP [IP pro [C*i* erano [SC [DP molte copie del libro] *t_i*] [nello studio]]]

Now, the locative PP is analyzed as an adjunct, hence optional; a DP cannot be present as the 'predicate' because "there" is the predicate, and DPs are generally not possible as DP adjuncts.¹ "Lo" cannot appear in (487)c. ii because it is not a subject clitic, and "there/ci" cannot appear with unaccusatives, because unaccusatives do not take predicative small clauses.

This account does not force the argument to move, making the extraction facts less puzzling for what concerns LF, yet something extra needs to be said to justify extraction from the subject—which is impossible in inverse copular constructions.

¹ Suppose, for instance, that the locative is a depictive adjunct, as McNally (1992) proposes, and compare "Mary played the sonata [nude]" with **"Mary played the sonata [a drunk lady]."

The explanation for this prohibition given by Moro—which I subscribed to—appeals to subadjacency. The copula receives the predicate's φ -features and is thus unable to Theta-mark the argument DP in the small-clause. Therefore, the DP counts as a barrier, blocking extraction.

To explain why the presence of "there/ci" should make a difference, Moro assumes, with Chomsky (1981), that a predicate C-selects the argument. This is true both for "there/ci" and for nouns like "cause" in "the cause of the riot." However, Moro proposes that the former, but not the latter can also transmit the capability of C-selecting the argument to the verb "be." A C-selector like "cause," on the other hand, would be too deeply embedded inside DP to transmit to "be" the capability of C-selecting the argument. Thus, only when *ci* or "there" are the raised predicate is the copula 'lexicalized,' hence capable of C-selecting the internal DP and resolving its barrier status.

As evidence that only when *ci* is present *everse* "be" can lexically govern a DP, Moro gives an interesting contrast based on the idea that, in Italian, bare plural subjects are only acceptable in lexically governed positions. (489)a vs. b. shows that when *ci* head-adopts to the copula, this licenses a bare plural, while when a different predicate is raised, the bare plural argument is not licensed.

- (489) a. [La causa della rivolta] erano [sc [DP **(i)* bambini] *t*].
[the cause of the riot] were [sc [DP (the kids)] *t*]
b. C' erano [sc [DP bambini] *t*].
there were [sc [DP kids] *t*]

5.2.2 The logical form of ES

Given the analysis of "there" as a pro-predicate that I have just sketched, Moro sets out to explain the Definiteness Effect by proposing a principle of LF, which he calls Principle π :

- (490) **Principle π :** "Predicates only apply to variables at LF." Moro (1993)

The effect of π is that of forcing raising of the argument out of subject position, so that the predicate can be applied to its variable. Notice that the effects of π are very similar to the effects of Heim's QR system, with the difference that in Heim's system predicates raise, too, as any other DP, while according to π they should be *in situ* at LF. Setting aside sentential arguments, the version of QR that I have proposed in an SDP/PDP system, i.e. "All and only non-referential SDPs undergo QR" has much the same effects as Moro's π . The theoretical motivations behind QR and π , however, are rather different. QR is motivated by the need to construct a double scope for diadic quantifiers, and by the need to turn a DP into an element of the appropriate sort (e-type), while π is proposed as an indirect means of capturing empirical facts.

To see the data promised, let's first consider how a regular inverse copular sentence can satisfy principle π . At LF, the argument needs to move out, but the most obvious landing site, [Spec, IP], is already taken by the predicate. Two potential solutions are adjunction to IP (491)a, and adjunction to the SC (491)b. The first one is ruled out by the ECP: “be” doesn't govern the trace. Only the latter one, adjunction to SC (DP, in Moro's system) remains viable.

- (491) a. LF: [Ip [a picture of the wall]_i [Ip [the cause of the riot]_j]]
 b. LF: [Ip [the cause of the riot]_j is [sc [a picture of the wall]_i [sc t_i t_j]]]

The situation is a bit different for *There*-sentences. Here, adjunction to IP is out by the ECP, just like for (491)a. However, adjunction to SC this time is also impossible. The reason has to do with the prohibition against adjunction to the complement of a lexical head (for which, see Chomsky 1986a, p. 16); since “there” lexicalizes ‘be,’ Moro argues that “be” in *There*-sentences counts as a lexical head; hence adjunction to the SC that is its complement is impossible.

As it has been described, the situation is paradoxical: principle π requires movement of the argument, yet the argument does not seem capable of moving anywhere without violating some constraint. To the rescue comes the possibility of extracting a subconstituent of the argument DP (a move made possible by the very same ‘lexical’ status of the copula that, according to Moro, prevents adjunction to SC). Moro's proposal is that the variable required by principle π is created by extracting the NP out of DP, and predicating the weak determiner of the NP trace. The existential meaning, then, becomes “a function from DP to predicative structures where D⁰ is predicated of the set denoted by the NP” (Moro 1993 p. 62, translation mine). The proposed LF is then:

- (492) [Ip [Np girls]_g [Ip [there]_j aren't [sc [br (t_y [b many] t_g] I_j]]]]

Which is interpreted as ‘it is not the case that (the) girls are many,’ since “many” (functioning here as an ‘adjectival’ determiner) is predicated of the trace of the NP “girls.”

The treatment requires a certain number of postulations in order to deal with weak determiners that are less clearly adjectival, such as “a” and “no,” and with bare plurals. Moro assumes that bare plurals contain phonologically unrealized determiners with meaning roughly analogous to “some”; following Perlmutter (1970) “a” is taken to be a weak form for “one,” and “no,” a combination of a negative polarity item, like “any,” and a negative morpheme to be interpreted on the verb, much as I have proposed in section 4.1.3 on page 124. Thus, “there are girls,” “there is a girl” and “there are no girls” are interpreted, respectively, as something like “it is the case that girls are a certain number,” “it is the case that girls are one,” and “it is not the case that girls are present/in existence” (rendered in more human parlance as “girls do not exist”).

Given these assumptions, Moro proposes that the DE derives from the fact that some determiners are not allowed at all in predicative position: “there is every girl” is impossible because “girls are every” is not a possible predicative construction. Clearly, what Moro is after is the generalization noted elsewhere in the literature on ES: on the one hand, there is something ‘adjectival’ in the weak usage of numerals, on the other, the internal noun phrase strongly resembles a predicate nominal. The problem with formulating an account for these intuitions the way Moro does is that it is not clear at which level of abstraction this proposal has to be taken.

His ‘adjectivalization’ of determiners like “a,” “no” and D⁰ obviously requires a very abstract level of description, which should be spelled out in a way that doesn't also accept “a woman is {ta / D⁰ / any}” as well-formed. At this level of abstraction, I do not see why one couldn't also allow **“there is the woman you know,” given that “Mary is the woman you know” is a perfectly decent copular sentence. Besides, fine copular constructions such as ‘the players are those,’ “Mary is that one” should license the impossible **“there are those women,” **“there is that (one) Mary.”

Conversely, ad-hoc stipulations are necessary to explain why “there was some book on the table” is fine, but “the book was some” is impossible, or why “there was a certain man” does not match **“(a) man was a certain,” “there was only John at the party” clashes with **“John was only (at the party),” and so forth.

Assuming that these problems can be fixed, what kind of semantic representation should we assign to the LF for “there was a man in the garden,” which turns into [man_i [t_i one]], to be unraveled as **one**(man)? If *man* denotes a set of men, this seems to assert that this set has cardinality one (or more); it remains unclear where the restriction carried by ‘the garden’ comes in.

Next, recall that the extraction of the internal NP is seen as the only way to create an argument variable to satisfy principle π . However, π was invoked to create a variable for the pro-predicate “there/ci” to apply to. This variable is never created, for the DP cannot move; what is created instead is an NP-trace variable for the adjectival determiner. This variable satisfies π with respect to the determiner predicate, but what satisfies the pro-predicate? Saying that in (492) the variable of “girls” *inside* the DP simultaneously satisfies π with respect to both “many” and “there” seems to me analogous to saying that (493) should be well formed because “what” can at once satisfy the two gaps.

- (493) *[What, picture of t_i] _j did the woman see t_j ?

I conclude that extraction of the internal NP does not satisfy principle π with respect to the pro-predicate. If raising of the argument is necessary, and I believe it is on semantic grounds, we are forced to conclude that either the adjunction escape hatch is after all possible, or that variables created by QR in Heim's sense are not subject to the same governing requirements as traces left by more strictly ‘syntactic’ types of movement—both possibilities that I will not look into here.

5.2.3 Existentials and locatives

Moro's analysis of ES follows a general school of thought that tries to disconnect the meaning of existentials from the fact that the word "there" has another meaning, too, a deictic locative. In languages like Spanish and German, for instance, no independent 'locative' pronominal appears (494):

- (494) a. *Sp*: Hay un hombre en el jardín.
- b. *Ger*: Es gibt einen Mann im Garten.

Interestingly, in these languages, definites are impossible in ES even in the list reading:

- (495) a. **A**: Who could fix the computer?
- b. **B**: *Eng*: Well, there's Mary.
- c. ***B**: *Sp*: Bueno, hay María.
- d. ***B**: *Ger*: Es gibt María.

In an extensive survey of unrelated languages, Freeze (1992) has proposed that the relation between existentials, locatives and "have" predication might run quite deep. Freeze points out that in many languages, the translation of the existential construction is the linear inversion of a locative predication, like "[John] is [in the house]." In most languages represented in his survey a pro-form analogous to "there/cit" isn't available, and in ES the locative appears in subject position, sometimes triggering verb agreement, as in Chichewa (Bresnan and Kanerva 1989). When a pro-form is available, it appears either in subject position, as English "there" and German *es*, or as a clitic on INFL (French *y*, Italian *ci*, Catalan *hi*), with an optional locative in peripheral position. The situation is summarized in the following table (Freeze 1992:564). **T** stands for 'theme'; **L** for the locative PP; **p** for the pro-form, and **e** for the empty *pro*.

BASIC ORDER	EXAMPLE	PREDICATE LOCATIVE	EXISTENTIAL
SVO	Russian	T cop L	e.g. <i>There is a gnu</i>
	Finnish	T cop L	L cop T
	Catalan	T cop L	L cop T
	Chamorro	cop L T	e p cop T L
VOS	Palauan	cop L T	cop T L
	Ilocano	cop L T	cop T L
VSO	Palest. Arabic	T cop L e	cop P L
SOV	Hindi	T L cop	L T cop

the semantically null expletive pronoun corresponding to "it." Compare German, Swedish, and English:

- (496) a. *Ger*: Es gibt/ist ein Buch auf dem Tisch.
it gives/is a book on the table
"There is a book on the table"
- b. *Swed*: Det finns inget postkontor i den byn.
it find-PASS no post-office in that town
"There was no post office in that town"
- c. *Eng*: There was no post office in that town.

These data strongly suggest that the relation between ES and locatives should not be easily dismissed. The symmetry between the elements of locative predication and the elements in the existential construction is reminiscent of the inversion possibility of copular sentences. However, the simple proposal that (497)a is just the inverted correspondent of (497)b won't do.

- (497) a. There is a man.
- b. A man is there.

The semantics is widely different: "there" in (497)b is deictic to a location, while "there" in (497)a can never be deictic (cf. "there there is a man"—the first "there" is deictic, the second 'existential', neither can be eliminated preserving meaning). Conversely, "there" in (497)b can never be existential; (497)b cannot mean "there is a man" in the same way "a photo was the cause of the scandal" and "the cause of the scandal was a photo" mean 'the same'.

5.2.4 The proposal: ES as the opposite of locatives

The distinction between argument and predicate status can help us here. To begin with, consider that WHs like "what" and "where" can function either as arguments or as predicates in copular sentences. (498)a means "which part of this jewel is made of quartz, and which one of glass?" while (498)b means "what kind of substance is the material called 'glass'?" The first one is a question about the identity of an object with known physical properties, the second one a question about the properties themselves.²

- (498) a. What, do you think t_i is quartz and what t_j glass, in this jewel?
- b. What, do you think glass is t_i ?

²To the extent (498)b means "what kind of thing do you think glass is," "what" could also be a KIP. Given the restrictions on bare predicative KIPs in English, "what" would presumably be under an empty PD_{max}.

Notice that “what do you think glass is?” cannot mean “tell me which is the substance that is glass,” just like “a man is there” cannot mean “there is a man”; here, we have touched the limits of invertibility.

The same happens with the locative WH “where.” Starting from (499)a, we can question either the *identity* of the location, (“what is that place that is a good place to hide”) or ask for the spatial position of something already established as ‘a good place to hide’ (the indefinite is specific, now).

- (499) a. [Under the bed] was [a good place to hide].
- b. [Where] do you think *t* was [a good place to hide]?
c. [Where] do you think [a good place to hide] was *t*?

Again, under no circumstances can (499)b mean what (499)c means.

My proposal now is that “there,” too, can be either a pro-argument or a predicate. In normal ES, “there” is the argument, and the internal noun phrase is predicated of it. In regular locative predication, “there” is the predicate, and the DP is the argument. In the three-layer system, this goes with a category change: pro-argument “there” is an SDP, while pro-predicate ‘there’ is a PDP.³ The D-structure for English is:

- | | |
|--|-----------------|
| <i>Existential</i> | <i>Locative</i> |
| a. DS: [λp [λp [λp there] [λp a man]]] (in the garden) | |
| b. DS: [λp [λp [λp a man], [λp there]], (in the garden)] | |

Unlike Moro’s examples, these are not *invertible* copular constructions. In other terms, they obey the general rule of not allowing PDPs in A-positions (just like **‘[a doctor/tall] is John’). The only possible raising is movement of the argument (“There” in ES, “a man” in the locative), to [Spec, IP], giving (501). This insures that (497)a can never mean what (497)b means, nor vice-versa.

- (501) a. [λp [λp There_i [λr [λp a man]]]] (in the garden)
- b. [λp [λp A man_i [λr [λp there]]]], (in the garden)]

Where does the existential meaning come from? We need to understand what the two sentences above are *about*. (501)a is about a location in space. A property is asserted of this location: the property that that space ‘is,’ or if you like ‘contains,’ a man. The only case in which this assertion is ever going to be true is when a man is in existence, or ‘instantiated,’ in the sense of McNally (1992). Of course, the locative argument must be abstract enough to allow ES like ‘there is a solution,’ but it doesn’t need to be identified with any specific location; I’ll return to the role of the locative adjunct in a moment. Since “there” functions as an argument, albeit a locative argument, it is

³Unlike for “what,” there is no empirical basis to argue that “there” is of category KIP, so I will set aside this theoretical possibility.

not surprising that in Germanic languages other than English a non-locative personal pronoun may be used.

Sentence (501)b, on the other hand, is *about* a person. Of that person, we say that he is in a certain, deictically determined location. We need to stipulate that the deictic meaning is always associated with the predicative meaning, i.e. PDP, and the pronominal meaning always with SDP.

Let’s compare [λp *there*] with other SDPs. Since this SDP is determinerless in an ungoverned position, “there” must occupy SD itself, in order to license it. This is the position occupied by pronouns, proper names, strong quantifiers and indefinites, either to undergo QR and QC or to be interpreted referentially. Clearly, “there” cannot be interpreted quantificationally, or as a specific definite referring to some familiar (and overcrowded) location. The best match is probably with the interpretation of specific *indefinites* such as “a certain man.” Specific indefinites do not obey the Familiarity Condition, yet they do carry a presupposition of existence, as any non-expletive element interpreted in (a chain with) SD does. If this idea is correct, “there” is a *specific indefinite locative*, much as “a certain (abstract) location.” Crucially, the meaning of “there” must be constrained by the optional locative adjunct or by context, meaning that the location “there” denotes is understood to be inside the space delimited by the optional locative PP such as “in the garden.” In this sense, the relation between “there” and the locative resembles the relation between a specific numeral and the PP in partitives (“three [of the men]” which refers to a certain set of three taken from a given set of men), or to the way bare plurals are restricted by PP modifiers.⁴

We can characterize the meaning of “A certain location which is in the garden” as analogous to the meaning of “A man in the garden” as the relation between a specific

- (502) [In..the..-garden'(x_j) \wedge man'(x_j)]

With presuppositions:(i) location'(x_j)
(from the meaning of “there”)
(ii) x_j a constant,
x_j not present in the
previous discourse model
(from the indefiniteness of “there”)
(iii) x_j exists in the world
of evaluation
(from the presence of “there” in SD)

namely, “a certain location which is in the garden is a man”; given the third and most important presupposition above, this provides the crucial information that a

⁴In “Wolves are lean in this region,” the BP is interpreted as “wolves that are in this region” (cf. Carlson 1990 for relevant discussion).

man exists and is in the garden. The difference with “John is there” is precisely that in the latter we start with the presupposition that “John” exists (and that he is a person), the locative adds information about his physical whereabouts.⁵

The same analysis applies to the Italian pronoun *ci*, with two differences. First, *ci* can never be deictic like “there” is; in Italian, “John is there!” can only be translated using the deictic *là*, as in *Gianni è là!*. Second, *ci* is a clitic that appears on INFL, not in [Spec, IP], leaving the latter position available for an SDP to fill in. I take this SDP to be a *pro*, moved from the small-clause, which can acquire its locative meaning entering in a spec-head relation with *ci* in INFL.

- (503) [ip *pro_i* [r *c_i* è] [FDP *t_i* [FDP un uomo]]] (nel giardino)

In French, where *pro* is missing, both the clitic and the pronominal subject are visible:

- (504) a. *(II) y a deux enfants dans l' auto.
 (i) CL has two infants in the car
 French, Freeze (1992)

“There are two children in the car”

- b. *Deux enfants y a dans l' auto.
 two infants CL has in the car
 c. *Dans l' auto y a deux enfants.
 in the car CL has two infants

Notice that in (504)b the predicate *deux enfants* cannot replace the expletive subject *il*. I will come back to DPs in the pre-copular position in section 5.4 on page 219.

5.2.5 Further issues: familiarity and negation

It should be clear, now, how this account explains the similarity between the internal noun phrase in ES and the predicate nominal: they are one and the same thing. Moreover, I do not need to postulate the existence of a special kind of “be,” to be interpreted as **be_{exists}**. So far, I have been able to hold on to a single “be,” simply by transferring the status of ‘semantically null element’ from “there” to “be” itself. It remains for us to examine two cases where the parallel between ES and copular constructions apparently breaks down.

⁵The proposal that ES are predication of a certain location can also explain why in “if there is a unicorn_i in the garden, it_i will eat petunias,” “unicorn” and “it” seem to be coreferential, even if the antecedent is a scope island and “a unicorn” has been claimed to be a predicate nominal. The solution is that “it” is coindexed with “there,” a referential element, hence not sensitive to scope islands. Notice that this conditional does not presuppose that a unicorn exists, but only, much more neutrally, that an abstract location (which may or may not be a unicorn) exists in the garden. Similarly, saying “if that spot is a deer, it will move” presupposes the existence of a spot, not of a deer. Only the presuppositions carried by the SDP “there/that spot” are projected from the antecedent.

5.2.5.1 Locative identity: Alvar Aalto revisited

First, consider:

- (505) a. Mary is {the sweetest girl on Earth / the cause of the war}.
 b. I consider Mary {the sweetest girl on Earth / the (real) cause of the war}.
 c. *There is {the sweetest girl on Earth / the cause of the war}.

Superlatives and the definite predicate nominals studied by Moro are fine in predictive contexts (505)a and b, but in ES they give presentational readings at best. I see two ways of approaching the problem. One is to follow McNally in attributing the effect to a Novelty Condition imposed by “there” on the internal noun phrase, and to say that superlatives and definites in general have a Familiarity Condition associated. The other is to put the matter in terms of presuppositions of existence: since—in the oversimplified cognitive model of the world which is relevant for linguistic purposes—for every property there must be a supremum (an individual who has that property to the highest degree), and for every effect, a cause, upon hearing “the sweetest girl” and “the cause of the war” we infer a presupposition of existence for these objects, which is not normally carried by canonical predicate nominals. Adding to ES a requirement for the internal noun phrase to be non-presuppositional leads to a treatment along the lines of Zucchi (1995).

Without qualifications, I find the first approach somewhat artificial. While I have no trouble seeing a uniqueness condition in the bracketed definites in (505), I don’t see ground for saying that they are ‘familiar’ to the hearer.⁶ On the other hand, it seems equally odd to say that they must be ‘novel’ in the discourse. If I say “the tallest man in the world is coming for dinner tonight,” and I have a specific individual in mind, I do not need to assume neither that the hearer knows who I am talking about, nor that the guest must be new to him. Either case is felicitous. This is true even if the hearer knew that I am not using ‘the tallest man’ in its *functional* reading—that, in other terms, if someone else were to become the tallest man from now to dinner-time, this wouldn’t mean that now I am inviting *him*. This suggests that not having a Familiarity Condition associated doesn’t automatically entail having a Novelty Condition associated. For the specific case of superlatives, this intuition can be stated as:

- (506) **Principle:** Superlatives do not carry a Familiarity or a Novelty Condition.

I believe that this principle allows a much more natural formulation of the first approach: elements in ES do not just need to be ‘Unfamiliar’—they must be truly “One could reply: “we automatically know that wars have causes—such general notions are in the common ground all the time, and therefore invariably ‘familiar.’ But think of ‘entered the house. At the end of the corridor, there was a room, and in the room, a sofa.’ We all know that houses invariably have room(s), yet ‘a room’ doesn’t sound ‘familiar’ for this reason alone, and it is fine in ES.”

'Novel.' The superlatives in (505) are not Familiar, but they also are not Novel in this stronger sense.

Let's see how this line of analysis deals with the case of "there is a certain Alvar Aalto," which prompted us to abandon a purely presuppositional theory of DE. We now have the technical tools to pursue the intuition that this is after all more akin to a locative predication, where the argument, "a certain Alvar Aalto," is a proper name with Novelty Condition enforced by "a certain."

Let's assume that "there" can stand for a PDP (in locatives) or for an SDP (in ES). Suppose further, with McNally, that "there," like any specific indefinite, carries a Novelty Requirement, and that this requirement must be consistent across the whole predication, in the sense that both predicate and argument must be novel. This Novelty Requirement must be associated with SD^{max} position of "there," since it doesn't seem to be active when "there" plays the part of the PDP predicate, in "John is [PnP there]!"⁷ Next, recall that we have seen equative copular sentences formed by two SDPs, e.g. "Mark Twain is Samuel Clements." Let's assume, anticipating the results of a discussion the end of this chapter, that the base small-clause here has structure [SDP [SDP] [SDP]]. Now, "there is a man" is potentially ambiguous between (507)a ("a man" = PDP), and (507)b ("a man" = SDP, "a" quantificational or referential).

- (507) a. [SDP There] is *t* [PnP a man].
 b. [SDP There] is *t* [SDP a man].

The second one couldn't be an assertion of existence: "a (certain) man" already takes care of presupposing existence. It could rather be the identification of a certain, specific man with an abstract location; in order to be at all meaningful, the sentence should add information of some sort, e.g. "there ... in the garden," "there... on the phone," perhaps "there... looking for you."

- (508) [SDP There] is [SDP a man who claims to be your cousin from Albania] {in the garden / on the phone / looking for you}.

Now consider again **"there is Alvar Aalto" and "there is a certain Alvar Aalto." Why cannot the first have one of the structures in (507) above? Structure (a) fails immediately—"Alvar Aalto" can never be a predicate nominal. The identificational

⁷This hypothesis matches a contrast between:

- a. ??A certain architect (at the meeting) was Alvar Aalto.
 b. A certain architect (at the meeting) was a dedicated post-modernist.
 c. A certain architect (at the meeting) was a certain Alvar Aalto.

"A certain architect" in (a-c) must be an SDP (i.e. it cannot be an inverted predicate). The marginality of (a), but not (b) must follow from the fact that "Alvar Aalto" a proper name, violates the Novelty Condition imposed by the first "a certain." "A certain Alvar Aalto" in (c) doesn't, and it is substantially better than (a), modulo stylistic awkwardness.

structure SDP-SDP fails, too, for a subtler reason: "Alvar Aalto" carries a Familiarity Presupposition, which is by hypothesis inconsistent with the Novelty condition from the SDP "there" with which "Alvar Aalto" is equated. On the other hand, adopting the idea that "a certain" + PN forces a presupposition of Novelty, the possibility of "a certain Alvar Aalto" in ES with a locative reading (structure (507)b) is derived.

- (509) [SDP There] is [SDP a certain Alvar Aalto] in Tampere.

To sum up: I propose that [SDP There] is a specific indefinite locative with a Novelty Requirement that extends to the predicate. Superlatives are neither familiar nor novel, hence they are ruled out from ES. Strong SDPs cannot appear in regular ES because they are not predicates, and cannot function in equative locatives ([SDP There] [SDP]) because they are not novel, unless novelty is forced by insertion of "a certain."

5.2.5.2 On negation in ES

Another problem, whose importance was pointed out to me by Sandro Zucchi (p.c.) is the contrast in:

- (510) a. There is no student.
 b. John is no student.
 c. *John isn't any student.
- (511) a. Non *c'* è nessuno studente. (=510)a
 not there is no-one student
 b. *Gianni non è nessuno studente.
 Gianni not is no-one student
 c. *Gianni non è alcuno studente.
 Gianni not is any-one student
 (=510)c

(510)b should be synonymous with (510)c, perhaps modulo style, but the latter is ill-formed. In Italian, a language with negative concord, both (511)b and c are out. This is unexpected if ES are parallel to regular copular constructions. Using Italian, let's fill out the paradigm with a few more cases:

- (512) a. Gianni non è nessuno degli studenti che hai conosciuto.
 Gianni not is no-one of the students that you have met
 b. Gianni non è nessuno.
 Gianni not is no-one
 "Gianni is a nobody"
 c. Gianni è un nessuno.
 Gianni is a nobody

Two distinct questions emerge. First, why is (511)b out in copular constructions, but (512)a and b are possible? How come (512b can only mean ‘Gianni is nobody that matters/counts,’ just like (512)c, which has no negative concord? Second, why with “*ei/there*” are all the three forms of negation with negative concord fine?

The first question can be answered by noticing that the distribution of *nessuno* is very similar to the distribution of *qualche/qualscuno* “some(one),” examined in section 4.2.4.2.

- (513) a. C’ è qualche studente.
Cf. (511)a
there is some student
- b. *Gianni è qualche studente.
Cf. (511)b
Gianni is some student
- c. Gianni è qualcuno degli studenti che hai
of_the students that you have
conosciuto.
Cf. (512)a
Gianni is one

Unlike with *qualscuno*, in *nessuno* the form *uno* “one” is not always perceived as a numeral; so, on the one hand, *nessuno* can license the trace of *ne* (514)a just like *qualscuno*, (and with the same loss of [+human] features, which are normally present in the absence of N (514)b vs. c.)

- (514) a. Strumenti, non ne ho visto nessuno
tools, not of_them I have seen any
b. Non ho visto nessuno
not I have seen anybody [+HUM]
c. Non ho visto nessuno strumento
not I have seen any [−HUM] tool

On the other, *nessuno* can precede a noun (unlike **qualscuno* *studente*), and it can follow an indefinite in predicative contexts (512) (unlike **un qualcuno*). The table I propose for *nessuno* is:

SDP	PDP	KIP/NP	As found in:
a. Nessuno[+human]		N	(514)b (514)c
b. Ness-uno		N	(511)a
c.	Ness-uno	N	(512)c
d.	Un	nessuno[+human]	(512)b
e.		Nessuno[+human]	

The structures for the problematic copular examples are:

- (515) a. Gianni non è [sdp nessuno degli studenti]

- b. *Gianni non è [pdp nessuno studente]
(511)b
- c. Gianni non è [sdp nessuno [kp t]]
(512)b
- d. Gianni è [pdp un [kp nessuno]]
(512)c

In (515)c,d the negation is apparently interpreted on the kind that KIPs denote: ‘Gianni is a person of a kind lacking some relevant property (importance, power, etc.)’. However, a bare *nessuno* cannot appear with *di* (**nessuno di simpatico*), which suggests that perhaps *nessuno* has moved to *SD^{max}*, as indicated in (515)c. A base KIP position could probably be assumed also for “no fool” in “I am no fool,” and “sm student,” in “John is quite sm student” (cf. “quite a student”). In all cases, one feels that “no” is modifying the quality of John’s ‘foolness/studenthood,’ more than the attribution of this property to John. Like with *qualscuno*, the PDP *un nessuno* can hardly be argumental: *?han nessuno è qui* “qui” ‘a nobody is here.’

The main question is: why is (515)b out? The problem cannot be negation in and of itself, since we find the same effect with the NPJ “any,” in (510c), (511)c, and, as we have seen, with *qualscuno* (and “sm,” once we exclude the KIP interpretation above).

Recall that in section 4.1.3, I have treated negative determiners as NPJs, collapsing together “no” and “any,” as well as negative determiners like *pochi*, “few,” *poco* “little,” which require LF-excorporation of the negation, and which are also not perfect in predicate nominals:⁸

- (516) ?Gianni e Maria sono [pochi studenti].
Gianni and Maria are [few students]

Suppose that the relation between the NPJ and the negative sentential operator is formally equivalent (or identical) to LF-raising. This collapses together *qualscuno*, too, which plausibly requires LF raising.

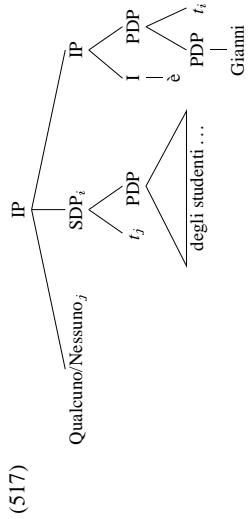
The next step is to show that the problem of predicative *nessuno* and *qualscuno* is due to the impossibility of LF-raising these elements out of a *PD^{max}* position.

SDPs undergo QR at LF, so if the operators *nessuno* or *qualscuno* are in *SD^{max}*, they are adjoined to IP, then Q-construed, crossing the single barrier of the raised SDP.⁹

⁸(516) improves with a purpose/extent clause (cf. “John and Mary are (too) few students to finish the group work in time.”). I have claimed that with these clauses the operator “(too) few” has to raise to a position where it C-commands the purpose/extent clause. Since this position is probably within the SC, it doesn’t need to cross the barriers that trouble (511)b, (513)b, etc.

⁹More precisely, in the case of negation, one has to assume that *nessuno* is split into a universal (which undergoes QC) and a ‘passive’ negative element, which joins the active sentential negative operator taking scope over the nuclear scope, giving for (512)a:

a. $\forall x[\text{student-of-the-students-y-you-have-net}(x)] \neg[\text{Gianni} = x]$
along the lines proposed in Ladusaw (1992). See later in this chapter for the identity operator.



PDPs are not Q-raised. When our operators are in PD^{max} , in order to take scope at LF they must escape the double barrier formed by the small-clause. The ill-formedness of (511)b shows that they are not capable of doing so.

We are now ready for the second question we started with, namely the difference between normal copular predication and ES. The crucial fact is that only the latter licenses extraction through PD^{max} . This is shown by the following sharp contrast in SS-extraction, discussed in Moro (1993):

- (518) a. Ce ne sono due.
there of them are two
“there are two of them”
- b. *Gianni e Maria ne sono due.
Gianni and Maria of them are two

The possibility of *ne*-extraction in the former but not in the latter is explained by Moro with the idea that *ci* ‘lexicalizes’ the copula, making it capable of C-selecting the small-clause complement and thus resolving the barrier status of the small clause. The same can be said of (510)a, (511)a, and in general (519):

- (519) *pro_i* (non) *c'* è [PDP *t_i* [PDP qualche/nessuno/alcuno studente]].
pro (not) there is *t_i* some/no/any student

Ci+è C-selects the PDP small-clause, making possible the extraction of the operator from the specifier of the lower PDP.

5.2.6 Syntactic aspects: the extraction facts revisited

This solution immediately raises the question of why Moro’s definite predicate nominals can apparently be extracted from, as in “What do you think [the picture of the wall] was [the cause of *t*]?” Following Moro, I had attributed this effect to the idea that the extracted constituent had to cross two segments of the same barrier (WH_i [$\llbracket \text{opp} [SDP] \llbracket \text{opp} t_i \rrbracket \rrbracket$]), rather than two distinct barriers. A closer examination of the facts reveals that extraction from *indefinite* predicate nominals (e.g. “a cause/two daughters”) is much less natural:

- (520) a. Which riot do you think [a picture of the wall] was [{the / ??a} cause of *t*]?
b. ??Who do you think [Mary and Sally] are [two daughters of *t*]?
c. *Which riots do you think [those pictures] were [two causes of *t*]?
- Similar effects in Italian:
- (521) Di quali rivolte pensi che [queste] siano [{le / ??he / ??alcune} of which riots you_think that [these] are [{the / three / some} cause *t*]?
causes *t*]

Same at LF: in Italian, an indefinite or bare plural predicate prevents wide scope of an embedded strong quantifier:

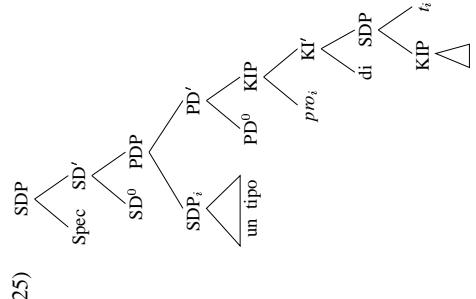
- (522) a. [Almeno due foto] sono state [{le / *delle / *alcune / [at.least two pictures] have been [{the / *some / *some / *due} cause di ciascuno scandalo]. *two} causes of each scandal]
b. Quelle non sono {le / *delle / *alcune / *due} prove di Those are not {the / *some / *some / *two} proofs ofognuno dei delitti]. every-one of the crimes

(522a) for instance cannot mean ‘for each misunderstanding, the causes of it were two pictures,’ a meaning which is readily accessible with the definite. This suggests that ‘normal’ predicate nominals, i.e. PDPs, are after all barriers to extraction, and that definite predicate nominals—which must be SDPs, as they appear in [Spec, IP] in inverse copular sentences—are able to provide an escape hatch. Pending further discussion, I adopt the idea that the inability of operators like *nessuno* and *qualche* to scope out of [Spec, PDP] in a small clause follows from the barrier system I have adopted: neither PDP is L-marked (or C-selected, see Cinque 1990, chapter 1), therefore they are both barriers.

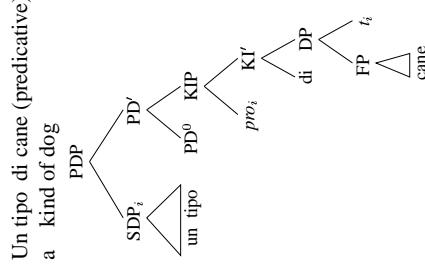
We can now go back to the extraction possibilities for the *kind*-construction in section 3.5 on page 104, summarized below in (523) and (524). In Italian, the app- parent PP under an indefinite kind-noun can be extracted or pronominalized with *ne* if the kind-nominal is argumental, but not if it is used predicatively. This differ- ence doesn’t exist with PPs embedded under other indefinites (extraction is generally good, as long as the PP is the complement of the noun, see (C)), and when it is the kind-nominal to be extracted from under a content noun (extraction is always bad (d)).

- (523) a. Di cosa Maria pensa che Gianni conosca un tipo strano *t*?
of what Mary thinks that Gianni knows a kind strange *t*?

- b. *Di cosa Maria pensa che Fido sia un tipo t ?
of what Maria thinks that Fido is a kind t ?
- c. Di cosa Maria pensa che Gianni sia/conosca un esperto t ?
of what Mary thinks that Gianni is/knows an expert t ?
- d. *Di che tipo Maria pensa che Fido sia/conosca un cane t ?
of what type Maria thinks that Fido is/knows a dog t ?
- (524) a. (Parlando di muselidi,) Gianni ne conosce un tipo t .
(speaking of muselids,) Gianni of_them knows a kind t
- b. *(Parlando di muselidi,) i furetti ne sono un tipo t .
(speaking of muselids,) ferrets of_them are a kind t
- c. (Parlando di calcio,) Gianni ne è/conosce un patito t .
(speaking of soccer,) Gianni of_it is/knows a fan t
- d. *(Parlando di tipi di animali,) Rusty ne è/conosce un muselide t .
(speaking of kind of animals,) Rusty of_it is/knows a muselid t



Extraction/pronominalization of the KIP [*pro di SC*] is now possible through [Spec, SDP], licensing the SD⁰ head. On the other hand, when the *kind*-construction is predicative, the kind-nominal still raises to [Spec, PDP], but no [Spec, SDP] escape-hatch is available and the extraction of KIP is blocked by the small-clause barrier (two PDPs):



The data above can be explained as follows. When the *kind*-construction is in an argumental position, the kind-nominal can be in [Spec, PDP] licensing PD⁰, while a *pro* bound by the kind-nominal is raised to [Spec, KIP], with a structure:¹⁰

¹⁰For many speakers, English allows extrapositions such as "Many kinds have been seen [of these cars]." A possibility could be that the appropriate pronoun is PRO here, not *pro*, which is presumably absent in English. However, this predicts that the agreement facts noted below for Italian should extend to English, which isn't the case. An alternative is that such sentences are not cases of right extraposition of "of these cars," but rather, cases of movement of the kind-nominal from a non-Case marked SDP in object position to subject position, with Case transmitted to the object via the chain containing the kind-nominal (cf. Kayne 1994). I leave these options open for further study.

If *ci* is present, the small-clause barrier is void (cf. (518)), and extraction is indeed possible. Contrast:

- (527) a. Ce ne è ogni tipo *t*.
there of_it is every kind *t*
“there’s every type of it”
- b. *Quello ne è ogni tipo *t*.
that of_it is every kind *t*

This leaves as an open problem why predicate nominals introduced by a singular indefinite article do allow extraction quite easily; why, in other terms, is (528) much better than (520) and (521), in Italian as in English?

- (528) a. Di cosa Maria pensa che Gianni sia un esperto *t*?
of what Mary thinks that Gianni is ‘an expert’ *t*?
- b. (Parlando di calcio,) Gianni ne è un patito *t*.
(speaking of soccer,) Gianni of_it is a fan *t*

The generalization seems to be that the singular indefinite leaves an escape hatch which is unavailable for numerals. The sentences above degrade rapidly if “two” is substituted for “a.”¹¹

5.2.7 On double clitics

Let’s now return to the syntactic facts presented by Moro in favor of his non-expletive analysis of ‘there.’ In Moro’s analysis, ‘there/ci’ is always a predicate, and the internal noun phrase always an argument. In my analysis, *ci* can be coindexed with the subject; in this case, the internal noun phrase is the predicate. All of Moro’s evidence against an expletive analysis of ‘there’ still works in my analysis, but for one element, i.e., the reason why in Italian $ce_i lo_i \in [t_i t_j]$ ‘there-CL it-CL’ is’ is out (see (48)3. ii). Since *lo* replaces PDPs, and ‘a man’ is a PDP predicate, there shouldn’t be any problem in pronominalizing it. In cases where *lo*+AgR replaces a full SDP, both *ci* and *lo* clitics coexist:

- (529) a. Ho messo [il gatto]_i [nella scatola]_j.
I have put the cat in_the box
- b. Ce_j lo_i ho messo.
in_it-CL it-CL I have put

But consider (530). Here, there is no doubt that *iperattivo*, ‘hyperactive,’ is a predicate. If the indirect 2nd-person object clitic *ti* (“to you,” in phonological alternation with a preposition) e.g., *Di quali città pensi che Gianni sia un esperto?* “of which cities do you think Gianni is an expert?” Since both *cosa* and *ne* above are arguably KIPs, this could suggest that the escape hatch I must postulate in these cases is only open for KIPs. It is also interesting to note that predicates like ‘expert’ and ‘fan’ favor a kind-level object. Examples with deverbal nominals such as ‘departure’ are more deviant, according to some speakers: ?“Who is this a departure of *t*?”¹²

with *te*) is missing, *lo* can pronominalize *iperattivo*, but if *ti* is present, *lo* is impossible (530)c.

- (530) a. Gianni ti sembra iperattivo.
Gianni to_you seems hyperactive
“Gianni seems hyperactive to you”
- b. Gianni lo sembra *t*.
c. *Gianni te lo sembra *t*.
(*lo* = *hyperactive*, *te* = *to you*)

Thus, the ill-formedness of *ce lo è* is independent of the fact that *ci* “there” is the argument. I hypothesize that it is due instead to the contradicting information transmitted to “be” by the different categories the two clitics are instances of, namely PDP and SDP. Only if both clitics are of category SDP, as in (529), they can affix onto the same head.

5.2.8 ES in Italian: *ci* as pro-argument and *ci* as pro-predicate

We are now ready to discuss the distribution of noun phrases in Italian existential sentences, repeated in the table below:

	TYPE OF DPS	EXAMPLE	POST-COPULA: <i>C’ è</i> –	PRE-COPULA: <i>C’ è</i> –
A.	INDEFINITES	<i>Un uomo</i> ‘a man’	ok	ok
B.	DEFINITES	<i>L’ uomo</i> ‘the man’	ok	ok
	NAMES	<i>Gianni</i>	ok (locative)	ok (locative)
C.	STRONG QS	<i>Ogni tipo di birra</i> ‘every kind of beer’	ok	*
D.	WITH KINDS			*
D.	STRONG QS	<i>Ogni bambino</i> ‘every child’	?ok	*

Looking at post-copular position alone, rows A and C are expected. ‘A man’ and ‘every kind of beer’ are PDPs, and must be interpreted as predicates. The subject is *pro* in [Spec, IP], coindexed with *ci*. Rows B and (for some speakers) D cannot be interpreted as pure assertions of existence; a locative interpretation prevails (see section 2.3.6.4 on page 68 and the remarks in Zucchi 1995, Moro 1993, 1997). Things are more complex in pre-copular position, where definites and indefinites are possible, but strong quantifiers are out (C and D).

To explain this, let’s first look at indefinites. *Un uomo c’ è* is not synonymous with *C’ è un uomo*; the former, but not the latter, is topicalized. For instance, if the context sets up a particular individual as the topic, only the pre-copular position is perfectly felicitous:

¹¹To my ear, the Italian examples get worse if it is a clear SDP WH to be extracted (always under a preposition) e.g., *Di quali città pensi che Gianni sia un esperto?* “of which cities do you think

Gianni is an expert?” Since both *cosa* and *ne* above are arguably KIPs, this could suggest that the escape hatch I must postulate in these cases is only open for KIPs. It is also interesting to note that predicates like ‘expert’ and ‘fan’ favor a kind-level object. Examples with deverbal nominals such as ‘departure’ are more deviant, according to some speakers: ?“Who is this a departure of *t*?”¹²

- (531) a. Parlando di gente capace di scrivere una dissertazione in un mese,
Speaking of people capable to write a dissertation in a month,
[una persona così] c' è, ed è Gianni.
[a person like.that] there is, and he.is Gianni
- b. ?Parlando di gente capace di scrivere una dissertazione in un mese,
c' è [una persona così], ed è Gianni.
there is [a person like.that], and he.is Gianni

The generalization is that an element will be acceptable in the pre-copular position if it is acceptable in the post-copular one (either as a locative argument or as an existential predicate nominal) *and* it can be left-dislocated, in ways to be addressed momentarily. To anticipate the results of the discussion, defines before the copula will be argued to be coindexed with a *pro* moved from the small-clause to [Spec, IP]; *ci* will be a pro-predicate, giving to this locative predication the precise structure Moro had argued for for genuine existential sentences. Both *Gianni c'è* and *c' è Gianni* require some implicit, contextually salient location, which is coindexed with *ci*; both are interpreted as ‘Gianni is in some (contextually salient) location’. Definite DPs that are too abstract to go in the scheme “‘DP is in that location!’” are also too abstract to appear in these pseudo-existential locative predication.

- (532) a. ?Le due soluzioni di questa equazione sono là.
the two solutions of this equation are there
b. ??Ci sono le due soluzioni di questa equazione.
there are the two solutions of this equation
c. ?Le due soluzioni di questa equazione ci sono.
the two solutions of this equation there are
- (533) a. ?L'esistenza di Dio non era là.
“the existence of God was not there”
b. ??Non c' era l'esistenza di Dio.
“there wasn't the existence of God”
c. ??L'esistenza di Dio non c' era.
“the existence of God, there wasn't”

Of course, some contexts can improve these sentences by providing an abstract space where even the existence of God can find a rest:

(534) Tra le cose che S. Tommaso riteneva di aver provato c' era l'
Among the things that S. Thomas thought he had proved there was the
esistenza di Dio.
existence of God

The proposed structure for *C' è Gianni* will then be (535), where *Gianni* is *in situ* coindexed with a *pro* subject, and the pro-PDP *ci* has moved to INFL.¹²

- (535) [in *pro_i* [r [c' _j è] [SDP Gianni_i t_j]]]

A prediction is that extraction from the internal SDP noun phrase will be impossible, as from any other inverse sentence. (536)a matches (536)b:

- (536) a. ??[Di quale guerriero_i pensi che proprio qui ci sia [SDP il [of which warrior] you.think that just here there is [the ritratto t_i?]. portrait t_i?]]
b. * [Di quale guerriero_i pensi che [la causa della guerra] sia [SDP [of which warrior] you.think that [the cause of.the war] is [il ritratto t_i?]. the portrait t_i?].

The effect is stronger with *ne*:

- (537) a. Quanto al castello, Gianni e Maria ne_i sono [i padroni t_i].
as for the castle, Gianni and Maria of.it are [the owners t]
b. *Quanto al castello, ce ne_i sono [i padroni t_i].
as for the castle, there of.it are [the owners t]

In the first sentence, *i padroni* acts as a definite predicate, in the second, as an argument, the predicate being locative *ci/ce*. This contrast shows that while *ci* + the copula can resolve the barrier status of the predicate nominal (so as to allow *ce ne_i sono tre t*, “there of.them are three t”), it still doesn’t allow extraction out of the argument position.

5.2.9 Pre-copular subjects and CLLD

It remains to see why the pre-copular position in ES excludes strong quantifiers in general. It is well known that in Italian, the post-verbal subject can be extracted, and moved to a left peripheral ‘topic’ position. I want to argue that, first, the pre-copular subject position of strong DPs is in general a case of Clitic Left Dislocation (CLLD), in the sense of Cinque (1990) and not of Topic Left Dislocation (though the latter cannot be excluded for some cases); second, that strong quantifiers are not allowed in CLLD. Taken together, these ideas correctly rule out all pre-copular strong quantifiers in Italian *Ci*-sentences.

¹² Alternatively, the structure could be analogous to (508), i.e. [SDP SDP SDP], with equative meaning. I leave this possibility open.

5.2.9.1 Topic LD vs. CLLD

Cinque (1990), chapter 2, discusses at length the difference between two very similar constructions, Topic Left Dislocation (LD), illustrated in (538) for Italian, and Clitic Left Dislocation, in (539).

- (538) GIANNI, (*Io) ho visto.
GIANNI, (him-CL) I have seen

- (539) Gianni, *(Io) ho visto.
Gianni, (him-CL) I have seen

Cinque convincingly argues that (538) involves WH-movement of an operator O from subject position to C^{max} , while in (539) there is no empty operator, and the constituent in a left-dislocated topic position simply binds the object clitic. The two analysis are:

- (540) [top GIANNI] [cp O_i [np (*Io) ho visto t_i]]

- (541) [Gianni] [cp [p *(*Io_i) ho visto t_i]]

It is not relevant, here, to go through Cinque's argument for this analysis. Let's concentrate instead on some differences between the two constructions, using examples slightly adapted from Cinque (1990), pp. 56-97.

First, LD requires focus on the left-dislocated element, while focus is disfavored for the CLL-dislocated phrase, which is simply introduced as the topic:

- (542) a. **LD:** GIANNI, ho visto, non Maria!
“It is GIANNI who I have seen, not Maria!”

- b. **CLLD:** Gianni, l' ho visto (? non Maria).
“Speaking of Gianni, I have seen him (? not Maria)”

Second, LD occurs only in root contexts, while the CLL-dislocated phrase can appear in a subordinate.

- (543) a. ***LD:** So che GIANNI, ho visto.
I know that GIANNI, I have seen

- b. **CLLD:** So che Gianni, l' ho visto.
I know that Gianni, (him-CL) I have seen

Third, CLL-dislocated phrases can be stacked, topic left-dislocated phrases cannot.

- (544) a. ***LD:** GIANNI, [al mare], ci, ho visto.
GIANNI, at the sea, there I have seen

- b. **CLLD:** Di vestiti, a me, Gianni, in quel negozio, non mi ce ne ha mai comprati.
“Clothes, to me, Gianni, in that shop, he never bought them”

Fourth, CLL-dislocated phrases cannot be related to a non clitic pronoun (a tonic pronoun such as *lui* “him,” *là* “there”).

- (545) a. **LD:** QUELLA CITÀ, non sono mai stato là.
THAT CITY, I have never been there

- b. ***CLLD:** In quella città, non sono mai stato là.
in that city, I have never been there

- c. ***CLLD:** Gianni, ho visto lui
Gianni, I have seen him

Fifth, CLLD does not seem to be sensitive to ‘weak’ islands (e.g., WH-, negative or factive islands), while LD does.¹³ In (546)b, “the book” is in relation with the clitic ‘Io’ inside a WH- and a negative island.

- (546) a. ***LD:** IL LIBRO, mi domando se Carlo sia
THE BOOK, CL I wonder if Carlo is
sicuro che non gli daranno mai.
sure that they will never give it to him

- b. **CLLD:** Il libro, mi domando se Carlo sia sicuro
the book, CL I wonder if Carlo is sure
che non glielo daranno mai.
that they will never give it to him

Given these tests, it seems well established that CLLD and LD, two apparently similar constructions, are actually very different, and subject to separate constraints. There is a sixth difference between the two constructions, which Cinque does not remark upon, but which is crucial to my analysis. This is the fact that the left dislocated phrase can contain a strong quantifier, while a clitic-left dislocated noun phrase containing a strong quantifier is ungrammatical. Compare (547) with (548), where the embedded position forces CLLD and prevents LD (cf. (543) above).¹⁴

- (547) a. OGNI STUDENTE, ho promosso (non soltanto tre o quattro)!
every student, I have passed (not just three or four)!
b. TUTTI, ho ascoltato
EVERYBODY, I have listened.to

¹³This is in fact the main piece of evidence for Cinque's non-movement analysis of CLLD.

¹⁴Cinque has the example *tutti, non li ho visto ancora* “All, I haven't seen them yet,” which contains the apparent universal quantifier *tutti* “all.” In my approach, this is not a problem, since “tutti” is not a quantifier, but (in this case) a modifier of a topicalized *pro* (see section 4.5). With some verbs, *tutti* is compatible with CLLD, where it adds a sense of ‘exhaustiveness.’ For instance, the singular, focused *TUTTO, ho mangiato* “all, I have eaten” can mean that I have tasted each single food item, but not finished all of them, while the CLLD *Tutto, l' ho mangiato*, “All, it-CL I have eaten,” means that I have finished off a single food item. The contrast between (547)b and (548)b merely shows that *ascoltare* “listen” is not compatible with ‘all’ in CLLD.

- c. CIASCUNO STUDENTE, *pro* ha perquisito, [quel maledetto EACH STUDENT, *pro* has searched, that damned poliziotto]_i ! cop!

- (548) a. So che {uno / lo / ?? ogni} studente, Mario lo_i ha promosso.
I know that {a / the / every} student, Mario him has passed
b. So che {alcuni / ?? tutti gli} studenti, Mario li_i ha
I know that {somebody / all the} students, Mario them-CL has
ascoltati *t*.

- c. So che {uno / lo / ?? ciascuno} studente, il poliziotto lo_i ha
I know that {a / the / each} student, the cop him has
perquisito.
searched

In all these cases, definites and strong quantifiers pattern differently: definites can be CLL-dislocated, while strong quantifiers cannot. Interestingly, this prohibition extends to clitic dislocated phrases in post-verbal position (549), and to strong quantification over kind-nouns (550).

- (549) Il poliziotto lo ha perquisito *t*, {uno / lo / ?? ciascuno / ?? ogni}
the cop him-CL has searched *t*, {a / the / each / every}
student.

- (550) So che {un / ?? ogni} tipo di birra il negozio lo vende.
I know that {a / every} kind of beer, the shop it-CL sells

The latter fact is not surprising. Recall that strong quantification over kind-nouns can be either weak/predicational (in my system, a PDP), with ‘every kind’ in [Spec, PDP], or strong/argumental ‘(every kind’ in [Spec, SDP]). Being the object of *vendere*, “sell,” *lo* must correspond to an SDP, and any noun phrase coindexed with it must also be an SDP. Thus, *ogni tipo di birra* must be an SDP, not at all different from a strong quantifier ranging over non-kind nouns.

These facts can be collected under the following generalization:

- (551) Strongly quantified noun phrases cannot be coindexed with a clitic in CLLD
One possible explanation for this fact is that the left-dislocated position blocks the possibility of QR/QC which is essential for the interpretation of any purely quantificational SDP. Another possibility—considering that the relation between a CL-dislocated element and its clitic is binding—is to relate (551) to the fact that strong

quantifiers do not permit intersentential binding (in donkey-sentence type constructions). I will not pursue these possibilities in the present work.¹⁵

5.2.9.2 CLLD and subject position

The next step is to use the generalization above to explain the ill-formedness of pre-copular strong quantifiers in pseudo-existential locative predicates. In order to do this, we need to say that *Gianni* in *Gianni c’ è* is actually CL-dislocated. The idea that ‘CLLD’ is also possible from subject position in pro-drop languages is defended in Cinque (1990) p. 77. In this case, a *pro* subject would be (locally) bound by the ‘CLL-dislocated’ constituent.

Going through the range of differences between LD and CLLD, we see that the definite subject of Italian pseudo-existential *There*-sentences patterns with CLLD, rather than with LD. First, no focus is required on *Gianni* in *Gianni c’ è*. Second, pre-copular definites can appear in embedded position.

- (552) So che Gianni c’ è.
I know that Gianni there is

Third, *Gianni* can precede other CLL-dislocated PPs:

- (553) [Gianni], [a casa], *pro*, non c_j era.
[Gianni], [at home], (he) not there was

Fourth, *Gianni* cannot be related to an overt, tonic pronoun in subject position:

- (554) *Gianni, credo che lui_i non c’ era.
Gianni, I believe that he not there was

Fifth, the relation between *Gianni* and the copular subject position does not obey subadjacency for ‘weak’ islands:

- (555) Gianni, mi domando se Carlo sta sicuro che non *pro* sia in casa.
Gianni, CL I wonder whether Carlo is sure that not *pro* is at home
Given these similarities, we can assume that *Gianni* is indeed in a binding relation with *pro* in [Spec, IP], and that *pro* acts as a clitic in this respect. Under this assumption, we can reduce the fact that pre-copular strong quantifiers are out in Italian pseudo-existential locative predicates (556)a, to the fact that strong determiners are out in CLLD (556)b.¹⁶

¹⁵Koji Hoshi, (p.c.) informs me that in Japanese, strongly quantified noun phrases cannot be marked with the topicalization marker. However, other speakers I have asked were not positive on this judgment.

¹⁶Note that these facts cannot rule out the possibility that some cases of pre-copular DP in Ci-sentences may be Topic LD. A case in point is the indefinite *una persona così* ‘a person like that’ in (531), where the interpretation seems to be necessarily that of a topic, in a genuine assertion of existence. These cases would involve movement of the IPp una personal to a topic position above IP.

- (556) a. ??Penso che ciascun bambino ci sia.
I_think that ciascun child there is
b. ??Penso che ciascun bambino Mario lo aiuterebbe.
I_think that each child Mario him would_help

5.2.10 Italian infinitives and ES

In this section, I want to go back to the distribution of bare infinitives in Italian ES, to show that it constitutes a confirmation of the split-analysis of Italian *Ci*-sentences as genuine existential and locative predications. As we have seen in a previous chapter, Italian bare infinitives such as *parlare* ‘talk-INF’, *guardare* ‘watch-INF’, *ricordarsi* ‘remember-INF’, are completely impossible in normal ES sentences.

- (557) a. *C’ era parlare nel dormitorio.
there was talk-INF in_the dorm
b. *C’ è guardare (la televisione) alle cinque.
there is watch-INF the TV at 5
c. *Ci sarà ricordarsi di cose passate insieme quando
there will_be remember-INF of things past together when
ci vedremo.
we_will_meet

However, as we have seen, setting up a context in which the activity denoted by the infinitive can be ‘located’ among a larger set of activities gives perfectly acceptable *Ci*-sentences with bare infinitives.

- (558) a. Tra le cose per cui eravamo puniti al collegio,
Among the things for which we_were punished at boarding_school,
c’ era [parlare (nel dormitorio)].
there was talk-INF (in.the dorm)
b. Tra le attività che mi ha sconsigliato il dottore, c’ è
Among the activities that to_me has not ADVISED the doctor, there is
[guardare la televisione].
watch-INF the television
c. Tra le cose da fare quando ci vedremo, ci sarà
among the things to do when we_will_meet, there will_be
[ricordarsi di cose passate insieme].
remember-INF of things past together

This suggests that bare infinitives are impossible in real ES, but possible as locative predications, provided that the ‘location’ is suitably chosen. This hypothesis is confirmed by the pattern of *ne* extraction. Recall that in *Ci*-sentences *ne* can be extracted from certain predicates, but never from an argument. Also, *ne*, as any other

clitic, can ‘climb’ from under an infinitive to the main verb taking the infinitive as complement.

- (559) a. Guerra, vedo discuteme ovunque.
war, I_see discuss-INF-of it everywhere
b. Guerra, ne_i vedo discutere *t_i* ovunque.
war, of.it I_see discuss-INF *t* everywhere

Yet *ne* cannot climb onto *è “is”* in *Ci*-sentences where bare infinitives are possible (compare with *Ce ne è [un amico t]* ‘There of_it_i is a friend *t_i*’):

- (560) a. Quanto alla guerra, tra le cose da fare c’ è discuterne
As for war, among the things to do there is discuss-INF-of it
a fondo.
in depth
b. *Quanto alla guerra, tra le cose da fare ce ne_i è discutere *t_i*
As for war, among the things to do there of_it is discuss-INF *t*
a fondo.
in depth

5.2.10.1 Bare infinitives and *Infinito Sostantivato*

A way to make infinitives generally acceptable in Italian ES is to precede them with a weak determiner:¹⁷

- (561) a. C’ era [un gran parlare] nel dormitorio.
there was a big talk-INF in_the dorm
“there was a lot of talking in the dorm”
b. ?Qui c’ è sempre [molto guardare la televisione] alle cinque.
here there is always much watch-INF the TV at 5
“here there’s always a lot of T. V. watching at 5 o’clock”
c. Ci sarà [il solito ricordarsi di cose passate insieme]
there will_be [the usual remember-INF of things past
together]
quando ci vedremo.
when CL we_will_meet
“There will be the usual remembering common experiences when we
meet”

Let’s then investigate the structural difference between bare infinitives and infinitives with determiners, to see if this gives us an explanation of their distribution in ES.

¹⁷As Prince (1981) notes, *il solito* ‘the usual’ behaves as an indefinite, cf. “there was the usual mess in the room.” The discussion on complex determiners in chapter 6 is relevant.

Italian infinitives may appear in subject position of a main verb either preceded by a determiner (the *Infinito Sostitutivo* construction, in (563), studied in Grimshaw and Selkirk 1976, Salvi 1983 and Zucchi 1989, chapter 7), or without determiners (the 'bare infinitive' construction, in (562)).

- (562) a. Cucinare è rilassante.
cook-INF is relaxing
 - b. Mangiare stanca la gente.
eat-INF tires the people
 - c. Ballare la rumba è ormai un hobby di pochi.
dance-INF la rumba is now-a-day a hobby of few people
- (563) a. [Il suo mormorare sommesso-mamente parole dolci] spiega la reazione
the his whisper-INF softly words sweet explains the reaction
di lei.
of her
- b. [Il parlare di questi argomenti] annoiava Gianni.
the talk-INF of these topics bored Gianni
 - c. [Un eccessivo mangiare cibi pesanti] ottenebra il cervello.
an excessive eat-INF food heavy clouds the brain

The *Infinito Sostitutivo* can be accompanied either by adverbs or by adjectives with masculine singular agreement, and can have a logical subject introduced by *di*. These two properties are correlated: only when the infinitive goes with an adjective is the *di*-subject possible:

- (564) a. Il cessare {improvviso / *improvvisamente} delle ostilità.
the cease-INF {sudden / suddenly} of the hostilities
- b. Lo scrivere {interminabile / *interminabilmente} di Sibilla.
the write-INF {unending / *unendingly} of Sibilla

This fact leads Grimshaw and Selkirk (1976), Salvi (1983) and Zucchi (1989) to analyze *Infinito Sostitutivo* as structurally ambiguous. When followed by an adverb *lo scrivere* is a VP embedded inside a noun phrase; when modified by an adjective, it is a bare V embedded under a noun phrase, and an adverb has no VP to attach to.¹⁸

An argumental infinitive with an adjective must be introduced by a category D^{max} . This is shown by the fact that the article cannot be omitted in this case:

¹⁸ A third possibility is that the infinitive is modified by an adjective with *plural* agreement. In this case, I propose that the adjective is a modifier of a plural $PRQ_{a,b}$ in subject position (Rizzi 1986). This is suggested by the fact that an adverb can modify the complex Infinitive+Adjective, as in: *Il / PRO_i partire sommesso_i / continuamente_i* è segno di timidezza "the PRO talk-INF soft_{M,Pi} continuously is a sign of shyness."

- (565) a. *(il) mormorare sommesso mi stanza.
(the) whispering soft me-CL tires
- b. (il) mormorare sommessamente mi stanza.
(the) whispering softly me-CL tires

(565)a is out like any bare singular nominal. The fact that the article is optional in (565)b suggests that the maximal category of the bare infinitive *mormorare sommesso-mamente* is not an SDP (for if it were, its head would be the empty singular determiner, impossible in ungoverned positions), but a VP with a PRO internal subject in [Spec, VP], or some larger sentential category.¹⁹

How does a bare infinitive behave in copular predication? The fact that a bare infinitive is good in pseudo-existential locative predictions, (see (558)), where it plays the role of the argument, but not in genuine existential sentences (e.g. (557)) where it plays the role of the predicate, predicts that a bare infinitive VP should not be able to function as the predicate in copular sentences, either.

Surely, cases like (566) are no proof that the bare infinitive can be a predicate, since this could be analyzed as an inverse sentence with predicate *l'importante* raised, or as an equative statement with two SDPs.

- (566) L'importante è partecipare
the important_thing is participate-INF

The same considerations apply to (567), where the infinitives could be two equated arguments,

- (567) Scrivere è sbagliare.
write-INF is make-mistakes-INF
"To write is to err"

A better way to approach infinitives is through their pronominalization possibilities. In (568), the impossibility of *lo* with subject *l'importante* "the important thing" confirms our suspicion that *l'importante* is necessarily the predicate.

¹⁹Notice the contrast between:

- a. Incontrare Gianni è raro/frequente.
meet-INF Gianni is rare/frequent
- b. ??L' incontrare Gianni è raro/frequente.
the meet-INF Gianni is rare/frequent

The fact that 'frequency' modifiers like "rare/frequent" can apply to bare infinitive but not to *Infinito Sostitutivo* suggests that only the former has a temporal dimension (perhaps a event argument, as often proposed in the literature). Interestingly, neither (a) nor (b) tolerate Cumulative Predicates that do not make reference to temporal frequency, such as "widespread," "abundant," may be a sign that the infinitive can never raise to (or be coindexed with an expletive in PD, to acquire a true kind-denoting interpretation.

- (568) a. *[Parlare vanamente di cose tristili, [I' importante] non lo_i è
[talk-INF vacuously of things sad, [the important] not such_i] is
b. ?[I' importante]_j, [parlare vanamente di cose tristili, non lo_i è.
[the important], [talk-INF vacuously of things sad] not such_i] is

(569) shows that, when the copular subject is a bare infinitive, another bare infinitive (i.e. without *un vano*) cannot be pronominalized with *lo*, while this is a marginal possibility when the indefinite is present.

- (569) ?*Un vano) parlare di cose tristili, [discutere di guerra] lo_i è.
[an empty] talk-INF of things sad, [discuss-INF of war] it_i is

In conclusion, this is independent support to the idea that bare infinitives cannot be predicates, whereas *Infinito Sostantivato* can, in agreement with my analysis of pseudo-existential locative predication.

5.3 On the syntactic form of predicates

The purpose of this section is that of discussing an issue that has surfaced several times so far, namely the status of noun phrases that seem to function like predicates, but can appear in [Spec, IP] like argumental noun phrases, and are typically introduced by the definite article “the.” Examples are:

- (570) a. The cause of the riot
b. The origin of our problems
c. The daughter of that barber
d. The teacher of the blind woman
e. The proof of Descartes’ existence

Phrases of this sort have often been pointed out in the literature. For instance, all the examples of invertible predicate nominals used in Moro (1993) fall in this class.²⁰ Moreover, these noun phrases are a superset of a class of definite descriptions that Poesio (1994) calls ‘weak definites,’ e.g.:

- (571) a. The student of a linguist
b. The side of a mountain
c. The corner of a major intersection

Poesio’s weak definites are analogous to the noun phrases in (570), with the additional requirement that the embedded DP must be indefinite. I will call the examples in (570) ‘T-definites,’ for ‘transparent-definites.’ The reason for the appellative ‘transparent’ should be clear soon.

²⁰ See also the discussion in Loebner (1985), Kadmon (1987), Barker (1991), McNally (1992), and Poesio (1994).

What are the distinguishing features of T-definites? The most important feature is that they all contain nouns with an intrinsically *relative* meaning, in the sense of Barker (1991) (see also McNally 1992), i.e. nouns like “cause,” “origin,” “proof,” “daughter,” “teacher,” etc. which entail the existence of an object or person that was caused, originated, proved, generated, or taught, and which can appear as N in English in the configuration “the N of DP.” In all cases, these nouns denote two-place relations, with their complement filling one of the places, and functioning as the noun’s *theme*. Other syntactic features will be examined below.

T-definite predicate nominals pose a dilemma for the theory as it has been presented. First, I have so far tacitly assumed that the definite determiner should be located in the highest projection of the noun phrase, SD^{max} . This is suggested by the fact that noun phrases introduced by “the” presuppose the existence of a referent also under conditionals and negation, a property that has been associated with SD^{max} . For instance, only (572)a and c entail (573).

- (572) a. Mary didn’t buy the pink truck.
b. Mary didn’t buy a pink truck.
c. If Mary bought the pink truck, we are in trouble.
d. If Mary bought a pink truck, we are in trouble.
(573) There exists a pink truck.

If “the” always appears in SD^{max} , and if the noun phrases above are indeed used as predicates, we have to give up the idea that SDPs cannot be predicative.

A way out is to say that “the” typically appears in SD^{max} , but in circumstances to be spelled out, it can also appear in PD^{max} . The examples in (570) would be cases of “the” in PD^{max} . This would explain the predicative reading, but it would pose a different problem. I have ruled out *“a doctor is John” precisely on the base of the idea that a PDP such as “a doctor” (non-specific reading) cannot appear in [Spec, IP]. Now this simple account should be given up.

An alternative might be to say that the noun phrases in (570) are after all SDPs, but they share the status assigned to the second noun phrase in *equative sentences* such as (574), which is, *prima facie*, not the status of predicates.²¹

- (574) a. The “Gran Zebù” is the “Königspitze.”
b. Mark Twain is Samuel Clemens.

²¹The issue of whether these two apparently different constructions (“Mark Twain is a writer” and ‘[Mark Twain is Samuel Clemens]’ can be unified has its roots in Aristotle; see the appendix of Moro (1993) for a critical history of the problem. In the modern linguistic tradition, Quine (1960), Thomason (1974) and among syntacticians, Heggie (1988) and Moro (1993), take sides with the unitarian view. A non-unified treatment has more recently been defended in Stump (1985), Doron (1988), Heycock (1994) and Heycock and Kroch (1998)). The latter viewpoint typically holds that *be* is ambiguous (cf. the four-fold ambiguity for “be” in Stump 1985).

Again, this line of analysis encounters problems. First, it doesn't explain the difference in extraction and pronominalization facts noticed by Moro and others, and discussed in the first chapter. Second, it doesn't give justice to other peculiar features shared by T-definites. For instance, the possibility of occurring in predicational contexts appears to be linked to the presence of "the"—as opposed to any other strong determiner. That "the" is in some way special is well-known—see, for instance, its obligatoriness in superlatives:

- (575) {The / * That / * A certain} tallest person who ever lived easily entered the Guinness of Records.

Third, methodologically, this approach simply reduces the problem of weak definites to the treatment of equative statements, which is still very much an open issue.

In the next section I will briefly discuss the status of identity sentences, closely following the path of Heggie (1988). Given the size of the discussion on identity in the past centuries, this section should really be seen as a commentary on Heggie (1988), and one strictly limited to the linguistic aspect of copular identity statements.

The solution that I will propose at the end, however, is different from Heggie's, in that it tries to see both T-definite predicate nominals and copular sentences as two opposite ways adopted by the interpretive module to be able to assign a well-formed meaning to small-clauses where neither the 'predicate' nor the 'argument' are properties.

5.3.1 Equative copular sentences

Heggie (1988), p. 94 examines the status of sentences such as:

- (576) a. That man is John.
b. John is that man.

asking whether both noun phrases are arguments of "be" (which would assign a theta role to both, possibly in a flat configuration like [Ip [Np John]_i is [Np that man]_j], as argued in Longobardi 1985 and Williams 1984)—or rather a small-clause type construction, as Heggie argues for more clearly predicational copular sentences.²² Interestingly, among the cases that Heggie regards as 'predicational' we find "the

²²Heggie points out that an analysis in which both noun phrases are argumental and coindexed poses a problem for Principle C of the binding theory, even in the reformulation of Safir (1982), where predicative noun phrases are explicitly exempted from it. This doesn't seem to me a very strong objection. Condition C rules out two different coindexed referential noun phrases, as "John, saw [the man]." Yet it seems entirely reasonable to assume that two objects that are explicitly identified do not count as two *different* noun phrases, in which case "[Mark Twain is Samuel Clements]" shouldn't be ruled out for coindexation any more than "[John_i runs]" should be out because "John" is trivially coindexed with itself.

organizer of the group," "the teacher (of someone)"—which I would classify as T-definites.

Heggie uses three tests for predicative status. First, only predicates are allowed in cleft-sentences; second, predicates do not allow *le*-pronominalization in French (the corresponding of our *lo_{+Agr}*-pronominalization test); third, the adverb "only" can adjoin to arguments but not to predicates in pre-copular position: "Only John is the best doctor," but ?? "Only the best doctor is John."

Applied to equative sentences, the three tests suggest that the proper name exhibits the syntactic properties of a predicate. Pre-copular "Jack Johns" cannot be clefted:

- (577) a. That man over there is Jack Johns.
b. It is that man over there that is Jack Johns.
c. *It is Jack Johns that that man over there is.
- (578) a. Jack Johns is that man over there.
b. *It is Jack Jones that is that man over there.
c. *It is that man over there that is Jack Jones.

In French, (and Italian) neither noun phrases in post-copular position can be pronominalized with the argumental pro-form *le/l'*.

- (579) a. *Cet homm là-bas l' est.
That man down-there him-CL is
b. *Jean l' est.
Jean him-CL is
c. *L' Etoile du Matin l' est.
the Morning Star it-CL is

Finally, pre-copular "only" can only go with "that man":

- (580) a. Only that man is John.
b. That man is only John.
c. *Only John is that man.
d. John is only that man.

Incidentally, I and some informants do not find (580a) sensibly better than (580)c—though perhaps the reason is that (580a) implies that several people might have been John, which is pragmatically impossible. Similarly, it is not entirely clear to me that (577)b is solidly better than (578)b. However, the pro-form judgments are robust, so let's assume, with Heggie, that indeed "Jack Johns" can function as a predicate. Additional evidence presented by Heggie, on the other hand, suggests that "Jack Johns" is after all a referring expression. For instance, the intensive reflexive "himself" can be appended to it, while it cannot be appended to predicates such as "the strongest looking woman" (see Heggie 1988:73).

- (581) a. *With a dress and a wig on, John is the strangest-looking woman herself.

- b. That strange-looking woman is John himself.

Other tests found in the literature (in particular, Doron 1988, Reed 1982) point to a different status for proper names and referential noun phrases with deictics, and canonical predicative noun phrases. For instance, only predicative PN allow cataphoric pronominalization, as shown by a beautiful minimal pair attributed by Doron (1988) and Higgins (1976) to Emmon Bach (582); (582)a, with cataphoric pronominalization, can only mean ‘the argument that he wrote *contains* the proof of Descartes’ existence,’ not ‘the argument that he wrote *constitutes* the proof of Descartes’ existence’ (the identificational reading). (582)b, with anaphoric pronominalization, has both meanings.

- (582) a. The argument that he_i wrote is the proof of Descartes’_{*i*} existence.
 b. The argument that Descartes wrote is the proof of his_{*i*} existence.

Only canonical predicate nominals can be used in pseudo-cleft constructions; using “who” does not improve the construction.

- (583) a. What Mark Twain is is a fool.

- b. *{What / Who} Mark Twain is is Samuel Clements.

Next, it is well-known that only referential noun phrases can have non-restrictive relative clauses (584).

- (584) a. John is Mr. Smith, who I was telling you about.

- b. *John is a man, who I was telling you about.

- (585) a. This is my car, which is very reliable.

- b. *This is a car, which is very reliable.

Finally, although it is true in Italian as in French that “John” in “That man is John” cannot be picked up by the referential clitic lo_{+Arg} , it is equally true that it cannot be picked up very well by the *predicative* clitic either. Consider for instance CLLD, which we have found to be quite sensitive to category distinctions:

- (586) a. Quella donna è Maria.

that woman is Mary

- b. ?Maria, quella donna lo_i è.

Maria, that woman it-CL is

Given mixed evidence of this sort, Heggie is led to a conclusion that she finds paradoxical, namely that “John” in “That man is John” is a ‘referring predicate.’ To escape the paradox, she proposes that the configuration to adopt is a small-clause with a referential element in the predicate position, and that the predicative reading of this element is due to a special effect of the verb “be”:

“[T]he function of the copula [is] to form predicates from any phrasal category which finds itself in the correct position. This position is *posed* to be the predicate position of a small-clause configuration” (Heggie 1988:107)

One of the leading ideas of this dissertation is that the verb “be” has no direct role in predication, much less in determining what can or cannot be a predicate. Therefore, let’s see if Heggie’s solution can be improved upon in the three-level framework. First, two considerations.

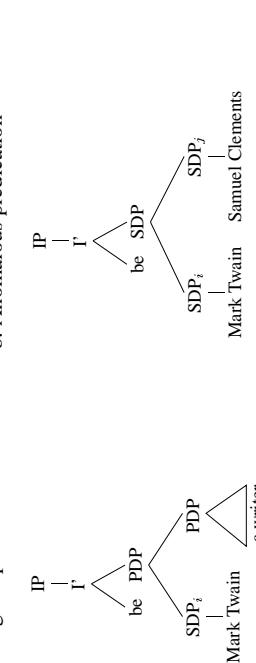
There is nothing intrinsically odd about a ‘referring predicate.’ What’s odd, perhaps, is a ‘referring predicate *nominat*!’. For instance, the phrases “the same individual as Mark Twain” and “identical to the Gran Zébrù,” in:

- (587) a. Samuel Clements is [the same individual as Mark Twain].
 b. The Königsplätzte is [identical to the Gran Zébrù].

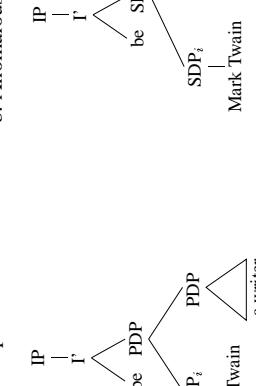
are clearly predicates, and in a loose sense they do refer, containing a proper name that refers. If we could say that in a particular configuration an SDP such as “Jack Johns” is interpreted under the function meaning “is identical to”—we would be ready to give a satisfactory semantics for “that man is Jack Johns.” This is also Heggie’s goal; in her final system the ‘immobile engine’ that triggers this interpretation is the verb “be,” in conjunction with a system of index sharing between the copula, the first and the second noun phrase which correctly rules out all cases where the two noun phrases are not equated.

My proposal is that the equative interpretation is not the result of a special ‘predicate-forming’ function of “be,” but rather, the only possible way to interpret an ‘anomalous’ small-clause configuration. Recall that in the layered-DP hypothesis, a ‘regular’ small-clause will have a configuration as in (588)a, with PDP on one side and SDP on the other. An equative copular sentence, on the other end, is anomalous in the sense that none of the elements involved has semantic type $\langle e, t \rangle$, and that the two distinct SDPs are arranged in a *symmetrical* configuration.

- (588) a. Regular predication



- b. Anomalous predication



My hypothesis is that, at the level in which semantic interpretation is performed, the interpretational module tries to reanalyze the symmetrical structure in (588)b into one which can receive an interpretation.²³ In principle, there are two strategies the module can pursue: disregard the SD^{max} layer in one of the two noun phrases (left or right, depending on the directionality parameter of the language), virtually reducing it to its PDP core; or, on the contrary, identify the two SDPs, as if they were a single entity, by coindexing them. This coindexing will later be mapped onto the identity function (i.e. $\lambda x \lambda y [x = y]$). Let's call these the *reduce* and the *identify* strategy.

Assuming that, in principle, both strategies are available, they shouldn't be applicable to the same types of noun phrases. If one of the SDPs has a filled SD^{max} , containing a proper name or a strong quantifier, disregarding this level at LF amounts to disregarding lexical material from the noun phrase, against the principle of Full Interpretation. So, the only possibility left is coindexation. There are cases, however, when the 'reduce' strategy succeeds; these are situations in which the SD^{max} layer is empty—a weak SDP, in other terms. In this case, SD^{max} only contains a variable, which can then be by-passed at LF without violating Full Interpretation. The resulting noun phrase is interpreted as a PDP predicate, and it is applied to the (trace of the) remaining SDP.

5.3.2 Two interpretational strategies

Now we are in a position to spell out better the similarity and the difference between the two types of predicate nominals which opened this chapter:

- (481) Mark Twain is [Samuel Clemens]

- (482) The picture was [the cause of the riot]

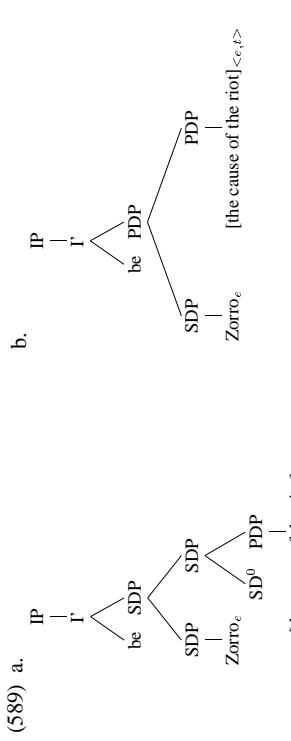
Both of the bracketed noun phrases are generated as SDPs. Both have the distribution of SDPs, fully capable of appearing in argumental positions. But at the level at which interpretation is performed they are different. Equative statements are the case where the 'reduce' strategy fails, because proper names reside in SDP, and this layer cannot be by-passed; as a last-resort strategy, the interpretive mechanism coindexes the two noun phrases. Since this is a last-resort LF operation, we can assume that it applies after QR has taken place, and that what gets identified are the two traces.

Alternatively—since we have seen that in the attributive-predicative configuration two non-predicative categories in a small-clause configuration can be coindexed via a pronominal element *inside* one of them (e.g. [kp doctor], [sdp every x [kind-(of doctor,)]])—we can assume, more broadly, that the 'identify' strategy is successful whenever a coindexing relation is established after QR between two categories (typi-

²³ On the idea that some operations in language are derived by the need of 'breaking' a symmetrical configuration see Moro (1997a).

callly KIP-SDP, or SDP-SDP), or one category and an appropriate element within the other one.

T-definite noun phrases like "the cause of the riot," on the other hand, will be argued in the next section to have an empty SD^{max} layer, which is normally licensed via LF-movement of the complement in its Spec. This layer is necessary to allow raising of the complement, but after raising has occurred, it can be disregarded at the stage of semantic interpretation, turning the SDP into a PDP from a semantic standpoint. Thus, the 'reduce' strategy interprets (589)b as if it were (589)a.



The existence of an empty SD^{max} layer in T-definites is crucial in explaining the fact that these categories allow extraction quite easily: [Spec, SDP] functions as an escape-hatch. PDP is not L-marked by "be," hence a barrier; SD^{max} is not L-marked, and is also a barrier by inheritance, in the system of Chomsky (1986a). Thus, direct movement across two barriers should be problematic. The availability of an empty intermediate landing site allows successive-cyclic movement, so that each step of the extraction only crosses a single barrier. However, it is crucial for the highest SD^{max} to be empty. (590) shows that in equative constructions extraction is impossible both at SS and LF.

(590) a. *Who do you think [Mary] is [that daughter of *t* over there]?
b. *John isn't [that representative of each work group].

I will return to these facts in section 5.4.4.

5.4 T-definite predicate nominals

Let's go back to my list of T-definites, and consider some of their structural and distributional features.²⁴

²⁴This section is the result of joint work with Massimo Poesci and Chris Barker, both of whom I thank here for valuable comments and criticism on the original version of these ideas. Of course, the responsibility for any mistakes in the final version is entirely mine.

5.4.1 T-definites are predicates

First of all, we need to make sure that these phrases truly behave like predicates. This can be shown by quickly applying the tests we have seen so far, e.g. pseudo-cleft (591) in English.

- (591) a. What the picture is is the cause of the riot.
- b. What the drought is is the origin of our problems.
- c. What Mary really is is the daughter of that barber.
- d. What John is is the teacher of the blind woman.
- e. What the manuscript is is the proof of Homer's existence.

In Italian, we can use *lo* pronominalization with CLLD (592), and *ne*-pronominalization (593).

- (592) a. La causa delle rivolta, la foto lo è stata
the cause of._i the riot, the picture such-CL has been
- b. L'origine dei nostri problemi, la malattia lo fù certamente
the origin of our problems, the disease such-CL was for-sure
- c. La figlia di quel barbiere, Maria lo è davvero
the daughter of that barber, Maria such-CL is for-real
- d. L'insegnante di una donna cieca, non penso che potrei
the teacher of that woman blind, (I) don't think that I could
essero
be one-CL
- e. La prova della esistenza di Omero, penso che questa pergamena
the proof of._i the existence of Homer, I think that this parchment
lo sia.
such-CL is

- (593) a. Questi eventi ne_i furono la {causa / origine} *t_i*.
these events of._i it were the {cause / origin} *t_i*
- b. Maria ne è {la figlia / l'insegnante}.
Mary of._i him is {the daughter / the teacher}
- c. La pergamena ne_i è la prova *t_i*.
the parchment of._i it is the proof *t_i*.

We shall see in a moment that none of these facts holds for strong noun phrases of a shape different from T-definites. Since these facts are common to clear indefinite predicates such as "a daughter of the linguist," I conclude that T-definites are also predicates.

5.4.2 Possible determiners in T-definites

What do T-definites have in common? As I said, they all contain nouns with an intrinsically relational meaning. A second common feature is that these phrases are typically introduced by the definite article, possibly followed by a cardinal numeral.

- (594) a. Those have been [the (three) causes of the riot].
- b. Mary and Sue were [the (two) daughters of the barber].

Pseudo-cleft, *ne* and *lo* tests in Italian show that definites with numerals still behave as predicates:

- (595) a. What Mary and Sue are is the (two) daughters of the barber.
- b. Le foto ne furono le due cause *t*.
the pictures of._i it were the two causes *t*.
- c. [Le (due) cause della rivolta], le foto lo_i furono *t*.
[the two causes of._i the riot] the pictures it-CL were *t*.

Strong quantifiers are impossible with T-definites:

- (596) a. *Those pictures were {every / most / each} cause(s) of the riot.
- b. *Mary and Sue were {every / most / each} daughter(s) of the barber.
- c. Demonstratives and definite determiners followed by *vague numerals* (e.g. "few," "many," "several," "too many") are also impossible. They may be well-formed, but they don't pass the cleft, *ne-* and *lo-*predication tests (see (598))b,c,d, evidence that they are in fact equative constructions.

- (597) a. The pictures are those causes of the riot.
- b. *What the pictures are is those causes of the riot.
- c. *Le foto ne sono quella causa *t*.
the pictures of._i it are that cause *t*.
- d. *[Quella causa della rivolta], le foto lo_i sono *t*.
[that cause of._i the riot] the pictures it-CL are *t*
- (598) a. The pictures are the {few / many} causes of the riot (known to you).
- b. *What the pictures are is the {few / many} causes of the riot (known to you)
- c. *Le foto ne sono le {poche / molte} cause *t* (che conosci)
the pictures of._i it are the {few / many} causes *t*. (that you know-of)
- d. *[Le {poche / molte} cause della rivolta], le foto lo_i sono *t*.
[the few / many] causes of._i the riot the pictures it-CL are *t*

The prohibition against “the few/many” in predicates is surprising, given the good acceptability of “the three.” Notice that in argument position, these determiners are fine, particularly if followed by a restrictive relative clause:

- (599) a. I met the {many / few / too many} daughters of the barber you told me about.
 b. The {few / many / too many} causes of the plane crash that the company has established will soon be made public.

The puzzle will be solved in the next chapter, where I will show that cardinal numerals and vague numerals have a similar function, but very different syntactic structures.

Finally, in Italian, at a high stylistic register, T-definites may appear without any determiner in canonical copular constructions, even in the singular (600).

- (600) a. Loro furono probabilmente {causa / 'origine} delle rivolta
 {cause / origin} of the riot
 b. Margherita è figlia di quel barbiere
 Margherita is daughter of that barber
 c. Maria è insegnante di una donna cieca
 Maria is teacher of a woman blind
 d. Queste sono prove della esistenza di Omero
 these are proofs of the existence of Homer

This is surprising, since in Italian bare plurals are possible only in lexically governed positions, and “be” has been shown to be unable to govern anything in the small-clause. Even in governed positions, bare singulars are impossible. A bare-KIP analysis is more promising, but these examples are not restricted to names of professions, and carry no uniqueness presupposition.²⁵ Clearly, this possibility is linked to the fact that the noun is relational. Removing the complement, even relational nouns like *causa, prova*, etc., cannot be bare (**Questa fù causa/prova* “this was cause/proof”). I will return to these facts momentarily.

In the next section, I will try to map out the role of the complement in T-definites, and to understand what their ‘transparency’ amounts to. To anticipate the results, the distribution of T-definites turns out to be largely predictable from whether their complement must undergo QR or not.

²⁵ Compare *Gianni è {presidente / "guardia} del parlamento* ‘Gianni is {president / guard} of the parliament,’ where “guard” is out because, unlike the president, it is not unique, with a sentence like (600)b, which is perfectly compatible with the barber having several daughters.

5.4.3 T-definites as ‘transparent’ categories

5.4.3.1 Sensitivity to the N complement status

The first, striking facts about predication with T-definites is that they can be raised to pre-copular [Spec, IP] position *only if their complement is a form that can appear in this position*. Keeping in mind the prohibition of weak and null determiners to appear in [Spec, IP] (illustrated again in (601)), consider the sentences in (602) paying attention not to interpret the indefinite specifically, or as a topicalization.²⁶

- (601) a. John is {the / a} sport journalist.

- b. {the / *a} sport journalist is John.
 c. John and Mary are sports journalists.
 d. *Sports journalists are John and Mary

- (602) a. Mary is the daughter of [{the / a} sports journalist]

- b. The daughter of [{the / *a} sports journalist] is Mary
 c. Mary is the daughter of [sports journalists]
 d. *The daughter of [sports journalists] is Mary

The contrasts show that only when the bracketed noun phrase is definite (an SDP) it can be inverted preserving the predicative meaning—regardless of whether it is embedded inside a weak definite or not. The same effect with “the cause of D terrible riot” (keeping “D riot” unstressed and non-specific):

- (603) a. Zorro was {the / a} mysterious rebel.

- b. {the / *a} mysterious rebel was Zorro.
 c. Zorro and Mary were mysterious rebels.
 d. *Mysterious rebels were Zorro and Mary.

- (604) a. Zorro was the cause of [{the / a} terrible riot].

- b. The cause of [{the / *a} terrible riot] was Zorro.
 c. Zorro was the cause of [terrible riots].
 d. ??The cause of [terrible riots] was Zorro.

And so forth, with all the other relational nouns we are considering: the embedding noun phrase may be ‘definite,’ but it cannot appear in [Spec, IP] unless its complement is strong, too.

²⁶ Once again, using negation can be useful to bring out the effect more clearly (see footnote 19 on page 57). Compare a and b, with and without “the cause”:
 They aren’t (the cause of) frequent problems. ↳ (the cause of) frequent problems is/are not they/them.

5.4.3.2 ‘Consider’ small-clauses and N complements

The verb ‘‘consider’’ takes a small-clause, but in English and Italian,²⁷ it doesn’t allow equative readings. Definites and specific indefinites are generally out, with the exception of superlatives:

(605) I consider John (and Jim) ...

- a. a nice fellow.
- b. two nice fellows.
- c. the nicest fellow(s) in town.
- d. *{the / that} nice fellow.
- e. *the two nice fellows.
- f. *a certain nice fellow.

However, T-definites are allowed, as long as their complement is such that it could directly appear under ‘‘consider’’ (focus may also be necessary):

(606) I consider her/this ...

- a. the daughter of a VERY NICE fellow!
- b. the daughter of TWO VERY NICE fellows!
- c. the daughter of THE NICEST FELLOW IN TOWN!
- d. *the daughter of {THE / THAT / A CERTAIN} fellow!
- e. *the daughter
- (607) a. the proof of a REALLY INTERESTING RESULT!
- b. the proof of TWO INTERESTING RESULTS!
- c. the proof of THE MOST INTERESTING RESULTS I ever encountered!
- d. *the proof of {THE / THAT / A CERTAIN} interesting result!
- e. ??the proof!

Again, it should be clear in what sense T-definites are ‘transparent’: the predicative status of their complement determines whether they can function as predicates under ‘‘consider.’’

5.4.3.3 Weak definites

Poesio (1994) discusses the status of definites like those in (571), which he calls ‘weak definites.’ Weak definites are a subset of T-definites, i.e. definite descriptions of the form: [N_P , $\underline{\text{the}}$ N_1 of [N_{P2} D N_2]], where N_P is indefinite, N_1 is ²⁷Birgit Alber (p.c.) informs me that in German sentences such as *Ich hatte Samuel Clemens für Mark Twain* ‘I consider Samuel Clemens Mark Twain’ are possible, with meaning: I believe Samuel Clemens to be Mark Twain.

a relational noun and N_P is its theme. Weak definites have two peculiar properties: they do not obey neither the Uniqueness Condition nor the Familiarity Condition, in the sense of Heim (1982). Thus, upon hearing:

(608) Yesterday I went to a bar and I met the student of a famous linguist.

a hearer should not be allowed to conclude that (i) the famous linguist has only one student, or (ii) the student is in any way familiar (by previous acquaintance, contextual salience, ‘‘bridging’’ or any other known theory of familiarity) to the speaker. Both these presuppositions are resurrected if N_P is a definite. ‘‘Yesterday I went to a bar and I met the student of the famous linguist’’ presupposes that the student is familiar to the speaker, and unique in its relationship with the linguist; on top of this, the referent for ‘‘the famous linguist’’ must also be unique and familiar, as expected. It is not too surprising, given these facts, that weak definites are better than ‘real’ definites in ES, as pointed out in McNally (1992) and Poesio (1994). Thus, there is a contrast between:

- (609) a. ?There is the student of a linguist in the garden.
b. *There is the student of that linguist in the garden.

Weak definites are exactly the class of nominals that cannot be predicate nominals in inverse copular constructions, as we noted. (610)b can only have a contrastive interpretation as in ‘‘the person that has been the student of famous linguists is JOHN, not JACK!’. Unlike ‘‘the student of those famous linguists,’’ (610)a cannot be interpreted as the inverse of (610)a.

- (610) a. John is [the student of famous linguists].
b. [The student of famous linguists] is John.

Once again, the semantic type of the embedded element determines the semantic type of the whole. There is more to it, however, and the issues of familiarity and uniqueness should probably be addressed separately, as show by the fact that the latter can be reinstated independently of the former. So, while I don’t know whether (611)a requires for me to have met all of the linguist’s students, I am sure that (611)b presupposes that the linguist only has three students, which do not need to be familiar, and that (611)c again requires both familiarity and uniqueness.

- (611) a. Yesterday I met [the students of an obscure linguist].
b. Yesterday I met [the three students of an obscure linguist].
c. Yesterday I met [the three students of that obscure linguist].

Unique? *Unique* *U+Fam.*

5.4.3.4 Wide-scope and complements

After considering cases where the transitive noun seems to be ‘transparent’ to the status of its complement, let’s turn to facts showing more directly that the complement of the weak definite noun phrase raises at LF to take scope outside the DP. Starting from a typical example of pronoun bound by a strong quantifier, in (612), we try to embed the strong quantifier under a nominal for which a relational reading is harder to elicit, such as “phone-book” or “soft-cover.” This yields sentences that are degraded to the extent a wide-scope reading of the embedded quantifier is unobtainable without strong stress on the complement (May 1985).

- (612) a. Every soldier loves his mother.
- b. ?The phone-book of [each employee in my company]_i helps him_i to work.
- c. ?The soft-cover of [each cheap book]_i doesn’t bind it_i well.
- d. ?The independent departure of [every soldier]_i worried him_i.

As noted in Barker (1991), intrinsic possessive nouns such as “mother” are particularly good in allowing an embedded strong quantifier to take inverse scope to a position where it can bind the pronoun. Given the strict link between intrinsic possessives and relational nouns, it is not surprising that the latter, too, allow complement wide scope very easily.

- (613) a. The mother of [every student]_i greeted her_i.
- b. The friends of [every soldier]_i waved him_i goodbye.
- c. The origin of [every motion]_i doesn’t determine it_i completely.
- d. The cause of [most psychological state]_i doesn’t determine them_i, completely.

Additional evidence that the complement of transitive nominals may raise at LF comes from the fact that a negative quantifier embedded under a weak definite appears to have a (somewhat limited) capacity of licensing a negative polarity item outside its apparent scope. Compare (614)a, where the negative quantifier C-commands the negative polarity item, and (614)b-d where the quantifier is embedded under regular ‘opaque’ nominals, and the sentences worsen.

- (614) a. No natural disaster has ever done me any harm.
- b. ??The various phone books of [no employee in my company]_i have ever helped him_i that much.
- c. ??The few independent departures of [no marine]_i ever worried him_i.
- d. ??The soft-cover of [no books]_i ever does anything good to protect it_i.

Again, moving to more clearly relational predicates improves the situation:

- (615) a. ?The mother of no student ever left him alone.
- b. ?The friend of no soldier ever gave him a red cent.
- c. The cause of no plane crash can ever be completely determined.

To sum up, the data on this phenomenon, though not very robust, suggest that the ‘transparency’ of weak predicates might be related to the fact that complements can raise to take scope over the embedding noun phrase, in an inverse linking configuration (in the sense of May 1985).²⁸

The simple assumption that the ‘transparency’ effect can be somehow reduced to the quantifier in the complement taking scope over the quantifier in the embedding noun phrase wouldn’t work in general, since—as Poesio (1994) points out—it would still leave an unwanted definite article, giving the wrong felicity conditions, for instance, in (571)c “the corner of a major intersection” (typically, an intersection has four corners).

Saying that the definite article here is an ‘existential in disguise’ doesn’t help either. The preferred interpretation of the example (616)a, which came out in conversations with Massimo Poesio, is not (616)b, but (616)c, with free-choice “any” binding both “linguist” and “student.” Also, “the student” cannot be replaced by “a student” in (616)a.

- (616) a. The student of any linguist should be able to solve this! *Poesio (1994)*
- b. For any linguist, at least one of his students should be able to solve this.
- c. Take any linguist, and any student of that linguist; that student should be able to solve this.

These facts square better with the idea that the definite here is merely an ‘explicative determiner,’ devoid of semantic content, as proposed for proper names and kind-denoting noun phrases in Vergnaud and Zubizaretta (1992), Longobardi (1994), and here in section 4.4. Notice, however, that in some cases of T-definites (e.g. “the cause of our problem”) the article seems to carry at least uniqueness presuppositions. Thus, whether the article is explicative or contentful depends at least in part on the type of relational noun, in ways that are entirely open to investigation.

²⁸However, we should be wary to equate T-definite predicate nominals with inverse linking of the complement. The latter encompasses a wider range of cases, which are neither T-definites nor predicate nominals, e.g.:

- a. Some friends of every soldier waved him goodbye.
- b. Friends of each soldier waved him goodbye.

$\forall > \text{some}$, $\text{some} > \forall$
 $\exists > \text{each}$, $\text{each} > \exists$

5.4.4 An analysis for T-definites

In the previous chapter I have proposed a principle of spec-head licensing for D^0 , repeated below:

(388) **Spec-Head Licensing:**

- a. An empty head X^0 is licensed if [Spec, X^0] is filled by a phrase of the appropriate type.
- b. Spec-head licensing is adopted whenever possible.
- c. $XP \in \{SD^{max}, PD^{max}, \dots\}$

'Appropriate type' can be spelled out in a way that makes SDPs capable of licensing an empty SD^0 head by moving into (or through) its specifier, which becomes an escape hatch for movement out of an embedding SD^{max} . In the previous section, we have seen that the complements of T-definites can (and maybe must) undergo raising. If they are SDPs, we should expect them to move through the spec of the higher SD^{max} , when available. These two elements are the first two steps for an analysis of T-definites.

The third step is to propose that the definite article can be realized either in SD^{max} or in PD^{max} , and that the latter possibility is restricted to relational nouns and functional nouns with complements.²⁹ Superlatives are probably ambiguous between the two possibilities (see Szabolcsi 1986, Mandelbaum 1994b), but I will not address them here.

What is the difference between the two positions? The hypothesis is that, in general, the definite article only provides uniqueness presuppositions, as proposed in Russell (1905), and defended in Kadmon (1987). A noun phrase such as "the man" will denote the property that can be satisfied by only one man (cf. one of the meanings of "the" in Partee 1987), i.e.:³⁰

$$(617) \quad [\text{PDP the man}] = \lambda x[\text{man}'(x) \wedge \forall y[\text{man}'(y) \rightarrow x = y]]$$

As we have assumed in general, the existence presupposition will be triggered by a filled SD^{max} ; whenever "the" is realized in SD^{max} , it will presuppose existence for the element denoted by the variable SD. As for the Familiarity Condition, I will link it without much discussion to the combination of the uniqueness condition carried

²⁹A possible reason for this is that a definite determiner in PD^{max} must be licensed by the immediately C-commanding SD head, a condition which in turn requires that the head is activated by an appropriate phrase in its specifier, as specified later. Relational nouns, then, are precisely those that favor or force raising of their complement through the layer to be licensed. The question remains of why this is not necessary for indefinites or numerals.

³⁰This can be achieved by assuming that "the" denotes the property of 'being unique in a given context,' though spelling out the precise semantics of this property is a task beyond the scope of this dissertation. This property will be combined with the translation of the head PD and the kind-denoting KIP "man," (see section 4.6.2 on page 170), to yield: $\lambda x[x \vee \mathbf{R}(\mathbf{x}, \mathbf{man}^k) \wedge \text{contextually-unique}'(\mathbf{x})]$.

by "the" and the presupposition of existence triggered by a filled SD^{max} , proposing that this discourse condition can also be transmitted through the relation of spec-head licensing, i.e. from SDP_i to SDP_j in the configuration [SDP_i , SDP_j , SD^0]. In addition, I leave open the possibility that "the" in English or *Il* in Italian have the additional possibility of being syntactic expletives, with no semantic content, as I have proposed in the case of kind-denoting noun phrases.

Let's see how these elements conspire to give the correct distribution and the correct meaning for T-definites. The cases that we have encountered so far can be summarized as follows. We have five basic syntactic conditions under which a noun phrase can fall: governed argumental position (e.g. object of main verb); ungoverned argumental position (e.g. subject of main verb); ungoverned predicative SC position (a post-copular predicate nominal); ungoverned predicative [Spec, IP] position (a predicate nominal in [Spec, IP] in an inverse copular construction), and ungoverned predicative PDP embedding an SDP. In each of these conditions, I shall consider three theoretical possibilities for the complement: a strong SDP (e.g. "the linguist"), a weak SDP (e.g. the weak reading of "a linguist") and a PDP (again "a linguist"). The basic idea is that whenever the complement of a relational noun is an SD^{max} , it requires an empty SD^{max} layer in the embedding DP to raise out and license it by transiting through its specifier. In these cases, the definite determiner must be realized in the PD^{max} position. However, since the higher SD^{max} only contains an intermediate trace, and no lexical material, in the small-clause environment it can be disregarded at LF, interpreting the SDP as the property denoted by the PDP introduced by "the." The various cases are:

A: Argumental position, governed. e.g. "I met [SDP1 SD^0 [pp the student of DP]]."

Definite article in PDP.

- i. DP a strong SDP: "[SDP2 the linguist]." DP raises at LF via [Spec, SDP1], triggering familiarity and existence presuppositions. In "the student of the linguist" both linguist and student must be familiar.
- ii. DP a weak SDP: "[SDP2 SD^0 [pp a linguist]]." Here, DP raises to [Spec, SDP1], licensing SD^0 . Since DP carries no familiarity presuppositions, these are not passed to SDP1. This yields the most natural reading of the bracketed weak definite in "Since [the student of a linguist] gave me these data, they ought to be interesting." As things stand, the account predicts that "the student of a linguist" requires no previous familiarity, yet it still presupposes uniqueness. A possible solution is that "the" in the embedding SDP is an expletive, located in SD^{max} and replaced by the raising DP at LF, with no semantic contribution.
- iii. DP a PDP: "[pp a linguist]." DP does not raise; SD^0 is licensed under government. If "the" is in PD^{max} , no presuppositions are triggered.

B: Argumental position, ungoverned. e.g. “[_{SDP1} SD⁰ [_{PDP} the student of DP]] knows these data.” Definite article in PDP.

- i. DP a strong SDP: “[_{SDP2} the linguist].” DP raises at LF via [Spec, SDP1], triggering familiarity and existence presuppositions, and also spec-head licensing the empty SD⁰.
- ii. DP a weak SDP: “[_{SDP2} SD⁰ [_{PDP} a linguist]].” Same as above; this time, the higher SD⁰ head is critically licensed by spec-head agreement, while the lower one is presumably licensed by the preposition.
- iii. DP a PDP: “[_{PDP} a linguist].” DP does not raise; since SD⁰ is not licensed under government, this configuration should be impossible.

C: Post-copular predicative position (ungoverned). e.g. “John is [_{SDP1} SD⁰ [_{PDP} the student of DP]].” Definite article in PDP.

- i. DP a strong SDP: “[_{SDP2} the linguist].” DP raises at LF via [Spec, SDP1], spec-head licensing the empty SD⁰; therefore, this layer must be present. However, it contains no lexical material, so it can be disregarded at LF, to derive [_{PDP} the student of *t*]. If SD⁰ is also able to identify an empty singular PD⁰ in its complement, the way is open to treat cases of predicative bare singular in (600) with the structure:
- $$\text{SDP}_i \dots [\text{SDP}_i \text{ SD}^0 [\text{PD}^0_{+SNG} [\text{kp} \text{ causa } t_i]]]$$
- ii. DP a weak SDP: “[_{SDP2} SD⁰ [_{PDP} a linguist]].” Same as B, ii above.
 - iii. DP a PDP: “[_{PDP} a linguist].” DP does not raise; in this case, the PD1^{max} layer is both unnecessary (no escape hatch is needed) and impossible (SD⁰ would not be licensed). Therefore, the configuration should be simply: “John is [_{PDP} the student of [_{PDP} a linguist]]”

D: Post-copular (inverse) predicative position e.g. “[_{SDP1} SD⁰ [_{PDP} the student of DP]] is John.” Definite article in PDP.

- i. DP a strong SDP: “[_{SDP2} the linguist].” DP raises at LF via [Spec, SDP1], spec-head licensing the empty SD⁰; therefore, this layer must be present, which is what allows this construction to appear in a canonical argumental position, [Spec, IP]. Since SD1^{max} contains no lexical material, it can be bypassed at LF, again deriving [_{PDP} the student of *t*].
- ii. DP a weak SDP: “[_{SDP2} SD⁰ [_{PDP} a linguist]].” Same as above.
- iii. DP a PDP: “[_{PDP} a linguist].” DP does not raise; in this case, the PD1^{max} layer would be necessary for the construction to appear in [Spec, IP], but it is impossible since SD⁰ is not licensed. Therefore, this configuration is ruled out. This accounts for the facts in (602), (604) (e.g. ?? “The cause of riots was Zorro”).

E: Post-copular predicative position (bare PDP). e.g. “John is [_{PDP} a student of DP].” Indefinite article in PDP.

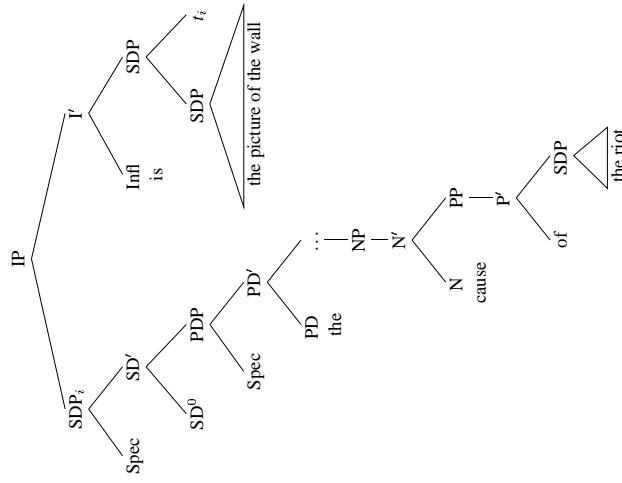
- i. DP a strong SDP: “[_{SDP2} the linguist].” In this case, DP cannot move through the spec of a higher SDP, so it has to transit through the two PDP barriers. As a consequence, overt extraction of DP is quite degraded, at least in the case of numerals (cf. (520), (521), ?? “Which doctor are Mary and Sally two daughters of *t*”). It is unclear to me how the complement can Q-raise at LF; a possibility might be for it to pied-pipe the whole [_{PDP} … DP] at LF.

- ii. DP a weak SDP: “[_{SDP2} SD⁰ [_{PDP} a linguist]].” Same as above.
- iii. DP a PDP: “[_{PDP} a linguist].” DP does not Q-raise; as noted, in these cases overt extraction is better than in (520) and (521), across English and Italian.

This formulation leaves room for the possibility that, with some nouns, the definite determiner may be semantically empty, as I have suggested to account for some aspects of weak-definites. The most interesting possibility, not devoid of technical problems, is that the expletive “the” is in fact realized in SD^{max}, and is replaced by the SDP undergoing QR. More work is necessary to spell out the circumstances in which a definite loses both familiarity and uniqueness conditions.

To conclude, consider for illustration the structure of T-definite predicates in inverse copular sentences (618), assuming for simplicity a N PP structure for ‘cause of DP’:

(618) a. [the cause of the riot] is the picture of the wall



The element in [Spec, IP] at SS is of the appropriate type SDP, but it doesn't satisfy the LF-requirement that a null SDP head should be licensed in some way: SD⁰ is neither licensed under lexical government, nor does it function as a variable. This configuration is possible only via raising the SDP [the riot] into the specifier of the

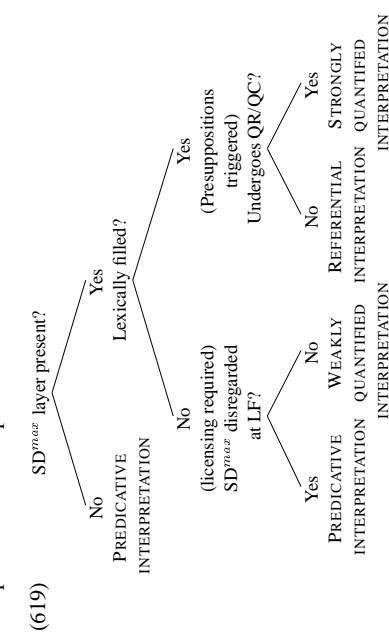
The ‘consider’ case in section 5.4.3.2 is analogous, if we assume that, unlike ‘be’, ‘consider’ does select the small-clause, presumably enforcing a requirement for the predicate in the small-clause to be of category PDP. However, if the complement of this predicate in an SDP, it needs at [Spec, SDP] to Q-raise, and ungrammaticality results. This accounts for the contrast in “I consider this [PDP] the proof of [{a / *the} very important result].”

In conclusion, the data discussed in section 5.4.3.2 should not be read as showing ‘transparency’ of the relational noun; instead, I have proposed that a relational noun with ‘the’ in [Spec, SDP] is a completely normal predicate. However, in some configurations an empty SD^{max} is needed to satisfy the raising necessities of its SDP

complement. When this empty layer is not available, ungrammaticality results.

5.5 Summary: interpreting DPs; the final schema

To sum up, it is useful to give a revised version of the tree of choices involved in the



Recall, in addition, that both weakly and a strongly quantified SDP require QR (the former, only to leave an appropriate *e*-type trace, the latter, also to create the tripartite structure necessary for some quantifiers), but only strong SDPs undergo Q-construal. Weak SDPs, where the SD^{weak} layer is disregarded behave semantically as predicates, but they differ from PDP predicates in having extended extraction possibilities (due to the [Spec, SD^I] escape hatch) and in the possibility of appearing in argumental positions at S_S.

Numerals and Specificity

6.1 Introduction

I will continue my investigation of the internal layers of DP by looking at *numerals* and their positions. In previous chapters, I have proposed that there are three possible ways for numerals to receive an interpretation: they can remain in PD^{max} , and be interpreted ‘weakly’ as cardinality predicates, *a-la* Milsank, Diesing, etc.; the SDP containing them undergoes QR, but they are not extracted by QC. Alternatively, they can raise to SD^{max} , and be interpreted via QR and QC, just like “every,” or they can be interpreted referentially, in SD, much as pronominal elements which, unlike “he” or “you,” lack a Familiarity Condition. This may sound like an undesirably high number of alternatives, yet none of these routes needs to be stipulated, as they are independently needed to interpret adjectives (including ‘quantificational’ adjectives such as “numerous”), universal quantifiers, and personal pronouns, respectively. Once these interpretations are mechanically linked to certain positions in DP, in which numerals may also occur, it would in fact be a complication of the grammar to stipulate that numerals should not be subject to them.

Probably the most controversial of these interpretations is the referential one. The recent discussion about referential vs. quantificational denotations of noun phrases has mainly been concerned with definites and singular specific indefinites. Fodor and Sag (1982) have most forcefully defended the idea that specific indefinites are referential; Neale (1990) and Ludlow and Neale (1991) have equally forcefully defended Russell’s original view (also shared by Grice), according to which (in)definites are quantificational devices which admit of referential *uses*; in other terms, a speaker uttering ‘Look! A man is uprooting your turnips’ would be making an existential claim (“there is a man uprooting your turnips”), but with the *intention* to convey a belief about a specific man, as a perlocutionary effect. According to Ludlow and Neale, a correct division of labor between semantics and pragmatics circumvents all the philosophical objections that have been moved against Russell’s original approach. Additional assumptions about the scope-taking properties of quantifiers should take care of strictly linguistic arguments in favor of referential *denotations* for (in)definites.

In this view, truly referential denotations are reserved to those noun phrases that combine with a predicate to form a ‘singular proposition,’ in Russell’s terminology; deictics, and (at least in Russell’s earlier opinions on the matter) proper names and pronouns, when the speaker is directly acquainted with their referent.

As much as I am convinced that these types of arguments are useful in distinguishing a semantic and a pragmatic side of the issue, I am skeptical that they can tell us where to draw the line. I suspect, for instance, that if one entertained the belief that “Alvar Aalto” is a disguised definite description, as the late Russell did (maybe under the influence of sentences like “I met two John Smiths at the party”), the types of arguments that could be raised against this view would not be *qualitatively* different from the arguments in favor of a possible referential meaning for definite descriptions. There is, of course, an argument by ‘modal rigidity,’ used by Kripke (1980) to remark on the special status of proper names, but in my opinion this, too, cannot conclusively distinguish between referential indefinites and, for instance, deictics. Thus, both (620)a and b have a sensible reading that can be cast in intensional model theory by saying that in other possible worlds the man identified here by pointing or by a definite description holding in *this* world, is born in New York.

- (620) a. [A man born in York that I met yesterday] could have been born in New York.
 b. [That man over there] could have been born in New York.

At this point, supporters of a pragmatic account could pull out incorrect descriptions (Donnellan’s ‘the man with a Martin’) and supporters of the other side could reply with pointing acts deviated by mirrors onto the wrong man, or other unlikely sources of errors. But this misses the point. What these arguments can, and probably *do* show, is that there cannot be *only* a referential interpretation for (in)definites. Fodor and Sag’s contention that referential indefinites cannot take intermediate scope, for instance, rests on the assumption that they cannot be quantificational, above and beyond being referential; for if they could, intermediate scopes should be expected in general. Behind this one detects the idea, more or less explicitly stated, that positive a double interpretative possibility for (in)definites is tantamount to positting a massive lexical ambiguity, which is disfavored at least on grounds of economy. Indeed, one of Neale’s (1990) and Diesing’s (1992) arguments against referential indefinites is the fact that the scope phenomena used by Fodor and Sag extend to cardinal numerals, as we saw in the first chapter, section 2.2.2.

This line of argument has no force in the approach pursued in the present work, since the existence of multiple interpretations is automatically predicted by the possibility of appearing in positions which automatically trigger such interpretations. What is crucial, instead, is whether *all* elements that appear in a given position have a referential interpretation available, and what kind of linguistically motivated argu-

ments are appropriate to evaluate Fodor and Sag’s claims. Let’s illustrate the shift of perspective with an example.

If my analysis of “a certain Alvar Aalto” is correct, this expression is not a specific indefinite, but a rigid designator just as “Alvar Aalto,” with the difference that in uttering “A certain Alvar Aalto will come to visit me” felicitously, the speaker can, and the hearer must, be unfamiliar with the famous architect. Thus, this sentence denotes a ‘singular proposition’ that neither Russell nor (presumably) Ludlow and Neale would accept, since no direct acquaintance or causal connection with the proper name is required on the part of the speaker/hearer.¹ If these authors hold on to the view that “a certain Alvar Aalto” is a specific indefinite, in their (non-referential) sense, the burden is on them to explain the difference with “an Alvar Aalto,” as well as why we have the contrast “a {certain / *specific} Alvar Aalto” in a situation with one Alvar Aalto. On the other hand, my account must explain why a proper name like “Alvar Aalto,” which should be in SD to be interpreted referentially, can be preceded by “a certain” (‘LF-explicative replacement’ of ‘a certain’ being rather unpalatable). I will return to this point in section 6.3.2.

6.1.1 On some arguments for ‘Referentiality’

First, let’s focus on some of the linguistic arguments given by Fodor and Sag. As we have seen, one is the fact that specific indefinites can bind pronouns outside the scope of universal quantifiers:

- (621) a. If John sees a certain donkey_i in the stable, he wants to ride it.
 b. If John sees two donkeys_s, that he used to own, he wants to ride them.
 c. *If John sees {each / every} donkey_i in the stable, he wants to ride it.

Ludlow and Neale’s reply is that universally quantified noun phrases *must* be able to take scope out of strong islands, since they can be interpreted *de re*, a possibility which, following Russell (1905) and Kripke (1977), they interpret as wide-scope out of an epistemic predicate. Thus, they claim that (622)a has a reading (622)b, though not (622)c, with the universal taking scope over the indefinite:

- (622) a. A man in Bermuda thinks that every British detective is after him.
 b. [An x: man-in-Bermuda(x)] [Every y: British-detective(y)](x thinks that (y is after x))
 c. [Every y: British-detective(y)] [An x: man-in-Bermuda(x)](x thinks that (y is after x))

(622)b would be the appropriate logical representation in a situation in which our man in Bermuda has the misguided belief that the men after him are not British detectives

¹See Ludlow and Neale (1991), footnote 19, for a discussion on reference-fixing in proper names in connection with Fodor and Sag’s points.

at all, but Russian spies, and someone, knowing better, reported (622)a. Since epistemic verbs are well-known scope island words, it seems that “every detective” can scope the ill-formedness of (621)c with “every”—Ludlow and Neale conclude—must be due to something else.

The problem with this reasoning is that it is based on the dubious assumption that the ‘scope’ which determines quantifier relations and the ‘scope’ used to represent *de re* and *de dicto* readings are one and the same thing. But consider (623):

- (623) The patient thought that [every unicorn] ate for lunch [three flowers that he imagined to be magic roses].

Here the patient knows very well that each unicorn must be eating 3 different roses per lunch. Therefore, in terms of quantifier relations, we have $V > 3$. But “[three flowers that . . .]” (relative restrictive) cannot be understood *de dicto*: the patient would never agree to this characterization of what unicorns eat for lunch. So we have $3 > \text{THOUGHT}$. If all scope relations are defined on the same linear order, we are forced to a reading $V > 3 > \text{THOUGHT}$, with “unicorns” understood *de re*. But this is not a salient reading, much less the only possible one. Similar examples are provided by Saarinen (1981), who concludes that different scope relations are represented on different trees. Without entering the discussion on whether this is the most appropriate proposal, I note that if the type of scope relevant for pronoun binding is the one that determines quantifier relations, Ludlow and Neale’s reply has no force.

Another important claim of Fodor and Sag’s is that referential indefinites cannot take intermediate scope. So, in (624)b from Fodor and Sag, “a student in the syntax class” cannot allegedly take scope inside the scope of “every” but outside the antecedent, giving a meaning: for each professor there exists a different specific student such that if that student cheats, the professor will be fired.

- (624) a. Each teacher overheard the rumor that a student of mine had been called before the dean.
 b. If a student in the syntax class cheats on the exam, every professor will be fired.

However, the judgments are quite delicate, and it is not hard to find cases where the intermediate reading of a specific indefinite is *the only* possible one. (625)a and b are two examples:

- (625) a. From time to time, every teacher dreams of a world in which a certain student of his simply doesn’t exist.
 b. Before the Olympics, every coach dreams of a world in which the slowest runner in his team just isn’t there.
 c. ?From time to time, every teacher dreams of a world in which students of his simply do not exist.

Here, “a certain student” and “the slowest runner” must be interpreted relative to teachers and coaches, yet they must be interpreted outside the teacher/coach’s dream-world, in order to exist at all—as shown by the marginality of the case containing an existential bare plural, which always takes narrowest scope.² This is not unexpected if we recall the possibility of a *functional reading* for specific indefinites (as in Hintikka’s (1986) “Every true Englishman adores a certain woman—his mother”). What we need to say is that in these cases the indefinite denotes a specific (*partial*) *function*, e.g. the ‘slowest-runner-in-x’s-team’ function, x a free variable. The indefinite SDP then behaves like any other referential indefinite in taking apparent wide scope, yet it remains anchored within the scope of an operator (“every teacher/coach”) by the presence of the free variable.

A puzzling fact for my approach to this issue is that, as noted in chapter 1, vague numerals like “many” or “few,” as well as modified cardinals do not seem able to take a referential reading, judging from the binding facts repeated below:

- (626) a. If Dumbo encounters [{many / few / several} people that tormented him when he was small]_i, he stomps on them.
 b. If Fido encounters [{exactly / approximately / at least} three children that tormented him], he bites them.

In these sentences, it is hard or impossible to get a reading in which a single, specific group is talked about. This is surprising, particularly for “exactly three children,” which is in some cases (e.g. predicative position) virtually synonymous with “three children.” Why do we find this difference?

To anticipate the results of later sections, my answer will be that vague numerals and modified cardinals do not have the same position as ‘bare’ (unmodified) cardinals. Bare cardinal numerals will be heads of either PD^{\max} or SD^{\max} , while all other numerals will be assigned to either [Spec, PDP] or [Spec, SDP], triggering spec-head licensing of the empty SD^0 and PD^0 heads. Since these numerals never reside in SD , they are never interpreted referentially.

A preliminary step toward this goal is to show that, when they are in the PD^{\max} position, numerals cannot be interpreted referentially or specifically. They must be interpreted as weak cardinality predicates. To show this, I turn to examining numerals in their post-determiner position:

- (627) a. {The / these / my / John’s} three boys
 b. {The / these / my / John’s} many boys

In this position, numerals are forced to appear in PD^{\max} , since the definite determiner is in SD^{\max} . This assumption will be refined later on, since it predicts, for instance, that the complex “the” + NUM should never be able to function predicatively, just

²See also Diesing (1992), for similar examples, attributed to Angelika Krazer.

like ‘‘Harrold’s four,’’ which doesn’t seem to be correct. However, for the time being, it will give us a sufficiently clean picture for the phenomena we are going to look at.

6.2 The post-D position of numerals

Is the post-D position of numerals invariably weak? The problem with this question is that, of course, the status of the numeral in DPs like ‘‘the three boys’’ is concealed by the presence of *the* in SD^{max}, which makes the whole DP turn out strong. How is it possible, then, to tear apart the force of the numeral from the force of the whole DP?

6.2.1 Introducing partitives

My solution is necessarily indirect, and it hinges on the semantics of *partitives*. For the present purpose, partitives are noun phrases introduced by (a vague or cardinal) numeral immediately followed by a plural or mass noun phrase.³

- (628) a. Three of the boys
- b. Many of John’s friends
- c. Ten of those fifteen eggs

The embedded noun phrase must be introduced by a definite determiner: *the, those/-these, possessives and personal pronouns, but not any weak determiner, every, most, or all the* (629). Selkirk (1977) and Ladusaw, cited in de Hoop (1992), note that cardinal numerals are also acceptable, as long as they can be interpreted specifically (for us, referentially). The restriction on the second noun phrase, noted already in Postal (1966), was named by Jackendoff (1977) the ‘Partitive Constraint.’

- (629) a. Three of {the / those / these / Martha’s / four_[strong] / *most / *every / *some / *four_[weak] / ? all the} boys
- b. Three of {them / us}

Interestingly, *three of all the boys* is deviant (although perhaps not as bad as other cases above). Other relevant data are:

- (630) a. ?Three of them all
- b. ?Three of {all / four} of the possible worlds
- c. ?Three of all possible worlds
- d. ??Three of all

³For a detailed tour of the partitive construction, see Selkirk (1977), Barwise and Cooper (1981), de Jong (1991) and especially Ladusaw (1982).

This distinguishes genuine partitives from a construction that Hoeksema (1984) calls ‘semi-partitive,’ which in English takes noun phrases introduced by *out of*, or *among*, followed by any definite determiner, plus *all*; frequently, semi-partitives are preceded by ‘‘only,’’ and require a slight pause after the numeral (631); some material can appear between the numeral and the PP (cf. (632a) vs. b, and see Giusti 1992b);

- (631) a. (Only) three, out of all the possible worlds
- b. (Only) three, out of them all
- c. (Only) three, out of all of the possible worlds
- d. ?(Only) three, out of all possible worlds
- e. *(Only) three, out of all

6.2.2 Semi-Partitive Partitive

Complements of superlatives (633) also seem to behave more as semi-partitives than as regular partitives.⁴

- (633) a. The best of all the possible worlds
- b. The best (world) of them all
- c. The best of all of the possible worlds
- d. The best of all possible worlds
- e. The best of all

The embedded PP in semi-partitives can be fronted (634a), but not extracted from factive or negative islands (634b), suggesting adjunct status.

- (634) a. SP: Out of all the possible worlds, I have merely visited two.
- b. ??SP: Out of all the possible worlds, I regret that I have visited two.
- c. ??,SP: Out of all the possible worlds, I have not visited two.

It should be noted that for some speakers, ‘‘out’’ is not required in semi-partitives. For these speakers, the distribution of real partitives is a proper subset of the distribution of semi-partitives, and only intonation can distinguish among the two constructions. This makes it hard to decide whether PP-fronting is possible in real partitives. Many speakers find (635) acceptable, but it remains unclear whether this is a real partitive or a semi-partitive (see the remarks in Barker 1998). In Italian, extraction of the partitive PP is entirely out **Dei cani, ho visto due* ‘of the dogs, I have seen two *t*’.⁵

⁴Yet another similar construction is *three out of four dentists*; there are reasons to believe that this construction is still different from (semi)partitives; it doesn’t require a pause after the first numeral; it allows for the two numerals to be equal, and even equal to one (*one out of one dentist*, cf. **one (out) of the one dentist*), and it is translated in Italian in a way that is completely non-parallel to (semi)partitives (*tre dentisti sui quattro*, lit. ‘‘3 doctors over 4’; vs. real or pseudo-partitive *tre dei quattro dottori* lit. ‘‘3 of the 4 doctors’’). I have no specific proposal for this construction.

- (635) Of the new men, only two were fit to serve as officers.

Having introduced partitives, the next step will be to show that they can have two interpretations, one weak, one strong, and then to show that, when embedded under a definite determiner, only the weak interpretation survives.

6.2.2 The double force of partitives

It is sometimes reported in the literature that the numeral in partitives is always ‘specific’ (cf. Eng 1991) or ‘strong’ (see de Jong 1991, de Hoop 1992, Herburger 1994). The first claim is probably due to disagreement on the use of the term “specific,” so I will discuss it briefly.

Eng (1991) proposes a notion of ‘specificity’ which is geared to give an account of a morphological phenomenon, the presence or absence of the accusative marking in Turkish nominals.⁵ Since all quantifiers bear accusative markers in Turkish, Eng concludes that all quantifiers are ‘specific’, in her sense. Her notion of ‘specificity’ is concerned with the way a noun phrase is connected to the previous discourse, and it is implemented by means of a specially devised index carried by each noun phrase. The index links a noun phrase, say DP¹, with some discourse entity E¹, indicating that the object denoted by DP¹ is a subset of E¹. In (636)a, “two children” is ‘specific’ in this sense, since it denotes a subgroup of the group of children at play, while in (636)b, “two children” is non-specific, referring to children that are not included in the group of children at play.

- (636) a. [Some children]_i were playing. [Two children]_j started a fight.
 b. [Some children]_i were playing. [Two children]_j started a fight.

Given this definition, partitives all come out specific; this is because in partitives the numeral must explicitly denote a subpart of the set denoted by the PP, which in turn, being a definite, must be coreferential with some entity already in the discourse model. The specificity indexing of partitives would be: [3 of [the children]_j].

Other, perhaps more intuitive notions of ‘specificity’ do not predict that all quantifiers or all partitives are specific. For instance, (637)a, where *these children* is always coreferential with *some children*, has two readings, paraphrased as (637)b and (637)c. It would seem natural to call the first one ‘non-specific’ and the second one ‘specific.’

- (637) a. The children are playing. Be careful to watch them: two of these children often start a fight when they are together.
 b. … Put any two of these children together, and you often get a fight.

⁵This contrasts with other accounts of specificity, that are more concerned with the status of singular indefinites and their scope taking possibilities. See in particular Hintikka (1986), Fodor and Sag (1982), Kasher and Gabay (1976), Saarinen (1981). As far as I know, only Groenendijk and Stokhof (1980) contemplate the possibility for a universal quantifier to be specific.

- c. … Two of these children, namely Jack and Jim, often start a fight when you put them together.

What about the question of whether partitives are always ‘strong’? In a 1993 SALT paper, Elena Herburger equates the proportional reading of *many* and *few* that is forced with IL predicates to the reading that one gets when *many/few* head a particitive.⁶ de Jong (1991) goes as far as proposing that the strong reading of numerals is derived by canceling the string “of the” in a partitive construction.⁷

Without disputing the claim that a strong reading might be preferred, I want to stress that a weak reading of partitives is available. An important piece of evidence in favor of a weak/strong alternation in partitives comes from WH-phrases. As is well-known, we can build two different WH-questions that look very much like partitives, in Italian as in English, (638). In Italian, *quanti* licenses the trace of *ne*, the sign of a PD^{max} position, while *quali* doesn’t, signaling an SD^{max} position.⁸

- (638) a. Quanti dei tuoi amici parlano russo?
 How many of your friends speak Russian?
 b. Quali dei tuoi amici parlano russo?
 Which of your friends speak Russian?

Are these real partitives? Running a few tests with English, we see that the embedded noun phrase must be introduced by a definite, a demonstrative or possessive, but hardly by *all*, (639)a; no material may intervene between the WH- and its complement; a numeral can be optionally inserted after *which*. These are all features of the partitive construction, which distinguish it from the semi-partitive. Italian is identical for the points a and b, while c is not applicable.

⁶“One the other hand, when the predicate is interpreted as a property-denoting Individual Level (IL) predicate, then the cardinal reading [of/few] is absent and only the partitive-like reading is available.” Herburger (1994).

⁷This [weak/strong] ambiguity can be explained without the assumption of a lexical ambiguity if it is assumed that the strong interpretation of numerals is the result of deleting the substring of the (for Dutch: *van de*) from an underlying partitive source [DE₁I₁ of the N₁]” (de Jong 1991:96). Without *ad hoc* stipulations, this operation would derive “Three few children” from “three of the few children.”

⁸Another reason to posit a strong and a weak partitive comes from the quantifier *qualscuno* in Italian. We have seen that, in the lack of N, *qualscuno* takes [+HUMAN] features when it is in SD^{max}. We have also seen that *qualscuno* cannot go in PD^{max} in copular constructions, see ??*Gianni e qualche studente* “Gianni is sm student.” Now we have a slight contrast with:

- a. Il misterioso signore potrebbe essere qualcuno degli amici di Carlo
 the mysterious man could be some-one-of-the friends of Carlo
 b. ?Il misterioso oggetto potrebbe essere qualcuno degli anelli di Carlo
 the mysterious object could be some-one-of-the rings of Carlo

In the second case, *qualscuno* is forced to be [-HUMAN]; therefore it goes in PD^{max}, from where it cannot raise at LF; hence, the deviance.

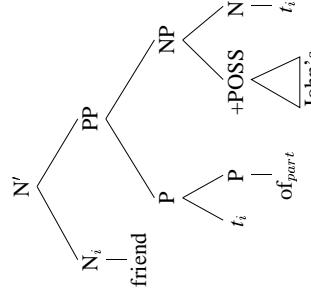
- (639) a. {Which / How many} of {the / those / my / *all the / *some / *both }
 friends
 b. {Which / How many} (*nice) of my friends
 c. Which one of my friends

On the basis of these data, I conclude that partitives can be either weak or strong. What structure is appropriate for them? Starting from the Italian pivotal-“of” structure *Boné di quelle serie*, lit. “fights_i of those_i serious” and moving through the English construction “a friend of John’s,” we land on an elegant analysis independently proposed in Kayne (1994) (from the possessive side) and Barker (1998) (from the partitive side),⁹ which can be easily adapted to our small-clause + raising paradigm. Here I give Barker’s version.

6.2.2.1 Barker’s (1998) analysis of partitives

Barker suggests that the construction “a friend of John’s,” which he calls ‘double genitive’,¹⁰ offers a model to understand partitives. He proposes that normal partitives contain an empty nominal head before the PP “of the N” (640a). In double genitives, in (640b), the role of the empty head is played by the noun in the lower noun phrase, which is raised to P (by adjunction) and then to N, where it can agree in features with the determiner¹¹ (640c).

- (640) a. Two N⁰ of John’s friends
 b. Two friends_i of John’s *t_i*
 c. *N’*



The denotation proposed by Barker for the N’ is:

⁹At the time of writing, Barker’s work was available to me in manuscript form.

¹⁰In Barker’s manuscript, the name of the construction was ‘partitive of *Z*,’ a terminology which I have adopted in Zamparelli (1998).

¹¹This is necessary to prevent mass/count feature mismatch (*“much apple of John’s,” from “much of John’s apple”), or number mismatch (*“each friends of John’s” from “each of John’s friends”).

- (641) || friend of John’s|| = $\lambda x[\text{friend}'(y) \wedge y <_{\text{lex}} [x = \text{John’s friends}]]$

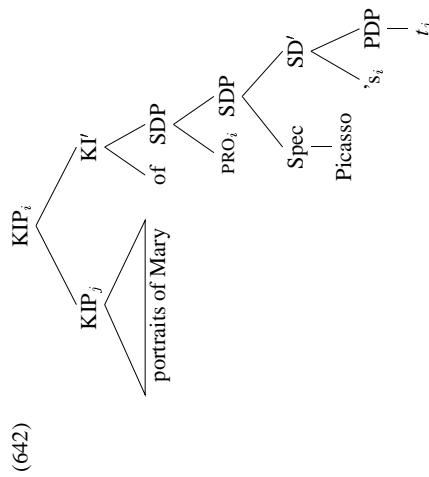
Here $<$ (as opposed to \leq) gives the constraint of Proper Partitivity (the cardinality of the definite must be greater than the numeral licensing the partitive; this rules out, for instance, “two of Jim’s parents”), and the internal NP is assumed to denote an e-type entity, which is a way to capture Ladusaw’s (1982) and Hoeksema’s (1984) generalization that the internal noun phrase must correspond to a generalized quantifier isomorphic to an entity.¹² Notice that the noun “friend” is interpreted as identical to the missing head noun under the lower N’, much as in control structures and in the *kind*-construction.

6.2.2.2 My analysis of partitives

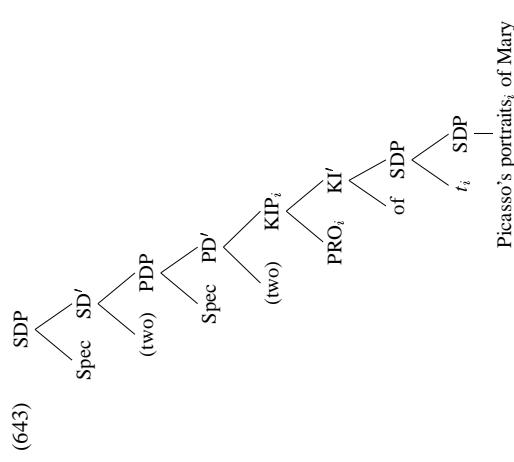
Barker’s analysis can in fact be adapted to my system in a way that makes double genitives and regular partitives the inverse and the canonical raised configurations from the same attributive-predicative small clause D-structure, namely [_{SDP} PRO_i [_{SDP} John [_{SDP} ‘s_i … [_{KIP} friends]_i]]].¹³ PRO in argument position is coindexed with the SD head in attributive-predicative position (occupied in this case by the genitive ‘-s’ morpheme). The raised element in double genitives cannot simply be the N head, since in this case we would predict ungrammaticality for “two [portraits of Mary]_i of Picasso’s *t_i*.” It must be the KIP of the attributive-predicative SDP, raised to [Spec, KIP]. This eliminates the need for the intermediate adjunction to P Barker had to resort to.

¹²This gives a nice account of the puzzling contrast between *“one of both boys” and ‘one of the two boys.’ The difference has to be put in relation with the different readings of ‘the two boys met’ vs. ‘both boys met’: the first noun phrase denotes a plural individual that has ‘parts’ over which the predicate ‘met’ can be distributed, while ‘both boys’ does not have parts in this sense, just like ‘every boy.’ See Link (1987), Schwarzschild (1996) for extensive discussion.

¹³This analysis has been reworked and expanded in Zamparelli (1998).



Feature agreement is insured by spec-head agreement between KIP_j and KIP_i . As for regular partitives, we can assume that PRO has raised to [Spec, KIP_i]. Under the assumption that KIP_j has full feature specification, while PRO is marked for gender but not for number (i.e. it takes its number by spec-head agreement with KIP_i)¹⁴, we can also derive the contrast **“every friends_i of John’s t_i ” vs. “every one PRO_j of t_j John’s friends.”¹⁵



Picasso's portraits; of Mary

‘Or’ is once again semantically vacuous, and the identification of PRO with ‘the portraits’ is done within the SDP small-clause. The position of the numerals gives the strong or the weak reading.

Semantically, we can assume that a ‘strong’ partitive denotes a specific, contextually salient subset of the denotation of the embedded SDP, while a weak partitive denotes the set of every possible plural individual with the required cardinality that can be extracted from the entity denoted by the lower SDP. I render the strong reading with the iota operator; $\| DP \|$ gives the cardinality of a plural individual denoted by DP.

- (644) a. $\| \text{two of the portraits} \| (\text{strong}) = \iota x[2(x) \wedge x \subseteq C \cap \| \text{the portraits} \| \wedge \| \text{the portraits} \| > 2]$
 b. $\| \text{two of the portraits} \| (\text{weak}) = \exists x[2(x) \wedge x \subseteq C \cap \| \text{the portraits} \|]$

Where C is the set of contextually salient objects.

6.2.3 Partitives after definites

¹⁴This assumption is made more plausible by the fact that, as noted, the argument and the predicate in a small clause do not always agree: “[John (and Mary)] are [the cause of the problem].”

¹⁵A plausible alternative is that what raises from the small clause is not PRO, but the numeral directly, i.e. from [s_C two [John’s friends]], with raising of “two” to [Spec, SDP] or [Spec, PDP] (see below for discussion of numerals in spec position). This would probably prevent PP extraction in partitives see example (635) above and its discussion), since the fronted constituent would contain the trace of the lower numeral: “[t_i of [s_C two the men]], only two_i t_j were fit,” and it might be the right choice for languages like Italian. I leave this alternative open.

At a first glance, this construction seems to be completely impossible, a judgment commonly found in the literature (cf. Giusti 1992b for Italian, de Jong 1991 for English and Dutch).¹⁶ An apparent exception is the construction “the three of us” in English (but not Italian or German). Probably this is also a pivotal “of” construction, but of a different type, based on “we three” (and

- (645) a. *The three of John's friends arrived.
 b. *I have seen the ten of the participants.

Surprisingly, the judgment is reversed when an ordinal adjective such as *first* or *last* is present.

- (646) a. The first three of John's friends just arrived.
 b. I have seen the last ten of the participants.

Also, Barker (1998) observes that the presence of a relative clause radically improves the situation.

- (647) a. The three of John's friends he traveled with from Mexico just arrived.
 b. ?I have seen [the ten of [the participants] who were out in the street before].

The Italian data run exactly parallel:

- (648) a. I *(primi) tre dei partecipanti alla gara sono qui.
 the (first) 3 of.the participants to.the race are here
 b. I tre degli amici di Gianni *(che hai conosciuto) sono qui.
 the 3 of.the friends of Gianni (that you have met) are here

Barker's (1998) analysis of these facts is that (645) is out for semantic, not syntactic reasons. Assume that the plural definite determiner takes the supremum of the set of plural individuals denoted by the common noun. In my system, this amounts to the plural individual containing all individual realizations of the kind denoted by KIP; the definite article adds 'contextual uniqueness.' However, a weak partitive doesn't return a supremum, but merely the collection of all the 'sub-individuals' of John's friends with the appropriate cardinality. The semantic restrictions of the definite article are not satisfied, and the phrase crashes.

Why then are (646) and (647) good? In the case of the ordinal, *first* or *last* introduce a partial ordering on the collection provided by the weak partitive. This order can have the correspondent of a 'supremum'—the specific item of John's friends which arrived last. Thus, the ordinal has the effect of reducing the collection of individuals to one containing a maximal plural individual, which can now be taken as argument by the definite determiner. In the relative clause case, the collection of sub-individuals of John's friends intersects the denotation of the relative clause, the set of people he traveled with. The result, again, can be a single individual made up of three atomic members, a suitable argument for the definite determiner.

³ analogous to "all of us," see section 3.2 on page 76). 'We three' doesn't have a Proper Partitivity constraint; it doesn't imply there to be a larger number of 'us' from which to pick out three individuals (in fact, it denies this possibility). Therefore the possibility for it to be preceded by the definite is a confirmation of Barker's theory that Proper Partitivity plays a crucial role in the ill-formedness of (645).

Crucially, Barker's explanation goes through *only if the embedded partitive is necessarily weak*. In other terms, if the partitive of a numeral in post-D position, with the help of context, could be strong and thus refer to a single salient part of John's friends, (645) should have one acceptable interpretation. But there is no context that can salvage (645). I conclude that the numeral after a definite determiner must always be weak (non-specific).

6.2.3.1 'Exactly' interpretation in post-D position

Barker's analysis can be extended to explain the semantics of post-determiner numerals. It has often been noticed that numerals in phrase-initial position, and weak numerals in particular, can have an interpretation in which they mean 'at least Num.' Thus, in a context in which the vote in an assembly is valid only if at least 20 members are present, (649) could be uttered felicitously even if more than 20 members are present.

- (649) Now there are twenty members present, so I declare the vote valid.
 On the other hand, there is no context in which "the three people in the room" can be uttered felicitously if there are more than three people in the room. Thus, it seems that numerals in post-D position always have an 'exactly' interpretation, while in phrase-initial position, they can have an 'at-least' interpretation. This is obviously an embarrassment for the claim that weak phrase-initial numerals are in fact, structurally, the same as post-D numerals—unless it can be shown that the 'exactly' interpretation comes from the presence of the definite determiner, not from the position in and of itself. To see that this is the case, observe that the 'at least' interpretation can be forced by disjoining a cardinal numeral with the comparative head *more*. This coordination is acceptable with phrase-initial numerals, both in strong and in weak contexts (650)a and b, but degrades in post-D position (650)c.

- (650) a. Three or more students will request make-up finals.
 b. Three or more students in this course are Italian.
 c. ??The three or more students {are Italian / will request a make-up final}.
- Again, the ill-formed case markedly improves with a restrictive relative appended.
- (651) The three or more students that have requested a make-up final are all Italian.
- Any analysis that tries to explain the 'exactly' interpretation of post-D numerals as a lexical property of 'adjectival' numerals, as opposed to 'determiner numerals' in phrase-initial position, would have nothing to say on why the same restriction is found on the complex phrase *N or more*. Once we consider the definite determiner responsible for this behavior, a solution appears along the line of the one presented in the previous section. If the semantics of 'N or more students' is $\lambda x[\text{student}(x)$

$\wedge |x| \geq N$, *the* will have to modify the set of all plural individual students with cardinality from *N* up; once again, this violates the semantic requirement for *the-P1* to find a single plural individual, as with *the N + Partitive*, intersection with the denotation of a restrictive relative can bring the plural back in line.

6.3 Vague numerals vs. cardinal numerals

Having shown that numerals in post-D position are weak, I return to the main issue, namely the difference between bare cardinal numerals and other types of numerals. For the first ones, ‘strength’ can translate as ‘referentiality’, for the second, it translates into ‘proportionality’. I will address the syntactic side of the problem, and show that the semantics falls out from a proper representation of the syntactic differences between two types of numeral expressions.

In some analyses (e.g. Abney 1987, Giusti 1992b, de Jong 1991) determiners in DP-initial position are heads, while determiners in post-D position are maximal projections hosted in a specifier. If these accounts are correct, and if the post-D position corresponds to our PD^{max} layer, it would be impossible to relate the two positions by movement, since movement of an XP to a head position violates the structure-preservation hypothesis of Emonds (1976) and Chomsky (1986a), and movement of the numeral head alone is unlikely, given alternations like:

- (652) a. The [very few] participants were good.
- b. [Very few] participants were good.

where it appears that something more than a head has moved.¹⁷

In some cases, there is indeed evidence that the higher position for determiners should not be derived via movement from the lower one. Giusti (1992a) gives examples from German and Romanian where the different positions correlate with modifications in the root. Romanian, has two words for “both”: *amândoi* and *ambii*, the first one with the distribution of a floating quantifier like *toti* “all,” the second one more similar to a regular pre-nominal adjective (probably analogous to the English “whole”). Similarly, Dutch has two words for “some,” *sommige* and *enkele*, corresponding to “SOME” and “sm”; only the latter can appear after the copula. An analysis where the two positions are completely independent, however, is much less desirable with determiners that do not display any morphological change.¹⁸

¹⁷ Modification by “very” is recursive: “very very (...) very few participant.” This makes it unlikely that “very few” could be treated as a single lexical head.

¹⁸ Italian shows that the two positions share a constraint barring pre-nominal adjectives that are modified by affective/diminutive suffixes like *-ino*, *-etto*, *-accio* “a bit” (see Zamparelli 1994):

- a. Una (bella) ragazza (bella)
- a (beautiful) girl (beautiful)

My claim is that there is a head vs. specifier contrast in numerals (and other determiners), but it is wrong to correlate it with the layer in which they appear. Instead, I propose that, across positions, ‘vague numerals’ such as *many*, *few*, *several*, *too many*, *much*, *too much*, are XPs in specifier position, contained in an ‘adjectival’ extended projection of their own, to be examined in chapter 7. Bare cardinal numerals, on the other hand, are always heads in DP. There is theoretical and empirical evidence for this claim.

6.3.1 Syntactic motivations for a head/XP distinction

On the theoretical side, vague numerals across languages share morphological properties with adjectives, regardless of their position: they must agree with the noun in gender and number (653), and they can take adjectival suffixes, such as, in Italian, the so-called ‘superlative’ affix *issim-* “extremely” (654), or some affective/diminutive suffixes (655). In German, vague numerals such as *wenige* “few” or *viele* “many” take the weak or the strong declension, just like adjectives (656). This is in general impossible with cardinal numbers, setting aside ‘small numbers’ (four, three, two...), which have a mixed behavior across languages.

- (653) Le molte partecipanti

- The_{F_{PI}} many_{F_{PI}} participants

- (654) Molt-issim-i giocatori-i alt-issim-i

- Many-SUP_{M_{PI}} players_{M_{PI}} tall-SUP- MPI

- (655) poch-in-i, poch-eit-o, parecchi-ucc-i
few-DIM_{M_{PI}}, few-DIM_{M_{PI}}, several-DIM_{M_{PI}}

(like “*bellino*, see footnote 18)

- (656) Ger: {Die wenigen /Wenige/
{the few-(WEAK-DECL) / Few-(STRONG-DECL)} participants
Teilnehmer
b. Una (*bellina) ragazza (bellina)
a (a bit beautiful) girl (a bit beautiful)

A vague numeral modified by the same suffix is possible only in predicative position:

- a. I ragazzi intelligenti sono pochini
the boys intelligent are few-DIM
- b. *I pochini ragazzi sono intelligenti
the few-DIM boys are intelligent

- c. *Pochini ragazzi sono intelligenti
few-DIM boys are intelligent

Two strictly related syntactic problems for modern theories of noun phrase structure are the position of adjectives and the way they agree with the noun. In the system of Cinque (1993) adjective phrases are generated in the specifiers of functional projections between D^{max} and NP, in a position where they can receive morphological features via spec-head agreement. Given the extent to which vague numerals behave like adjectives, it seems uneconomical to assume that, unlike all other adjectives, they are heads, and as such receive agreement via a completely different mechanism.

On the empirical side, vague numerals and cardinal numerals show clear syntactic differences. Across languages, vague numerals are impossible in many contexts in which cardinal numerals are perfect, as shown by the following Italian examples and by their English glosses: after ordinal numerals (657)a, in construction with ‘all’ (657)b, after a personal pronoun (657)c.

- (657) a. I primi {tre / * molti / * pochi} ospiti
The first {three / * many / ??few} guests
- b. Tutti e {tre / * molti / * pochi} gli ospiti
All and {three / * many / * few} the guests
Cf. in English ‘All {three / *many / *few} of the guests’
- c. Noi {tre / * molti / ?pochi}.
We {three / * many / *few}

Post-D vague numerals require a relative clause, or a strong contextual specification, while cardinal numerals do not. Thus, vague numerals in Italian pattern as non-restrictive pre-N adjectives, as noted by Carden (1976) for English.

- (658) a. Le molte persone ??(che ho incontrato)
The many people (that I have met)
- b. Le simpatiche persone ??(che ho incontrato)
The nice people (that I have met)
- c. Le tre persone (che ho incontrato)
The three people (that I have met)

Next, numerals combined with the modifier *altri* “others” show an interesting positional difference: cardinal numerals must follow *altri*, while vague numerals must precede it (Crisma 1991).

- (659) a. Molti altri (dei) miei amici
many others (of_the) my friends
- b. *Altri molti (dei) miei amici
Others many (of.the) of my friends
- c. Altri tre (dei) miei amici
others three (of.the) my friends

- d. ??Tre altri (dei) miei amici
three others (of.the) my friends

These facts suggest that vague and cardinal numerals are not in the same position. Specifically, the proposal is that vague numerals and modified cardinal numerals (e.g. ‘exactly three’) are maximal projections, while bare cardinal numerals are heads. Let’s review the evidence for this idea.

In English as in Italian, vague and cardinal numerals cannot be coordinated in either position ((660), and its gloss). Cardinal numerals can be coordinated together in either position, but only if they are not modified by an adverb—a typical symptom of head coordination (661)a,b vs. c,d.

- (660) a. *I tre o molti ragazzi
The three or many boys
- b. *Tre o molti ragazzi
Three or many boys
- (661) a. I due o tre ragazzi
The two or three boys
- b. Due o tre ragazzi
Two or three boys
- c. *I due o circa cinque ragazzi
The two or roughly five boys
- d. *Due or circa cinque ragazzi
Two or roughly five boys

On the other hand, if both cardinal numerals are complex, they can be coordinated, still licensing a partitive (662a). Coordination with vague numerals also improves (662b).

- (662) a. Il computer ci darà o [più di cento] o [esattamente dodici]
The computer will-give-us either [more than 100] or [exactly 12]
[12] of_the results we want
- b. ?Il computer ci darà o [pochissimi] o [esattamente dodici]
The computer will-give-us either [very-few] or [exactly twelve]
dei risultati che vogliamo.]
of_the results we want

With vague numerals, the requirement for both conjuncts to be either simple or complex doesn’t hold. In (663) ‘few’ and ‘very many’ can be coordinated without any problem.

- (663) a. Su questa domanda otterremo 0 [molte] o [molte poche] risposte
on this question, we_will_get either [many] or [very few] answers.
b. Le molte o molte poche risposte che otterremo saranno in ogni caso
the many or very few answers that we_will_get will_be in any case
attentamente esaminate.
carefully examined

Next, in Italian, coordination of a vague numeral with a pre-nominal adjective is basically possible (although it sounds quite bookish and old-fashioned). Coordination of an adjective with a cardinal numeral is plainly impossible.

- (664) a. I molti e terribili avvenimenti della notte scorsa
The many and terrible events of the past night
b. Molti e terribili avvenimenti turbarono la notte scorsa
many and terrible events perturbed the past night
c. * (1) tre e terribili avvenimenti ...
(The) three and terrible events ...

Another piece of evidence against treating cardinal numerals as pre-N adjectives is the fact that in Italian, adjectives with defective inflectional marking cannot appear in pre-N positions, as shown in Zamparelli (1994). The examples come from the domain of color adjectives: *blu* “blue,” *viola* “purple,” *beige* “beige,” *fucsia* “fuscia” and *rosa* “pink” can never precede the noun (665)b. Unlike other color terms, these particular nouns do not vary in gender or number and cannot take the *-issimamente* affix. At a certain stylistic register, all other color adjectives can appear pre-nominally (665)a, always with non-restrictive interpretation; any color adjective at all can appear post-nominally (665)c.

- (665) a. Questa frossa / gialla / nera / bianca / rosea ... } bandiera
Questo fred / yellow / black / white / pink_{F_{Sing}} ... } flag
b. *Questa {blu / viola / beige / fucsia / rosa} bandiera
This {blue / purple / beige / fuchsia / pink-0} flag
c. La bandiera {blu / viola / beige / rossa / gialla}
The flag {blue / purple / beige / red / yellow}

Since cardinal numerals lack agreement entirely, if they were to be treated like the adjectives above, the constraint just observed would be violated.

Certain cardinal numerals undergo elision before vowel, while in the same phonological environment elision is impossible with vague numerals.

- (666) a. Quattr' ore
four hours
from: “quattro ore”

- b. Diec' anni
ten years
from “Dieci anni”
(667) a. *Poc' olio
little oil
cf. “poco olio”
b. *Molt' anni
many years
cf. “molti anni”

Bernstein (1993) shows that in Italian the only pre-nominal adjectives that undergo elision are those that are independently analyzed as heads, e.g. *grande* “great” *povero* “poor”:

- (668) a. Un grand' uomo
a great man
b. Un pover' uomo
a poor man

This conforms to an analysis of cardinal numerals as X⁰.

The last piece of evidence comes from Romanian. As we have seen in the introduction, in Romanian N raises to D from its base position to affix to the clitic definite determiner *-ul/-i*, in the analysis of Grosu (1988), Giusti (1992), (1992a). N raising can also occur over a vague numeral: (669)a “few/many boys” alternates with (669)b, “the few/many boys,” where N has moved over the adjective. However, N cannot move past a cardinal numeral (669)c, unless the numeral is immediately preceded by the deictic determiner *acestea* (Cornilescu, p.c.) (669)d.

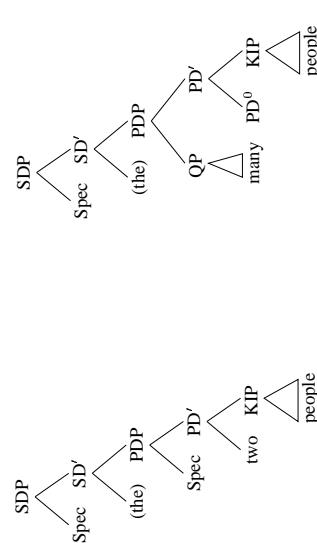
- (669) a. {Putini / Multi} copii
{few / many} boys
b. Copii-i {multi / putini} t
boys-the {many / few} t
“the few boys”
c. *Copii-i trei t
boys-the 3
d. Copii-i [acestea trei] t
boys-the [these 3] t

If N raises from head to head, this distribution is what we would expect if cardinals were heads along the path of the noun, but vague numerals and the string *acestea trei ‘these three’* were full phrases in adjunct or specifier position.

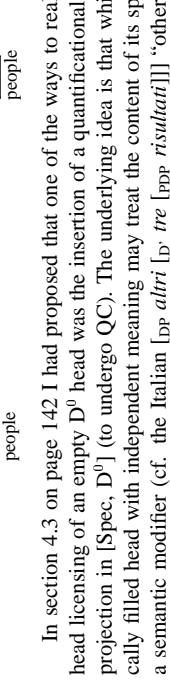
To summarize, all these examples converge on the fact that, across languages, the two types of numerals are different. (664) in particular, shows that vague numerals are adjectival. (661) shows that, in Italian as in English, bare cardinal numerals can only be coordinated as heads. Vague numerals behave like maximal projections in a position that doesn't interfere with head-movement, while cardinals block head-movement. Most importantly, to the extent they are applicable in both positions, these tests do not show any difference in X-theoretic status for numerals in post-D or D position.

I can account for these facts by proposing the structures in (670) and (671) below, and extending the notion of spec-head agreement between an empty functional head and its specifier.

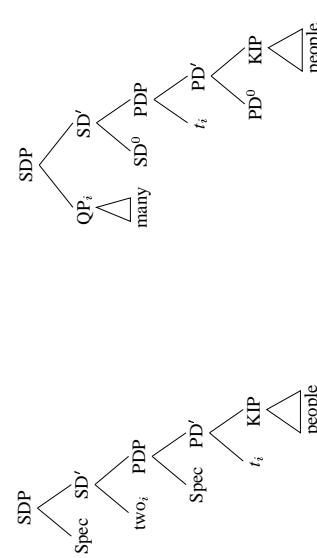
- (670) a. (The) two people (
- weak*
-)



- b. (The) many people (
- weak*
-)



- (671) a. Two people (
- strong*
-)



- b. Many people (
- strong*
-)

In section 4.3 on page 142 I had proposed that one of the ways to realize specific head licensing of an empty D⁰ head was the insertion of a quantificational maximal projection in [Spec, D⁰] (to undergo QC). The underlying idea is that while a lexically filled head with independent meaning may treat the content of its specifier as a semantic modifier (cf. the Italian [per altri [b tre [pop risultati]]] ‘other three results,’ or the English ‘many more results,’ etc.)—a lexically and semantically empty head draws its meaning entirely from the meaning of its specifier, when present. The meaning alternations of indefinites in (672) are suggestive in this respect:

- (672) a. i. Some questions

ii. Some fifteen questions

- b. i. Un quesito

a question

- ii. Un quindici quesiti

A 15 questions (= ‘approximately 15 questions’)

- c. i. Een vraag

A question

- ii. Een vijftien vragen

A 15 questions (= ‘approximately 15 questions’)

*English**Italian*

- Dutch, de Jong (1991)*

Suppose that the indefinites “some,” Italian *un-o* and Dutch *een* are specifiers (in the latter two languages, they receive agreement). When they modify a cardinal numeral, they attribute ‘indefiniteness’ to the amount denoted by the numeral. When the numeral is missing, this indefiniteness (however it may be spelled out in its more abstract form) is applied to the abstract numeral head, yielding “an unspecified number of questions,” or “a question that has not previously been introduced in the dis-

course.”¹⁹

In the case of vague numerals, the quantificational force of the ‘Quantifier Phrase’ “many” is transmitted to the empty head (SD^0 or PD^0) in the configuration [$_{DP} QP [D^0 \dots]$]. It is not clear to me what is the best technical way to spell out this intuition. Perhaps ‘quantification’ is itself a feature that can be transmitted just like agreement features. Perhaps, for the purpose of quantification, the whole X^{max} layer is relevant, and there is no distinction between specifier and head position. Whatever the system used, Q-raising and Q-construal must give an identical result regardless of whether the position from where the quantifier moves is [Spec, SDP_1], or SD .²⁰

The relation between a phrase XP in [Spec, DP] and the null DP head D^0 I can now be qualified as having the following properties:

1. **Licensing:** XP syntactically licenses D^0 .
2. **Variable Identification:** If XP is a quantifier extracted by Q-construal from [Spec, SDP_1], the trace of XP is identified with SD^0 .
3. **Property Identification:** If XP is a cardinality predicate in [Spec, PD_P], the property it denotes is assigned to PD^0 , and fed as an argument to rules such as (463), on page 171.
4. **Presuppositions:** If [Spec, SDP_1] is filled by XP , presuppositions of existence are triggered.

Admitting such a strict relation seems to flatten down the head and spec positions of SDP and PD_P . This is not entirely true; while [Spec, DP_1] and [Head, DP_1] are unified with respect to QR and presuppositions, ‘referentiality’ still distinguishes the two positions if we hold on to the idea that only elements in the SDP *head* are open to a referential interpretation. Since vague numerals are in specifier position, this derives the lack of a referential reading for this class of numerals, as desired.

6.3.2 Complex determiners

Next, I want to suggest that there are other complex quantificational phrases that can be analyzed as full XPs in specifier position. A case in point is that of modified cardinals. (662)b showed that cardinal numerals can be marginally coordinated with vague numerals when they are modified by “exactly.” The fact that a cardinal numeral can

¹⁹The idea that “some” is not a quantifier, but a modifier of a noun or of an abstract quantificational head explains why “some” in the singular doesn’t license partitives: *“some of the students is here.”

²⁰This follows the hypothesis that QC may extract lexical elements either from [Spec, SDP_1] or SD . Alternatively, one could hypothesize that QC always raises elements from SD . If SD contains a lexically empty element, SD^0 , this is Q-constrained after receiving quantificational force from a lexical element in its specifier.

be left behind by a raising noun when it is modified by the demonstrative “acestea” in Romanian (669) also suggests that “acestea trei” is a maximal projection.²¹

A more theory-internal consideration is the following. If “the” and “three” in “the three students” were to occupy, respectively, SD^{max} and PD^{max} , the system would predict that “the three student” should always be a full SDP , unable to function predicatively. This seems to be true for “the” plus a vague or modified numeral, but not for cardinal numerals:

- (673) a. I consider those [the {two / ??few / *exactly two} causes of our biggest failure.]

b. They could become [the {four / *many / *exactly two} leading experts of this type of process.]

c. I consider them [the {two / ??few / ??many / *exactly three} kings that truly embodied the spirit of their times.]

The contrast is particularly sharp with superlatives and ordinals:

- (674) a. They could become [the {two / *few / *many / *several / *exactly two} best pipe players in the world]

b. I consider them [the {two / *few / *many} kings that best embodied the spirit of their times]

- (675) a. They could become [the first {two / ??few / *many / *several / *exactly two} cigar players in the world]

b. I consider them [the {two / ?few / ??many} kings that first captured the spirit of their times]

This suggests that there should be a way to factor together the string “the (first) two,” but not any other combination, in the spirit of Keenan and Stavi’s (1986) ‘complex determiners.’ This way must be able to preserve the PD^{max} position of the definite determiner, which we have associated with the predicative reading. Three structures come to mind: ‘the’ plus the numeral are together in [Spec, PD_P], in a ‘quantifier phrase’ of their own (676)a, “the (first)” is in spec and the numeral in PD (676)b, or ‘the’ is in PD^{max} , (Spec or Head position), and the remaining material is in [Spec, KIP] as a result of pivotal raising.

- (676) a. [$_{SDP} SD^0 [_{PD_P} [QP \text{ the (first)} _{PD^0} PD^0 [knP \text{ kings}]]]$]

b. [$_{SDP} SD^0 [_{PD_P} [QP \text{ the (first)} _{PD^0} three [knP \text{ kings}]]]$]

c. [$_{SDP} SD^0 [_{PD_P} \text{ the } [knP \text{ [first } 3] [kr [lsc \text{ kings } t]]]]]$]

²¹I have found that not all speakers accept this construction. The judgments are Illeana Cornilescu’s, personal communication.

The first or second solution might be preferable for “the two”; the third one might be more appropriate for ordinal numerals and for the superlative construction, though for simplicity I prefer to leave bracketing out of the picture. Link (1987) has independently suggested that the bracketing of “the three people” might be “[the three] people,” not “the [three people],” on the basis of the oddness of sentences such as “the FOUR people came, not the THREE people” (contrast with: “the WHITE people came, not the BLACK people”).²²

There appears to be a connection between the possibility of functioning as a quantificational XP in spec and the possibility of forming a null-nominal DP in argumental position. In Italian *I tre* “the three [+human]” can be a stand-alone noun phrase, while this is impossible with vague numerals:

- (677) [I {tre / *pochi / *molti}] decisero di incontrarsi a pranzo
[the {three / few / many}] decided to meet for lunch

Likewise, the complex Definite Determiner + Possessive Adjective (*Il mio* “The my,” i.e. “mine”), Complex Ordinal Numerals (*I (miei) primi tre* “the (my) first three”), Vague Numerals used as modifiers (*Molti altri/più/pochi*) “many {others/more}, much fewer”) can all appear without a noun, a possibility excluded for *I molti (altri)* “the many (other).”

- (678) [I primi tre] sono qui
[the first three] are here

- (679) [Molti altri] sono qui
[many others] are here

- (680) [Gli altri (tre)] sono qui
[the other (three)] are here

- (681) [I miei] sono qui
[the my] are here

- (682) [I tre] sono qui
[the three [+HUMAN]] are here

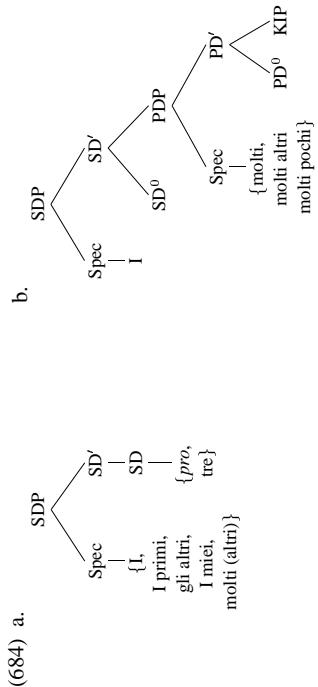
- (683) *I molti (altri) sono qui
the many (others) are here

Suppose that null-nominal constructions of these sorts are SD^{max} with no PDP complement, much like pronouns in their simplest possible configuration, i.e. [sop he]. If the determiner complex needs to be distributed across SD^{max} and PDP^{max} , as I have argued to be the case for the string ‘the many,’ but not for ‘the three,’ PDP must

²²On the other hand, the latter bracketing would be preferred in “the wonderful three weeks that we spent together in Sicily” and in “the three people and four dogs that ate here”—a reminder that we are dealing with material riddled with structural ambiguities.

be present. But the semantics of PD requires a KIP as its argument, and KIP in turn requires a noun to be licensed, being the LF/SS target of partial N-movement. The outcome is that as soon as certain determiner strings force the presence of a PDP^{max} layer, a noun must be present.

The possible null-nominal construction would be based on the schema (684)a, while the impossibility of “the” and “many” to appear together in specifier position would force (684)b. Note that neither construction can be predicative (i.e. bare PDPs), which is correct: *i tre* is impossible under consider-type verbs, and odd in ??*Loro potrebbero diventare [i tre]* “they could become the three,” since ‘become’ favors a predicative reading. However, the material in [Spec, SDP] in (684)a could also be realized in [Spec, PDP], this time obligatorily followed by N, giving us just the right structure for (673).



The possibility for material of a certain complexity to appear in [Spec, SDP] can also account for the mystery of “A certain Alvar Aalto,” to which I can finally assign the structure:

- (685) [SDP [A certain] [SD' Alvar Aalto]]

As any Italian proper name, Alvar Aalto can be in SD at SS. A specifier position for “a certain” is confirmed by the acceptability of “A certain three students,” where “three” is in SD or PD.

6.3.2.1 Some open questions

One could wonder, at this point, whether the definite and the indefinite articles are in head or in specifier position within DP. As it happens in linguistics, the simplest structure (in terms of number of lexical elements) often turns out to be the one which is hardest to analyze. “The” and “a” are no exception. Let’s briefly review the evidence for a spec or head position.

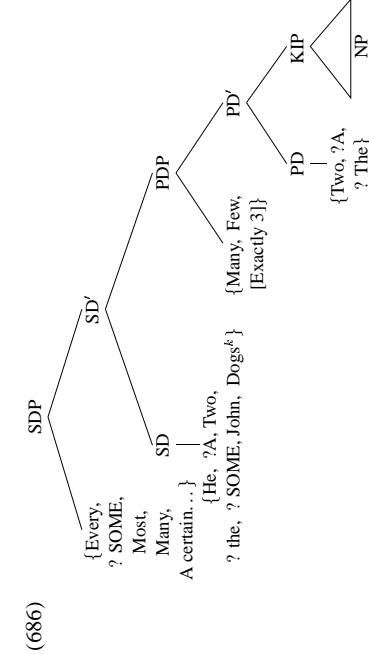
In favor of a specifier position, we have the extraction facts mentioned below (an article in [Spec, SDP] would naturally block extraction), the fact that in several lan-

guages the article receives agreement features and that it can cooccur with cardinal numerals, assuming for concreteness the structure in (676)b. Against, we find the general morphological parallel between pronouns and articles, the clear clitic status of the article in languages like French, which suggests head status (cf. Valois 1991), and the idea that only elements in SD can get a referential interpretation.

The Romanian facts are ambiguous; on the one hand, the definite determiner “-ul” cliticizes on the noun raising to SD (*omul* ‘man-the’); on the other, the article can also appear as the suffix to a raised adjective phrase (*sarac-ul baiat* ‘poor-the boy,’ i.e. ‘the poor boy’), which is presumably in [Spec, DP]. It is also perfectly possible that the determiner may have a different X-bar status across different languages. I leave the question open.

A larger issue is whether all unambiguously strong quantifiers (“every,” “most,” “each”) are in specifier position. A positive answer would have nice theoretical consequences, since we would be able to say that every element that *must* be interpreted via QR is in specifier position, while everything in the head of SD^{max} is open to a referential interpretation.

Again, the fact that all strong quantifiers block extraction (see section 5.4.4), could be explained if they filled the [Spec, SDP] position, blocking movement through it. In the same vein, one could analyze “everyone” and “someone” as a complex “[_{SP} some/every [_{SP} one]]”, with obligatory amalgamation of “every/some” in spec and “one” in head position (a possibility to explain the Romanian *sarac-ul* ‘poor-the’). We also know that “every” can function as a modifier in “every three weeks,” “every other week.” The picture that emerges from this hypothesis is:



6.4 Some remarks on terms of specificity

I want to conclude this chapter, and the analysis of the internal structure of DPs, with a brief examination of the semantics and pragmatics of words that are normally taken to be signals of *specificity*: “certain,” “specific” and “particular.” One of the aims is to understand better the difference between “certain,” and the other two, “specific” and “particular.”

In many cases “certain,” “particular” and “specific”—hereafter ‘terms of specificity’—seem to be very close in meaning and in distribution. These include cases where they help to pick out a single, specific individual (687) (the referential cases) and cases when they pick out a single, specific *function*, e.g. the one that takes a bank and returns an interest rate in (688).

- (687) a. Gianni is looking for a {certain / particular / specific} document.
 b. I know that Richard uses a {certain / particular / specific} aftershave.
- (688) a. Each bank adopts a {particular / specific / certain} interest rate.
 b. A {certain / specific / particular} sum of money will be paid for each quantity of this commodity.

In other cases, “particular” and “specific” contrast with “certain”:

- (689) a. Are there {specific / ?certain} comments on this point?
 b. A {*specific / *particular / certain} Alvar Aalto from Tampere, Finland, was looking for you.
(in a context with one A.A.)
- (690) a. There was a {? specific / certain} puzzlement on his face at that point.
 b. He glanced at me with a {?specific / ?particular / certain} sadness.

Hintikka (1986) analyzes “a certain” as an element that must take scope over an epistemic operator, which is sometimes invisible. He also discusses cases like (689)b, citing the OED, according to which “a certain” with proper names signals that the person introduced is “not named, stated, or described, although it is possible to do so.” Hintikka interprets this as a case where “a certain” has taken scope over the speaker’s epistemic operator, signaling that “someone else, but not the speaker, knows who *a certain* person referred to is” (Hintikka 1986, p. 335). This characterization seems correct, as far as it goes. However, we have seen in the first chapter that in sentences like “Mary believes that a certain unicorn is uprooting her turnips,” “a certain” doesn’t need to take scope over the operator “believe,” as noted in Eng (1991). Hintikka’s analysis would require an additional epistemic operator below “believe,” a rather *ad hoc* stipulation. Also, Hintikka’s analysis could not predict the contrasts in (689) and (690), without having to formulate an entirely different semantics for ‘particular’ or “specific.”

However, the evidence is scarce at this stage. Examination of more languages is needed to draw any conclusion.

6.4.1 Reasoning by opposites: Italian “Qualsiasi”

Although at this point I do not have a complete account of specificity, I want to put forth a new piece of the puzzle, which might help to put things in a slightly different light. This piece is an Italian word that has a meaning opposite to the meaning of ‘terms of specificity’. Understanding the way this word works means understanding better the way “certain” works. The word is *qualsiasi*, which means “any”.

A considerable amount of work in linguistics has been devoted to the English word "any." Part of the distinguished status of "any" is due to the fact that this word appears to be ambiguous between a negative polarity item, corresponding to *some* in negative contexts ('*nepol any*', as in (691)a), and a polarity-insensitive quantifier with a modal flavor, ('free-choice *any*' as in (691)b, c).

- (691) a. John hasn't seen any chairs.
b. John wants to see any Moretti movie (there is).
c. You may pick any chair (there is)

Free-choice *any* actually takes its name from sentences like (691c), where it is used to convey the sense that the hearer has a free choice over which chair to pick. This might seem to be an existential at first blush (it is not an invitation to pick *all* the chairs); however, Carlson (1981) shows that it can be treated as a wide-scope universal taking scope over a deontic modal: "For each chairs that you may want to pick, you have permission to pick that chair." One motivation is that (691)b and c, but not a, allows the amount relative "there is," which is compatible with universal but not with existential quantifiers ("every chair there is" vs. **"some chair there is"). In the discussion that follows I unify (691)b and c under a common universal

Part of the problem with *any* lies in understanding whether its two meanings can be completely unified. If there is indeed a single word *any*, an explanation for its changing quantificational import must be found. Since the existential/universal interpretation, against (91)a.

alternation matches the polarity-sensitive / polarity-insensitive alternation, the two aspects have typically been discussed together (cf. Carlson 1981, Ladusaw 1977). Italian adds a new twist to the problem, as in this language the word *qualsiasi*²³ has the meaning of free-choice *any*, but not of negpol *any*, and it can take either a universal or an existential import, depending on the position in DP in which it appears.

²³The etymology of *qualiasi si* is, transparently, *quale + si + si* ‘‘whichever be it-CL,’’ or ‘‘whatever it is.’’ Note that the syntactic behavior of *qualiasi si* is close to the behavior of ‘‘quale si’’ and related terms, seen in section 4.2–4 on page 136.

6.4.2 The data: Universal and Existential “qualsiasi”

Contrasting the sentences above with the corresponding Italian examples, we see that in (692)b, *qualsiasi* has exactly the same readings as *any* in (691)b and c, while it is impossible as a negated *some*, or in non-modal contexts in general; negative polarity “any” is a different word, *alcuno/alcuna/e*. DP-initial *qualsiasi* only corresponds to free-choice *any*.

- (692) a. Gianni non ha visto {alcuna / *qualsiasi} sedia/e.
 Gianni not has seen {any-NEGPOL / any-FC} chair_{+/-st}

b. Gianni vuole vedere qualsiasi film di Moretti (ci sia).
 Gianni wants to.see any-FC movie by Moretti (there is)

c. Prendi qualsiasi sedia (ci sia).
 pick any-FC chair (there is)

Unlike “any,” *qualsiasi* can appear in two additional DP-internal positions: after the indefinite article ‘*un*’ (‘*uno*’) (603a), and after the noun (603b).

- (693) a. Gianni vuole vedere un qualsiasi film di Moretti (*ci sia
 Gianni wants to.see an any film by Moretti (there is)
 b. Gianni vuole vedere un film di Moretti qualsiasi (*ci sia
 Gianni wants to.see a film by Moretti any (there is)

The meaning of the object in (693)a is, roughly: "Gianni wants to see a single movie by Moretti, no matter which one"; the free relative licensed by DP-initial *qualsiasi* is impossible. (693)b has yet another meaning and it can appear in non-modal contexts: "Gianni wants to see a movie by Moretti of the most plain, unmarked and average kind." I take it that in this lower position "qualsiasi" is directly modifying the kind denoted by KIP but I will not develop the issue any further.

To see this, let's try to pin down better the existential meaning in a simile intensive reading. Let's call the phrase-initial reading *U(niversal)-any* and the post-D reading *E(xist) any*. The claim is that the latter, "un qualiasi" unambiguously functions as the opposite of "a certain."

- (694) John would like to marry a Swede

It is plain that this sentence can either mean that there is a particular Swede John has in mind as his dream wife (the specific reading), or that he would like the woman he hopes to eventually marry she will be a Swede.

(695) a. John would like to marry a particular Swede
 b. Any woman that John would like to marry must be a Swede

There is, however, a third, less salient reading (if it is a single reading), which attributes to John an astonishing adaptability. This is the reading that can be phrased as:

- (696) John would like to marry just any old Swede.

In other words, the only thing that matters for John in selecting his wife is that she is a Swede. Clearly, (695)b can be derived from the reading in (696) by *adding* relevant properties to the set of John's desires, so that the person he wants to marry is not 'just' a Swede, but a Swede who can read runes, make sauna, etc. By adding a sufficient number of properties, the person John wants to meet will eventually be uniquely identified among the individuals in the domain.

Let's focus on the process of adding relevant properties. The intuition I want to informally sketch out is that the pragmatic role of words like "certain," "specific," "particular," on the one hand, and "qualsiasi," on the other, is that of providing information about what these 'unstated' properties might be. Specifically, using the expression "a certain/specific/particular P" the speaker informs the hearer that there are other properties, above and beyond P, that are *relevant* in order to restrict the denotation enough to satisfy the goals of the conversation. Saying in Italian *un qualsiasi P*, lit. "an any P," has exactly the opposite effect: it informs the hearer that there is no other *relevant* property that should be added to restrict the set P any further and to satisfy the goals of the conversation.

Thus, "certain" and *qualsiasi* have essentially a metalinguistic role: they inform the hearer about the status of relevant information that is *not* provided, specifying whether, in principle, it should or should not be added to satisfy the goals of the conversation. The critical notion, here, is that we are talking of 'relevant' information: it would be entirely vacuous, of course, to point out that there is some *irrelevant* information that can be added. Therefore, a detailed model of the semantics of these expressions will have to wait for a theory of relevance and a model of conversational goals. But this intuitive characterization is sufficient to move on to the next question: what *kinds* of properties do these terms provide information about?

We haven't captured the difference between "certain" and "specific" or "particular" yet. To begin with, we can distinguish between a 'weak' and a 'strong' use of terms of specificity. The sentences in (690) are instances of the weak use, which is probably limited to abstract mass terms; here, "a certain" doesn't mean 'a certain type, or quality of sadness,' or even less a specific, individual sadness'—but rather a certain *degree or amount* of sadness, which could be further determined, if necessary (other examples are "A certain severity is necessary with these people," "This time, Sir John showed a certain restraint in eating," and so forth). This use is marginally possible with "specific" and "particular," too, when the mass term we are talking about has degrees that can be determined with precision (e.g. 'speed' but not 'sadness' or 'suspicion'). Compare:

- (697) a. Once it reaches [a particular speed], the plane takes off.
(i.e. 220 Km/h.)
b. Once it reaches [a certain speed], the plane takes off.
(not just *any* speed, but one which, if necessary, could be precisely determined on the basis of wind, weight, etc...)
c. ??Once it reaches [a speed], the plane takes off.
(pragmatically odd: as soon as it moves the plane reaches 'a' speed)
- When the property in the indefinite is capable of unambiguously identifying the object, both "certain" and "particular/specific" sound redundant:
- (698) a. ??Once it reaches [a particular speed of exactly 220 km/h.], the plane takes off.
b. ??Once it reaches [a certain speed of exactly 220 km/h.], the plane takes off.
c. Once it reaches [a speed of exactly 220 km/h.], the plane takes off.

On the other hand, there are other cases where the object is also uniquely determined, but "certain" is still possible, while "particular/specific" aren't (689)b and (699).

(699) A {certain / ??specific / ??particular} linguist who came yesterday looking for you is at the door again.

What is the difference between (699) and (698)? In particular, why is "certain" redundant in (698)b, but not in (699)? The description in (699) is so detailed that it probably picks out a unique individual; "specific/particular" signal that additional properties are needed for the description to pick out a single individual; hence, a pragmatic clash. "A certain," on the other hand, only signals the absence of *epistemic properties*, i.e. properties that, if added, would lead the hearer (or some other participants in the conversation) to equate the object described with one already present in the discourse model. The fact that the description in (699) uniquely picks out an individual doesn't affect "a certain," since uniqueness does not imply familiarity, which is what "a certain" explicitly denies.

Why are (698)a and b out? The problem is that the only type of acquaintance that we can have with a speed goes through the measure that uniquely and fully determines it. Once it is measured, a speed is fully identified; no additional property could place it better in our current discourse representation. What kind of additional information could ever be provided to help us equate "a speed of 220 Km/h" with another such speed in our discourse model? As soon as the measure is provided, all the epistemic properties that we could possibly want to identify *the* speed are exhausted. Hence, "a certain" is contradictory.

As I said, I will not try to go into details, many of which are obscure to me at the moment. However, I would like to point out a positive aspect of an analysis of this

type, namely the fact that “specific” or “particular,” but not “certain” will go with a definite determiner, since definites are felicitous only if enough properties have been provided to identify a referent, while “certain” signals that some relevant epistemic properties are missing.

CHAPTER 7

The Internal Structure of Adjective Phrases

7.1 Introduction

In this chapter, I want to link some of the structures and principles that I have proposed for the noun phrase to the little-studied topic of the internal structure of Adjective Phrases. I hope to show that although adjective phrases do not have a referential layer comparable to SD^{max} , and can in fact be conjoined with PDPs and pronominalized with the Italian *lo*, they have a rich internal structure which is reflected in the interpretation of the adjectival head, in its morphological composition, and in its position with respect to adjectival modifiers. The existence of a syntax/semantics mapping in the Adjective Phrase is an indirect confirmation of the general correctness of the approach I have pursued in this dissertation.

I will be particularly concerned with adjectives that can take ‘measure phrases’ (MP) such as “two meters,” “six feet,” “twenty pounds,” i.e. the class of positive scalar adjectives, such as “(two meters) tall,” “(two inches) wide,” etc. A well-known semantic peculiarity of these adjectives (see for instance Rusecki 1985) is that the comparative form and the form modified by a measure phrase do not entail the positive. So, if this door is wider than that door, or if this door is 2 feet wide, this fact doesn’t entail that either door is ‘wide.’ Adjectives of this sort contrast with adjectives like “fat” or “wet,” since “John is fatter/wetter than Mary” entails that both are fat/wet. Moreover, “fat/wet” cannot be modified by a measure phrase, even when an appropriate unit of measure is perfectly conceivable (see ?? “John is 200 pounds fat”).

Since the lack of MPs and the lack of entailments go together, I will try to explain them together as due to the syntax/semantics interface of AdjPs. I will propose that the distinction between adjectives like “wide” and adjectives like “fat” depends on whether the assignment of an ‘amount’ of the property denoted by the adjective is done at the level of the lexicon (as for “fat”) or at the level of the syntax (as for ‘wide’).

The presence of a syntactic level for the ‘degree’ of a property can then be used as a litmus test to probe the presence of ‘hidden degree modifiers’ in other categories, in particular, VP. One consequence of this idea is that MPs are not the objects of measure verbs, but the specifiers of a degree phrase that takes VP as its complement.

7.2 Evidence for partial head-movement within AdjP

In the first chapter of this dissertation, I briefly reviewed the evidence for the existence of partial noun movement in Romance. In the theory of Crisma (1991) and Cinque (1993), the contrast in the position of the appositive adjective in Western Romance and Germanic, seen in chapter 1:

- (700) a. *It.*: La distruzione romana di Cartagine
the destruction Roman of Carthage
- b. *Eng.*: The Roman destruction of Carthage

is due to SS leftward head-movement of the noun past the adjective in Italian, but not in English. Following Chomsky (1992), Cinque suggests that this movement is due to the necessity of checking the agreement features present on the noun, by moving the noun onto appropriate functional heads. In my approach, the highest head to which N moves in Western Romance is [Head, KIP]. Feature checking must be done at SS in Romance, while it can presumably be delayed to LF in languages like German, which have agreement morphology on the noun but show no sign of overt N-movement over the adjective.¹ Schematically, the SS structure for the noun phrase is:

- (701) *Germanic* [$\text{Agr}_1 \dots \text{Agr}_n \text{AdjP N}$ (Complement)]
Romance [$\text{N}_i + \text{Agr}_n - \text{Agr}_1 \dots \text{AdjP } t_i$ (Complement)]

Cinque’s hypothesis of a complex DP structure with noun movement can be extended to the adjective phrase. Evidence comes from the position of measure modifiers in Romance and Germanic, and from the way their position interacts with agreement.

7.2.1 Adjectives with Measure Phrases

Consider adjectives that express a *gradable* property, like “tall” or “heavy” in English. If a suitable unit of measure is defined in the language, the ‘degree’ of the property expressed by the adjective can be fixed by means of a measure phrase (MP). The possibility of using MPs on adjectives is not available in all languages, and languages vary considerably in this construction. French and some varieties of Spanish insert the preposition *de*, “of” (though this possibility might be limited to a small class of adjectives, Santz, p.c.).

¹ Here I am setting aside the attributive-predicative position of adjectives, which is post-nominal, but also follows the complement, and which is not due to N-movement.

- (702) *Fr.*: Une tour haute *(de) [cent mètres]
a tower high (of) 100 meters

- (703) *Sp.*: Un hombre *(de) [dos metros] de alto
A man of 2 meters tall-0Agr

In English, German and Italian, MP can be expressed by a DP headed by a numeral adjacent to the adjective (704). Canonically, MPs precede the adjective in English and German, but follow it in Italian. My claim is that the order [Adj MP] is derived from an underlying [MP Adj] order via leftward movement of the adjective, and that, as with the noun, this movement is motivated by the need to check φ -features by SS.

- (704) a. *En.*: The man was [MP two meters] tall.
- b. *Ge.*: Der Mann war [mp zwei Meter] gross.
the man was 2 meters tall
- c. *It.*: L’ uomo era alto [mp due metri].
the man was tall 2 meters

As a preliminary, let’s see what justifies the idea of assigning to MPs the same role Cinque assigns to adjectives in the noun phrase.

Distributional observations suggest that MPs are not in the same class with degree modifiers such as “very,” “extremely” or “considerably.” These modifiers are pre-adjectival in all the languages under consideration; in Italian, the adverbial modifier *molto* “very/much” can be CL-dislocated along with the adjective (705)a, evidence that it is part of the AdjP, but it can also be stranded (705)b. Stranding MPs is entirely impossible (705)c.

- (705) a. [Molto stupido], Gianni lo_i è di certo *t_i*.
Very stupid, Gianni it is for sure *t_i*
- b. Stupido, Gianni lo_i è probabilmente molto *t_i*.
Stupid, Gianni it is probably very-much *t_i*
- c. *Alto, Gianni lo_i era *t_i* [due metri].
tall, Gianni it was *t_i* meters

Other modifiers that can be stranded are: *tanto* “very/much” *tropo* “too much,” *poco* (the opposite of “very”), *molto poco* (much of the opposite of “very”) *troppo poco* (too much of the opposite of “very”), and marginally, *cost* ‘so.’ With the exception of *cost*, these are all words that double as DP-level quantifiers, except that in that role they agree with the noun, while with adjectives they have a fixed ending in *-o*. Some take a purpose/extent clause:

- (706) a. Gianni era {troppo / troppo poco / abbastanza} alto [per farlo].
Gianni was {too_much / too little / enough} tall [to do_it]

- b. Gianni era {tanto / così} alto [da farlo.]
 Gianni was {so / so} tall [to do_it]

Let's set aside these constructions, to begin the analysis with adjectival modifiers that cannot be stranded. I shall return to strandable modifiers later on.

7.2.2 The position of measure phrases

Rizzi (1990) analyzes MP modifiers as adjuncts. However, if the adjective can bear a PP complement (e.g. *lontano da* "far from," *distanze da* "distant from"), the MP appears between the adjective and its complement (707), an unexpected position for an adjunct. Notice that, like almost all adjectives in Italian, in a sentence such as 707 *lontana* "far_{F,Sng}" agrees in gender and number with the subject *Maria*.

- (707) Ora Maria era lontana [MP 2 chilometri] dalla casa.
 Now Mary-(F) was far_{F,Sng} 2 kilometers from the house

However, if we replace *lontana* "far_{F,Sng}" with the corresponding adverbial preposition, which is identical but for the fixed ending in -o (*lontano*, "far"), the MP must precede the adverbial.

- (708) a. ??Lontano [MP 2 chilometri] dalla città c' era una casa.
 far-0 2 kilometers from...the city there was a house
 b. [MP 2 chilometri] lontano dalla città c' era una casa.
 2 kilometers far-0 from the city there was a house

The order [MP X] is in fact shared by all the cases in which X is an MP-taking adverbial preposition (e.g. "sopra" over, "sotto" under, "prima" before, "dopo" after, "davanti" in front, "dietro" behind, etc.), or an adverbial phrase such as "in anticipo" (early), "in ritardo" (late) etc. (709)-(711). All these adverbials lack agreement.

- (709) a. Il tesoro era sepolto [2 metri] sotto al selciato.
 the treasure was buried [2 meters] under to the pavement
 b. *Il tesoro era sotto [(di) 2 metri] al selciato.
 the treasure was under [(by) 2 meters] to the pavement

It should be noted that measure phrases can also appear after adverbials which do not take complements, but only with the preposition *di* "of," which is impossible in pre-adverbial position (710) and (711). MP cannot appear between an adverbial and its complement (709)b.

- (710) a. La macchina era indietro *(di) dieci metri.
 the car was behind (by) 10 meters
 b. La macchina era (*di) dieci metri indietro
 the car was (by) 10 meters behind

- (711) a. La macchina era in anticipo *(di) dieci minuti.
 the car was early by 10 minutes
 b. La macchina era (*di) dieci minuti in anticipo
 the car was (by) 10 minutes early

The preposition *di* "of" (and its French and Spanish counterparts) could be seen as a default Case-marker for the MP. However, it also appears (optionally) in construction with the operator *più* "more": *alto di più (di me)* lit. "tall of more (than me)." Given the analysis of *di più* given in chapter (3), it is natural to assume that *di* in (710) and (711) is yet another case of pivotal "of." This is also supported by the fact that, according to the analysis of Adger (1994), MPs do not seem to require (accusative) Case. For the time being, the data in (705)-(711) can be generalized as follows:

- (712) **Generalization:** bare MPs appear on the left of their licensors when these have no agreement; they appear on the right (between the licensor and its complement, if any) otherwise.

Assuming the existence of functional projections in the noun phrase and the IP, it is natural to account for this distribution by saying that at SS in Italian the adjective has moved to a functional projection hosting an Agr head. This projection must be part of the (expanded) adjective phrase, and it must be higher than the position of MPs, since the adjective leaves MPs behind at SS.² Schematically:

- (713) **Proposal: Germanic** [(Agr) MP A (Complement)]
Italian [A+AgP MP ℓ_i (Complement)]

To spell out this idea, we need to establish the base position of MPs. Three options come to mind: the specifier of AP³, an adjunction to the A head, or the specifier of some higher functional projection between the adjactival AgrP and AP itself (714)a,b and c.

- (714) a. [AgP Agr [AP [MP 2 meters][A' tall]]]
 b. [AgP Agr [AP [A' 2-meter-tall]]]
 c. [AgP Agr [xp [MP 2 meters][X' [AP [A' tall]]]]]

(714)a starts out as the favorite, since it covers the data presented with the simplest structure. However, we have already seen that AdjP must contain more than one projection, so simplicity is a rather weak factor here, to be given up if a more complex structure turns out to be capable of capturing additional facts. (714)b assumes that all bare MPs are compounds, directly adjoined to the adjactival head. This might be plausible for some English cases, where the MP nominal head does not display plural

²As far as I know, there is no evidence for multiple AgPs within AdjP.

³I will term 'AP' the immediate maximal projection of the adjective, reserving 'AdjP' for the extended projection of the adjective, equivalent to SDP.

inflection ("a two year old baby"), but it places a heavy load on the morphological component in cases where the MP is complex and does carry a plural morpheme (715); moreover, it doesn't explain the Italian alternation in (716) and (709), where MPs appear before adverbials but after adjectives.

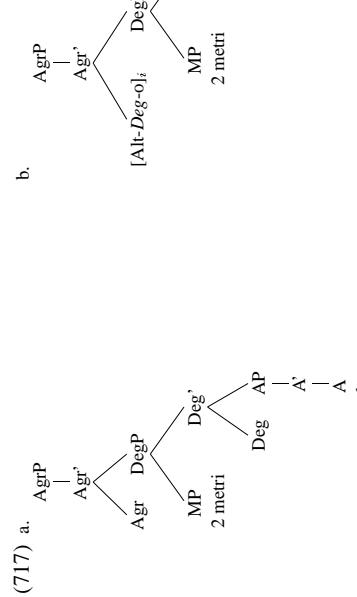
- (715) a. The last load was [MP almost two tons] heavy.

- b. *Ger*: Eine [Mp ungefähr zwei Stunden] lange Vorlesung
an approximately two hours_{MPl} long lesson

- (716) *It*: L' ultimo carico era pesante [MP quasi due tonnellate]
the last load was heavy almost two tons

7.2.3 Degree Phrases

Let's explore the third possibility. Specifically, suppose that MPs are generated in the specifier of a functional projection called Degree Phrase (DegP), which takes AP as its immediate complement. Semantically, we can assign to DegP the role of expressing the *extent* to which the property denoted by the adjective holds. Keeping up with the parallelism that seems to hold across DP and IP, DegP would be generated under the adjectival AgrP both in Romance and in Germanic (717)a. In Romance, however, Agr would be 'strong,' and Adj should raise to [Head, AgrP] by SS, yielding the order [Agr_i Adj_i MP t_i (comp)] (717)b.



The idea of a DegP within an extended AdjP structure is not new.⁴ Corver, (1990, 1991, 1994) has argued for a DegP projection to host modifiers like 'how,' 'so,' 'too,' 'as,' 'more,' the comparative suffix '-er,' and 'less' in English. Indeed, a prime way to select the DegP structure (714)c over (714)a would be to find elements

⁴ See Jackendoff, 1972, Bresnan, 1973, among others.

that can plausibly be heads of Deg^{max}. Yet, the Italian modifiers corresponding to Corver's Deg heads cannot be hosted in [Head, DegP], since they uniformly appear before the adjective, and Adj doesn't leave them behind when moving to Agr. If we adopt the Mirror Principle (Baker, 1988) plus a checking theory of inflection, we should expect that any overt element checked in [Head, DegP] should be realized as an affix *internal* to the adjectival agreement suffix.

Indeed, Italian and Spanish provide an element with the right distribution and an appropriate semantics, namely, the so-called '*superlative suffix*' *-issim-*, (*extremely*). This suffix allows one to construe, from the adjective *alto* "tall," the adjective *altissimo*, "extremely tall." *-issim-*, which is perfectly productive and completely regular, and in complementary distribution with quantifiers like *molto* "very/much." The structure I propose is (718)b.

- (718) a. Alt-issim-o
tall-extremely_{NSng}

- b. [Agr_i [Agr' Alt-issim-o, [DegP [Deg' t_i [Ap [A' t_j]]]]]]]

For Germanic languages, a good candidate for an element checked in the DegP head is the suffix "-er." "-er" is internal to inflectional affixes in German (e.g. *größ-er-es* "tall-er-NSng"), just as predicted by the structure proposed plus mirror principle.⁵ Since, the comparative head *più* "more" in Italian is always pre-adjetival, we are forced to conclude that it must appear in a higher position, much like the 'strandable modifiers' seen in section 7.2.1.

- (719) a. *Ger*: Schön-er-en

- b. *Eng*: Tall-er

As for DPs, German morphology suggests that German does the same raising as Romance, but at LF. This raising doesn't necessarily need to occur by incorporation; LF head-adjunction is another possibility, which opens the way to count also English "very" as a DEG head. This is a positive result, since "very" can itself be modified by degree words (720) (Bresnan 1973, Corver 1990), which can now be located in [Spec, DegP].

- (720) {So / how} very interesting

The difference between '-er' and '-issim-' allows me to illustrate the notion of 'absolute' and 'relational' Deg^{max} heads. Absolute heads (e.g. *-issim-* or "very") use the context of utterance, combined with world knowledge about prototypical features of the property they modify, to determine a value. This value can be amplified with "so/how," but never modified by MPs. 'Relational' heads ('-er' is an example) are insensitive to context, and denote relations among the arguments, which can be further determined by an MP. This is what underlies the contrast:

⁵This opens the interesting issue of the relation between "-er" and "more," which unfortunately I have no time to discuss here.

- (721) a. This butterfly is (*4 cm.) very big. ‘absolute,’ but contextually dependent
 b. This butterfly is (4 cm.) bigger than that one.
 ‘relative’ measure
 Deg^{max} may have an empty head, Deg^0 , which needs to be licensed. I propose that this happens in three ways:

- i. The head can be spec-head licensed by an overt measure phrase in its specifier, in which case, it inherits the semantic content of this phrase, exactly as I have proposed with vague numerals in [Spec, PD⁰] or [Spec, SD⁰];
- ii. the head can be licensed by checking an affix internal to the adjective (e.g. “-er” in English or German, *-issim-* in Italian or Spanish). The semantics will depend on whether the affix is ‘absolute’ or ‘relational’; in the first case, [Spec, Deg⁰] must be empty (so we obtain *alt-issim-o*); in the second, the semantics of the affix will be able to use an MP in [Spec, DegP] to further specify the relation it denotes (cf. “[4 cm.] more distant than the door”).⁶
- iii. the head is licensed when the head A moves (at SS or LF) onto DEG on its way to AGR. In this case, analogous to an empty SD⁰ in DP, Deg⁰ is syntactically licensed, but it doesn’t find any semantic operator from which it can get a meaning. I propose that at LF it is interpreted by a default semantic rule analogous to Existential Closure, which assigns to it a ‘default positive amount.’

I am not sure what category should be assigned to MPs. The class of determiners allowed in them is a subset of that of weak determiners: numerals, but not “a” (“{??a / one} pound heavy”). They allow some canonical ‘weak’ uses of the definites (e.g. “after the diet, he still weighed [the/his usual 200 pounds!]”, but not others, e.g. **“it weighed the first two kilos.”) This suggests that they could be PDPs with additional constraints. However, in Italian they must be CL-dislocated with *lo_{+Agr}*, so an analysis that makes them SDPs where the SD^{max} layer is semantically disregarded might be preferable in the end:

- (722) [60 chil.], Gianni li_i pesava.
 60 kilos, Gianni them_{M/Pi} weighed

For the time being, I shall assume that an MP like “6 feet” denotes an *equivalence class* (see Cresswell 1976, Klein 1980), that is, the set of all things in the domain that have a dimension equal to ‘6 feet.’ Simplifying the matter considerably, let’s pretend that the adjective “high” and the noun “height” have the same denotation, namely, the set of things having a height. Geometrical points and ‘beauty,’ for instance, will not be in this set.

Given this simple-minded assumptions, and the structure in (723a), a semantic representation for Deg^0 would be the intersection of the MP denotation, transmitted affixes “-er” or *-issim-*.

to the head as part of the spec-head licensing conditions, and the adjectival denotation (723b).

- (723) a. $\text{DegP}_{<e \rightarrow \square}$
 MP <e → Deg'
 Deg⁰ AP <e → \square
 b. $[\llbracket \text{Deg}^0 \rrbracket = \lambda P \lambda Q \lambda x [P(x) \wedge Q(x)]]$

With a more sophisticated semantics for scalar adjectives (e.g. a function from individuals to *degrees*), the role of Deg^0 becomes more interesting, but I will not try to spell out other possibilities, as my focus is solely on the role of syntactic structures as a factor in building a possible semantics.

7.2.3.1 Default readings

We are now in a position to return to the ‘Default Positive Amount’ (DPA) reading that appears with a large class of scalar adjectives such as “deep,” “tall,” “wide,” “long,” “hard,” etc. (see Rusiecki 1985).⁷

In the positive degree, an adjective like “deep” doesn’t simply mean ‘having a depth,’ but ‘having a noteworthy positive amount of depth.’ Likewise, saying that a person is tall, or that a door is wide, implies that these properties make them stand out against other people or doors. When an overt MP is present or the adjective is in the comparative form, this effect vanishes; there is no entailment from (a) or (b) to (c) in the following examples.

- (724) a. This door is 2 feet wide
 b. This door is wider than that door
 c. This door is wide
 (725) a. My father is 4 feet tall
 b. My father is taller than my mother
 c. My father is tall
 (726) a. This pool is 1/2 inch deep
 b. This pool is deeper than that pool
 c. This pool is deep

The DPA reading is a default in the sense that it disappears without any sense of contradiction when an overt measure is present, a sign that it isn’t entailed by the lexical meaning of the adjective.

⁷The terminology in this section is mine, inspired by Rusiecki’s (1985) much more detailed classification.

I propose that for a certain class of adjectives, this reading is the result of the empty DegP head, which in the absence of alternative semantic operators (a meaningful specifier or a meaningful affix) is interpreted by a default LF rule which assigns it a meaning analogous to the words “very” or “quite”: the ‘Default Positive Amount’ interpretation. As with “very,” or *-issim-*, this rule delivers an ‘absolute’ meaning (in the sense specified above), incompatible with an MP in [Spec, DegP]. Since this rule is a default, the presence of an MP immediately blocks its application, and no clash arises.

It is important to realize that not all adjectives follow the pattern just described. Negative scalar adjectives (e.g. “short,” “thin,” “empty,” etc.) and ‘connotational adjectives,’ (“fat,” “cumbrous,” “huge,” “bulky”) do not allow measure phrases and tend to entail the positive form (c) from the comparative one (b):

- (727) a. ??This door is 2 feet {narrow / short}
 - b. This door is {more narrow / shorter} than that door
 - c. This door is {narrow / short}
- (728) a. *My father is 200 pounds {fat / huge}
 - b. My father is fatter than my mother
 - c. My father is fat

My hypothesis is that in these classes the degree of the property denoted by the adjective is fixed at the lexical, rather than the syntactic level. The element in DEG can add to some fixed value the adjective comes with from the lexicon (as in “very fat/narrow”), never to a ‘neutral’ value of ‘fatness,’ ‘narrowness.’ The distinction between these two classes of adjectives thus falls in the same category with other well-known examples that show an alternation between a ‘lexical’ and a ‘syntactic’ derivation such as:

- (729) a. The shipment of the goods
- b. The shipping of the goods

In this light, affective/diminutive suffixes in Italian (*-in-* “small/a little,” *-on-* “big,” *-ice-* “-ish” as in ‘reddish,’ etc.) are the lexical counterpart of the syntactically independent DEG suffix *-issim-*. In a checking theory of inflection, this can be translated as the idea that only *syntactic* affixes require checking by a functional head. Morphologically, diminutive/evaluative suffixes appear outside all derivational affixes and inside all inflectional ones, like *-issim-*. They can marginally appear with some indefinite degree modifiers and comparatives (730)a,b, but they never cooccur with the superlative suffix (730)c, or with any MP. As every student of Italian knows, they are extremely idiosyncratic both in the choice of words they can attach to and in the precise connotation delivered.

- (730) a. Un pacco {assai / piuttosto / ?così / ?molto / ??estremamente / ?più} A pack {quite / rather / so / very / extremely / more} pesantuccio heavy-DIM_{F_{Sng}}
- b. Una casa {*piccolissima / *piccolissima} A house {small-DIM-VERY_{F_{Sng}} / small-VERY-DIM_{F_{Sng}}}
- c. Un pacco pesantuccio (*otto libbre) A pack heavy-DIM_{F_{Sng}} (8 pounds)

The situation can be summarized in the following table:

ADJECTIVE CLASS	Syntactically specified	Lexically specified
positive scalar	tall, heavy	
negative scalar	deep(?)	short, light
‘connotational’ adjectives		fat, bulky, huge
scalar with affixes	“extremely tall”	“tall-ish”

7.3 Pro-forms for [Spec, DegP]

Let’s now consider what kind of pro-forms are acceptable in [Spec, DegP]. In Italian, an overt tonic DP pro-form like “esso/ciò” *it* or a demonstrative like *questo* ‘this’ are impossible.⁸

- (731) *Gianni è alto esso/ciò/questo
Gianni is tall it/it/this

⁸Claic pronouns of all kinds are also impossible:

- a. *Gianni {lo/li/ne} è alto
Gianni {it/them/of.it} is tall
- b. *Gianni ne è alto due t
Gianni of.them is tall two t

but this could be due to the independent reason that, as we have seen, indefinite predicate nominals are a barrier to clitic extraction (cf. *Gianni e Luigi {ne sono due / li sono} ‘Gianni and Luigi are two of them / them.’,

However, other overt pronouns are possible in this position. In English, they are the deictics “this” and “that,” in Italian *così* “so” and *tanto* “so (much).” In constructions with scalar adjectives, these demonstratives require a gesture, or some kind of pointing to fix the measure they refer to.

- (732) He was about {*this / that*} tall.

- [gesture]
[gesture]
he_was approximately tall {so..much / so}

Like any other MP, both *così* and *tanto* appear *after* the adjective. What is interesting now, is that these words can also appear pre-adjektivally, but with a different meaning. As we have seen in (706b) above, in this position, they roughly mean “so/to such an extent,” and preferably take an extent clause which is entirely impossible when they are in the post-Adj position:

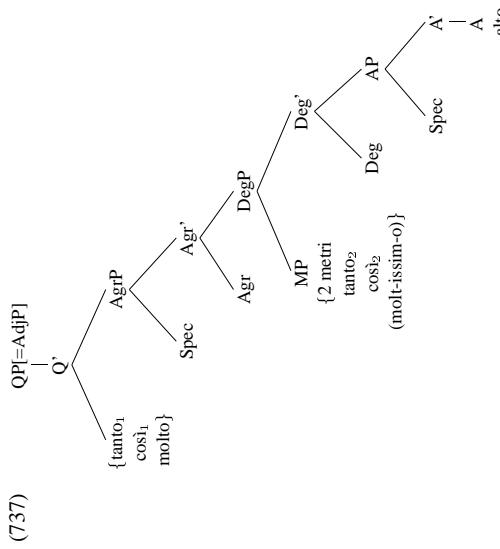
- (734) a. Era {*tanto* / *così*} alto (che non entrava nel letto)
he_was {so..much / so} tall (that he didn't fit in the bed)
- b. Era alto {*tanto* / *così*} {* che non entrava nel letto)
he_was tall {so..much / so} (* that he didn't fit in the bed)}

Given the evidence for Adj movement presented above, this double position must correspond to a different level of attachment for the pro-MP. I conclude that these demonstratives alternate between an *external* position, above the agreement projection, in which they behave like the intensifier “*molto*” *very/much*, and in which they can be stranded; and an internal position, where they behave like MPs but with a deictic flavor, and cannot be stranded. The latter usage seems to be the one found optionally in the comparative of equality , illustrated below.

- (735) Era (*tanto*) alto quanto me
he_was (as) tall as me

- (736) Era (*così*) intelligente come Maria
he_was (as) clever as Maria

We can now assume that the external position for modifiers like “*così*,” “*tanto*” and “*molto*” is the head of a higher Degree Projection (this time, corresponding to Corver's (1994) position for DegP) which I shall call (Adjectival) QP. The resulting global structure of the Italian adjective phrase is as follows.⁹



7.3.1 Presuppositions and the level of attachment of MPs

The existence of two levels of attachment for adjectival modifiers like *tanto* and *così* is linked to the existence in Italian of two ways of questioning the amount of the property denoted by an adjective:

- (738) a. Quanto è alto Gianni?
How-(much) is tall John?
- b. Quanto alto è Gianni?
How-(much) tall is John?

Of the two orders WH-BE-ADI—the one impossible in English—is the unmarked one, in terms of frequency and stress pattern. What concerns us here is that the two orders have different presuppositions: WH-BE-ADI doesn't have any presupposition concerning whether Gianni is tall or not, while WH-ADJ-BE presupposes that John is tall.¹⁰

This fact receives a straightforward explanation in a two-level system:

- (739) **Proposal:**
WH-BE-ADJ is extraposition of a WH-MP in [Spec, DegP]

⁹Cinque (p.c.) pointed out to me that “*molto*” *very* can also appear in the lower position and function as a MP, but only when it bears the suffix “-issim-” (to my ear, stress is also necessary): “Alto {* molto / MOLTISSIMO}” tall {march / extremely-much}. In my approach this means that in the latter case “*molto*” heads an extended projection of its own, which can function as a measure phrase.

¹⁰*Gianni* is preceded by a slight pause, suggesting a right-dislocated position, coindexed with a *pro* in [Spec, IP]. This is orthogonal to the issue under discussion.

7.4. SOME NOTES ON DEGP ACROSS CATEGORIES

WH-ADJ-BE's extraposition of the whole expanded AdjP/QP

In other terms the two structures for the questions above are:

- (740) a. [CP[MP Quanto] è [Adip alto t_i] Gianni?]
 b. [[CP[Adip Quanto alto] è t_i] Gianni?]

The difference in presupposition has the following explanation: when the WH is extracted from [Spec, DegP], a scalar adjective cannot take up a DPA reading, since the DegP head, having a filled (WH)-MP specifier, does not undergo the default LF rule that assigns this reading. On the other hand, when the WH *quanti* is in the higher degree position, QP, the lower DegP head is empty, so it undergoes the LF default rule which attributes a positive amount to the adjective (unless the amount is already specified at lexical level); any further degree modification can only add to the original amount. Thus, the answer ‘5 feet’ (assuming Gianni to be an adult, normal individual) is perfect for (738)a, but it has the flavor of a contradiction in (738)b, since it cancels the presupposition that Gianni is positively ‘tall.’

Additional evidence in favor of this analysis comes from the fact that a unit of measure can be inserted with the WH *quanti* in WH-BE-ADI but not in WH-ADI-

Additional evidence in favor of this analysis comes from the fact that a unit of measure can be inserted with the WH *quanti* in WH-BE-ADI but not in WH-ADI-BE.

- (74) a. [Quanti centimetri] è alto Gianni?
How-many cm.
is tall Gianni?
b. * [Quanti centimetri alto] è. Gianni?

(741)b should derive from the impossible string **Gianni è duecento centimetri alto* (wrong MP-Adj order); on the other hand, this order is fine in English, which predicts the possibility, c.f.

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Obviously, in the case of "how tall is he?" "how" could be in the higher (presuppositional) or in the lower (non presuppositional) degree position, but since one reading is a subset of the other one, there is simply no way to tell. However, the two positions

still differ in the extraction pattern, as noted by Covert (1990). The idea that the WH-BE-ADJ order is a case of MP extraction is due to Rizzi (1990), who explains the impossibility of this construction in English (**“how is he tall”) with the fact that the trace of the English pre-adjunctive MP would be on the wrong side to be governed. However, extracting “how many inches” and stranding the adjective is not as bad as extracting “how” alone (which could be analogous to extraction of “the” out of a DP), suggesting that Rizzi’s explanation needs some adjustment. Extraction from an overt DEG such as “-er,” *più* “more” or *tropo* “too” gets worse again.

7.4 Some notes on DegP across categories

The French case could be analyzed as a raising structure, where *combiens* has been originally extracted from under *de*, along the lines proposed in Kayne (1994) and in my analysis of partitives in the previous chapter.¹¹

- (743) a. How many inches do you think he is *t* tall?
 b. Quanti pollici pensi sia alto *t* Gianni?

(744) a. ?How many inches do you think he is *t* taller than Mary?
 b. ??Quanti pollici pensi che lui sia *t* più alto di Maria?

(745) a. *[How many inches] is he *t* too tall to serve in a submarine?
 b. *[Quanti pollici] è *t* troppo alto per servire in un sottomarino?

This leads to the following observation

(746) Complete bare MPs are best extracted from [Spec, DegP], both and Italian, if the DEG head is null.

Following Corver, I hypothesize that what is necessary for the extraction is not that the trace is properly governed in a left-to-right fashion, as Rizzi proposes, but that the trace is governed by LF via spec-head agreement with a lexical Adj head. Since a raising Adj does not incorporate into lexically filled D_{egs} ("too," "more," *più* in Italian), these heads are not able to govern their specifier positions.

Since in the previous chapter vague numerals have been placed in the specifiers of *S/DP^{max}* with null heads, this idea would also have the advantage of explaining the impossibility of extracting such numerals from [Spec, DP] in Italian (74) a, in contrast with other similar cases of (apparent) Left Branch Constraint violations in

(747) a. *Quantì (ne) hai consultat i libri?
 How-many CL have.you consulted *t* books
 b. Combien a-t-il consulté [t de t livres]?
 How many has he consulted *t* of *t* books

¹¹ See Rizzi (1990), p. 12 for discussion

DegP), and the availability of the ‘default positive amount reading,’ DPs lack both of these features; measure verbs in Italian have both.

Consider DPs first. Language has many pairs like the ones in (748), where the noun denotes the ‘neutral degree’ of a property, while the unmodified adjective denotes the ‘default positive amount.’ To my knowledge, the reverse case is missing.

- (748) a. The length of the table \nearrow

b. The table is long

- (749) a. The depth of the pool \nearrow

b. The pool is deep

- (750) a. The width of the sheet \nearrow

b. The sheet is wide

Of course, MPs are possible with scalar nouns just as with scalar adjectives; however, with the former, they need to be introduced by pivotal ‘‘of’’ ((751) vs. (716) above). I conclude that DegP is absent in the extended projection of nominals, and that MPs with nominals are licensed either as adjuncts or in an attributive-predicative configuration.

- (751) a. *The book has a [2 kilos] weight

b. *Il libro ha un peso [2 chili]

On the other hand, measure verbs strongly resemble scalar adjectives. In Romance and Germanic, MPs appear without any preposition in what seems to be the regular object position:

- (752) John weighs 200 pounds

The next question is whether measure verbs have a ‘default positive amount reading,’ when no overt MP is present. The answer is positive for Italian and German (753), (754), where sentences (b) —with no MP present— are understood as “This book weighs/costs *a fair amount*.” This is impossible in English, for unknown reasons.

- (753) a. Das Buch wiegt (zwei Kilo).

b. Questo libro pesa (due chili).

c. The book weighs *(two kilos).

- (754) a. Das Buch kostet (dreissig Mark).

b. Il libro costa (trenta marchi).

c. The book costs *(thirty marks).

In any event, what does it mean to propose that a sentence contains a DegP? Suppose we adopt the sentential structure proposed in Chomsky (1989), (1992). In this theory, V, subject and object DPs raise to functional projections (Agreement Subject Phrase, or AgrSP; and Agreement Object Phrase, AgrOP) where they receive Case, Tense and agreement features.

Suppose, now, that the MP ‘object’ of measure verbs is not a real object raised to [Spec, AgrOP], but a specifier of a Deg^{max} that takes the VP proper as its complement. This assumption would have the welcome effect of solving four puzzles about verbal MPs.

First, these alleged objects cannot passivize (755)b, although they can be extracted and pronominalized (756) (Rizzi 1990, Cinque, p.c.).

- (755) a. This book {weighs / costs} two pounds.

b. *Two pounds are {weighted / costed} (by this book)

- (756) Due tonnellate, quel camion le_i pesava t_i.
two tons, that truck them-CL_i weighed t_i

Second, in French, MPs do not trigger past participle agreement with WH-extraction (Adger, 1993a), a sign that they do not raise to AGRO.

- (757) a. *Fr*: Combien de chaises a-t-il repintes?

How many of chairs_{MP} has he repainted.(MPI)

“How many chairs has he repainted?”

- b. *Fr*: Combien de semaines la conference a dure(*es)?

How many of weeks the conference has lasted-(AgrPI)?

“How many weeks did the conference last?”

Third, the choice of the “be” auxiliary in Italian shows that measure verbs are actually unaccusatives. Under the standard analysis of unaccusatives (e.g. Burzio 1986), it is ‘the conference’ in (758), not the MP, to be the D-structure object of the measure verb.

- (758) La conferenza {è / *ha} durata due settimane
The conference {is / has} lasted 2 weeks

Interestingly, if the MP is not the object of the verb, the alternation in (759) reduces to a standard case of unaccusative alternation (760).

- (759) a. John weighed * (the pig)

b. The pig weighs (100 pounds)

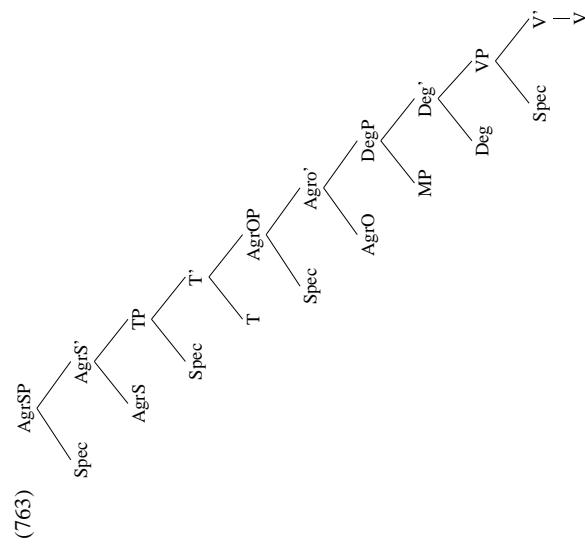
- (760) a. The missile sank the ship
b. The ship sank

<i>German</i>	<i>Italian</i>
<i>English</i>	<i>German</i>

Fourth, in German, MPs remain in the position closest to V, *after* sentential negation (Albert, p.c.)

- (761) Ich habe (*nicht) dem Hans (*nicht) das Buch (nicht) gegeben
I have (not) to Hans (not) the book (not) given
- (762) a. Die Konferenz hat (nicht) zwei Stunden (*nicht) gedauert
the conference has (not) 2 hours (not) lasted
b. ... weil dieses Buch (nicht) zwei Kilo (*nicht) wiegt
...since this book (not) 2 kg (not) weighs

Given these facts, the idea that MPs with measure verbs are hosted in a DegP between AgrOP and VP appears quite promising, all the more so because it would make the structure for (extended) adjective phrases and verb phrases perfectly parallel, the only difference being that [+finite] V, unlike Adj, always moves past the MP. Leaving irrelevant projections aside, a possible DS representation for measure verbs within Chomsky's (1992) system would be (763).



At SS/SPELL-OUT, a finite V raises to AgrS, and the VP-internal subject raises to [Spec, AgrSP], while I take the MP to be directly generated in [Spec, DegP].

In this chapter, I have reviewed some reasons to think that the adjective phrase is an 'expanded' structure analogous to the nominal and verbal structure, although perhaps less complex. AdjPs are predicative entities, corresponding to P(predicative)DPs in the nominal domain. The distribution of measure phrases in Italian and English suggests that the adjective head raises at SS in the former but not in the latter language, to check φ -features. Two notions proposed in the nominal domain (spec-head licensing of an empty head from its filled specifier and default 'existential' interpretation for empty heads) have been applied to positive scalar adjectives, accounting for the Default Positive Amount reading (or lack thereof), and for the appearance of presuppositions in one of the two ways of questioning AdjPs in Italian. Finally, I have proposed that the idea that MPs are specifiers of DegPs offers a promising account of measure verbs, treated as unaccusatives under a Deg^{max} .

7.5 Conclusions

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