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Introduction

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Overview of the introduction

The publication of the seminal collective work *The Generic Book* (Carlson and Pelletier 1995) gave rise to a flourishing research program. A principal contribution of *The Generic Book* was the establishment of a unified terminology that paved the way for detailed and specific studies, the results of which are intended to be cumulative. Since then, much of the research has focused on syntactic, semantic, and pragmatic issues, and researchers have made important advances within these fields as well as at their interfaces.

The growing interest in genericity and subsequent development of new analyses have been nourished by a synergy between three areas of study.

First, the empirical range of facts pertaining to genericity has widened impressively. During the last decade, much work has been conducted on various languages that are typologically remote from English, such as the Romance languages, Creole languages, Hindi, Korean, Chinese, and Japanese.

Second, developments in key areas of theoretical linguistics and related fields have contributed to the understanding of old and new facts pertaining to genericity. These areas include logics of conditionals and vagueness, modeling of modalities, and algebraic approaches to plurality.

Finally, new theoretical tools in lexical semantics, type theory, and information theory have made it possible to model important issues that arise at the interface between the lexicon, the syntax, and the semantics of generic expressions.

Interaction between these areas of research has brought about questions as to what might be the sources of genericity itself. While the theory at the time of *The Generic Book* relied heavily on the contribution of a hidden operator GEN (first introduced in Farkas and Sugioka 1983), as a replacement for the unitary Carlsonian operator Gn (Carlson 1977b), subsequent research has tried to individuate the sources of the generic interpretation in overt material in generically interpreted sentences. These

developments in formal semantics and pragmatics echo recent findings in cognitive science, which seem to favor theories of generics as primarily non-quantificational (see Leslie 2007).

Linguistic research on generics has developed in three primary directions. Some authors have focused on the generic interpretation of the subject DP. This research has mostly concentrated on the notion of kind and its possible expression in natural languages. Other authors locate the sources of genericity in the VP. And a third group, starting from the assumption that genericity is a feature of the sentence rather than one of its components, have focused on the variety of generic readings of generic sentences.

This introduction is organized in three parts that follow these lines of research. The first part focuses on the syntactic structure and compositional interpretation of DPs, and frames the ontological issues related to reference to kinds in this context. What is the role of DPs in generic sentences, and what is the proper contribution of determiners and nouns to generic interpretation? To account for the variety of types of noun phrases which refer to kinds across languages (singular and plural bare nouns, as well as singular and plural definite noun phrases), it is necessary to precisely describe the ontology of the domain of reference, the denotation of singular and plural nouns, and the contribution of definite determiners and of the plural morpheme. This part thus addresses a series of ontological issues relevant to the analysis of natural language: in order to account for linguistic data, must we postulate the existence of kinds, viewed as a type of entities, distinguished from particulars or tokens? What is the relationship between kinds and sets of entities, between kinds and properties, between kinds and sets of properties? There is a rich literature on these topics in philosophy, but our aim in this first part is not to propose an overview of the philosophical debate. For instance, when we ask whether non-ordinary individuals such as kinds exist, we wish to investigate whether natural language semantics needs to postulate the existence of entities such as kinds in order to achieve empirical adequacy, and what type of expressions (and in what languages) denote such entities.

The second part is comprised of three sections which are dedicated respectively to the stage-level/individual-level distinction, to the contribution of unboundedness and plurality, and to the dispositional reading of generic sentences. The questions addressed in this part pertain to the relationship between genericity, habituality, abilities, and dispositions. We survey various accounts of these notions and contrast genericity viewed as the repetition of events across relevant situations with genericity as an explicative principle for the manifestation of properties. We compare the view that ILPs are context-independent with the view that considers them as maximal sums of their manifestations. Likewise we explore the view of habituality as repetitions of events, as opposed to abilities as explicative behaviors. The roles of aspect and tense are taken into account in the discussion of these notions.

The third part examines the type of generic sentences, opposing analytic vs synthetic judgments, and raises the question of the notion of normality. It comprises two sections. The first section addresses the issue of the linguistic manifestation of the analytic/synthetic distinction and investigates the sources of the available interpretations for indefinite generic sentences, bare plurals, and definite plural generics. It starts from the old assumption that indefinite singular generics are used to express analytic statements, and questions both the descriptive and theoretical well-foundedness of this claim. It thus considers whether the analytic/synthetic distinction plays a role in natural language semantics, and when this is recognized to be the case, asks why certain linguistic forms are preferred for expressing certain types of judgment. The second section is dedicated to the discussion of the notion of normality, comparing the view of normality as a statistical fact and the view of normality as a normative one.

1.1 Genericity and the DP

Traditionally, generic sentences have been thought of as falling into two categories:

(i) those sentences in which genericity comes from the DP (what Krifka et al. 1995 called reference to a kind), as in (1a) and (1b), and
(ii) those sentences in which genericity comes as a feature of the whole sentence (called characterizing sentences in Krifka et al. 1995) as in (2).

In (1a) the DP *the potato* does not refer to a particular potato, but to a type of vegetable, the kind Potato. The same holds for the DP *potatoes* in (1b), which does not refer to a particular set of potatoes, but rather to potatoes as a kind. (1a) and (1b) share the property of expressing claims about kinds. Thus both DPs are said to be kind-referring DPs. The case is different in (2): the sentence does not report a particular event, but instead describes a habit (what John usually does after dinner), a kind of generalization over events. Contra to Krifka et al. who assume that in (2) genericity is a feature of the whole sentence, we assume that genericity comes from the VP.

(1) a. The potato was first cultivated in South America.
b. Potatoes were first cultivated in South America.

(2) John smokes a cigar after dinner.

As noted by Krifka et al., both phenomena can occur simultaneously, as in (3).

(3) a. Potatoes are served whole or mashed as a cooked vegetable.
b. The potato is highly digestible.

The first part of this introduction focuses on kind-referring DPs, addressing two major topics:

(i) What are the linguistic forms that can be used to refer to kinds across languages and what are the conditions governing their uses as well as the subtle semantic differences that they convey? While in English bare plurals and singular definite DPs may be kind-referring, in other languages, bare singulars or plural definite DPs also seem to be appropriate for referring to kinds.
(ii) How can we account for the semantic computation of kind-referring DPs and what are the consequences of assuming kind reference into the ontology of natural language?

To answer these questions, we first consider English bare plurals and begin with a presentation of two seminal studies about kinds, namely Carlson (1977b) and Chierchia (1998). These studies have shown that English bare plurals may be analyzed as referring to kinds in all of their uses. Carlson's proposal is based on a series of contrasts between bare plurals and indefinites in English. Chierchia has shown how to integrate Carlson's proposals within a formal framework which uses lattice structures (to account for plurality), operators, and type-shifting rules (to establish a link between kinds and properties). Sections 1.1.2 and 1.1.3 present two other proposals, developed contra Carlson and Chierchia, according to which English bare plurals refer directly to kinds: (i) the ambiguity hypothesis, according to which bare plurals are ambiguous between an indefinite and a generic interpretation and (ii) the property denotation hypothesis, based on the idea that bare plurals denote properties and may be incorporated into the VP. We present arguments for and against each of these proposals. In the last part, we consider DPs other than English bare plurals which are kind-referring, and examine data from a multitude of languages, in particular Romance languages and languages without determiners such as Hindi, which must be accounted for. Initially, investigations into kind-reference were primarily concerned with English bare plurals, and to a lesser extent English definite singulars. However it can be shown that most, if not all, DPs can be interpreted as kind-referring given the appropriate context, and thus we explore the source of genericity in DPs. In the last section, we assume that there is no generic determiner, but that the source of genericity in the nominal domain is anchored in the noun itself, which is ambiguous and may describe a property of kind rather than a property of individual. To account for the varieties of linguistic forms which are interpreted as referring to kinds, we introduce a distinction between two types of kind-referring DPs: DPs which refer directly to a kind and DPs which refer indirectly to a kind.

1.1.1 English bare plurals as kind-referring DPs

1.1.1.1 Carlson (1977) An important starting point for any discussion of genericity is Carlson's (1977b) seminal study about bare plurals (BPs) and kind reference. Carlson showed that BPs in English are not the plural counterpart of indefinite singulars (ISs). The book contains ample evidence that constrasts BPs and ISs: they do not

give rise to the same ambiguities when they interact with quantified DPs, with modal expressions, or with temporal adverbs. Examples (4) through (8) are Carlson's original examples.

(4) a. Everyone read a book on caterpillars.
b. Everyone read books on caterpillars.

(5) a. A dog was everywhere.
b. Dogs were everywhere.

(6) a. An accident happened today at 3, 4:30 and 6.
b. Accidents happened today at 3, 4:30 and 6.

(7) a. Max discovered two rabbits in his yard (in two hours / ??for two hours).
b. Max discovered rabbits in his yard (??in two hours / for two hours).

(8) a. ??Harvey continued to kill a rabbit.
b. Harvey continued to kill rabbits.

In (4a), 'a book on caterpillars' can be interpreted with a narrow-scope or wide-scope reading. But bare plurals are incompatible with a wide-scope interpretation, as we see in (4b), which cannot mean 'there are books on caterpillars that everyone read'. No specific collection of books is evoked. With the bare plural 'books on caterpillars', only the narrow-scope interpretation is available. (5a) is odd: it seems to imply that the same dog occupies different places, which does conflict with our knowledge that dogs are not ubiquitous. On the other hand, (5b) expresses a perfectly sensible and possibly true proposition, namely that there were different dogs in different locations. So with (5b), inverse scope is available: the universal *everywhere* can scope over the BP, even if *everywhere* doesn't c-command 'dogs' at the surface. The examples in (6) illustrate scopal interpretations with respect to temporal adverbials. It seems that the plural can take narrower scope than the singular. To interpret (6a), we imagine the same type of accident occurring three times on the same day, such as a fire, explosion, or power outage. The reading involving three accidents of different types, e.g. a fire, an explosion, and a power cut all on the same day, is unavailable. On the other hand, in (6b), we are not asked to imagine recurrent accidents. The contrast in (7) concerns the interaction between indefinite DPs and bare plurals on the one hand and aspect on the other. (7) describes a situation in which Max needed two hours to discover two rabbits, and the sentence becomes bizarre if we replace *in two hours* by *for two hours*. The relevant opposition here is telic vs atelic. *For*-complements are incompatible with telic processes. Finally, example (8) illustrates the interaction between plurality and aspect. When the verb *kill* is used with a bare plural argument, the aspect of the predicate changes and becomes durative. This explains why it can combine with an aspectual verb like *continue*. But the case with singular indefinites is different. Consequently,

Carlson concludes that bare plurals cannot be analyzed as the plural counterpart of singular indefinites, but are rather comparable to proper names which denote kinds. Like proper names, they are bare and they can serve to instantiate different values of a universal quantification, as illustrated in (9) and (10):

(9) a. One of these men sleeps.
b. $\exists x$[x is a man][x sleeps]
c. John sleeps or Peter sleeps or Bill sleeps . . .

(10) a. One of these kinds of bird flies.
b. $\exists x$[x is a kind of birds][x flies]
c. Sparrows fly or penguins fly or chicken fly . . .

(9a) is true if and only if (9c) is true, and (10a) is true if and only if (10c) is true. Intuitively, we have assigned proper names to x in the logical form (9b), and names of kinds to x in the logical form (10b). According to Carlson, the bare plural acts as the proper name of a kind, and kinds are to be construed as individuals.[1]

Carlson was the first to propose enriching the ontology with kinds, a new type of entity distinct from 'normal individuals' like John. But he also introduced a distinction between individuals and stages of individuals. This distinction parallels the distinction between properties and states. Carlson assumes that states can be predicated not of John, but of stages of John. A stage of individual is a temporally bounded portion of that individual. 'The stages aren't simply things that *are*; they are more akin to things that *happen*. That is, stages are conceived of as being much more closely related to events than to objects.' (Carlson 1977b: 448). A stage of an individual corresponds to the realization of that individual at a certain time. An individual can be identified with the set of its stages. This is illustrated in (11), for John. R(x,j) means that x is a stage of John, in other words, x is a realization of the individual j.

(11) $\lambda x \mathrm{R}(x, \mathrm{j})$

Properties are predicated of an individual, and states are predicated of a stage of an individual. For example, *being intelligent* is a property of John (see (12a)), and *being sick* is a not a property of John, but rather a state, which can be predicated of one of John's realizations (see (13a)). (12a) corresponds to the Logical Form (12b), which reduces to (12c), and (13a) translates to (13b), which reduces to (13c).

(12) a. John is intelligent.
b. λPP(j) I
c. I(j)

[1] Nevertheless, it is important to note that substitutional interpretation of (9a) and (10a) is possible if and only if there are names for all the men and names for all the species of birds. This is a limit to this approach, which doesn't account for the intensional dimension of kinds.

(13) a. John is sick.
b. $\lambda PP(j)\ \lambda x \exists y[R(y,x) \wedge sick(y)]$
c. $\exists y\ [R(y,j) \wedge sick\ (y)]$

When we compare *John runs* and *John is running*, we see the same type of distinction: *runs* is a property (in this case a disposition or habit), and *is running* is a state. Carlson assumes that the progressive turns a property into a state.[2]

(14) a. John $\lambda P\ P(j)$
b. John runs $run(j)$
c. John is running $\exists y[R(y,j) \wedge run(y)]$

We see the same thing with the bare plural *dogs* which is analyzed as a name of a kind. To this extent, *dogs* and *John* are comparable.

(15) a. Dogs $\lambda P\ P(d)$
b. Dogs run $run(d)$
c. Dogs are running $\exists y\ [R(y,d) \wedge run(y)]$

It follows that BPs are not ambiguous between existential and generic interpretation, but rather in all of their uses, they denote kinds. When BPs are existentially interpreted (as in (14c)), the existential quantifier comes from the predicate, which is a predicate of a stage of an individual, and not from the BP in itself.

According to Carlson, English displays a specific form that refers to kinds, namely bare plurals. He claims that as such, English bare plurals are unanalyzable: they directly refer to kinds, which are abstract entities, not reducible to sets of individuals. The following quotation makes this fact explicit.

(16) 'Let us agree then to treat bare NPs as a proper name of a kind, and let us think of kinds as being abstract individuals. In this treatment, Bare NPs are treated semantically as if they were unanalyzable wholes' (Carlson 1977b: 443)

Since bare plurals are names of kinds, they can be viewed as the set of all the properties that the kind has, just as a proper name of a 'normal' individual can be identified, in Montague Grammar, as the set of all properties this individual has.

(17) a. proper name of individual: John $\lambda P\ P(j)$
b. proper name of kind: dogs $\lambda P\ P(d)$

In summation, Carlson proposes to distinguish two types of entities: 'normal' individuals and kinds. The most important difference between kinds and normal individuals concerns their location: 'Kinds are a little different from more normal individuals in

[2] In the following formulas, the same predicate 'run' is applied both to an individual and to a stage of individual. This can be resolved using the notation proposed by Parsons (1979). We suppress this notation for the sake of simplicity.

that kinds can be here and there, whereas normal individuals are generally confined to one location, at a given time.' (Carlson 1977b: 442). He introduces another distinction between individuals and stages of individuals that correlates with the difference between two types of predicates: i-level predicates, which denote stable properties and are predicated of individuals, and s-level predicates which refer to states, are temporally anchored, and are predicated of stages of individuals. He uses the distinction between these two classes of predicates to account for habitual sentences, and draws a parallel between generic sentences based on quantification over individuals such as (18a), and habitual sentences such as (18b). In each case, an i-level predicate is applied to a name.

(18) a. Whales are mammals.
b. John smokes.

Carlson's analysis is very elegant: it presents a unified analysis of English bare plurals and predicts the correct existential and generic readings. Nevertheless, it is important to note that his analysis is not compositional to the extent that it does not take into account the fact that bare plurals involve a plural morpheme.

1.1.1.2 Chierchia (1998) Chierchia's reflection on the issue of reference begins with a cross-linguistic comparison. Chierchia proposed a typological classification of DPs according to the features [+/- argument, +/- predicate]. This classification is based on the idea that the NP could denote either properties or kinds: in some languages they denote kinds, in others they denote properties, and in yet others they can denote either. According to him, kinds are entities, and as such, can be the syntactic argument of verbs just like proper names. Consequently, in languages where NPs denote kinds, they can serve as arguments of verbs: no DPs are needed and bare nouns are allowed in argument position. On the contrary, in languages where NPs denote properties, bare nouns cannot appear in argument position and a determiner is always needed.

Chierchia assumes that this difference between languages corresponds with a semantic parameter and he claims that the cross-linguistic variations in the way languages refer to kinds can be derived from this semantic parameter. Chierchia assumes that this semantic parameter is composed of two features [+/– argument] and [+/– predicate]. He claims that:

- N can function as an argument (being of type e either an object or a kind) iff N is [+ argument]
- N can function as a predicate (being of type ⟨e,t⟩) and be used to restrict the range of determiners iff N is [+ predicate]
- If N is [+ argument, + predicate], both are possible
- No language can be [– argument, – predicate]

Although very influential, Chierchia's proposal has also been much debated in the literature. The main points of debate concern not only the data (see a.o. Longobardi 2001; Zamparelli 2000) and the validity of some empirical predictions (see a.o. Chung 2000; Schmitt and Munn 2000; Munn and Schmitt 2005 on Brazilian Portuguese; Déprez 2005 on Haitian Creole; Dayal 2009 on Hindi) but also the very idea of such a semantic parameter, which would be enough to base a typology of languages. Nonetheless, Chierchia's analysis had the virtue of extending the study of the nominal expression of genericity to languages other than English. Another important aspect of his paper is that it presents an elaboration of Carlson's thesis within a formal framework, on which we will focus here.

Chierchia is a neo-Carlsonian, his proposals may be viewed as an elaboration of Carlson's analysis, as he assumes that English bare plurals are not ambiguous, but rather must be analyzed as kind-referring in all of their uses. Nevertheless, their proposals differ on several points.

- First, Chierchia doesn't use the notion of stage of an individual, which played a crucial role in Carlson's analysis, since it gives rise to a distinction between two types of predicates, i.e. individual-level predicates on the one hand and stage-level predicates in the other.
- Secondly, Chierchia analyzes the semantic contribution of plurality in English bare plurals. Indeed, contra Carlson, who compares English bare plurals with proper names (they are analyzed as constants at the logical form and are bare, i.e. built without any determiner), Chierchia proposes a compositional analysis of English bare plurals, in which the semantic import of the plural morpheme is analyzed. Bare plurals result from the composition of a plural morpheme with a singular predicate to form a plural predicate, which is nominalized.
- Finally, Chierchia proposes a formal and compositional analysis of kind-referring DPs. He addresses the ontological issues related to the structure of the domain of reference of discourse entities, and he makes explicit the relations between singular individuals, plural individuals, kinds, and properties. He introduces new operators, the up and the down operators, which allow for an account of the relations between individuals and properties.

Chierchia relied on previous formal work on the semantics of plurals by Link (1983a) and Landman (1989, 1991, 2000), which argued that the formal ontology of natural language should encompass both singular and plural individuals. Chierchia assumed that singular count nouns[3] denote singular properties, i.e. properties that are true of singular individuals, while plural count nouns denote plural properties, i.e. properties

[3] In this short presentation of Chierchia's proposal, we only consider count nouns. But in his paper, Chierchia also accounts for mass nouns. On his analysis, mass nouns come out of the lexicon already pluralized; they neutralize the singular/plural distinction. In other terms, mass nouns denote plural properties. See Chierchia (1998: 346 et seq.)

that are true of plural individuals. Singular individuals are atomic entities of type e, and plural individuals may be viewed either as sets of singular individuals (such as {a,b,c}) or as sums of individuals (such as a ⊕ b ⊕ c). The domain involving both singular and plural entities forms a complete atomic join semilattice, built from the bottom, which involves singular entities, via either the operator ∪ or the operator ⊕. Since the domain of reference is a semilattice in both cases, there always is a maximal element in this lattice, and this maximal element corresponds precisely to the denotation of English bare plurals, or, in other terms, always denotes a kind. Chierchia's claim is that a bare plural has a kind as its denotation, where the kind is obtained by applying the down operator to the plural property associated with the bare noun. The down operator is intensional: it maps any given world onto the maximal plural individual having the property associated with the noun.

Chierchia (1998: 352) claims that 'kinds and (plural) properties can in a way be seen as two modes of packaging the same information'. He only considers plural properties because plurality plays a crucial role in his analysis. There is no kind associated with nouns such as *God* or *sun*, as these nouns denote properties of singular entities, which can not be pluralized. Indeed, there is only one God and one sun in every possible world.

Chierchia raised the issue of the relation between kind and property, and introduced the down and up operators that make it possible to switch from one to the other.

Chierchia also uses the Russellian operator iota. Iota applies to the denotation of a singular or plural noun and yields the largest member included in this denotation, if there is one. Consequently, the iota operator is a maximalization operator: when the noun is plural, [[ι Ns]] yields the largest plurality of [[Ns]]; when the noun is singular, since there is no atom larger than any other one, [[ιN]] is only defined for singletons. It is important to highlight that iota is an operator defined with respect to a given world.

Besides the iota, Chierchia introduces another operator, the down operator, which is a nominalization operator. It can only apply to plural properties, and according Chierchia it is, to some extent, an intensional iota (cf. p. 351, n. 10). P_s is the extension of P in s.

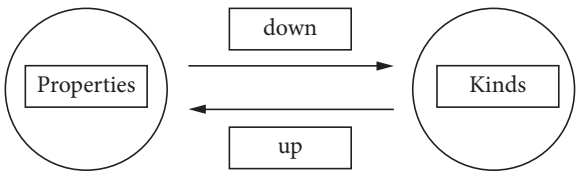


Figure 1.1 Up and down operators.

(19) For any property P and world or situation s,
$^{\cap}P = \lambda s\, \iota\, P_s$, if $\lambda s\, \iota\, P_s$ is in K (the set of kinds)
undefined otherwise

The down operator, which is also called NOM in some papers, is simply an intensional version of the maximality operator associated with the definite determiner:

(20)

Plural Kind Formation:	NOM:	$\lambda P_{\langle s,\langle e,t\rangle\rangle} \lambda s\, \iota\, x[P_s(x)]$
Regular Definiteness	IOTA:	$\lambda P_{\langle s,\langle e,t\rangle\rangle}\, \iota\, x[P_s(x)]$

Let us now return to English bare plurals. Chierchia assumes that they directly refer to kinds. What is not very clear in Chierchia's proposal is the semantic type assigned to kinds. Are they of type e or ⟨s,e⟩? Do they refer to singular or plural entities? Chierchia (1998: 349) writes that 'it seems natural to identify a kind in any given world (or situation) with the totality of its instances'. The difficulty is to determine whether and how, in a given world, Chierchia makes a distinction between a kind and the totality of the individuals which belong to the kind. This issue is not absolutely crucial for the analysis of English, which has two distinct forms, bare plurals on the one hand, and plural definites on the other (see (21)). But for a language such as French, in which there are no bare nouns, it is not immediately obvious whether plural definites are ambiguous between referring to a kind and referring to a maximal set of individuals (note that the examples in (22), which are the French counterparts of (21), both contain definite plurals).

(21) a. Whales are becoming extinct.
b. The whales are late this year.

(22) a. Les baleines sont en voie de disparition.
b. Les baleines sont en retard cette année.

Then Chierchia analyzes generic sentences containing an NP which denotes a kind. He distinguishes the case of direct kind predication, in which the predicate is a kind-level predicate as in (23a), from the case where BPs occur with non-kind-selecting predicates, as in (23b) and (23c). In this case, BPs typically give rise to a universal reading in generic contexts, and to an existential one in episodic contexts.

(23) a. Whales are becoming extinct.
b. Whales breathe under water.
c. Whales were beached near the house this morning.

Whenever an object-level argument slot in a predicate is filled by a kind in an episodic sentence, the predicate type is automatically adjusted and predication is no longer on the kind but on the individuals which instantiate the kind. Chierchia (1998: 364) calls this mechanism the derived kind predication (see (24)).

(24) *Derived Kind Predication (DKP):*
If P applies to ordinary individuals and k denotes a kind,
then $P(k) = \exists x[^{\cup}k(x) \wedge P(x)]$

This rule explains the existential readings for kind-referring DPs. In (25), the DP denotes a kind and occurs in an episodic sentence. (25) is about instances of the kind, and the LF associated with it is given in (25b) and is obtained by applying DKP. The same mechanism is applied in (26); (26c) is obtained from (26b) via DKP.

(25) a. That kind of animal is ruining my garden.
b. $\exists x$ [$^{\cup}$ that kind of animal (x) $\wedge$ ruin my garden (x)]

(26) a. Lions are ruining my garden.
b. ruin my garden ($^{\cap}$ lions)
c. $\exists x$ [$^{\cup\cap}$ lions(x) $\wedge$ ruin my garden (x)]

In characterizing sentences, Chierchia adopts a quantificational analysis in terms of the GEN operator as in Chierchia (1995) and in Krifka et al. (1995). This is illustrated in (27) but also in a sentence like (28a) including a DP built with the noun *kind* in subject position.

(27) a. Dogs barks.
b. GEN x,s [$^{\cup\cap}$dog(x) $\wedge$ C(x,s)] [bark(x,s)]

(28) a. [That kind]$_k$ [suckles its young]$_o$
b. GEN x,s [$^{\cup}$that kind(x) $\wedge$ C(x,s)] [suckles its young(x,s)]

In (27) and (28a), the subject is a kind-referring DP, and variables over instances of the kind are accommodated in the restriction of the quantifier GEN. C is a contextual restriction on appropriate individuals and situations. Chierchia assumes that the process whereby this happens is analogous to that illustrated in (29).

(29) a. Those boys are mostly Italian.
b. MOST x [$x \leq$ those boys] [Italian(x)]

To conclude, let us highlight a difference between the proposals of Carlson and Chierchia. On Carlson's analysis, existential readings are correlated with s-level predicates, and the VP is the source of the existential interpretation of BPs, since s-level predicates involve an existential quantifier ranging over a stage of an individual. For Chierchia, existential readings of BPs always come from the application of DKP and are the consequence of a type mismatch between the predicate and its argument. Unlike what happens in Carlson's original proposal, DKP is not a lexical operation on predicates but a rather type shifter that applies on demand.

1.1.2 The ambiguity hypothesis

1.1.2.1 Proposal Contra Carlson and Chierchia, who assume that both existential and generic interpretations of English BPs are derived from kind reference, Wilkinson (1991), Diesing (1992), and Gerstner-Link and Krifka (1993) claim that English BPs are systematically ambiguous between Heimian indefinites and kind-denoting DPs. As kind-denoting terms, they may appear in an argument position of kind-level predicates. And as indefinites, they may be arguments of object-level predicates. Like other indefinites, they introduce discourse referents, which can be caught by the generic operator or by existential closure, depending on the context and in particular the aspect of the verb. Let us consider the three following sentences, which illustrate each type of configuration. In (30a), the DP is argument of a kind-level predicate. It is analyzed as a name of kind, as shown in (30b). In (31a) and (32a), the DP *dogs* is the argument of an object-level predicate. It is analyzed as an indefinite DP, which introduces a free variable in the logical form. In (31b), the variable x is bound by the generic quantifier GEN, a unselective quantifier which is introduced by the VP *bark* which denotes a disposition or a habit. Krifka and Gerstner-Link have shown that the relation between habituals and genericity can be formally incorporated by the introduction of variables over situations. They give an interpretation of habituals in terms of generic quantification over situations (see (31b)). We can conclude that in (31a), the generic interpretation of the bare plural is not due to the bare plural itself, but to the generic operator associated with the verb 'bark'. On the contrary, in (32a), the progressive form *barking* excludes a habitual interpretation. The VP does not introduce a quantifier, and consequently the free variable associated with the bare plural is bound by the existential quantifier introduced by the rule of existential closure (see (32b)).

(30) a. Whales will be extinct soon.
b. will-be-extinct-soon (W)

(31) a. Dogs bark.
b. GEN s, x [dogs$(s, x) \wedge$ in(s, x)] [bark(s, x)]

(32) a. Dogs are barking.
b. $\exists\, s, x$ [dogs$(s, x) \wedge$ barking(s, x)]

1.1.2.2 Advantages The ambiguity hypothesis presents several advantages. First, it seems more appropriate than Carlsonian or neo-Carlsonian approaches to account for languages such as French, Finnish, or Japanese in which generic and existential readings are associated with different morphological realizations. In French, the definite plural determiner 'les' is used to refer either to a kind or to a specific group of dogs, whose existence is not asserted but presupposed (see (33a)), while the indefinite determiner 'des' is used in the existential reading, and is incompatible with generic

readings (see (33b)). (34) illustrates the fact that Finnish uses nominative case for kind-denoting DPs (which occur in characterizing sentences), while the partitive case is used for existential readings (associated with episodic sentences). And (35) shows that in Japanese, kind-referring DPs carry a topic marker, which is replaced by the nominative case in episodic sentences, triggering an existential reading.

(33) a. Les chiens aboient (French: GEN/∃)
def.PL dogs bark
Dogs bark.

b. Des chiens ont aboyé (*GEN/∃)
Indef.PL dogs barked
Dogs barked.

(34) a. Koirat haukkuvat (Finnish: GEN/*∃)
Dogs.NOM bark.PL
Dogs bark.

b. Koiria haukku (*GEN/∃)
dogs.PART bark.SG
Dogs are barking.

(35) a. Inu wa hasiru (Japanese: GEN/*∃))
dog TOP run
Dogs run. / A dog runs.

b. Inu ga hasitte iru (*GEN/∃)
dog NOM run PROGR
Dogs are running. / A dog is running.

A second advantage is that the ambiguity hypothesis predicts both existential and generic readings for BP subjects of stage-level predicates (see (36)). It also accounts for data such as (37a) and (38a), observed by Carlson but left unexplained by his analysis.

(36) Firemen are available.

(37) a. John is looking for (parts of that machine/people in the next room)

b. John is looking for (machines/people)

(38) a. John didn't see (parts of that machine/people in the next room)

b. John didn't see (machines/people)

Sentence (37a) allows both an opaque reading and a transparent one, unlike (37b), which only allows an opaque one. Something comparable happens with sentence (38a), which involves a negation. (38a) is ambiguous: on one reading it means that John did not see any part of the machine; on the other it says that there are parts of the machine that John didn't see. The existential quantifier associated with the bare plural

scopally interacts with negation in a way that sharply contrasts with the minimally different sentence (38b). Indeed, (38b) is non-ambiguous: the BP is in the scope of the negation and cannot have scope over the VP. Carlson's analysis does not explain this difference: indeed, on his analysis, all BPs denote kinds and the existential or generic readings always depend on the predicate. But in examples (37) and (38), the verb is the same. This leads to the conclusion that some BPs do not denote kinds. This is in contradiction with Carlson's analysis of English bare plurals, but absolutely compatible with the ambiguity hypothesis. In this framework, BPs like *parts of that machine* and *people in the next room*, which do not denote kinds, should behave like regular indefinites.[4]

The ambiguity hypothesis also resolves the problem raised by the presence of BPs in *there*-sentences. In the Carlsonian approach, BPs are analyzed as names of kinds, and as such, may be compared with definite DPs. And it is well-known that definite DPs cannot appear in the argument position of *there*-sentences, as illustrated in (39a). However BPs may occur in *there*-sentences (see (39b)). And so do kind-referring DPs built with the common noun *kind*, as in (39c). These data, which need a special explanation in either the Carlson or Chierchia framework, are not problematic if BPs are analyzed as ambiguous.

(39) a. * There is John/that boy/the boy.
b. There are dogs.
c. There is that kind of animal in the zoo.

And finally, data concerning scope may be viewed as providing an empirical argument in favor of the ambiguity hypothesis. Indeed, if BPs are kind-referring, as assumed by Carlson and Chierchia, they must take narrow scope. Even if this is frequently the case, empirical research has found some counter-examples. In this volume, Le Bruyn, Min Que, and de Swart present an experimental investigation on the scope of English bare plurals and Mandarin Chinese and Dutch bare nominals. Their results show that in appropriate contexts, BPs are actually able to take wide scope, just like indefinites. This result casts doubts on Carlson's (1977b) assertion that BPs in English necessarily take narrow scope with respect to other scope-bearing operators in the sentence. This paper defends the idea that even if wide-scope readings of BPs are rare, such readings are not definitively excluded by the grammar.

[4] Carlson and Chierchia observed that BPs such as *parts of that machine* or *boys sitting here, people in the next room* give rise to wide-scope readings. They cannot account for that in their framework, since according to them, all bare plurals refer to kinds. Nevertheless, they recognize that intuitively these BPs are not associated with anything sufficiently law-like as to be regarded as a kind. The open issue is to determine why such bare plurals are unable to denote kinds. Cohen suggests an alternative explanation, that does not require kind reference. According to him, such BPs allow wide-scope readings because they refer to a specific group of individuals, anchored in time and space and consequently are strong DPs.

1.1.2.3 Problems One problem with the ambiguity hypothesis is that it also predicts that BP subjects of individual-level predicates have both generic and existential readings, which is not supported by the data. For example (40a) only has the generic reading, which corresponds to (40b) and involves an overt adverb of quantification.

(40) a. Firemen are intelligent.

b. Firemen usually are intelligent.

Diesing (1992) proposes to solve the problem of (40a) by limiting existential closure to the VP. She claims that subjects of stage-level predicates are generated in Spec VP, whereas subjects of individual-level predicates are generated in Spec IP. Consequently, subjects of individual-level predicates cannot be bound by existential closure, and thus cannot give rise to existential readings.

To summarize, neither the theory according to which BPs are uniformly kind-referring, nor the ambiguity hypothesis are able to correctly account for the complexity of data. On the one hand, there is clear evidence that BPs are not interpreted only as the plural versions of indefinite DPs (see Carlson on scope properties of English BPs); on the other, there is equally clear evidence that not all uses of bare BPs refer to kinds. They significantly differ from other kind-referring DPs such as definite singular DPs, and they show many similarities with indefinite NPs. To solve this dilemma, Krifka (2004) elaborates a new theory of bare nouns, according to which they are neither kind-referring, nor indefinites, but basically properties, which can be lifted to one or the other interpretation in appropriate linguistic contexts.

1.1.3 Bare plurals and property denotation

1.1.3.1 Krifka (2004) Krifka discusses an alternative to Chierchia (1998) that remains quite close in spirit to this work, to the extent that he assumes that the NP denotation can be type-shifted and that type shifting does not occur freely, but only as a last-resort principle, if there is a type mismatch and the language cannot achieve the same effect by overt means. In other words, type shifting is blocked by the existence of overt determiners.

Krifka uses the same type-shifting operators as Chierchia, namely the existential type shift inherited from Partee (1987), the iota operator which turns a set into its maximal element, and the down operator which turns a property into a kind. Both authors also consider that generic readings of BPs in characterizing sentences such as *dogs bark* involve a phonologically null generic quantifier, whose meaning can be glossed by *in general*, and both assume that existential readings of BPs are provided by type shifting. They also share the idea that type shifting is local, which explains why existential BPs have always narrow scope.

The main difference between Krifka and Chierchia concerns the way they analyze bare plurals. As we have seen above, according to Chierchia, BPs always denote kinds, and existential readings of BPs are derived from kind reference via the DKP rule.

For Krifka, however, BPs denote properties in all of their uses; generic as well as existential readings are obtained in context by type shifting from this basic property denotation. Before looking for empirical arguments that support one or the other of these hypotheses, let us present Krifka's analysis.

In his analysis of bare plurals, Krifka pays attention to the compositional derivation of expressions. The basic idea is that count nouns have a number argument in their lexical representation (see (41a)).[5]

DOG(w, n, x) means that in the world w, the individual x consists of n dogs. DOG is of type ⟨s,⟨n,⟨e,t⟩⟩⟩. The number argument can be filled by a numeral, as in (41b). The plural morpheme on the noun *dogs* in *two dogs* is a matter of syntactic agreement between the noun and the number word. This agreement is not always realized: for example Hungarian lacks such an agreement.

(41) a. $[[\text{dog}]] = \lambda w \lambda n \lambda x[\text{DOG}(w, n, x)]$

b. $[[\text{two dogs}]] = \lambda w \lambda x[\text{DOG}(w, 2, x)]$

In addition to the agreement plural present in such forms as *two dogs*, Krifka assumes that English also has a semantic plural that is responsible for BPs. The lexical representation associated with BPs is given in (42), where the number argument n is left unspecified.

(42) $[[\text{dogs}]] = \lambda w \lambda x \exists n[\text{DOG}(w, n, x)]$

Thus, Krifka introduces a distinction between two types of plural: one is syntactic, marked by agreement, and the other is semantic, and plays a role in the semantic composition of bare plurals. Singular count nouns differ in semantic type from plural count nouns (which are comparable to mass nouns and nouns with explicit number): the former are functions from numbers to predicates and are of type ⟨s,⟨n,⟨e,t⟩⟩⟩, while the latter are predicates and are of type ⟨s,⟨e,t⟩⟩.

Let us now turn to the semantic composition of bare plurals in the following sentences, where BPs are respectively combined with a kind-selecting predicate, with an object-selecting predicate in a characterizing sentence, and with an s-level predicate.

(43) a. Dogs are extinct.

b. Dogs bark.

c. Dogs are barking.

In (43a), the predicate is kind-selecting. Since BPs denote properties, there is a type mismatch. Krifka proposes resolving it via the down operator, which changes the property into a kind (see (44a). The logical form associated with (43a) is given in

[5] In this introduction, we leave aside the case of mass nouns, and merely note that Krifka assumes that they lack such a number argument. So a mass noun such as *gold* has the following lexical representation, and is of type ⟨s,⟨e,t⟩⟩. Thus, mass nouns are semantically comparable to count plurals, as in Chierchia (1998).

(262) $[[\text{gold}]] = \lambda w \lambda x[\text{GOLD}(w, x)]$

(44b). On Chierchia's account, the semantic composition in this type of sentence is direct, since BPs denote kinds. However Krifka needs to type-shift the subject from property denotation to kind denotation.

(44) a. dogs is type-shifted into $^{\cap}$dogs

b. λw BE-EXTINCT $(w, {}^{\cap}\text{dogs})$

Krifka claims that in characterizing and existential sentences the type shift from properties to kinds is not motivated by type mismatch, hence, by the last resort principle, it should not occur. Thus he assumes that the BPs in such sentences remain property-denoting: in characterizing sentences there is a phonologically null generic operator which establishes a relation between two properties. The LF associated with (43b) is given in (45).

(45) GEN $[\exists n \text{dog}(n, x)]$ $[\text{bark}(x)]$

As for existential readings, as illustrated by (43c), they can be obtained without changing the type of the DP. *Dogs* denotes a property which is applied to an object predicate: thus there is a type mismatch. But according to Krifka, this mismatch cannot be resolved by an existential type shift, since there are overt determiners that allow a property to turn into an entity: the singular indefinite *a* and the plural indefinite *some*. Thus, if the last resort principle is true, *some* should block the application of type shifting and the forms associated with the existential reading should be (46a) or (46b) rather that (43c), which should not be grammatical.

(46) a. A dog is barking.

b. Some dogs are barking.

So, to resolve the type mismatch in the case of existential readings, Krifka assumes that it is the VP which type-shifts, rather than the DP. This corresponds exactly with what is proposed by van Geenhoven and Dayal in terms of incorporation (see following). The VP is changed as in (47a) and after reduction, the LF associated with (43c) is (47b).

(47) a. $\lambda w \lambda \text{P}\ \exists x[\text{BE-BARKING}(w, x) \wedge \text{P}(w, x)]$

b. $\lambda w \exists x \exists n(\text{BE-BARKING}(w, x) \wedge \text{DOG}\ (w, n, x))$

In sum, Krifka (2004) abandons the ambiguity hypothesis, which he previously defended for English BPs, and proposes a new analysis according to which BPs always denote properties that can be either type-shifted or incorporated. The main point of divergence between Chierchia (1998) and Krifka (2004) concerns their analysis of number and the relationship between plurality and kind. According to Chierchia, kinds are only defined for plural properties, while for Krifka, no such restriction exists. This restriction over kinds permits Chierchia to predict that English bare singulars are excluded for generic sentences such as (48a) or (48b). But if this constraint appropriately describes the grammar of bare nouns in English, it seems incompatible with

languages which allow both existential bare singulars and DPs built with an indefinite article. In this regard, the case of Brazilian Portuguese constitutes a challenge for Chierchia's theory and the hypothesis of the nominal mapping parameter (see Munn and Schmitt 2005).

(48) a. *Dog is extinct.
b. *Dog barks.

On the contrary, according to Krifka, there is no constraint on the down operator: it is defined both for singular and plural properties. For example, he claims that '$^{\cap}$[one dog] is defined and stands for an individual concept that maps every world that has exactly one dog to that dog' (Krifka, 2004: 127). To account for the asymmetry between bare plurals and bare singulars in English, Krifka assumes the existence of a semantic plural in English (which is responsible for bare plurals) but denies the existence of a semantic singular in English. And he restricts the use of the down operator to true kind predications, i.e. predications made with a kind-selecting predicate.

It is difficult to find empirical arguments that distinguish between Chierchia's and Krifka's proposals. As already mentioned, the main point of divergence is that for Chierchia, all readings of BPs are derived from a kind reference, which is not the case for Krifka. Cohen (2007) suggests that if a language could be found in which BPs cannot denote kinds, but nevertheless occur in characterizing sentences or in existential sentences, then the conclusion could be drawn that generic and existential readings of BPs are not derived from kind reference. So such a language would be problematic for Chierchia, and may be viewed as arguing for Krifka's analysis. According to Cohen (2007), Italian is precisely a language of this type.

1.1.3.2 Property denotation and incorporation This change of perspective by Krifka's change of perspective is partly due to the work of Dayal, who showed that the ambiguity approach is not tenable for the interpretation of bare nominals in languages without determiners. She instead proposes an analysis of bare nominals in terms of incorporation.

1.1.3.2.1 Existential bare plurals analyzed as a case of semantic incorporation Van Geenhoven (1998) studied the syntax and semantics of incorporated nouns in West Greenlandic. She proposed an analysis of these nominals as property-denoting expressions. The claim is that incorporated nouns denote neither individuals nor quantifiers but rather properties, which combine with verbs and impose restrictions on the interpretation of their arguments. More precisely, the nominal expression N restricts the domain of variation of the verbal argument x, as described below. (49a) gives the translation of a transitive verb V, (49b) shows how the incorporated noun (N) combines with the transitive verb (V), and (49c) gives the result of the semantic composition after reduction.

(49) a. $V : \lambda Q \lambda x \exists y[V(x, y) \wedge Q(y)]$
b. $V\text{-}N : \lambda Q \lambda x \exists y[V(x, y) \wedge Q(y)]\ N$
c. $V\text{-}N : \lambda x \exists y[V(x, y) \wedge N(y)]$

Such an analysis predicts weak readings and narrow-scope effects of incorporated nouns. From the observation that incorporated nouns in West Greenlandic and English bare plurals share the same semantic properties (narrow scope and weak reading), van Geenhoven suggests that existential readings of English bare plurals are the result of semantic incorporation. She thus proposes that English bare plurals in existential contexts are not kind-denoting but property-denoting.

1.1.3.2.2 Bare nouns and incorporation In the line of van Geenhoven, other authors have been interested in the semantics of incorporation, including Dayal (1999) for Hindi, Farkas and de Swart (2003) for Hungarian, and Chung and Ladusaw (2004) for Chamorro. All these authors have focused on languages other than English that allow not only bare plurals, but also bare singulars. The challenge is to expand the account from the semantics of bare plurals to the semantics of bare nouns in general. The study of the distribution and interpretation of bare nouns across languages revealed the importance of number morphology in the analysis of bare nouns. Indeed, it has been observed that languages which allow both bare singulars and bare plurals place very different constraints on each: first, bare singulars occur in very few contexts and are usually less productive than bare plurals; and second, bare singulars frequently trigger number neutrality effects. These facts require explanation, and seem to co-vary with whether the language in question morphologically marks number, and whether it has articles. We will first discuss the case of Romance languages, distinguishing Brazilian Portuguese which presents peculiarities, and then we explore the case of Hindi, which marks number but has no articles. The issues to resolve are the following: what is the denotation of bare singulars and bare plurals in these languages and how are generic and existential interpretations of bare nouns derived in context? What is the role of number in interpretation, and how should number neutrality effects be explained?

Bare nouns in Romance languages. Espinal (2010) investigates the structure and meaning of bare nominal expressions in Catalan and Spanish, two Romance languages that display both number morphology and articles. Unlike English, these languages allow both bare singular and bare plural count nominals in internal argument position. This is illustrated in (50).

(50) a. necesitar cotxe [Catalan]
need car
b. necesitar zapatos
need shoes

Bare count nominals are encountered in object position, not only in idiomatic constructions (Espinal 2001), but also in non-idiomatic expressions (Laca 1999).[6] BSs share three main properties with BPs: obligatory narrow scope, atelicity, and type anaphora (Espinal and McNally 2007). But there is an important asymmetry between BSs and BPs: while object BPs combine unrestrictedly with any class of verbs, object BSs can only combine with a restricted class of verbs.

To account for this difference, Espinal focuses on the role of number in the semantics of nominal expressions. She claims that bare nominals without plural morphology in Catalan and Spanish are not bare singulars (BSs), but rather simple bare nouns (BNs). Bare nouns in object position (such as *cotxe/car* in (50a)) are not singular, but unmarked for number. So she distinguishes between three types of nominals: bare nouns (BNs), number phrases (NumPs) including bare plurals, and determiner phrases (DPs). Her claim is that BNs in Catalan and Spanish lack both a number and a determiner. Syntactically, they are unmarked for number and determiner and therefore cannot be considered canonical arguments. Semantically, they are property-denoting expressions which modify the transitive verb of which they are an object by semantic incorporation. Espinal defends the idea that BNs which do not have inherent number denote properties of atomic kinds, whereas BPs, which are number phrases, have a plural interpretation and denote non-atomic sums of individuals that have the property N. The denotation of a BN must be contrasted with the denotation corresponding to BPs, but also to singular definites and singular indefinites. According to Espinal, the presence of number is sufficient to license postverbal plural bare nominals as internal arguments, and the absence of number in BNs explains the restrictions on their use in object position. This and the fact that BNs denote properties of singular kinds explains why BNs can occur in object position only when the V-N complex predicate provides a characterizing property of the external subject (e.g., *being the author of a book, being a car owner, a bank account holder, an apartment buyer, a watch-wearing person*). She adds that the absence of number phrase in BNs explains why they are interpreted as number neutral: BNs denote properties of kinds and convey a number-neutral interpretation that is compatible with atomic as well as non-atomic entailments. She shows how a number-neutral reading can lead to either an enriched singularity or a plural interpretation in appropriate contexts. The final interpretation depends on the contextual information available.

[6] This distribution is unexpected in Chierchia's (1998) framework, since according to the Nominal Mapping Parameter, Catalan and Spanish are identified, like all Romance languages, as being of type [–arg, +pred]. In these languages nouns denote properties rather than individuals and determiner-less nominals are expected to behave as predicates, not as arguments. Consequently, BNs should not be allowed in argument position unless a D category is projected (see a.o. Longobardi 1994).

The case of Brazilian Portuguese. Among Romance languages, Brazilian Portuguese presents several peculiarities. Brazilian Portuguese has been presented by Munn and Schmidt as a counter-example to Chierchia's typology based on the Nominal Mapping Parameter, because like other Romance languages, Brazilian Portuguese has definite singular and plural kind terms and yet it differs from them in admitting bare singulars as well as bare plurals in generic contexts (see Schmitt and Munn 2000; Munn and Schmitt 2005; Müller 2002a,b). Another difference between Brazilian Portuguese and other Romance languages is that BSs as well as BPs are acceptable in subject position. However, bare singulars are ruled out from the preverbal subject position of episodic sentences, unlike bare plurals (see (51a)). Furthermore, it is interesting to note that in (51b), the postverbal subject *crianca*, which is morphologically singular, is interpreted as number-neutral: the sentence is interpreted as true whether one or more than one child arrived.

(51) a. *Crianca chegou [Brazilian Portuguese]
child arrived

b. Chegou crianca
arrived child
A child/children arrived.

There is no consensus on how to analyze the distribution and interpretation of BSs in Brazilian Portuguese. The fact that both singular and plural bare nouns in Brazilian Portuguese obligatorily take narrow scope, as well as the number-neutral readings associated with bare singulars, can be viewed as evidence that they are incorporated. But two issues remain open: the issue of generic readings of bare singulars (to the extent that there is no agreement about the status of bare singulars as kind terms) and the issue of number-neutral readings.

Semantic Incorporation in Hindi or Russian. Languages such as Hindi and Russian display morphological number (like English) but do not have articles (like Chinese). Dayal provides syntactic and semantic arguments that Hindi exhibits cases of incorporation of bare nouns. In Hindi, accusative marking is optional on inanimate objects. But the situation with animate objects is more nuanced. Case marking is obligatory if the object has a determiner, as in (52a), but optional if there is no determiner. The fact that an animate nominal occurs without case marking only when it has no determiner provides a piece of evidence that non-case-marked animates represent instances of incorporation. Furthermore, it has been observed that the case-marked form of an animate object in (52b) refers to some particular child, while the unmarked form refers to one or more children. So, although the nominal is singular, it is interpreted as number-neutral. Furthermore, narrow-scope effects have been observed with unmarked forms, which strengthens the idea that bare nouns are sometimes incorporated in Hindi.

(52) a. anu (*har bacca/har bacce-ko) sambhaaltii hai [Hindi]
Anu every child/every child-ACC looks after
Anu looks after every child.

b. anu bacca/bacce-ko sambhaaltii hai
Anu child/child-ACC looks-after
Anu looks after (one or more) children/the child.

Languages like Hindi or Russian freely allow bare singular arguments as well as bare plurals, and both types of bare noun display kind and generic readings. However, bare singulars are not trivial variants of bare plurals. The following example from Russian demonstrates that bare singulars and bare plurals behave differently with respect to scope effects.

(53) a. #Sobaka byla vesde
dog SG was SG everywhere
A dog was everywhere.

b. Sobaki byli vesde
dog PL was PL everywhere
Dogs were everywhere.

(53a) is strange because it suggests that one and the same dog was everywhere. Similar examples can be found in Hindi.

(54) a. #caro taraf baccaa khel rahaa thaa
four ways child SG was playing SG
The same child was playing everywhere.

b. caro taraf bacce khel rahe the
four ways child PL was playing PL
Children (different ones) were playing in different places

In (54a) the bare singular does not have a narrow-scope indefinite reading. However the bare plural in a similar context has a plausible narrow-scope indefinite reading. Dayal argues that this type of example proves that bare singulars in Hindi as well as in Russian can have weak indefinite readings but they cannot be considered bona fide indefinites, since they can never take wide scope over other scopal expressions like *everywhere* in (53) and 54.

The difference between bare singulars and bare plurals can be captured if it is assumed that the two types of bare nouns provide two different ways to refer to kinds. Dayal notes that in languages without determiners, bare nominals do double duty as definites and indefinites, and she suggests that bare singulars in Hindi or Russian should be compared with definite generic NPs like *the dog* in English, whereas bare plurals are similar to English bare plurals. According to Dayal, the specificity of bare singulars is that they cannot refer non-maximally. This can be explained if

bare nominals in languages without determiners are assumed to be only ambiguous between kinds and definites, and not ambiguous between kinds and indefinites. The apparent indefinite reading of bare nouns arises from the intervention of DKP and is constrained by morphologically triggered number restrictions. So in this respect, Dayal follows the analysis of Carlson and Chierchia in that she assumes that indefinite readings of bare plurals are derived from kind reference via DKP.

Concerning the issue of number-neutral readings of bare singulars, Dayal shows that in Hindi these readings are always dependent on some aspectual specifications in the sentence. She concludes that they are not derived from the ability of bare nouns to denote in the plural domain but rather from interactions between bare singulars with aspectual expressions associated with pluractional operators. She assumes that number neutrality is not inherent to bare singulars but is a by-product of aspect. So number neutrality is an effect of incorporation: number-neutral readings of incorporated nominals are the result of the interaction between a pluractional operator (responsible, for example, for an iterative reading) and nominal arguments.

To conclude, the various studies mentioned above show that syntactic incorporation and semantic incorporation may be defined and characterized independently. Semantic incorporation does not rely on a requirement that the incorporated nominal surface as a morphological or a syntactic unit with the verb. Semantic incorporation can be identified on the basis of three semantic properties: obligatory narrow scope, number-neutral readings of singular or unmarked incorporated nominals, and the ability or inability of incorporated nominals to support discourse anaphora.[7] Although Dayal's proposal is in the line of the analysis of incorporating verbs in Van Geenhoven (1998), there are nevertheless important differences, in particular concerning the relationship between incorporation and indefiniteness. Van Geenhoven wrongly conflated existential readings of kind terms and incorporation, and assumed that semantic incorporation can be regarded as a subtheory of indefiniteness. Dayal has shown that Hindi militates against this conflation, as only non-case-marked bare singular direct objects, i.e. those that can plausibly be argued to undergo incorporation, have number-neutral readings. All other bare singulars carry strict singular implicatures. More generally, she shows that incorporation is independent from indefiniteness, as she analyzes Hindi bare singulars in generic contexts in terms of incorporation, and compares them with English definite generics.[8] A second point

[7] We leave aside this aspect of incorporation in this introduction.

[8] We can find the same type of conclusion in Kwon and Zribi-Hertz (2006) on bare objects in Korean, which presents a descriptive study of Korean 'bare' objects.They call bare objects those objects which fail to be suffixed by the marker (l)eul, commonly glossed as an accusative case marker. A systematic survey of LEUL-marked and bare objects reveals that the latter verify two properties currently regarded as characteristic of semantic incorporation. It appears, however, that although they are semantically incorporated, Korean bare objects may be fully referential. The authors are led to assume that the interpretive effects of semantic incorporation may derive from either referential or informational deficiency, and that these two types of deficiency are quite independent from each other. They conclude contra Van Geenhoven (1998) that semantic incorporation cannot be regarded as a subtheory of indefiniteness.

which deserves to be highlighted here is that all the studies on bare nouns and incorporation in various languages have provided a fresh perspective in the debate over bare nouns and kind reference. They have contributed to the emergence of new areas of exploration, such as the source of number-neutral readings or the role of number in the building of kind reference. All works on incorporation are presented as alternatives or complements to Carlson's thesis, according to which English bare plurals directly refer to kinds and provide empirical evidence that languages offer various ways to refer to kinds. Thus distinctions between singular and plural kinds on the one hand and between direct and indirect kind reference on the other should be made clear.

1.1.4 Varieties of kind-referring DPs

Since Carlson's (1977b) paper, the existence of kinds in ontology, as opposed to individuals, has been widely assumed. But the issue of which linguistic means are used to refer to kinds deserves attention. Carlson and Chierchia have focused on English bare plurals. Yet English displays another way of kind-referring, namely the singular definite, as attested by the diagnostic of kind-level predication (see (55a) which can be compared with (55b)).

(55) a. The dinosaur is extinct.
b. Dinosaurs are extinct.

The bare plural and the singular definite are both kind-referring expressions, but the latter has been much more studied than the former. Yet both types of nominals are not in free variation: their behavior differs in statements where aspect supports an episodic interpretation. The bare plural lends itself to an existential interpretation ((56a) means (56b)) while the definite singular kind term does not ((56c) does not mean (56d)). (56d) can only be interpreted as a statement about a contextually salient dog.

(56) a. Dogs are barking.
b. Some dogs are barking.
c. The dog is barking.
d. A dog is barking.

So kind-referring definite singulars in languages like English are not trivial variants of kind-referring bare plurals. It follows that any theory of genericity has to account for the differences between singular and plural terms with respect to kind formation. And if there is a grammatical difference between kind-referring bare plurals and kind-referring definite singulars in languages like English, if bare plurals and definite singulars correspond to two different ways of referring to kinds in English, new issues arise about Romance languages as well as languages without determiners, such as

Russian or Hindi. First, what are the counterparts of English bare plurals and definite singulars in languages like French and Italian, and are kind-referring definite plurals comparable with English definite singulars or with English bare plurals? And second, in languages without articles, where there is a free type shift from properties to kinds (singular kinds as well as plural kinds), how should we account for kind-referring bare nouns and for the relationship between number and kind formation? In the last decade, studies about bare nouns in languages other than English and the relationship between definiteness, indefiniteness, and genericity have provided fresh insight into the issue of kind formation in natural language. The aim of this subpart is to determine the semantic contribution of the determiner, of number, and of the noun itself in the computation of the reference of kind-referring DPs, in a compositional manner. It has been observed that most languages display different methods of referring to kinds and use either bare nouns or definite noun phrases, but that no language has a specific determiner dedicated to kind formation (see Section 1.1.4.1 below). Furthermore, since Dayal's (2009) proposal, it has generally been accepted that common nouns are ambiguous and may denote either a property of individuals, or a property of kind, a result that predicts the taxonomic uses of DPs, as well as the kind-referring uses of definite singulars (see Section 1.1.4.2). The issue of the relationship between a kind and its instances remains to be clarified, but we propose a distinction between two different ways to access kinds: directly, without mentioning the instances of the kind, and indirectly, by referring to the maximal sum of its instances.

1.1.4.1 No specific determiner It has been remarked that natural languages generally do not have specific linguistic means to express genericity in the nominal domain: there is no determiner specifically dedicated to the expression of genericity. According to Dayal, this can be explained by the fact that languages do not lexicalize extensional vs. intensional distinctions. We have seen that in English, BPs may be used to refer to kinds. But they give rise to two types of readings (generic or existential) depending on the context in which they occur (see the contrast between (57a) and (57b)). So it cannot be assumed that English bare plurals are dedicated to the reference to kinds. Moreover, English can use other types of DPs to achieve reference to a kind, as illustrated by the synonymy between (57a) and (57c). Thus both BPs and singular definites may be used to refer to kinds. Nevertheless, singular definites, like BPs, are not specialized for kind reference and may be used to refer to individuals, as in (57d), where the NP *The son of my neighbors* is presuppositional and denotes a particular man.

(57) a. Tigers are striped.
b. Mary bought oranges.
c. The tiger is striped.
d. The son of my neighbors is blond.

The same is true in French, where singular and plural definite DPs may sometimes be used to refer to a kind (see (58a) and (58b)), and sometimes to ordinary individuals (as in (58c) and (58d)).

(58) a. La baleine est un mammifère.
b. Les hommes sont des bipèdes sans plumes.
c. Le lion est mort dans l'après-midi.
d. Les manifestants ont envahi l'assemblée nationale.

More generally it has been observed that all types of DPs (be they definite, indefinite, or quantified) may be used to refer to a kind or a subkind, as illustrated in the following examples. In (59a), *the lion* refers to the species of lions, in (59b) the indefinite DP refers to a subkind of whales, and (59c) and (59d) involve quantified DPs (*most mammals, all mammals*) which range over subkinds. Examples (59b), (59c), and (59d) illustrate taxonomic readings in which the noun phrase quantifies over subkinds of N.

(59) a. The lion is a predatory cat.
b. A whale—the blue whale—is becoming extinct.
c. Most mammals belong to the placental group.
d. All mammals are warm-blooded.

1.1.4.2 The noun ambiguity In English, besides bare plurals, singular definite DPs may also refer to kinds. A singular definite DP such as *the lion* is ambiguous and may refer either to a simple lion or to lion-kind. To account for this ambiguity in a compositional way, three options are available: either the ambiguity comes from the determiner, from the noun, or from both of these. One thesis, first defended by Dayal (1999) and (2004b) and now largely accepted, is that common nouns are ambiguous and may denote either a property of an individual or a property of a kind. Any determiner can combine with these two denotations. In the first case, composition yields the familiar reading with a denotation in the object domain; in the second case, it yields a taxonomic reading with a denotation in the domain of kinds and subkinds (see (59)).

Thus the ambiguity of definite singulars comes from the noun and not from the determiner. Once it is assumed that a common noun may denote a property of a kind, it becomes easy to account for the kind reading of definite singulars, as well as taxonomic readings of indefinite or quantified noun phrases, such as (59b), (59c), and (59d). If the noun can denote a property of kind, the simplest way to make reference to a kind in those languages that have a definite determiner is by means of a singular definite. The noun phrase *the lion* means 'the kind called lion' and the use of the definite determiner is allowed because the presupposition attached to the definite determiner (according which there is one and only one kind called lion) is satisfied. And when the kind noun is preceded by an indefinite determiner or by a

quantifier, the role of this determiner is to set off one or several subspecies or subkinds belonging to the species or kind denoted by the noun. In other words, when the noun *whale* denotes a property of kind, noun phrases *a whale*, *three whales*, *most whales*, and *all whales* denote generalized quantifiers that are defined over subkinds of whales, not over individual whales. Consequently *a whale* means 'a subkind of whale', *three whales* means 'three subkinds of whales', *most mammals* means 'most subkinds of mammals', and *all mammals* means 'all subkinds of mammals'.

There is an important difference between kinds and individuals. While individuals may be structured as a lattice, as shown by Link (1983) and Landman (1989a,b), kinds and subkinds are structured as a taxonomy but not as a lattice. Indeed, the plural object a $\oplus$ b can be built from two individuals, a and b. Similarly, the plural entity k1 $\oplus$ k2 can be built from two subkinds k1 and k2, but this plural entity k1 $\oplus$ k2 may be neither a kind nor a subkind. So there is no lattice built over subkinds and kinds. But kinds and subkinds are structured as a taxonomy, such that the sum of all subkinds of N corresponds precisely to the kind N, to the extent that they share exactly the same instances. So in a sense, when the noun is interpreted as a property of kind, the two noun phrases *the whale* and *the whales* convey the same meaning, since their denotations cover the same individuals, the same instances. Nevertheless, a distinction has to be maintained between kinds viewed as entities and kinds viewed as the sum (or the set) of their instances. When the noun is interpreted as a property of a kind, it refers to kinds or subkinds viewed as entities, and only indirectly to sums or sets of instances. We will come back to the difference between a kind and its instances in the next part.

In sum, the ambiguity of definite singulars follows from the assumption that common nouns are ambiguous and may denote properties of kinds. But plural predicates also are ambiguous. A noun phrase such as *lions* may be analyzed as denoting either the closure under sum formation of the subkinds of lions, or the closure under sum formation of individuals which are lions. Consequently, the definite plural *the lions* may denote either the sum of all subkinds of lions or the sum of all individuals which are lions. The choice between these two denotations is determined contextually. Nevertheless, these two analyses do not provide the same interpretation, since the sum of subkinds is built from intensional entities, while the sum of individuals is extensional and defined only in the actual world. This explains why, in a language like English where bare plurals lexicalize the down operator (see Chierchia 1998 and Krifka 2004), bare plurals, whose reference is intensional, are not equivalent with definite plurals, whose reference is extensional when the noun is analyzed as denoting a property of individuals. This is different in Romance languages like French and Italian, where the down operator is lexicalized by the plural definite article. In these languages, definite plurals are systematically ambiguous and may denote either a kind viewed as an entity or a maximal sum of individuals, which is extensional and defined in the actual world. Thus, definite singulars in English and Romance languages are

similar (the noun denotes a property of kind and the definite article is the usual iota), but definite plurals in Romance languages are ambiguous, and correspond both to English bare plurals and English definite plurals.

The noun ambiguity hypothesis provides an explanation of the fact that languages display various ways to express kind reference: bare plurals and definite singulars in English, or definite singulars and definite plurals in Romance languages. To account for the fact that in English as well as in Romance languages, the use of kind-referring definite singulars is more constrained than the use of the other linguistic forms, it is enough to assume that not all common nouns are able to denote a property of kind. A definite nominal may denote a kind only if the noun itself is able to denote a property of kind. It has been observed that this is not the case for all nouns. For example, modified nouns cannot (see (60a)), unless they refer to what Krifka et al. (1995) called well-established kinds and what Beyssade (2005) called compound nouns or lexicalizations for French (see (60b)).

(60) a. # The green bottle has a narrow neck.
b. The coke bottle has a narrow neck.

The same thing happens with nouns which occupy a high position in the taxonomy of kinds and subkinds. For example, while *the train* or *the whale* may be kind-referring in context (see (61a) and (61b)), it is never the case with *the mammal* (see (61c)).

(61) a. The train is less dangerous than the car.
b. The whale is a mammal.
c. # The mammal suckles its young.

Various observations have been made on the constraints which restrict the use of kind-referring definite singulars, but no systematic study on this issue has been made. Nevertheless, in the last decade, the issue of relationships between concepts and kinds has been investigated by cognitivists such as a. o. Gelman, Prasada, and Leslie.

To conclude, there is an observation which has yet to be explained in the framework of the noun ambiguity hypothesis. English mass terms, when they refer to kinds, never occur with a definite determiner (see (62a) and (62b).

(62) *Man invented the steel.

Yet mass terms belong to taxonomic hierarchies and may receive taxonomic interpretations on a par with count nouns (see for example wine, red wine, white wine). If the definite article encodes the iota operator and freely applies to the taxonomic domain, one would expect it to occur with mass terms as well as with count nouns. Chierchia (1998) accounts for bare uses of mass nouns by assuming that mass nouns

are semantically plural and are built with the down operator. In fact, he predicts that mass nouns may occur bare, but he does not predict that they cannot occur with a definite determiner. An answer could be that mass nouns, unlike count nouns, are not predicates (i.e. words denoting a property of an individual or a property of a kind), but they could be basically kind-denoting. They would be similar to proper names and would thus not require a determiner when used in argument position. We will not develop this idea here as it brings up the issue of the count-mass distinction and the semantics of mass nouns, which is beyond our present purpose, centered on genericity and kind reference.

1.1.4.3 Direct and indirect reference to kind From the noun ambiguity hypothesis, it follows that natural languages display at least two different ways to form kind-referring terms:

- by applying the down operator to a plural property, as suggested by Chierchia (1998)
- by applying the iota operator to a singular noun which denotes a property of kind.

These two ways to refer to kinds differ in two respects: the former involves a plural noun which refers to a property of an object while the latter involves a singular noun which refers to a property of kind; moreover, the former uses the down operator while the latter uses the iota operator. To distinguish between these two modes of kind formation, Dayal (2011) calls 'plural kinds' the kind terms built with plural nouns and the down operator and 'singular kinds' the kind terms built with a singular noun and the iota operator.

In English, the first way corresponds to bare plurals, and the second to definite singulars. It has been claimed that in Romance languages, the definite singular article lexicalizes the iota operator and the definite plural article lexicalizes the down operator. And Dayal suggests that in languages without determiners such as Russian or Hindi, bare singular nouns illustrate the second type of kind formation, i.e. singular kind formation.

We have seen that singular and plural kind terms are not trivial variants. In English, bare plurals (BPs) and definite singulars (DSs) differ in frequency and distribution. DSs are more limited than BPs in generic sentences.

- DSs are limited to well-established kinds (Krifka et al. 1995), i.e. natural kinds such as *the lion* and concepts such as *the sonnet* (Carlson 2009)
- DSs are excluded for human categories (such as *the lawyer* or *the piano player*)
- DSs are excluded for overly general terms (such as *the parabola* or *the curve*) (see Vendler 1971)

Similar observations have been made concerning the contrast between definite singulars and definite plurals in French. Beyssade (2005) focuses on generic uses of French

definite DPs and accounts for cases where singular and plural DPs are not equivalent. The claim is that in French, generic definite singular DPs involve a noun which denotes a property of kind, as in English. As for generic plural definite DPs, instead of being interpreted as referring to the maximal sum of entities in the actual world, they are interpreted as referring to the maximal sum of entities in any world: the plural definite determiner may be viewed as the lexicalization of the down operator.

Dayal claims that singular kinds differ from plural kinds in not having a semantically transparent relation to their instantiations. She observes that in languages with number marking but no determiners (like Hindi or Russian), bare plurals behave more or less like English bare plurals, but bare singulars are substantively different. She claims that what distinguishes singular kind terms from plural kind terms is the way they relate to their instantiations. An analogy can be drawn with what distinguishes collective nouns like *the team* and plural nouns like *the players*. Barker (1992) and Schwarzschild (1996) have argued that collective nouns differ from plural nouns in being group-like rather that sum-like: collective nouns like *the team* must be represented as groups, which are atomic entities with no access to their parts, while nouns like *the players* correspond to a sum of individuals, whose atomic parts are available for predication. The following examples illustrate this difference between groups and sums.

(63) a. The players live in different cities.
b. * The team lives in different cities.

Following the work of Chierchia (1998) which rules out bare singular kinds in English, Dayal assumes that the down operator applies only to plural nouns and yields a kind term that allows semantic access to its instantiations, analogously to sums. Singular kind terms restrict such access and to this extent are analogous to collective nouns. Like groups and sums, singular and plural kinds are conceptually associated with the same set of entities, but differ in their relation to these entities. We will say that singular kind terms directly refer to kinds, while plural kinds terms only refer indirectly, because the plural indicates the trace of a reference to the instances of the kind.

For the moment, we have only compared bare plurals and definite singulars in English and definite plurals vs definite singulars in French. But in order to give a better description of kind-referring noun phrases at least in English, we have expanded the picture to include definite plurals. Condoravdi (1994, 1997) has shown that there are contexts in English in which bare plurals and definite plurals convey the same meaning (see (64a) and (64b)). According to Condoravdi, the bare plural *students* in (64a) is not existential, since (64a) doesn't mean (64c). But *students* isn't generic either, because it is not lawlike. She concludes that besides the generic and existential readings of English bare plurals, there is a third reading of bare plurals, which she calls the functional reading, which corresponds precisely to situations where bare

plurals and definite plurals seem to converge. According to her, the bare plural in (64a) conveys a quasi-universal reading.

(64) a. In 1985 there was a ghost haunting the campus. Students were afraid.
b. In 1985 there was a ghost haunting the campus. The students were afraid.
c. In 1985 there was a ghost haunting the campus. There were students who were afraid.

Condoravdi adopts a very radical position, since she considers that English bare plurals are compatible with not two, but three different readings. This claim is debated in the literature and it seems possible to analyze Condoravdi's examples as a sub-case of generic readings, called restricted generics by Drewery (1998). Nevertheless Condoravdi's data show that in languages which have both bare nouns and definite determiners, it is important to compare the uses and interpretations of these two forms in order to determine whether and how each language lexicalizes the down operator. Schaden's paper in this volume addresses the issue in German and accounts for the differences between BPs and definite plurals. Several dimensions are relevant in the characterization of the differences: one can refer to a kind either via its extension (i.e the set of all of its members) or via its intension (i.e. the set of the characteristic properties of the kind); one can refer to all the actual instances of a kind, or to a kind as an abstract entity.

1.1.4.4 Conclusion It is commonly accepted that reference is not only limited to individuals or pluralities but also to kinds. The most convincing evidence for kind reference comes from the existence of kind-level predicates such as *be extinct*. We have shown that in every attested language, kind terms are either bare or occur with the definite determiner. Furthermore, languages often display several ways to express kind reference. The presence or absence of number morphology seems to play a crucial role in kind formation and in the way a kind is related to its instances. Recent works in psychology concerning generics (e.g., Gelman 2003; Gelman and Bloom 2007; Prasada et al. 2008; Prasada 2010; Leslie 2008; Leslie et al. 2009) offer a new perspective concerning linguistic studies on genericity. These studies test the empirical validity of theoretical proposals concerning the logical form of generic sentences. For example, to discriminate the neo-Carlsonian approaches, which claim that existential readings of English bare plurals derive from kind-referring denotations, from the ambiguity approach, it would be useful to test the validity of basic contrasts concerning the scope of generic NPs. In this volume, Le Bruyn et al.'s paper presents some initial results which seem to invalidate the scope contrasts invoked by Carlson and the neo-Carlsonians. Empirical studies could also be made in order to establish a complete description of differences in distribution between BPs, indefinite DPs, and definite DPs that contribute to generic sentences. And finally, the issue of relationships between concepts and kinds, recently

investigated by cognitivists, remains to be clearly articulated in the theoretical literature on generics.

1.2 Genericity and the VP

We now turn to the relation between genericity and the VP. Section 1.2.1 focuses on the distinction between stage-level and individual-level predicates, which, in Carlsonian terms, describe, respectively, stages of an individual and individuals themselves. At the time of *The Generic Book*, two assumptions were made. First, it was assumed that these predicates have different logical forms. Notably, stage-level predicates involve an event argument (Kratzer 1995). Alternately (Chierchia 1995), both types of predicates were viewed as involving a situation argument, but only individual-level predicates were considered to enter the logical form with a generic operator that binds the situation argument inducing the effect of permanency, which is characteristic of individual-level predicates. We will show how both differences in logical form have been abandoned, and how individual-level readings of predicates are no longer considered to be an effect of a hidden generic operator.

Section 1.2.2 addresses the related question of the role played by unboundedness and plurality in the generic interpretation. It concludes that sentences with overt quantificational adverbs are to be distinguished from the generic reading of sentences without overt adverbs. This argues for entirely reconsidering the view according to which genericity is a consequence of a hidden generic and/or habitual operator.

Section 1.2.3 addresses the question of the dispositional reading of generic sentences according to which generic sentences involve a hidden abilitative operator *can*. Here again, contrasting the available interpretations of overt and covert *can*, the issue of the interpretation and nature of such hidden quantifiers is addressed.

1.2.1 ILP–SLP distinction

1.2.1.1 The distinction

1.2.1.1.1 The conceptual distinction In 1974, Milsark established a distinction between *state descriptive* and *property descriptive predicates*. Milsark's distinction is essentially temporal: property predicates permanently characterize an entity, whereas state-level predicates denote non-permanent, or accidental properties. In Milsark's terms (Milsark 1977: 212):

> . . . states are conditions in which an entity finds itself and which are subject to change without there being an essential alteration of the entity . . . [Properties] are descriptions which name some trait possessed by the entity and which is assumed to be more or less permanent or at least to be such that some significant change in the character of the entity will result if the description is altered . . .

Carlson (1977b) uses the terms *stage-level* and *individual-level predicates* (SLP/ILP), which correspond to, respectively, the state-level and the property predicates of Milsark. The major novelty of Carlson's view is that the distinction is explicitly stated to correspond to the ontological difference between the domains on which the predicates operate. Stage-level predicates operate on the domain of stages of individuals and individual-level predicates operate on the individuals themselves. In Carlson's terms (Carlson 1979: 57):

> . . . [The ILP/SLP] distinction is correlated with the sort of entity the predicate meaningfully applies to. If the predicate speaks of general characteristics, or dispositions, we represent it as applying to a set of objects. If something more fleeting is intended, somehow more temporary, and in some sense less intrinsic to the nature of a given individual, the predicate is represented as denoting a set of stages. This distinction is intended to correspond to the basically atemporal nature of individuals as opposed to their time-bound stages . . .

Carlson's distinction between two types of domains has seen greater popularity in the subsequent syntactic and semantic literature on SLP-ILP, as the issue of the lexical, logical, and conceptual representation of the predicates is overtly raised by assuming that their domains contain either stages of individuals or individuals themselves. At the lexical and logical level, the question arises as to how this distinction emerges in the grammar and how it must be coded in the logical form.

1.2.1.1.2 The conceptual distinction in the grammatical realm The conceptual distinction between SLP and ILP is reflected in grammatical distinctions. In particular, bare plural subjects have an existential interpretation with SLPs only ((65a) vs (65b)).

(65) a. Firemen are available. (existential reading possible)
b. Firemen are altruistic.

Only SLPs can be used in the 'there'-coda ((66a) vs (66a)).

(66) a. There were men naked.
b. *There were men blond.

Only SLPs can combine with locative modifiers ((67a) vs (67b)), be complements of perception verbs ((68a) vs (68b)), and be used as depictives ((69a) vs (69b)).

(67) a. Maria was friendly in the car.
b. *Maria was tall in the car.

(68) a. Maria saw Susan sick.
b. *Maria saw Susan tall.

(69) a. Maria sat tired in the waiting room.
b. *Maria sat blond in the waiting room.

The question thus arises as to how to interpret these facts, and what are the logical forms.

1.2.1.1.3 The conceptual distinction implemented In view of these facts, Chierchia (1995) argues that ILPs are intrinsically generic. Chierchia posits a GEN operator which quantifies over spatio-temporally bounded situations.

According to the dyadic quantifier analysis (e.g. Krifka et al. 1995), GEN is analyzed as a tripartite quantificational structure, consisting of a quantifier, a restrictive clause and a nuclear scope; see (70):

(70) GEN [restrictor] [matrix]

GEN is an unselective quantifier à la Lewis (1975), that can bind any free variable. For clarity, for the rest of the introduction we specify the variable over which GEN quantifies for each of the cases discussed.

According to the analysis proposed in Chierchia, a sentence like (71a) is analyzed as in (71b). Here *C* is a free variable for 'contextually relevant situations'. GEN quantifies over such relevant situations, and in all these relevant situations John is intelligent. The permanent character of the predicate *intelligent* is captured via the generic quantification on all relevant situations that involve John. Relevant situations are those situations that require 'intelligence'.

(71) a. John is intelligent.

b. GEN *s* [C(john,*s*)] [intelligent(john,*s*)]

In section (1.2.2.1) we propose an alternative view, which interprets the lack of spatio-temporal localization of ILP properties in terms of property unboundedness, and considers the latter as a source of the generic interpretation (rather than positing a hidden quantifier GEN).

The Generic Book also addressed the question of the lexical representation of these predicates, a question to which Kratzer's paper (Kratzer 1995) provides an answer which has been the focus of much debate in the subsequent years. Adopting a Davidsonian view according to which only eventive predicates have an event argument (whereas stative predicates do not), the distinction between SLPs and ILPs was reinterpreted as cutting across events and states: states were considered to be ILPs and events to be SLPs (although it was very quickly noted that some states are also SLPs, like 'be drunk', see discussion in Fernald 2000 and below). This distinction was thus implemented in terms of the presence or absence of an event argument in the logical form of SLP and ILP sentences.

Kratzer assumes that generic sentences (more precisely, characterizing sentences) are to be analyzed as tripartite structures, as in (70). Specifically for characterizing sentences with a singular indefinite, along the lines of Heim (1982), the author assumes that a free variable is introduced in the LF by the indefinite. The analysis

of sentence (72a) is given in (72b), in which a silent generic quantifier translated as 'always' in the LF is provided.

(72) a. When a Moroccan knows French, she knows it well. (Kratzer 1995: 129)

b. Always x [Moroccan (x) $\wedge$ know French (x)] [know well (x)]

Kratzer notes the ungrammaticality of (73).

(73) *When Mary knows French, she knows it well.

The problem here is that when the characterizing sentence does not involve an indefinite DP, the quantifier has no variable to bind in its scope. Within this framework the ungrammaticality of (73) is accounted for by appealing to the principle of prohibition agains vacuous quantification (74), given in Kratzer (1995: 131).

(74) For every quantifier Q, there must be a variable x such that Q binds an occurrence of x in both its restrictive clause and its nuclear scope.

In (73) there is no variable that the quantifier could bind in both the restrictive clause and the nuclear scope, and thus the sentence is predicted to be ungrammatical.

Remarkably, acceptability is restored if *know French* is replaced with *speak French*, as in (75).

(75) When Mary speaks French, she speaks French well.

The contrast between (73) and (75) is explained by assuming that SLPs (like *speak*) have an additional Davidsonian argument. This argument provides a variable for the spatio-temporal location of the eventuality that the predicate *speak* describes. Along the lines of Davidson, this argument is missing for ILPs. The resulting LF for (75) is given in (76).

(76) Always s [speak (Mary, French, s)] [speak -well (Mary, French, s)]

1.2.1.2 ILP/SLP in the recent semantic debate In pursuing the line of research initiated by Kratzer's paper, the debate around ILP and SLP has become part of the debate on events (considered as SLPs) and states (considered as ILPs), which has focused on establishing whether and to what extent the correlation initiated by Kratzer (shown in (77)) holds.

(77) The view of SLP/ILP at the time of *The Generic Book*

ILP	statives	no event argument
SLP	eventives	event argument

1.2.1.2.1 Revisitation of the twofold distinction: ILP statives It is easy to note that the correlation between ILPs and states does not always go through as there are SLP states, like 'be on the boat', etc. (see Fernald 2000). Reconsidering the twofold distinction between ILPs and SLPs, Jäger (2001) has identified multiple classes based

on consideration of three features. The first is (1) the ability to obtain an existential reading with bare plural subjects. In the table that follows, we posit that a predicate has a feature [WS] if and only if it admits an existential reading of the subject. The second feature (2) pertains to the ability to occur as the infinite complement of a perception verb. If the predicate concerned has this ability, the feature [PR] is used. Thirdly (3), if the predicate denotes a transitory property, the feature [TR] is used. By combining these three features, eight classes are identified.

	[WS]	[PR]	[TR]	Example	Type of eventuality
A	+	+	+	shout, hear	eventive
B	+	+	−	stand, sit, lie	eventive
C	+	−	+	available	eventive
D	+	−	−	situated at this river	eventive
E	−	+	+	naked, drunk, sick	eventive
F	−	+	−	to tower over	eventive
G	−	−	+	love, hate, know	states
H	−	−	−	to have blue eyes	statives

The split between classes G and H is particularly important, since it points to the fact that the class of so-called 'states' needs to be further refined. However, this refinement is not visible in the logical form, as Jäger (2001) assumes that all predicates have an event argument. In particular, he argues that the Davidsonian argument of statives ranges over time slices of possible worlds, and that these cannot be the object of perception.

1.2.1.2.2 In defense of the Davidsonian view Katz (2000) is a true defender of the Davidsonian view, which claims that only eventives are equipped with an event argument. This view contrasts with the *neo*-Davidsonian view (Parsons 2000), according to which all predicates, eventives and statives, are equipped with an event argument.

Katz, unlike Jäger (2001) does not tease apart states from statives. He simply uses the label 'statives' for verbs both like *love, know* (Jäger's class G) and *have blue eyes* (Jäger's class H).

Focusing on adverb modification, he argues that statives should not be treated on a par with eventives. His well-known argument is based on the distribution of adverbs (see e.g. Katz 2000, 2003, 2008). Along with Jackendoff (1972), Katz (2003) observes that there are two types of adverbs: S-Adverbs that combine at the sentence level and modify propositions (78), and VP-adverbs that combine at the VP level and are predicate modifiers (79).

(78) a. John probably loved Mary.
b. John probably kissed Mary.

(79) a. *John loved Mary quickly.
b. John kissed Mary quickly.

Katz further notes that while S-adverbs can combine with both eventive (78b) and stative predicates (78a), the latter type can only combine with events (79b) and not with statives (79a). He further observes that there are no VP adverbs that can combine with states/statives but not with events. He calls this phenomenon 'stative adverb gap'.

According to the author, this shows that statives are *not* equipped with an event argument. The reasoning goes as follows. According to the neo-Davidsonians (i.e. on the assumption that all predicates, including statives have an event argument), verbs (80a) and VP adverbs (80b) denote predicates of eventualities. VP-adverbial modification is thus simple conjunction, as illustrated in the following derivation (Katz, 2003: 457) ('<' indicates temporal precedence).

(80) a. John leave λe[leave(e, *John*)]
b. slowly $\lambda P \lambda e[P(e)\&\text{slow}(e)]$
c. John left slowly $\exists e$[leave(e,John) & slow(e) & e < now]

The conclusion follows that if states were equipped with an event argument, the derivation should go through and (79a) would have to be acceptable, contrary to fact. The picture is thus identical to that earlier proposed by Kratzer (1995).

1.2.1.2.3 Kimian states As mentioned, neo-Davidsonians, and more precisely, Parsonians (Parsons 2000), argue instead that all eventualities (i.e. events and states, see Bach 1986) are equipped with an event argument (see e.g. Dölling 2005; Higginbotham 2005; Rothstein 2005). Followers of this view give up the assumption that eventualities are located in space and suggest, for instance, that 'eventualities are abstract entities with constitutive participants and with a constitutive relation to the temporal dimension' (Ramchand, 2005: 372).

In this framework, various authors have noted that statives can be modified by adverbs.

(81) a. John was a Catholic with great passion in his youth. (Jäger 2001)
b. Dan is in the country illegally. (Mittwoch 2005)
c. The board is coarsely grooved. (Parsons 2000)

(Maienborn 2001, 2003, 2004, 2007) defends the idea that adverb modification can occur with statives at the price of a coercion of the predicate from stative to eventive. She argues that (81a) should be interpreted as describing a passionate way of John

living his Catholicism. Maienborn thus proposes considering statives[9] as Kimian states (Kim 1969, 1976).

(82) *Kimian states*: K-states are abstract objects for the exemplification of a property *P* at a holder *x* and a time *t*.

Maienborn identifies some ontological properties of Kimian states and some linguistic diagnostics.

(83) Ontological properties

a. K-states are not accessible to direct perception and have no location in space

b. K-states are accessible to (higher) cognitive operations

c. K-states can be located in time

(84) Linguistic diagnostics

a. K-states expressions cannot serve as infinitival complements of perception verbs and do not combine with locative modifiers (85a)

b. K-states are accessible for anaphoric reference (85b)

c. K-states can combine with temporal modifiers (85c)

(85) a. *John saw Mary know French.

b. Carolin is wütend. Das wird bald vorbei sein.
Carolin is angry. This will soon over be

c. Carolin war gestern/immer/zweimal müde.
Carolin was yesterday/always/twice tired

In recent work, Rothmayr (2009) has argued that Davidsonian events are derived from Kimian states. This is discussed by Moltmann, in the present volume, in her research dealing with states, statives, and Kimian states.

1.2.1.3 ILP/SLP in the recent pragmatic debate In a recent paper, Magri (2009) proposes a pragmatic view of the distinction between SLP and ILP predicates. Following Chierchia (1995), he recognizes that there are differences between the two types of predicates that surface in the grammar (he acknowledges the distinctions provided, in (65)–(69)). However, Magri claims that there is no difference at the level of the logical form (in particular, all types of eventualities, statives, and eventives are equipped with an event argument), and that the grammatical differences are predicted on the basis of calculation of inferences that appeal to common knowledge.

As for the predicate *tall*, the ILP interpretation is calculated in the following way. If we look at the entire set of possible worlds, there is no difference between ILPs like

[9] Maienborn subscribes to the distinction between states and statives and assumes that the latter only are to be treated separately.

tall and SLPs like *available*. There are worlds in which John is available only at some times in his lifespan and there are also worlds in which John is tall only at some times in his lifespan.

The difference between the two categories emerges as soon as we restrict ourselves to consideration of worlds compatible with common knowledge. Magri argues that there are indeed worlds compatible with common knowledge where John is available only at some times in his lifespan, whereas there are no worlds compatible with common knowledge where John is tall only at some times in his life.

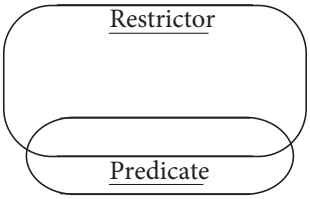
Magri (2009) formulates the assumption (86):

(86) There is no world compatible with common knowledge [...] where John happens to be tall at some times in his life only but not at some others.

As a generalization, Magri states a rule for what he calls the 'homogeneous' predicates.

(87) A predicate is homogeneous w.r.t. a Restrictor if and only if there is no world compatible with common knowledge where some elements in the Restrictor satisfy the Predicate and some others don't (i.e. (88) (Magri, 2009: 271) is not allowed for homogeneous predicates).

(88)



For the predicate *be tall*, the Restrictor part contains the times at which John is alive. The Predicate part contains the times at which John is tall.

Magri considers various cases, including the following contrast (89):

(89) a. ??John is sometimes tall.
b. John is sometimes available.

By calculation of the implicatures associated with homogeneous predicates, Magri explain the oddness of (89a) in the following manner.

(90) a. Because of the existential Q-adverb, (89a) triggers the scalar implicature that John is not always tall
b. But common knowledge entails that, if John is sometimes tall, then he must always be tall by assumption (86)
c. The oddness of (89a) thus follows from the mismatch between the implicature (90a) and the common knowledge (90b)

Magri captures the ILP/SLP distinction within a broader perspective that includes other cases like (91). Its oddness is explained by the reasoning in (92) that parallels that in (90).

(91) ?? Some Italians come from a wonderful country.

(92) a. The use of *some* triggers the scalar implicature that not all Italians come from a wonderful country

b. But common knowledge entails that all Italians come from the same country (which is here described as wonderful) (86)

c. The oddness of (92) thus follows from the mismatch between the implicature and the common knowledge

Magri's theory thus extends to a variety of cases beyond genericity, and sheds a new light on the nature of ILPs, which are explained within a more general theory of homogeneous predicates and calculation of implicatures associated with such predicates.

1.2.1.3.1 Summary To conclude, the table below summarizes the developments that the foundational twofold distinction has undergone in the debate that *The Generic Book* has initiated.

Author	Stative/eventive	ILP/SLP	Event argument
Kratzer/Katz	Stative	ILP	No
	Eventive	SLP	Yes
Jäger	Eventives (classes A–F)	SLP	Yes
	States (class G)	SLP	Yes
	Statives (class H)	ILP	Yes
Maienborn	Eventives	(not at issue)	Yes
	Kimian states	(not at issue)	No
Magri	Eventives/Statives	ILP/SLP	Yes

1.2.2 *Unboundedness and plurality*

1.2.2.1 *Unboundedness*

1.2.2.1.1 Unboundedness in *The Generic Book* and before A property of characterizing sentences which has often been regarded as essential to their generic meaning is

temporal unboundedness, namely the property by which such a sentence is not true relative to a time interval with definite bounds, but rather relative to an indefinitely large interval, or even in a timeless way.[10] The relevant observation has been that generics cannot be felicitously modified by adverbs denoting particular temporal locations, unlike sentences that report singular episodes, as illustrated by the contrast in acceptability between (93) and (94) (a question mark before a sentence indicates oddness):

(93) Dogs were barking at 3 pm.

(94) ?Dogs bark today.

Temporal unboundedness is intuitively related to the law-like or nomic character of generics (Dahl 1975), another property that has been considered essential to such sentences. Laws indeed do not refer to singular events but rather express regular patterns of occurrence of certain types of events; as such, their truth is not relative to bounded time intervals, unlike the truth of sentences reporting singular events. For the sake of precision, and to avoid misunderstanding, we should note that the particular type of generic meaning called *reference to a kind* in Krifka et al. (1995: 2), which consists of kind-referring DPs, is in fact compatible with predications specifying a temporal localization, as shown by (95) and (96):

(95) Potatoes were imported to Europe at the end of the XVI century.

(96) The dodo became extinct in the late XVII century.

Such sentences, however, should be disregarded as irrelevant: they involve kind-referring DPs in subject position (the bare plural *potatoes* and the singular definite *the dodo*) and report particular episodes concerning the kinds referred to, where the episodes in question can be naturally ascribed a bounded temporal location; it is indeed these episodes which are ascribed a temporal location in (95) and (96) by the use of time adverbials. Thus, the temporal location in (95) and (96) does not provide a case against temporal unboundedness as a characterizing feature of genericity. In passing, we should also note that unboundedness is arguably a characterizing feature of generically interpreted DPs as well, as shown by the contrast in acceptability between (97a) and (97b) (from Carlson 1982):

(97) a. Desks that have metal tops are increasingly rare. (= Carlson's [25b])

b. ?Desks that Bill is looking at right now are increasingly rare. (= Carlson's [26b])

On the one hand, the relative clause in the bare plural subject of (97a) expresses the general property of having metal tops, through which the kind *desks* can be restricted

[10] Here we do not concern ourselves with spatial unboundedness, which has also been claimed to be characteristic of genericity.

to a particular subkind, i.e. *desks that have metal tops*. In (97b), on the other hand, the relative clause in the bare plural subject refers to a particular episode which is located at the time of utterance by the temporal adverbial *right now*. The introduction of such temporal bounds is incompatible with the subject DP being interpreted generically, i.e. as a kind-referring DP. Given that the predicate of (97b) can be meaningfully applied only to kind-referring subjects, and given further that the subject of (97b) fails to refer to any kind, the sentence turns out to be unacceptable. We thus seem entitled to conclude that generic DPs too require unboundedness.

The importance that has been attached to unboundedness as an essential property of generics is apparent by considering Chierchia's (1995) arguments for classifying individual-level predicates (ILPs) as inherent generics. The empirical evidence on which Chierchia bases his view crucially incorporates the property of non-localizability displayed by predicates like *be French*, as opposed to episodic predicates like *be tired*. Note the contrast in acceptability between (98) and (99), which is strictly parallel to the contrast considered at the outset between (93) and (94).

(98) Jean was tired this morning.

(99) ?Jean is French today.

Chierchia's point is that an ILP predicate like 'be French' contributes a type of property predication to the sentence meaning which does not allow for temporal restrictions, and thus patterns with generic predications like (94) above. We consider several questions in the following sections, including: how is the unboundedness property that scholars have recognized both in generics and in ILPs to be properly understood? How essential is the role that unboundedness plays in the emergence of generic readings? Is unboundedness a sufficient factor for an account of how generic meaning is generated, or must we invoke a generic operator or quantifier of some sort to make such an account work?

1.2.2.1.2 Unboundedness as an effect of a generic operator We begin by considering what can be fairly seen as the most common view about characterizing sentences, i.e. the idea that their generic meaning is obtained as the effect of an underlying operator or quantifier which is not phonologically realized but which is still active in the composition of the sentence meaning. On this view, the unboundedness property of generics, if considered at all, is taken as an effect of the underlying operator. To cite just a few representative examples of this view, Lawler (1972), Carlson (1977b), Farkas and Sugioka (1983), Heim (1982), and most of the contributions in Carlson and Pelletier (1995) all proposed accounts of generics based on such covert operators or quantifiers. Much of the evidence for these proposals came from the interpretation of English simple present tense sentences with dynamic predicates, like (100):

(100) Mary smokes.

Such sentences cannot be interpreted as reporting one single episode of the type described by the verb (unlike English progressive sentences), but can only be interpreted as generalizations over episodes of that type. The common idea pursued by these authors is that the generalization in question is effected through a syntactically covert operator, which in some proposals operates at the level of the verb phrase, thus deriving an individual-level predicate from a basic stage-level predicate (Carlson 1977b), while in some others operates at the level of the sentence (Farkas and Sugioka 1983; Heim 1982; Carlson and Pelletier 1995), where it acts as a dyadic generic quantifier with syntactic and semantic properties similar to the ones of the quantificational adverb *always*.

To illustrate the difference between these two types of analysis, we consider what logical forms are predicted by each for the sentence (100). According to Carlson (1977b), (100) is analyzed as a simple subject-predicate structure in which the subject DP *Mary* refers to the individual Mary herself, as opposed to any temporally bounded stage of this individual (e.g. the temporally bounded stage of Mary consisting of Mary smoking a cigarette on a particular occasion), and the episodic or stage-level verb *smokes* is shifted to an individual-level predicate via a monadic operator Gn, whose semantic contribution is constrained as follows (here, x^o and x^s are sorted variables which range over objects and stages respectively). Where P is a stage-level predicate, e.g. $\mathrm{P} = \lambda x^{\mathrm{s}}.\ \mathrm{smoke}'\ (x^{\mathrm{s}})$, applying Gn to the intension of P yields the object-level predicate $\mathrm{Gn}(^\wedge\mathrm{P}) = \lambda x^{\mathrm{o}}.\ [\mathrm{Gn}(^\wedge\lambda x^{\mathrm{s}}.\mathrm{smoke}'(x^{\mathrm{s}}))](x^{\mathrm{o}})$. If a sentence S is translated as $[\mathrm{Gn}(^\wedge\lambda x^{\mathrm{s}}.\mathrm{P}'(x^{\mathrm{s}}))](x^{\mathrm{o}})$, the truth of S requires that there be stages of the object x^{o} which have the property $\lambda x^{\mathrm{s}}.\mathrm{P}'(x^{\mathrm{s}})$.

Sentence (100) is translated as the formula (101), whose intuitive interpretation is given by the paraphrase below:

(101) $[\mathrm{Gn}\ (^\wedge\lambda x^s.\mathrm{smoke}'(x^s))](\mathrm{Mary})$
The individual Mary has the property of generally or habitually smoking.

By the semantics of Gn given above, no requirement on the number of episodes in which Mary smokes is imposed by the truth of the predication that Mary habitually smokes—the only requirement is that there has been at least one such episode. While this might well appear too weak for the example at hand, this weakness was meant to account for the great variability in 'quantificational force' of habituals, which has been recognized since Lawler (1972). Carlson's idea was that a specification of the number of episodes which should be necessary for the truth of a habitual sentence cannot be the business for a semantic theory of generics but must be left to extra-semantic considerations.

According to the dyadic quantifier analysis (e.g. Krifka et al. 1995), (100) is to be analyzed as a tripartite quantificational structure of the form GEN(restrictor; matrix), as in (102):

(102) GEN*s* [*s* is suitable for Mary smoking] [Mary smokes in *s*]
All/most possible situations s which are suitable for Mary smoking are such that Mary indeed smokes in s.

Here GEN only binds a situation variable, the restrictor, i.e. the property of being a situation suitable for Mary smoking is a contextually supplied property that constrains the domain of GEN, and the matrix is the property of being a situation in which Mary smokes. Since it is treated as an unselective quantifier (see (70)), in other cases GEN may bind individual variables as well, e.g. when indefinite DPs occur in the restrictor, as in the sentence (103), whose logical representation is given in (104):

(103) A cat has a tail.

(104) GEN x, s [x is a cat in s] [x has a tail in s]
All normal individuals x and situations s such that x is a cat in s are such that x has a tail in s.

There are differences between the account based on the VP-level monadic operator and the one based on the dyadic operator, discussed by Carlson (1988) and Krifka et al. (1995), who both take the latter to be superior. One phenomenon that has played a crucial role in determining the switch from Carlson's monadic operator to the dyadic operator GEN is the ambiguity of (105). This sentence has two different generic readings. On one reading (referred to as 'Reading 1' below), the sentence means that hurricanes in general have the property of arising in that part of the Pacific which is demonstratively referred to, and on this reading the sentence is false. On the other reading (reported as 'Reading 2' below), which corresponds to a prosodic pattern where focus is placed on *hurricanes*, the sentence means that there are hurricanes that arise in the part of the Pacific referred to, and on this reading the sentence is true.

(105) Hurricanes arise in this part of the Pacific.
Reading 1: 'In general hurricanes arise in this part of the Pacific.'
Reading 2: 'This part of the Pacific is such that there are hurricanes that arise in it.'

Carlson's original theory is not equipped to deal with effects of prosody on logical form and only predicts the reading of (105) in which the BP subject is interpreted generically, with the whole sentence reporting a property of the kind hurricanes (Reading 1). This reading, which corresponds to the normal out-of-the-blue intonation of (105), is captured by the following analysis:

(106) $[\mathrm{Gn}(^\wedge\lambda x^s.\text{arise-in-this-part-of-Pacific}(x^s))](\textit{hurricanes})$

The problematic reading of (105), i.e. Reading 2, would be captured by having the DP *this part of the Pacific* come out as the logical subject of the sentence and by having its surface position abstracted over by a λ operator, thus generating the logical predicate

λx^s.hurricanes arise in x^s. The latter is fully translated as $\lambda x^s.\exists y^s[R(y^s$, hurricanes) $\wedge$ arise-in$(y^s, x^s)]$. This stage-level predicate would then be shifted to an individual-level predicate via the Gn operator before being applied to the logical subject. The final result would be the following formal analysis, given along with an informal paraphrase:

(107) $[\text{Gn}(^\wedge\lambda x^s.\exists y^s[R(y^s$, hurricanes$)\wedge$arise-in$(y^s, x^s)])]$(this part of the Pacific)
This part of the Pacific has the property of generally having hurricanes arising in it.

This analysis, however, is out of reach of Carlson's original theory. The theory based on the dyadic operator, on the other hand, can naturally handle focus and effects of prosody on meaning, so it can easily account for the problematic reading of (105) once it is supplemented with the standard assumption that focused material goes in the nuclear scope (see the Standard Prosodic Hypothesis of Asher and Pelletier, this volume). Thus the logical form of (105) will be as follows:

(108) GEN*s* [*s* is suitable for something arising in this part of the Pacific] [there are hurricanes that arise in this part of the Pacific in *s*]

The formal accounts that we have considered thus far converge on the idea that generic interpretations result from an underlying generic operator, the semantics of which has been thought of either in terms of an aspectual shift from stage-level interpretations to individual-level interpretations of verbal predicates, or in terms of a (quasi) universal quantification over situations/individuals. We want to emphasize that the proponents of such operator-based accounts have also generally recognized the importance of a notion of unboundedness for a theory of genericity, at least for the sake of a descriptive characterization of generics. Proponents of such accounts, however, will typically view unboundedness as an effect of the underlying generic operator, while they will not see unboundedness as a primitive factor playing a role in the construction of generic interpretations. It is interesting, in this respect, to consider the position of Carlson (1988), which gives us the occasion to bring imperfectivity to the fore. Departing from the original proposal in his dissertation, Carlson (1988) assumes a dyadic operator relating a restrictive part, which he calls *related constituent*, and a matrix—exactly the same idea that would be systematized later in *The Generic Book*. However, he also entertains a notion of unboundedness in order to characterize generics in opposition to universal statements that contingently hold of bounded circumstances. He considers the contrast in acceptability between (109a) and (109b):

(109) a. A cat runs across my lawn every day.
b. ?A cat runs across my lawn every day this week and last.

What is at stake in (109a) and (109b) is the possibility of an unbounded reading of the universally quantified time adverbial. This is only possible in (109a), not in (109b), where the adverbial must express universal quantification over a bounded

domain of days, namely the days in this week and in last week. As a consequence of the bounded interpretation of the time adverbial in (109b), only an episodic reading of the sentence would be possible, if it weren't the case that the English present tense does not allow for episodic readings (i.e. event-in-progress readings) of eventive sentences. As a consequence, (109b) is not acceptable. Carlson's point can perhaps be better appreciated if we consider the past tense counterparts of (109a) and (109b), which are both acceptable:

(110) a. A cat ran across my lawn every day.
b. A cat ran across my lawn every day this week and last.

Only (110a) can be interpreted as a generic, stating that on every day within a past situation lacking specified bounds a cat ran across my lawn. The sentence need not be so interpreted, as it can also have an episodic reading in which it refers to a past bounded situation and quantifies over a finite set of days within this situation. Crucially, however, *if* it is interpreted generically, it makes a nomic statement which is not bounded to a finite set of actual days in the past. Sentence (110b), on the other hand, can only be accepted as a universal quantification contingently holding of a bounded situation: for every day within this week and last week, it turned out that a cat ran across my lawn on that day ((110b) only has the meaning of an accidental generalization). Yet other examples discussed by Carlson, which nicely highlight the relevance of unboundedness to the availability of generic meaning, are the following sentences involving clausal adverbials instead of quantified time adverbials in the role of the related constituent:

(111) a. John jumped when the fire alarm went off. [Bounded, Episodic]
b. John eats when he gets hungry. [Unbounded, Habitual]

Unfortunately, Carlson is not very explicit on the notion of unboundedness that he makes use of. He suggests that in (109a) this notion cannot be taken to be unboundedness of the domain of the universal quantifier, i.e. quantification over an unlimited number of days, and that the notion in question is rather related to intensionality in this context. His somewhat vague remark is that '(t)he beginnings of a satisfactory analysis would treat the meaning of the phrase [*every day*] in (109a) as a function from contexts to all days in that context, and it is this meaning that is related in the generic interpretation of (109a)' (Carlson 1988).

Before moving to the next section, we note that in languages with a perfective/imperfective distinction morphologically realized in their aspectual systems, examples (110a) and (111b), on the one hand, and examples (110b) and (111a), on the other hand, would be translated using different aspectual forms, namely the imperfective for (110a) and (111b) (past for the former, present for the latter), and the perfective (past) for (110b) and (111a), as shown by the following sentences from Italian:

(112) a. Ogni giorno un gatto attraversava correndo il mio prato.
Every day a cat crossed(3sg,past impf) running the my lawn
Every day a cat used to run across my lawn. [Habitual]

b. John mangia quando gli viene fame.
John eat(3sg,pres impf) when to-him come(3sg,pres impf) hunger
John eats when he gets hungry. [Habitual]

(113) a. Ogni giorno di questa settimana e di quella scorsa un gatto ha attraversato correndo il mio prato.
Every day of this week and of that past a cat has crossed running the my lawn
Every day of this week and of the last week a cat ran across my lawn. [non-Habitual]

b. John ha saltato quando l'allarme anti-incendio ha smesso.
John has jumped(past perf) when the alarm anti-fire has stopped(past perf)
John jumped when the fire alarm went off. [non-Habitual]

Imperfectively marked verb forms, as in (112a) and (112b) above, are the natural option for expressing generic meaning in Italian. Only imperfective forms are compatible with an unbounded temporal interpretation in this language, while perfective (past) forms locate an eventuality within the limits of a bounded situation, even in sentences containing a universally quantified time adverbial, e.g. (113a) above.[11]

Imperfective forms allow for both episodic (event-in-progress) and generic interpretations, as shown by the ambiguity of (114) between the two readings given below:

(114) Gianni guidava un'auto sportiva.
Gianni drive(3sg, past impf) a sports car
Reading 1. 'Gianni was driving a sports car.'
Reading 2. 'Gianni used to drive a sports car.'

The difference between the two interpretations seems to reduce to the following fact: in the episodic reading the sentence is interpreted relative to a small time interval (e.g. yesterday at 3 pm), in the generic reading it is interpreted relative to an interval lacking specified temporal bounds (Gianni's lifespan? Gianni's youth?). It is thus tempting to assume that the difference between the two readings of (114) is not a matter of semantic ambiguity affecting some part of the sentence, or a matter of the presence

[11] As such, perfective forms in Italian are unable to express generic meaning. By this remark, we do not intend to exclude the possibility of referring to a habit through a perfective form, as in *Gianni ha fumato la pipa per tutta la sua vita* ('Gianni smoked a pipe all his life'). The natural reading of this sentence refers to a habit of Gianni's (in a perfective way). It should be mentioned, however, that it is one thing to achieve reference to a habit, and quite another thing to express a habitual meaning: the former admittedly can be done through a perfective sentence, but the latter can only be done by using an imperfective sentence. For example, the perfective sentence given above, though referring to a habit, does not express generic or habitual meaning - for one thing, it lacks the intensional character that true generics have.

or absence of a generic operator, but that it is uniquely due to a difference in the size of the interval relative to which the sentence is interpreted. This observation points to a view in which temporal unboundedness plays a primary role in determining the emergence of generic meaning, as will be discussed in the following section.

1.2.2.1.3 Genericity and unboundedness: a pragmatic issue The alternative view that we consider in this section is that the main factor responsible for the emergence of generic meaning is a general property of unboundedness, not the presence of a generic operator in the logical form of the sentence. Declerck (1988) is a representative of this view. The starting point of Declerck's analysis is significantly different from the traditional one, which is mainly concerned with the generative issue of how generic readings should be derived in compositional semantics, and is rather concerned with the processing issue of how speakers interpret certain sentences as episodic and others (even though they may be structurally similar to the former) as generic, as illustrated by the interpretive contrast between (115) and (116):

(115) The boy is cunning.

(116) The fox is cunning.

Declerck's idea is that there is no deep difference in logical form between non-generics and generics. In particular, the latter do not differ from the former in having a hidden generic operator which should be made explicit at logical form, but the difference between them has to do with whether the sentence interpretation is pragmatically restricted to a bounded domain or not. The interpretive rules that are relevant for the contrast at hand are claimed to be derivable from the Gricean maxims, specifically the maxim of Quantity. On this approach, the unbounded character of generics ultimately depends on interpretive rules requiring that the information conveyed by an utterance be maximized (the *maximal-set principle*, requiring that the maximal set of entities allowed by the contextual restrictions be referred to, and the *inclusiveness principle*, requiring application of predication on a set *X* to all members of *X*; see Declerck 1988: 83–4). These rules interact with other rules prescribing relevance and truthfulness, whereby the 'unbounding' effects of the former are constrained in the appropriate contexts. The maximizing rules account for the emergence of the generic interpretation of (116) (provided that in the utterance context there is no relevant individual fox immediately accessible to the hearer as the referent of the definite DP): by the maximal-set principle, reference is achieved to what is called the *generic set* of foxes, i.e. the set of all actual and possible (past and future) foxes, and by the inclusiveness principle the property of being cunning is then predicated of each individual in this unbounded set, conveying the information that being cunning is an essential property of foxes, as opposed to one that is contingently predicated of some foxes only. What prevents a similar generic interpretation of (115) is the interaction between the maximizing rules and other rules prescribing truthfulness and relevance:

an unbounded interpretation of the subject DP *the boy* as referring to the generic set of boys would in principle be possible, but ascribing the property of being cunning to all possible boys would result in a false statement, hence the hearer goes for a weaker interpretation here, one in which reference is made to a contextually relevant boy (provided that there is one in the immediate context), of which the property of being cunning is predicated. Declerck's analysis relating genericity to unboundedness can explain why sentences like (117a) and (117b) are not acceptable as generics:

(117) a. ?Twelve cats are intelligent when they have blue eyes.

b. ?A cat has a tail these days.

Sentence (117a) is claimed to be odd because it is numerically bounded by the indefinite 'twelve cats', while if we remove the numerical determiner 'twelve' and leave the bare plural 'cats' in place, we obtain an acceptable generic sentence:[12]

(118) Cats are intelligent when they have blue eyes.

The kind of oddness observed in (117b) above, on the other hand, is explained as follows: by the pragmatic rules of interpretation, the clause *a cat has a tail* is interpreted as implying that any arbitrary cat has a tail, i.e. having a tail is a property which is essential to cats; this character, however, is incompatible with the temporal restriction introduced by the time adverbial *these days*.

1.2.2.1.4 Problems and perspectives Unboundedness of generics with respect to time has been questioned (e.g. Krifka et al. 1995: 36) on account of the observation that at least generics from the variety of habituals are felicitously localizable to past time and present time periods, as shown in (119a) and (119b):

(119) a. These days Mary smokes Marlboros.

b. In those days / In the nineties Mary used to smoke Marlboros.

If we are willing to pursue a characterization of generic sentences in terms of temporal unboundedness, we then face an empirical challenge posed by such examples. The use

[12] Note that a simple restriction requiring the use of BPs or singular indefinites, however, would not work (as already noted by Krifka et al. (1995)). This is shown by the acceptability of (263):

(263) Two friends help each other.

Notice that the numeral *two* in (263) is acceptable because it does not introduce an arbitrary numerical restriction, but serves to specify that the sentence is about groups of friends containing two individuals each. Accordingly, the sentence gets the generic interpretation that any group of two friends *x* and *y* is such that *x* helps *y*. The conclusion is that (263) does not pose a real problem to the unboundedness analysis. Compare the acceptability of (263) with the non-acceptability of (264), in which the numerical restriction introduced by *four* is not as easily motivated as the one in (263):

(264) ? Four friends help each other.

We will not consider numerical unboundedness any further.

of the time adverbials *these days* and *in the nineties* to locate Mary's habit of smoking Marlboros in (119a) and (119b) does not seem to give rise to oddness in the same way that the use of temporal modifiers does in examples (94) and (117b). However, we believe that the intuition behind the idea of temporal unboundedness is valid, and examples like (119a) and (119b) simply demonstrate the necessity of suitably restricting the unboundedness requirement. Although (119b) shows that generics (in their subvariety of habituals) do admit temporal restrictions, we observe that not just any temporal restriction would work. For example, restriction to a particular point in time as in (120) would not do:

(120) ? On that day at 4 pm Mary used to smoke Marlboros.

It seems that a more appropriate way to characterize generic meaning would be to say that it is triggered whenever the reference situation which underlies the interpretation of the sentence has either unspecified temporal bounds, or a suitably large temporal size. By further pursuing this line of thought, we could end up with a scale of generic sentences, with sentences like *Dogs bark* at the top of the scale (the underlying reference situation has unspecified temporal bounds in these cases), and sentences like *These days Mary smokes Marlboros* somewhere lower on the same scale (the underlying reference situation has a large temporal size in these cases). To illustrate this idea, we consider some more examples from Italian. In this language, where genericity is expressed by imperfective sentences, which also allow for episodic, event-in-progress readings when the reference situation is small. Compare (121a)–(121c), which are anchored either to unbounded or to large situations and have generic meaning, with (122a) and (122b), which are anchored to small situations and have episodic meaning:

(121) a. Gianni è intelligente.
Gianni is intelligent.

b. Gianni suona la chitarra.
Gianni plays guitar.

c. In questi anni, Gianni gioca a calcio in una squadra locale.
Nowadays, Gianni plays football in a local team.

(122) a. Gianni è offeso.
Gianni is offended.

b. Gianni legge un articolo in cucina. *Gianni is reading an article in the kitchen.*

c. ?In questi anni, Gianni è contento. *?Nowadays, Gianni is glad.*

Sentences (121a), (121b), unlike (122a), (122b), have reference situations which lack specified temporal bounds, in the sense that a time adverbial could not be used in either (121a) or (121b) to constrain the size of the reference situation. For example, it would be odd to say *Questa mattina Gianni è intelligente* 'This morning Gianni is intelligent' or *Questa mattina Gianni suona la chitarra* 'This morning Gianni plays the

guitar' (with the generic interpretation of the VP *suona la chitarra*, which is similar to the interpretation of the ILP *is a guitar player*); however, such constraint of the reference situation through a time adverbial is possible in (122a), (122b), as we could felicitously say *In questo momento Gianni è offeso* 'At this moment Gianni is offended' or *In questo momento Gianni legge un articolo in cucina* 'At this moment Gianni is reading an article in the kitchen'. On the other hand, (121c) has a 'large size' reference situation which is constrained by the time adverbial *in questi anni* 'in these years', while the same adverbial gives rise to anomaly in (122c), given that the predicate *essere contento* 'to be glad' denotes a set of transitory states which do not hold of year-sized intervals. This proposal will make sense of a theory which allows for different degrees of genericity. Basically, a distinction will be drawn between 'strong' generics which do not have any specified temporal bounds, and 'weaker' generics which do have more constrained reference situations, although characterized by a large size. This paves the way for empirical studies aimed at assessing the extent to which such theory is supported by real data.

In conclusion, all parties recognize that some not well-defined property of unboundedness is central to generics. We saw above that Carlson (1988), though proposing a dyadic operator analysis which anticipates that of Krifka et al. (1995), devotes much attention to a notion of unboundedness which he proposes as a feature discriminating between truly generic sentences and those which only express accidental generalizations. In this respect, it is particularly interesting to consider Krifka et al.'s perspective on Declerck's proposal to have a property of unboundedness explain the interpretation of restrictive *when*-clauses in generics: '[Declerck] argued that [unboundedness], rather than the presence of a generic operator, is the essence of restrictive when-clauses. We agree with his observation concerning the "unspecified" nature of when-clauses, but we claim that it is the presence of a generic operator (or of explicit quantificational adverbs) which causes the when-clause to be "unspecific." ' (Krifka et al., 1995: 36). Thus, the general point is that it is clear that unboundedness truly is a property characterizing generics; what is in question is whether unboundedness should be viewed as the primary notion in the semantic theory of generics or whether it is an effect dependent on an underlying generic operator. According to this perspective, the real alternative to the prevailing analysis based on some sort of covert generic operator is not simply to emphasize the presence of an unbounded interpretation, but rather to claim that the unbounded interpretation is not the effect of the semantic functioning of an ad hoc generic operator, but an independent ingredient of the semantics of generics which, by itself or in interaction with some other ingredient, produces generic meaning. An alternative of this kind, even though restricted exclusively to habitual generics, is proposed in Del Prete's paper in this volume. Del Prete considers habitual generics in Italian, typically consisting of imperfectively marked sentences. His proposal is based on a modal-temporal analysis of the morphologically overt imperfective aspect in a branching-time model, where

the semantic contribution of imperfective is a forward expansion of an input reference situation in the model of the branching futures. This contribution of the imperfective is constant across the progressive and the generic readings of imperfective sentences, and is not specifically invoked to account for the intensional character of generics in particular. The difference between progressive and generic readings is thus explained in terms of a difference in the temporal size of the input reference situation: small reference situations give rise to event-in-progress readings, where typically a singular event of the type described by the VP is considered as covering the forward extended situation, whereas large reference situations set the ground for the emergence of generic readings, where typically plural events of that type are needed to cover the forward extended situation.[13]

1.2.2.2 Plurality

1.2.2.2.1 State of the question in *The Generic Book* and problems On the analysis of habituals in terms of the covert operator GEN proposed by Krifka et al. 1995, it is not trivial to explain the contrast between (123) and (124) below. In particular, given that the logical form of (124) could be either the formula (125) or the formula (126), this analysis misses an explanation of the 'same object' implication of (124) that makes this sentence odd—indeed this sentence, to the extent that it is acceptable, is understood as implying that John writes the same song over and over, but neither (125) nor (126) predicts this implication.

(123) When John writes a song, he goes to the Irish pub.

(124) ? John writes a song at the Irish pub.

(125) GEN_s[John is at the Irish pub in s] [$\exists x$ [John writes x in s & x is a song in s]]
'Generally, when John is at the Irish pub, he writes a song there.'

(126) $\mathrm{GEN}_{s,x}$[John writes x in s & x is a song in s] [John is at the Irish pub in s]
'Generally, when John writes a song, he is at the Irish pub.'

A less recognized point is that Carlson's analysis in terms of the monadic operator Gn would also have difficulties in accounting for the oddness of (124). Carlson (1979) shows that the Gn analysis predicts that (127) does not imply that there is a particular knife used by John on every occasion. The way this prediction is borne out is by the occurrence of the existential quantifier corresponding to *a knife* in the intensional context set up by Gn, as shown in the formal analysis (128):

(127) John eats his dinner with a knife.

[13] This type of analysis is something that, as far as we can tell, was briefly touched on by Ferreira in his PhD dissertation (Ferreira 2005), although he is not explicit about the role of the temporal size of the input situation in the emergence of generic readings, and mainly focuses on the role of event plurality.

(128) [Gn ($^\wedge\lambda x^s.\exists y$[knife($y$) $\wedge$ eat-dinner-with$'(x^s, y)$])](John)
'The individual John has the property of habitually eating his dinner with a knife.'

While this prediction is correct for (127), Carlson's theory is bound to make a similar but wrong prediction for (124), according to the formal analysis (129):

(129) [Gn ($^\wedge\lambda x^s.\exists y$[song($y$) $\wedge$ write-at-the-Irish-pub$'(x^s, y)$])](John)
'The individual John has the property of habitually writing a song at the Irish pub.'

The latter prediction is wrong, since sentence (124) does imply that there is a particular song written by John on every occasion. On a covert operator analysis, to account for the oddness of examples like (124) one would need to assume that the singular indefinite obligatorily takes scope over the generic operator in such cases, while it can scope below the generic operator in sentences like (127). In the absence of a principled explanation of the contrast between (124) and (127), however, such an account could be criticized as stipulative. It is worth noting that (124), if embedded in a suitable discourse context, no longer implies that John writes the same song over and over. One such context is provided below (Sandro Zucchi, p.c.):

(130) Here's what John does during the day. He drinks a glass of wine at the restaurant and writes a song at the Irish pub.

Our intuition is that the first sentence of (130), through the generic interpretation of the free relative *what John does during the day*, sets up a restriction for the interpretation of the following sentence. The latter is thus interpreted along the lines of the paraphrase (131), whose logical form may plausibly involve a dyadic operator corresponding to the adverb *generally*, similar to Krifka's GEN, as in (132):

(131) Generally, during the day, John drinks a glass of wine at the restaurant and writes a song at the Irish pub.

(132) GEN_s [s is during the day] [$\exists x \exists y$ [x is a glass of wine in s & y is a song in s & John drinks x in s & John writes y in s]]

Our proposal concerning (130) is thus that this example bears a relation to the odd sentence (124) which is the same relation as (133) bears to the odd sentence (134):

(133) Mary smokes a cigarette after dinner.

(134) ?Mary smokes a cigarette.

In both (130) and (133), a generically interpreted time adverbial (*during the day* in the former, *after dinner* in the latter) sets up a restriction for a tripartite quantificational structure. Crucially, our claim is that such a tripartite structure is not available for simple sentences like (124) and (134), which we believe, following Ferreira (2005),

express genericity that does not depend on an underlying quantifier. In the next section we sketch some ways to address the problem raised by (124). The central concept that we introduce is that of verbal plurality.

1.2.2.2.2 New proposals The issue of the temporal size of the situation to which generics are anchored interacts with the orthogonal issue of *verbal plurality*, which we mean to refer to plurality as it manifests itself in the domain of verb predicates (Cusic 1981; Landman 2000; Van Geenhoven 2004; Kratzer 2008). The interaction between large-size temporal anchors and verbal plurality in habituals is explored in Del Prete's paper in this volume. The crucial point here is that not only are habituals observed to be predicated of large situations, but also that 'macro-events' are intuitively involved in such predications. In the formal semantics literature, verbal plurality has been modeled by extending Link's (1983a) algebraic treatment of plural and mass nouns to the event domain. Here, we consider Landman's (2000) technical implementation, which is closely related to Krifka (Gerstner-Link and Krifka 1993; Krifka 1998). Throughout this section, when we talk of *sums* of events/individuals (also occasionally referred to as *plural events/individuals*), we will thus be assuming an algebraic approach such as has been familiar since Link's work.

Landman (2000) proposes dealing with a number of phenomena, in particular cumulative and distributive readings of sentences with plural subjects and/or plural objects, on the basis of the assumption that verbs can refer to plural events. The basic idea that he pursues is to allow for an ontology with a domain of events including sums of atomic events alongside atomic events themselves, and to have verb predicates denote event sums as well as atomic events. Thematic roles map events, either singular or plural, onto their participants. Participants of an event sum or plural event *e* are individual sums or plural individuals made up by the atomic individuals which are the participants of the atomic parts of *e*.

In other work, Van Geenhoven (2004) mainly focuses on frequentative readings of achievement and accomplishment sentences with bare plural and singular indefinite complements. Her paper brings into focus the problem of the different ways in which verb plurality and plural vs singular complements scopally interact with each other. A problem she considers that is relevant here is the wide scope of singular indefinites with respect to *for*-adverbials in sentences like (135), as opposed to the narrow-scope reading of bare plurals in the same position—as in (136) (such examples had already been discussed by Verkuyl 1972 and Dowty 1979):

(135) Bill dialed a phone number for an hour. 'Bill dialed *the same phone number* over and over for an hour.'

(136) Bill dialed phone numbers for an hour. 'Bill dialed different phone numbers for an hour.'

She explains the contrast between (135) and (136) by assuming a silent V-level pluralization operator which in these examples returns a plurality of dialing events, and by further assuming that singular indefinites cannot be distributed over the atomic parts of a plural event, unlike bare plurals. This issue is closely related to the contrast between *Mary smokes a cigarette* and *Mary smokes cigarettes*, which has been discussed in the literature on generics (this problem is considered in the papers by Cabredo Hofherr and Del Prete in this volume). The relation between van Geenhoven's plurality-based account and habituality, however, is not developed in her paper.

Kratzer's (2008) core contribution is the Lexical Cumulativity Hypothesis (LCH), according to which verbs (as well as nouns) are born as plurals, which means that they have cumulative reference in Krifka's (1998) sense: *P* has cumulative reference iff if *x* is *P* and *y* is *P* then the sum of *x* and *y* is also *P*. This is proposed as a language-universal property. Regarding verb predicates, Kratzer construes LCH in an event-based framework *à la* Krifka–Landman. Thus, lexically, verb predicates denote sums of events (with singular events as the limiting case). Note that the adoption of LCH allows prediction of the availability of plural (i.e. iterative and possibly habitual) interpretations of sentences like *John jumped*, notwithstanding the fact that such sentences lack overt marking of plurality on the verb. Amongst the data that Kratzer deals with, sentences with wide-scope singular indefinites are once again crucial. Like van Geenhoven, she also focuses on the property of singular indefinites by which they do not distribute over the atomic parts of plural events in the denotation of the verb.

Generics—at least in their habitual subvariety, which is the primary focus of this section—seem to involve reference to plural events, for example the truth of (137) seems to require a plurality of events of Mary's smoking a cigarette after dinner to have already occurred and another plurality of such events to be expected to occur in the future.

(137) Mary smokes a cigarette after dinner.

This plural feature of (137) is in clear contrast with the singular character of the episodic sentence (138), which intuitively refers to a single event of Mary's smoking a cigarette after dinner:

(138) At this after-dinner moment, Mary is smoking a cigarette.

The relation between habituality and verbal plurality has been emphasized by Ferreira (2005), and is elaborated upon in the papers by Cabredo Hofherr, Del Prete, and Boneh and Doron in this volume. According to Ferreira, bare habituals like (123) above (repeated below as (139)), i.e. habituals with no adverbs of quantification, should not be analyzed as quantificational tripartite structures as in the classical GEN-analysis, but rather should be analyzed as involving reference to plural events, along the lines of the semi-formal paraphrase in (140).

(139) When John writes a song, he goes to the Irish pub.

(140) The events e such that John writes a song in e are such that John goes to the Irish pub in e.

Ferreira's claim is that bare habituals involve a covert plural definite determiner over events, rather than the covert generic operator GEN. According to Ferreira, there is a parallel between (139) and (141), which contains an overt plural definite description restricted by a relative clause.

(141) In my family, the women who married a professor are happy.

The *when*-clause in (139) is claimed to be parallel to the relative clause in (141), in the following sense: both the *when*-clause and the relative clause introduce a distributive operator in the sentence, with the effect of ascribing the relevant property (i.e. the property of being an event in which John writes a song in (139), and the property of being married to a professor in (141)) to every atomic part of the plural event/individual referred to by the definite description. This distribution to the atomic parts of the pluralities involved is shown in the formal analyses (142) and (143) (ι is a plural definite determiner, 'E' and 'X' range over plural events and individuals respectively, 'e' and 'x' over atomic events and individuals respectively, '$<_{AT}$' is the atomic part-of relation between events or individuals):

(142) $\iota E[\forall e(e <_{AT} E)(\exists y \text{song}(y) \wedge \text{writes}(\text{John}, y, e))][\text{goes-to}(\text{Irish-pub}, \text{John}, E)]$ (The plural event E such that for every atomic part e of E there is a song that John writes in e is such that John goes to the Irish pub in E.)

(143) $\iota X[\forall x(x <_{AT} X)(\text{woman}(x) \wedge \exists y \text{professor}(y) \wedge \text{married}(y, x))][\text{happy}(X)]$ (The plural individual X such that for every atomic part x of X, x is a woman and there is a professor that x married, is such that X is happy.)

An important piece of evidence in favor of Ferreira's analysis comes from bare habituals embedding singular indefinite DPs, which imply that the referent of the indefinite is the same across the different atomic parts of the plural event referred to. The relevant contrast is between the good sentence (139) above and the bad sentence (144) (the same as (124) above), whose analysis is given in (145) (capital letters signal prosodic stress; stressed material goes into the matrix at logical form):

(144) ? John writes a song at THE IRISH PUB.

(145) $\iota E[\exists y \text{song}(y) \wedge \text{writes}(\text{John}, y, E)][\text{at-the-Irish-pub}(\text{John}, E)]$ (The plural event E such that there is a song that John writes in E is such that John is at the Irish pub in E.)

Sentence (144) is odd because it implies that John writes the same song over and over. This is correctly predicted by the analysis (145), as the existential quantifier $\exists y$ in this

formula directly operates at the level of the plural event E, and not at the level of the atomic parts of E, unlike what happens in the analysis of (139) which we just saw in (142). Note that there is a parallel contrast between (141) and the odd sentence (146), whose analysis is given in (147):

(146) ?In my family, the wives of a professor are happy.

(147) $\iota X[\exists y \text{professor}(y) \wedge \text{wives}(X, y)][\text{happy}(X)]$ (The plural individual X such that there is a professor of which the atomic individuals in X are wives is such that X is happy.)

Sentence (146) is also odd because it implies that in my family there are many women married to the same professor. This is also correctly predicted by the analysis (147), in a structurally similar way: the existential quantifier $\exists y$ in this formula directly operates at the level of the plural individual X, and not at the level of the atomic parts of X, unlike what happens in (143). Thus, according to Ferreira, only in (139) is the property of being an event in which John writes a song distributed over the atomic subevents of the plural event referred to, and this is achieved through the distributive operator introduced by the *when*-clause. On the other hand, no such distribution is possible in (144), hence in the latter case it is not possible to have different songs for different writing episodes. Analogously, only in (141) is there distribution of the property of being married to a professor over the atomic parts of the plural individual referred to, and this is achieved through the distributive operator introduced by the relative clause. On the other hand, there is no such distribution in (146), hence in the latter case it is not possible to have different professors for different women.

Ferreira also proposes an analysis of habituals with an even simpler structure than (139)'s, namely habituals such as (148), which he calls *simple habituals* (Ferreira 2005: 93).

(148) Mary smokes.

Not only do such habituals lack an overt Q-adverb, but they also lack a restrictive clause or any other material that could provide a restriction for a covert operator at logical form. Ferreira's claim is that simple habituals can be uttered out of the blue with no need of an implicit restrictor for a covert operator, since they do not actually have a covert operator in the first place. As soon as some linguistic/non-linguistic material is supplied, however, sentences become potentially ambiguous in being interpreted both as simple habituals or as bare habituals with a covert definite event determiner. For example, regarding (148), two options seem to be possible: either the clause *Mary smokes* is used as a stand-alone sentence to express a self-standing habitual proposition, or it provides the material to be predicated of an underlying plural definite description of events, as in the context set up by the question (149). In the former case the logical form would be as in (150), in the latter as in (151):

(149) What do your friends do after dinner?

(150) $\exists E[\text{smokes}(Mary, E) \wedge now \leq \tau(E)]$
'There is a plural event E such that Mary smokes in E and the running time of E includes the present time.'

(151) $\iota E[\forall e(e <_{AT} E)(\text{after-dinner}(e) \wedge \exists x\ \text{do}(\text{my-friends}, x, e))][\forall e(e <_{AT} E)(\text{smokes}(Mary, e))]$
'The events e which are after-dinner events in which my friends do something are such that Mary smokes in e.'

Boneh and Doron (2008b, 2009b) develop a view of habituality that takes into account event plurality, but casts it within a theory that relies on hidden HAB operators. Hebrew distinguishes between a simple form (152a) for habituality and a periphrastic form (152b).

(152) a. yael nas'a la-'avoda ba-'otobus
Yael went to-work by-bus
Yael used to go to work by bus.

b. yael hayt-a nos'a la-'avoda ba-'otobus
Yael were go to-work by-bus
Yael used to go to work by bus.

The first one expresses habituality as a modal notion, that is to say as a disposition. The periphrastic form expresses habituality as an extensional notion: repeated events are interpreted as a habit. They thus distinguish two operators HAB_{MOD} and HAB_{ASP}. The authors define HAB_{MOD} as an operator that depends on the summation of events in all the accessible worlds of the modal base *MBi*, *w* which is a set of gnomic alternatives to world *w* at time *i*, ordered with respect to an ideal world where dispositions hold indefinitely once initiated. They thus claim that HAB_{MOD} is dispositional. Crucial to their analysis is that HAB_{MOD} requires the existence of an iteration of events which 'continues' an actual event, for each and every world of the appropriate sort.

Boneh and Doron (present volume) explore the issue further, considering a variety of habitual constructions in English. Analyses that consider generic sentences as purely dispositional (i.e. not even requiring the existence of a sole instantiation) have also been developed. We turn to this issue in the next section.

1.2.3 Genericity and the semantics of abilities and dispositions

Generic statements have been argued to express dispositions and abilities since Dahl (1975) and later Chierchia and McConnell-Ginet (2000). A sentence like (153a) has been paraphrased as (153b).

(153) a. A Ferrari goes at 200km/ph.
b. A Ferrari can go at 200km/ph.

More fundamentally, abilitative and dispositional statements have been seen as intrinsically generic (Kenny 1975; Fara 2008), since they persist beyond actions and are independent of particular circumstances.

We first consider in subsection 1.2.3.1 sentences like (153a), for which it can be argued that there is a covert *can*. We then turn to overt *can* in subsection 1.2.3.2 and raise the question of its interpretation in relation to tense and aspect. There we discuss two notions of abilities: generic and specific abilities.

1.2.3.1 Covert can If generic statements are associated with a covert modal operator, then the question arises as to how this operator should be interpreted, and more specifically, how does it differ from the overt one.

It has been repeatedly noted that 'one of the main functions of generic sentences appears to be that of expressing capability or possibility' (Chierchia and McConnell-Ginet 2000).

(154) a. John runs 50 miles without ever stopping.
b. John can run 50 miles per hour without ever stopping.

(155) a. This program parses complicated sentences.
b. This program can parse complicated sentences.

It has also been noted that generic sentences with covert modality cannot be interpreted as those with overt ones, as the oddness of (156b) reveals.

(156) a. A boat floats.
b. ??A boat can float. (Krifka et al. 1995: 54)[14]

The question of the interpretation of covert modality is addressed in Menéndez-Benito's paper in the present volume.

1.2.3.1.1 Menéndez-Benito's account and one amendment Menéndez-Benito (2005) proposes that covert *can* is used uniquely for 'inner dispositions'. One of the major advances of this view is that it does not require the property to be actually instantiated. Stating that a boat floats means that a boat has the ability to float in virtue of some inner property, not that a boat has necessarily floated.

However, as noted by Menéndez-Benito (2005), not all generic sentences work this way. For example, the immediate reading of (157) is that John has already played the trombone.

(157) John plays the trombone.

[14] It has not been previously noted that 'A boat can float thanks to its concave shape' is in fact acceptable. However further discussion of this example would lead us astray from our discussion on genericity and abilities. See Mari (2011c).

Menéndez-Benito explains that in order to acquire the ability, humans must have exercised it.

This explanation nevertheless fails to predict some contrasts. Only (158b) means that John has already read 1000 signs, whereas (158a) only means that a Chinese five-year-old boy is able to read 1000 characters. In (158b) *read* has an 'agentive' interpretation.

(158) a. A Chinese five-year-old boy can read 1000 characters.

b. John can read 1000 characters.

The problem here for Menéndez-Benito account is that, although 'a Chinese five-year-old boy' introduces an animate entity it is not required that the property be instantiated, as predicted by the account.

To solve this issue, one can appeal to the question of degrees of specificity. In the generic sentence (158a) the indefinite DP introduces a non-specific entity.

Another potential shortcoming for the account pertains to human behavior. Humans have, like robots, inner dispositions. For instance, unless a newborn has a particular abnormality, he is predisposed to smile at about four weeks of age. When the newborn is three weeks old, a mother can utter (159). The only possible interpretation, though, is that the child has already smiled and not that he will eventually smile as predicted by Menéndez-Benito's account.

(159) My child smiles.

A potential solution to these problems involves the following principle of agency maximization.

(160) Maximize agency. If the subject entity is specific and is human, then it is inferred that s/he is an agent that has exercised his/her capacity and that action has taken place.

Since the entity in (158a) is not specific, the property need not be instantiated (see Krifka et al. 1995 for the foundational idea that indefinite generic sentences do not require actual individuals. See discussion in section 1.3.1).

1.2.3.1.2 Intensional AB without initiating events There is a variety of generic sentences that the 'inner disposition' view cannot cover. For instance there is no 'inner disposition' that explains that a refrigerator costs a lot of money:

(161) A refrigerator costs $1000.

In a different account appealing to a cover abilitative operator, Mari (2011a), following Eckardt (1999), argues that characterizing sentences are about ideal worlds, i.e. the modal basis is restricted to worlds without accidents and proposes the analysis in (162). It must be emphasized here that this analysis applies only to indefinite generic sentences.

(162) $\forall w' \in MB(w), x[w'$is sucht that there are no impediments$][P(x, w') \rightarrow Q(x, w')]$
Paraphrase: in all worlds w' in the modal basis of w such that there are no impediments, if x is a P entity in w', it is also a Q entity in w'.

The conditional analysis of generic sentences is not new (see Part 3 of the introduction). What matters here is that the modal basis is restricted to worlds in which there are no impediments. This restriction is is derived in a principled way from the semantics of abilities and dispositions. The argument goes as follows:

1. The indefinite provides a free variable (Heim 1982), which is existentially bounded if there is a spatio-temporal location specified (see for discussion, Chierchia 1995; McNally 1998).

(163) a. A bird flies over the roof. (∃)
b. A bird flies. (∀)

2. In the latter case (163b), following Kenny (1975), one can assume that the sentence has an 'abilitative' interpretation, i.e. the predicate in the present tense denotes an 'ability'. An ability is a state of the agent that has an explanatory value w.r.t. action. In (163b), 'flies' denotes an ability of a bird.
3. Generic indefinites, which denote unspecific entities can be attributed abilities (they cannot be attributed habits, however, since habits can only be attributed on the basis of observation of repeated action, for a specific entity). Mari (2011a) proposes that a silent AB operator be reconstructed. Distinct from Boneh and Doron's HAB_{MOD} operator, AB does not require even the existence of events, and does not imply summation. It is a mere intensional operator that describes un-actualized abilities.
3. Abilities lead to success when there are no opposing conditions (see Fara 2008).
4. Hence, worlds with no accidents are triggered by the type of modal that is reconstructed to get the generic interpretation of the indefinite with the present tense.

The notion of world without impediments elaborated in Mari's account is contrasted with two other conceptions. Firstly, it is contrasted with Cohen's (1999) view according to which a normal world is one in which regularities observed in the past are considered to hold in the future. According to this view of normality (164) is predicted to be false since most turtles are caught by predators and die young.

(164) A turtle has a long lifespan.

Secondly, it is contrasted with Nickel's (2008) view according to which things are normal in different 'ways', but the notion of normality is not further spelled out. On Nickel's view it is unclear what it might mean for a refrigerator to be normal (to cost $1000?, see (161)).

1.2.3.2 Tensed abilitative can *and two types of abilities: generic and specific abilities*
Much of the recent and ongoing debate on the semantics of abilities and dispositions has focused on tensed abilitative *can* in Romance languages (see e.g. Hacquard 2006; Mari and Martin 2007, 2009b; Demirdache and Uribe-Etxebarria 2008; Homer 2010; Mari 2011c; Mari and Schweitzer 2010). It has been in fact noted that abilitative *can* in the perfective and imperfective aspect is (*prima facie*) associated with two different types of entailments (see Bhatt 1999). Here we focus on French. In particular, while *pouvoir* in the imperfective does not entail the truth of the event denoted by the embedded predicate, this entailment is derived when *pouvoir* is in the perfective aspect. Both the following sentences have an epistemic and an abilitative interpretation. We focus here on the abilitative one.

(165) a. Jean pouvait$_{imperfect}$ déplacer la table, mais il ne l'a pas fait
John could move the table, but he did that not do
John could move the table, but he did not do it.

b. Jean a pu$_{present.perfect}$ déplacer la table, # mais il ne l'a pas fait
John could move the table, but he did that not do
John could move the table, but he did not do it.

On the initial explanation of Bhatt (1999), who first noted this contrast in Hindi, two lexical entries for *can* were distinguished: an abilitative *can* and an action *can*. This contrast is studied in Hacquard (2006), who aims to keep only one lexical entry for *can*. In comparing the abilitative reading of (165b) with the epistemic reading which is also available for this sentence, Hacquard explains that the abilitative reading is obtained when the modality is interpreted below aspect and scopes over a property of events (on the epistemic reading the modality is considered to scope over tense). While capturing the distinction between abilitative and epistemic modality (see counter-proposals in Homer 2010 and Mari 2010), this view does not tell us much about abilitative modality itself which is treated as circumstantial modality. The contrast in (165) has been revised in subsequent literature. In particular Mari and Martin (2007) point to the fact that the actuality entailment is not derived when an overt temporal adverb is specified as in (166).[15]

(166) Le robot a pu$_{present.perfect}$ repasser les chemises à un stade bien précis de son développement, mais il ne l'a pas fait
The robot could iron shirts at a precise stage of its development but it did not do it.

Here a so-called 'quasi-counterfactual' meaning is obtained (see Mari 2011c). The intended meaning is that the robot would have been able to iron shirts during a certain period of time during its development, but that functionality was then suppressed

[15] For additional data see Homer (2010).

and thus the robot never ultimately ironed shirts. The conditional is more likely to be used in this context but the present perfect is also acceptable. In explaining these data, Mari and Martin (2009b) propose an ontological view, and build on the Aristotelian distinction between two types of abilities. This distinction is formulated in the following terms by Aristotle (*de Interpretatione*, 4,23):

> …'Possible' itself is ambiguous. It is used, on the one hand of facts and of things that are actualized; it is 'possible' for someone to walk, inasmuch as he actually walks, and in generally we call a thing 'possible' since it is now realized. On the other hand, 'possible' is used of a thing that might be realized; it is possible for someone to walk since in certain conditions he would…

This distinction has been adopted or proposed in similar terms by a number of authors (although not all recognize that the distinction was initiated by Aristotle), most notably by Austin (1979a), Von Wright (1963) and Thalberg (1972). There are various ways to understand the notion of capacity *in acto* (i.e. the actualized capacity). The most radical view consists in denying of this type of capacity the status of 'ability' (Thalberg 1972; in the linguistic literature, Bhatt 1999). In this case 'ability' means 'action'. According to the pragmatic view, a capacity *in acto* is a capacity that is 'attributed' on the basis of the fact that an action has been observed (Austin 1979a and recently, in the linguistic literature, Piñón 2009). Across these understandings of the Aristotelian distinction, all authors agree on the fact that the capacity *in acto* is considered to be *specific*, that is to say, relative to an occasion for acting. A *general* ability is instead a state of the agent that holds across situations (for the first use of specific vs generic ability, see Honoré (1964)). Mari and Martin (2007) spell out an ontological distinction for this view. They relabel the Aristotelian distinction between two types of abilities as *generic* and *action-dependent abilities* (respectively GA and ADA). They propose the following definitions, which consist of three ontological constraints, plus a fourth epistemological one, which guides the criterion for ability attribution.

(167) Generic abilities

- GAs do not require verifying instances (one does not have to kill a rabbit to have the GA to kill a rabbit)
- GAs are ascribed to an agent i only if i could perform repeatedly the action if desired
- GAs are conceived by default as unbounded (temporally persistent): if a GA is ascribed to i in t, it is typically assumed that i has the same GA in some $t' \supset t$
- GAs are a positive explanatory factor in accounting for the agent's performance of an action (attributing to the agent i the GA to perform the action a can explain the fact that he performs a; 'he was able to do it, so he did it')

Generic abilities are abilities à la Kenny (1975).

(168) Action-dependent abilities

- ADAs require an action to exist—actually, an ADA ontologically depends on the corresponding action
- ADAs are weaker abilities than GAs because a unique and non-repeatable performance suffices to imply the corresponding ADA
- ADAs have the same temporal boundaries as the action on which they depend and are thus bounded (Paul was able to hit three bull's eyes in a row exactly at the interval the hit three bull's eyes in a row)
- The attribution to the agent i of the ADAs to do the action a is not typically used as an explanation of the fact that i did a. It is rather because a performs an action a that we attribute him the ADAs to perform a ('he did it, so he was able to do it').

This distinction between two types of abilities is revealed in the distinction between the perfective and imperfective aspect. As was discussed in section 1.2.2.1, the imperfective denotes an unbounded period of time in Romance languages and thus is likely to be used to express a generic meaning. The perfective denotes a bounded period of time and is more likely to be used to express punctual or accidental occurrences of events or states.

As for *pouvoir* ('can'), Mari and Martin explain that when this verb is in the perfect aspect it can either denote a bounded generic ability (as in (166)) or an action-dependent ability (as in (165b)). They explain that the actuality entailment arises in the latter case, since this entailment is characteristic of the action-dependent ability, which, in and of itself, requires an action to exist.[16] They explain that the actuality entailment does not arise when *pouvoir* is in the imperfective aspect as it then denotes a generic ability, which is not associated with an actuality entailment.

Without stating this overtly, the authors assume an optimality theory framework. Generic abilities are states and are thus unbounded. Action-dependent abilities depend on action and are thus bounded. Since the imperfective and the perfective aspect denote respectively an unbounded and a bounded period of time, they are chosen to express, respectively, generic (unbounded) abilities and action-dependent (bounded abilities).

The robot example in (166) illustrates the case in which the perfective is also used to express a generic ability (i.e. an ability which is not instantiated by an actual action), as a bounded period of time at which the ability holds is targeted (that bounded period of time is provided by the temporal adverb).[17]

[16] This view has been criticized by Piñón (2009) who claims that there are only abilities as explanatory factors for action and proposes treating the distinction on a pragmatic level elaborating on the fourth epistemological condition and overtly using abductive reasoning. For a discussion of ability attribution and abductive reasoning, see Mari (2011c).

[17] For a formal analysis that uses the bounded-unbounded distinction without resorting to an optimality framework, see Mari (2011c).

The work of Giannakidou and Staraki (present volume) builds on Mari and Martin's distinction, but shows that the distinction between generic and specific abilities is not determined by aspect. They examine data from Greek and show that both types of abilities can be associated with both perfective and imperfective aspect.

1.3 Genericity and the sentence

The discussion in the last part of this introduction begins by acknowledging that there is a variety of generic sentences and addresses the question of whether this variety correlates with particular linguistic forms. Generic sentences with singular indefinites on the one hand and bare plural generics (in English) and definite plural generics (in Romance languages) on the other are considered. Section 1.3.1 discusses the contribution of different determiners to the interpretation of the sentences. Section 1.3.2 addresses the question of the notion of normality and compares normative to statistical views of this notion.

1.3.1 Interpretations of GEN

As already recalled, the tripartite structure on which most of the current approaches build (169) was introduced by Farkas and Sugioka (1983), as a major novelty against Carlson's unitary operator *Gn* (see discussion in section 1.2.2.1). Let us recall here that GEN is a sentential operator (see (169)), taking a restrictor and a nuclear scope. More specifically, it is an unselective quantifier that can bind any variable in its scope. For reasons of clarity we specify which variables are bound in each case we discuss.

(169) GEN [restrictor] [nuclear scope]

On the foundational analysis of GEN (see Farkas and Sugioka 1983; de Swart 1991; Chierchia 1995; Kratzer 1995), GEN means essentially 'generally, always'. Farkas and Sugioka's theory is grounded in the Lewisian (Lewis 1975) view that *always, generally* are unselective quantificational adverbs which take sentential scope. GEN is argued to be triggered by a silent *when*-clause, on the basis of the following argument. (170a) is interpreted as in (170b). When a *when*-clause occurs with an overt AdvQ (170c), the *when*-clause provides the restriction for AdvQ. Hence in (170a) a silent AdvQ called GEN must be reconstructed, for which the silent *when*-clause provides the restriction. GEN is considered to mean 'always'.

(170) a. Fido barks.
b. Fido barks (when he is hungry).
c. Fido usually barks when he is hungry.

The resulting LF for (170a) is given in (171):

(171) a. GEN s[in(s,Fido)][barks(s,Fido)]
b. Always/Usually in relevant situations that involve Fido, Fido barks.

Being unselective, GEN can also bind individuals. The sentence (172a) receives the analysis in (172b) (here we suppress the details pertaining to the relation between kinds and their realizing instances).

(172) a. Bears are intelligent when they have blue eyes.
b. GEN x [bear(x) & have blue eyes (x)] [intelligent (x)]

In Farkas and Sugioka two questions are raised, which punctuate the subsequent literature on generics. The first is the relation between GEN and universal quantification. GEN is known to tolerate exceptions, and Farkas and Sugioka subsequently argue that GEN should be interpreted as a vague universal quantifier. The second pertains to the causal reasoning that underlies the interpretation of GEN. They explain that a pragmatic component must dismiss as irrelevant cases in which the restrictor is false (making the sentence come out true).

Krifka et al. propose a modal analysis of GEN (they mainly discuss the matter in relation to indefinite singular generic sentences as they treat BNs as referring to kinds).

On this intensional analysis of GEN, (173a) is interpreted as in (173b). The *if*-clause provides the restriction for GEN. GEN is interpreted as an intensional unselective universal quantifier meaning 'must' (Krifka et al. 1995). On the assumption that indefinites contribute a free variable ranging over individuals (Kamp 1981; Heim 1982), that variable can be bound by the available universal quantifier as well (for further details, see Eckardt 1999).

Krifka et al. assume a classical modal framework in which W is a set of worlds, D a domain of entities, and $\leqslant$ an ordering source on worlds according to normality.

(173) a. A dog barks.
b. If something is a dog, it barks.
c. $\forall w' \leqslant_w, x[\text{dog}(x, w')][\text{barks}(x, w')]$
Paraphrase: in all worlds which are 'normal', if something is a dog in those worlds, then it barks in those worlds.

Current analysis of GEN is divided on the matter of whether GEN means 'always' or if it is an intensional operator. In section 1.2.2.2, we discussed criticisms of those approaches that hold GEN to mean 'always' (see Ferreira 2005 for criticism of de Swart's 1993 approach). In the rest of this introduction we mostly consider the modal analysis of GEN (although we return to the view of Farkas and de Swart 2007 in section 1.3.1.1.5).

The current debate can be mainly categorized into two types of approaches. Firstly, in section 1.3.1.1, we consider the views which have provided different interpretations

for GEN according to the linguistic form used for the generalization, and, in particular, according to whether an indefinite singular (174a) or a bare plural (174b) (or a definite plural in Romance languages (174c)) is used.

(174) a. A raven is black.
b. Ravens are black.
c. Les corbeaux sont noirs.

Secondly, we dedicate section 1.3.2 to some other new approaches to GEN and characterizing sentences more broadly, which have not paid attention to the linguistic differences between types of generic sentences, and which have mainly considered bare plural sentences such as (174c).

1.3.1.1 Indefinite singular, bare plural, and definite plural generics in contrast

1.3.1.1.1 Empirical scope As was made clear in Krifka et al. 1995, and as already noted, there are essentially two means for obtaining the generic interpretation. The first is by direct reference to kinds. This can be obtained by using the singular definite (175a) or (according to certain authors, see in particular Carlson 1977b and subsequent work), by using bare plurals (BP), as in (175b). The BP is, according to this view, the name of the kind 'lion'.

(175) a. The lion has a mane (reference to kind).
b. Lions have a mane.

The second way to obtain the generic interpretation of the sentence is by using characterizing sentences. Indefinite singular (IS) sentences (176) are agreed to be a type of characterizing sentence.

(176) A lion has a mane.

As we discuss in the sequel to the Introduction, according to some authors (e.g. Cohen 2001a; Greenberg 2002) BP statements such as (175b) are also characterizing sentences, in the sense that the BP does not directly refer to kinds. From now on we refer to indefinite singular generic sentence as ISs, and to bare plural generic sentences as BPs.

In some Romance languages, aside from direct reference to kinds obtained when the singular definite is used (177a)–(178a), when singular indefinites (177b)–(178b) and plural definites (177c)–(178c) are used, characterizing sentences are obtained. We refer to plural definite generic statement as DGs.

(177) a. (It.) Il leone ha una criniera.
The lion has a mane.
b. (It.) Un leone ha una criniera.
A lion has a mane.

c. (It.) I leoni hanno una criniera.
The lions have a mane.

(178) a. (Fr.) Le lion a une crinière.
The lion has a mane.

b. (Fr.) Un lion a une crinière.
A lion has a mane.

c. (Fr.) Les lions ont une crinière.
The lions have a mane.

Here we consider theories of BPs and DGs that analyze them in ways other than as names of kinds and strive to explain them in relation to ISs.

1.3.1.1.2 Analytic vs Synthetic? ISs and BPs in English, like ISs and DGs in Romance languages, do not seem to express the same type of generalizations.

ISs, in English and in Romance languages, have been claimed to express law-like statements and to be compatible only with essential properties, as the contrast in (179a)–(179b) illustrates. (179a) has been argued to be acceptable as 'polyphonic' is a definitional property of madrigals, whereas (179b) would be unacceptable as 'popular' is not a definitive property of madrigals. BPs have been noted to be compatible with both essential properties (180a) and accidental generalizations (180b) (Lawler 1972; Dahl 1975; Burton-Roberts 1977; Cohen 2001a; Greenberg 2002; Mari 2008b,a).

The same observations hold for ISs ((181a) vs (181b)) and DGs ((182a) (182b)) in Romance languages (here we consider Italian, but the same contrasts hold for French).

(179) a. A madrigal is polyphonic.

b. *A madrigal is popular.

(180) a. Madrigals are polyphonic.

b. Madrigals are popular.

(181) a. Un madrigale è polifonico.
A madrigal is polyphonic.

b. *Un madrigale è popolare.
**A madrigal is popular.*

(182) a. I madrigali sono polifonici.
'The' madrigals are polyphonic.

b. I madrigali sono popolari.
'The' madrigals are popular.

Much disagreement remains however when it comes to the analysis of these statements.

We first consider the shortcomings of the theories elaborated at the time of *The Generic Book* in section 1.3.1.1.3, and then move on to new approaches in section 1.3.1.1.4.

1.3.1.1.3 ISs and BPs in Krifka et al. (1995) Krifka et al. begins by explaining that the main difference between bare plurals and singular indefinites is that the former but not the latter can be used for direct kind predication.

(183) a. Dinosaurs are extinct.

b. *A dinosaur is extinct.

On this view, (183a) expresses a property of the kind 'dinosaur', represented as '↑ dinosaurs'. (183b) are instead considered as characterizing sentences and the singular indefinite does not support a predicate of kinds.

Krifka et al. (1995) thus focus on ISs and assume as a starting point the intensional analysis in (173c) repeated in (184).

(184) $\forall w' \leqslant_w, x[dog(x, w')][barks(x, w')]$

Contra the commonly held assumption that ISs express only definitional statements (e.g. Lawler 1972; Burton-Roberts 1977), Krifka et al. note that there are a variety of ISs, including definitional and non-definitional (see also Putnam 1975). What varies according to Krifka et al. is the type of modal base: this can be abilitative, deontic, circumstantial . . .

The modal base is deontic in (185a), ablitative in (185b), and realistic in (185c). The choice of modal base is determined by the corresponding sentence with an overt modality, as presented in (186a), (186b), and (186c).

(185) a. A gentleman opens the door for ladies.

b. A boat floats.

c. A turtle lives a long time.

(186) a. A gentleman must open the door for ladies.

b. ??A boat can float.

c. A turtle can live a long time.

This treatment encounters at least two shortcomings that Krifka et al. did not fail to note (see also discussion in Mari forthcoming).

Firstly, ISs with covert modality are not always synonymous with those with overt modality, as the oddness of (186b) reveals ((185b) is however perfectly fine). Consequently, cases in which the modal is overt or covert should be distinguished and treated separately. As we show below, while it is reasonable to endorse a classical treatment of modal statements when the modal is overt, extending the account to cases in which it is covert is a more risky theoretical choice.

A second shortcoming pertains to (185c). Krifka et al. (1995: 56) write:

> . . . This sentence evokes a kind of "realistic" modality in which the laws of biology hold. However, the worlds in which no turtle ever dies a premature death are biologically highly abnormal . . .

Another potential problem for the modal account as stated in Krifka et al. is that allowing the use of any type of modal base cannot rule out temporary properties (187), since in most circumstantially normal worlds it is true that raps are popular.

(187) *A rap is popular.

Various theories have been proposed, which are an elaboration of the LF in (184). These theories also do not claim that BPs are names of kinds, and thus closely consider the elaboration of (184) that is induced by the use of an indefinite singular, and that which results from the use of a bare plural (in English) or a definite plural (in Romance languages).

1.3.1.1.4 New approaches of IS/BP and IS/DG

Unified quantificational account Greenberg's (2002) account, while recognizing the contrast between (188a) and (188b) (see Lawler 1972 and Dahl 1975), does not subscribe to the claim that ISs are definitional whereas BPs express descriptive generalizations, as for instance (189) is a perfectly acceptable sentence, although it is not definitional.

(188) a. A madrigal is polyphonic / *popular.
b. Madrigals are polyphonic / popular.

(189) A Norwegian student wears green socks.

Greenberg's claim is that both ISs and BPs should be treated as quantificational statements. In essence, bare plurals are treated as indefinites, which also provide a variable bound by GEN. GEN is analyzed in an intensional framework. The novelty of Greenberg's account is that it captures the variety of available interpretations for ISs and BPs by appealing to two different types of accessibility relations (in the framework of Kratzer 1991a,b).

Specifically, in Greenberg's setting, the accessibility relation between worlds can be of two types. It can be an 'in virtue of' property or a 'maximal similarity relation'.

ISs appeal to an 'in virtue of' property.

(190) a. A boy does not cry (in virtue of 'being tough')
b. $\forall w'[\forall x[\text{boy}(x, w')] \rightarrow [\text{tough}(x, w')]] \rightarrow$
$[\forall x, s[\text{boy}(x, w')] \rightarrow [\sim\text{cry}(x, w')]]$
c. Paraphrase: In all worlds where every boy is tough, every boy does not cry (in all relevant situations s).

This analysis is strongly reminiscent of the treatment of dispositional statements. Saying that sugar is soluble means that it dissolves in water in virtue of an intrinsic property of sugar. Similarly, to state that a boy does not cry means that a boy does not cry in virtue of some intrinsic property of boys. This straightforwardly and correctly captures that madrigals are polyphonic by appealing to the internal make-up of madrigals (e.g. Fara 2008).

Greenberg extends the quantificational approach to BP statements, whose analysis is given in (191b). Here the accessibility relation between worlds is simply maximal similarity (*Max*).

(191) a. Professors wear a tie.

b. $\forall w'[Max(w, w')] \rightarrow$
$[\forall x, s[professors(x, w') \wedge C(s, x, w')] \rightarrow [wear\ a\ tie(s, x, w')]]$

c. Paraphrase: The generalization 'every professor wears a tie' is non-accidental—not limited to the actual world—but is expected to hold in other, non-actual worlds which are maximally similar to the actual world.

Both (190a) and (191a) express generalizations over individuals. The normative vs descriptive flavor distinction is thus derived by accommodating two different types of accessibility relations.

This type of quantificational account has been criticized on different grounds. Firstly, with regard to universal quantification over possible worlds, Menéndez-Benito (2005 and present volume) has recently noted that some cases are not properly captured; (192a) is paraphrasable as (192b) but not as (192c).

(192) a. A car goes 200 kph.

b. A car can go 200 kph.

c. A car must go 200 kph.

Secondly, there are cases for which it is hardly possible to find an 'in virtue' of property that justifies the causal relation between property P and property Q, as in the cases following in (193) (see also Corblin, this volume).

(193) a. A refrigerator costs $1000 in Europe.

b. A soccer player earns a lot of money.

Thirdly, if by some means an 'in virtue of' property were to be found that enabled (193), then this same procedure could be used to justify *A madrigal is popular*. Greenberg's account thus seems to overgeneralize (see Krifka, present volume). Finally, it has to be emphasized that Greenberg's account is specific to English. Here bare plurals are used, which are considered to provide a variable to be bound by GEN. This quantificational approach cannot be adopted as such for DGs in Romance languages since

descriptive generalizations are expressed by definites, which are referential expressions and consequently cannot provide a variable in the way bare plurals do (see Beyssade 2005; Farkas and de Swart 2007, and section 1.3.1.1.5 of this introduction).

Non-unified quantificational accounts: the rules and regulations hypothesis. The alternative approach, namely the non-unified quantificational account, also strives to capture the intuition that IS sentences have a definitional flavor that is absent from BP sentences. We consider the treatment of ISs and BPs in turn.

ISs in non-unified quantificational accounts. This alternative view claims that IS statements are not generalizations about individuals but rather they assert the existence of a rule. The main exponents of this view are Burton-Roberts (1977), revived and formalized in Cohen (2001a).[18] Under the rules and regulation hypothesis it has been argued that (194b) is felicitous only if a rule is posited that regulates the opening days of Italian restaurants. In fact, it has been argued that it is not even necessary that there are actual Italian restaurants and that, as often noted (see Krifka et al. 1995: 49) indefinite generic sentences do not require that actual individuals exist.

(194) a. (It.) Un ristorante Italiano è chiuso il martedì.
b. (En.) An Italian restaurant is closed on Tuesday.

A sentence like (195) is thus analyzed as expressing the proposition in (196). The propositional function is shifted into a rule by an appropriate operator '!' (see Lewis 1979). A rule does not express propositional content and Cohen (2001a) argues that rules only have to conform to the models in which the proposition expressed by the entailment is true. The major question that remains open is what the analysis of the proposed entailment should be.

(195) A gentleman opens the doors for ladies.

(196) $!(\text{gentleman}(x) \rightarrow \text{open-doors-for-ladies}(x))$

On a technical basis, Cohen explains that ISs are not quantificational on the following grounds. The peculiarity of generic indefinites is that they do not refer to a particular entity. In his words, they do not provide a *topic*. A topic is argued to be necessary in order to feed the restriction of a quantifier. Hence GEN cannot be used as its restriction would be empty.

The exact form of the entailment in (196) is intentionally left unexplained, and Cohen suggests that it might be further elaborated into universal quantification over possible worlds and individuals, thus espousing the classical view of unselective binding approaches.

[18] See Mari (2008b) for French.

Cohen (2001a) then develops a theory of rules as expressing non-propositional content, and argues that all indefinite generics express is that there is a rule which conforms to the models in which the proposition expressed by the entailment is true.

Proponents of the rules and regulations hypothesis have also paid a great deal of attention to the pragmatic behavior of IS sentences and have emphasized the fact that indefinite statements have a prescriptive use (197) (Corblin 1997) or a moral flavor (Cohen 2001d).

(197) Una pianta ha bisogno di acqua per vivere!
A plant needs water to live!

On this view, it has been argued that ISs are in fact not compatible with exceptions. For instance, Burton-Roberts (1977) observes that 'if Emile does not as a rule open doors for ladies, his mother could utter (195) and thereby successfully imply that Emile was not, or was not being a gentleman'. One cannot thus maintain that if Emile does not open doors for ladies he could be an exception to the generalization. The generalization holds 'necessarily' for all individuals. If one does not satisfy the generalization he is simply not a gentleman.

The rules and regulations hypothesis also faces some problems.

1. Firstly, it undermines the fact that exceptional individuals can still be accommodated. (198a)–(198b) are compatible with the fact that there are soccer players (in the third French league, for instance) who do not earn a lot of money, they are nonetheless soccer players. What defines a soccer player is not his earning a lot of money, as advocated in Mari and Martin (2009a).

(198) a. A soccer player earns a lot of money.
b. (Fr.) Un footballer gagne beaucoup d'argent.

It is nevertheless correct that in some cases, IS sentences have a prescriptive use and are used as definitions. However, IS statements with prescriptive use usually have an overt modality as in (197) or (199), as noted in Carlier (2000) for French.

(199) Une jeune femme doit bien se comporter.
A young lady must behave well.

In these cases the standard Kratzerian analysis of deontic modality can apply. Here, the choice of the modal base is determined by the modal itself (see Krifka et al. 1995). In (199) the modality is deontic and the prescriptive use is enhanced by the deontic reading of the modal. The sentence (197) with the semi-modal *need* is thus analyzed as 'it is necessary that plants get watered'.

In cases which have been argued to have a prescriptive use, and in which there is no overt modality, such as (195), the role of prosody has been undermined.[19] These state-

[19] Note that without specific prosody the sentence is also acceptable. However, in that case the prescriptive reading is unavailable and the sentence merely expresses a generalization about what gentleman do.

ments can become rules only if they are turned into imperatives by the appropriate intonation. In this case, their prescriptive use correlates with their being imperatives rather than assertions (for more on the relation between deontics and imperatives, see Ninan 2005; Schwager 2006; Portner 2007). In conclusion, IS statements have truth values, unlike what is claimed by the rules-and-regulations-like accounts.

2. The major difficulty encountered by the rules and regulations hypothesis is that the relation between facts and rules is not sufficiently spelled out. A rule that is in effect, is in effect in the actual world. However, sometimes facts do not conform to the rule. Let us consider the case of the old turtle again:

(200) A turtle lives a long time.

The rule that a turtle lives a long time is in effect. Sill, most of turtles die young (because of predation). How can one reconcile facts with rules? After all, what the generalization expresses is still a generalization about the turtle that dies young because of predators. It is true that this turtle also has the property of dying old (in the absence of predators). In other words, the rule according to which turtles die old is in effect even for turtles that die young.

Developments of the rules and regulations hypothesis Mari (2008b) proposes dissecting the common ground into a world index *w* and a perspective index *i*. Facts are one and the same in the actual world, but they can be enlightened by different perspectives. A turtle dies old under the biological perspective. However, the perspective is about turtles that are in the actual world. In Mari (2008a), the index *i* is assimilated to the judge parameter and she claims that ISs have different truth conditions according to different judges.

Krifka (present volume) criticizes this approach. Krifka espouses the view that the common ground can be dissected into two indices—a world index *w* and an interpretation index *i* and maintains that ISs are definitional, along the lines of Burton-Roberts (for a reply to Krifka (present volume) see Mari forthcoming).

BPs in non-unified quantificational approaches As mentioned at the beginning of section (1.3.1.1.3), Krifka et al. (1995) propose treating BPs as cases of direct kind predication. Cohen (2001a) extensively criticizes this view with the aim of showing that a quantificational account using GEN should be used for bare plurals as well. Cohen's arguments proceed as follows:

1. Generic sentences postulated to be cases of direct kind predication are intuitively about individuals, as in (201).

(201) Kings are generous.

2. One way of testing cases of direct-kind predication is by showing that it is impossible to modify the sentence by an overt adverb of quantification (202).

(202) Dinosaurs are *always/*usually/*sometimes extinct

However, the following sentences are acceptable, showing that these are not cases of direct-kind predication.

(203) a. Madrigals are always popular.
b. Kings are usually generous.
c. Rooms are sometimes square.

3. A third problem for Krifka et al.'s view of BPs as names of kinds arises when one considers scope ambiguities. If BPs were cases of direct-kind predication, they should not involve scope ambiguities, and yet the data shows that they do. The following example is from Cohen (2001a).

(204) Madrigals are popular with exactly one music fan.

Cohen (2001a: 187) argues that on one reading, for any given madrigal there is exactly one music fan with whom it is popular; on a second reading the sentence asserts that there is exactly one music fan who likes madrigals. These readings could not be differentiated if the logical form of (204) involved no quantification.

Having argued that generic BPs do not primarily refer to kinds (see facts (201)–(204)) Cohen maintains a *quantificational approach using GEN*. As distinct from singular indefinites, BPs provide a specific entity which the sentence is about, hence a topic. A topic, it is argued, is needed to provide the restriction of a quantifier and GEN can thus apply. While arguing that BPs are not cases of direct-kind predication, Cohen posits that for providing a specific entity they contribute a kind in the first place. However, admitting that the sentence in (205) is not about kinds, but about individual kings, Cohen argues that individual kings are triggered by an appropriate coercion operation and the LF proposed for BPs is as in (206). ↑king stands for the kind 'king' and C returns the instances *x* belonging to the kind 'king'.

(205) Kings are generous.

(206) GEN*x* [C(x, ↑king)] [generous(x)]
Paraphrase: in general the *x* that belongs to the kind 'king' are generous

1.3.1.1.5 A comparison between BP and DG

Empirical resemblances The idea that BPs refer to a specific entity underlies a number of approaches to the analysis of DGs in Romance languages (see (207)). Various authors have claimed that they denote maximal sums (see e.g. Beyssade 2005;

Dobrovie-Sorin 2004, and more particularly Farkas and de Swart 2007, and Mari, 2011a).

(207) Les rois sont généreux.
Kings are generous.

As a matter of fact, BPs in English and DGs in Romance languages give rise to very similar interpretations, and seem to pattern alike in many respects. Firstly, they both express generalizations about individuals.

(208) Les rois sont généreux.
Kings are generous.

Secondly, each can express both definitional and accidental generalizations.

(209) a. (En.) Madrigals are popular.
b. (Fr.) Les madrigaux sont populaires.

Thirdly, they both contrast with the singular definite, in that they can express generalizations that concern individuals, regardless of whether they belong to well-established kinds or not (see discussion in Vendler 1971, Carlson 1977b: 433).

(210) a. The Bengal tiger is dangerous.
b. ??The wounded tiger is dangerous.

(211) a. Le tigre du Bengale est dangereux.
b. ??Le tigre blessé est dangereux.

(212) a. Bengal tigers are dangerous.
b. Wounded tigers are dangerous.

(213) a. Les tigres du Bengale sont dangereux.
b. Les tigres blessés sont dangereux.

Fourthly, they seem to exhibit the same scope ambiguities. As was seen in (204), (214) also has two different interpretations. As above, on one reading, for any given madrigal there is exactly one music fan with whom it is popular; on a second reading the sentence asserts that there is exactly one music fan who likes madrigals. Again, this should lead us to conclude that these readings could not be differentiated if the logical form of (204) involved no quantification.

(214) (lt.) I madrigali sono popolari con esattamente un fan.
Madrigals are popular with exactly one music fan.

Ultimately, given these resemblances, various authors have tried to trigger a quantificational analysis from the premise that a definite plural refers to a specific entity (i.e. a

maximal sum). Here we consider two recent works which have provided full-fledged logical forms for DGs.

Farkas and de Swart (2007) Farkas and de Swart propose a unified account for BPs and DGs. To begin with, following Ojeda 1993, they assume that BPs and DGs denote kinds, and they identify kinds with the highest node of a lattice (e.g. Link 1983a). Following Chierchia (1998), they also assume that maximal sums are intensional. They explain that both BPs and DGs refer to such plural objects in virtue of their *plurality* feature.

For DGs, they propose the following analysis.

(215) a. (Fr.) Les chiens sont intelligents.
The dogs are intelligent.

b. $\text{GEN}s[!\text{dog}(x) \wedge Pl(x) \wedge \text{in}(x, s)][\text{intelligent}(x, s)]$

The first assumption is that GEN quantifies over situations. They also assume that DGs introduce a determined referent ('!' in (215b) expresses determined reference) that participates in the situation *s*. This referent is a maximal set of individuals (*Pl*) and it is the kind. GEN compares two sets of situations in which the elements of the kind are involved. Members of the kind are triggered by a distribution operation yielded by the distributive predicate *to be intelligent* (as for Cohen 2001a). In (215), the interpretation is obtained that most of the situations that comprise a determinate set of dogs are situations in which dogs are intelligent. On the same assumption that GEN quantifies over situations, the analysis of BPs is given in (216) ($dog(x)$ in the following LF is a term).

(216) a. Dogs are intelligent.

b. $\text{GEN}s[\text{dog}(x) \wedge Pl(x) \wedge \text{in}(x, s)][\text{intelligent}(x, s)]$

The authors explain that the BP does not assert determined reference. However, in virtue of its *plural* morphology, such a determined referent is accommodated and this referent is again the kind. Again, GEN compares two sets of situations, each involving the elements of the kind. Here '!' is missing as the BP is not considered to primarily assert determined reference, rather determined reference is triggered via the plural feature of the BP.

It is easy to see that from the perspective of the operation of generalization, it does not really matter whether the determined reference is asserted or accommodated and the same interpretation is in fact obtained for BPs and DGs.

In spite of the numerous similarities between BPs and DGs, in Romance languages (219) is not ambiguous in the same way as its English correspondent (217) is, as illustrated in their corresponding available paraphrases given respectively in (220) and (218).

(217) Typhoons arise in this area of the Pacific.

(218) a. Paraphrase 1 In general typhoons arise in this area of the Pacific

b. Paraphrase 2 There are typhoons arising in this area of the Pacific

(219) I tifoni sorgono in questa parte del Pacifico.
Typhoons arise in this area of the Pacific.

(220) a. Paraphrase 1 In generale i tifoni sorgono in questa parte del Pacifico
In general typhoons arise in this area of the Pacific.

b. Paraphrase 2 ??Ci sono i tifoni in questa parte del Pacifico
There are typhoons arising in this area of the Pacific.

Under the interpretation in (220b), (219) expresses in fact that it is a property of this part of the Pacific that there are typhoons, and it thus expresses a generalization about a location (see Kratzer 1989) rather than about individuals. This interpretation is unavailable with DGs in Romance.

This constraint can be derived from a general requirement about DGs, namely that they denote a set of entities whose existence is asserted (or presupposed[20]). Since BPs and DGs are treated on a par in Farkas and de Swart (2007), this discrepancy between the available uses of BPs and DGs cannot be captured. However, in view of the fact that their analysis explains most of the similarities between BPs and DGs, it should not be abandoned entirely.

1.3.1.1.6 DG in Romance: more on individuals and situations Building on Farkas and de Swart's idea that DGs assert the existence of a maximal plural entity, Mari (2011a) proposes an analysis which captures the ability of DGs to express both inductive generalizations (221b) and definitional statements (221a). Inductive generalizations rest on observation, whereas definitional statements do not.

(221) a. (It.) I madrigal sono polifonici.
'The' madrigals are polyphonic.

b. (It.) I madrigal sono popolari.
'The' madrigals are popular.

[20] Two explanations can be given according to whether definites are considered to assert existence and maximality *à la* Russell, or whether they are considered to contribute maximality plus a presupposition of existence *à la* Frege-Strawson. Let us adopt the Russellian view. According to Russell, indefinites also contribute assertion of existence. In this respect both BPs (considered as indefinites) and DGs would be out in these constructions since for both existence would be asserted twice. Maintaining the Russellian view for definites and adopting the Kamp-Heim view for indefinites (according to which they only contribute a free variable) is one way to solve the problem: existence is asserted twice only for definites and for this reason they are ruled out. Alternatively, one can assume with Zucchi (1995) that definites cannot be used in *there*-constructions because strong determiners presuppose the existence of their referent (according to the Frege-Strawson view of definites).

She also notes that DGs support various types of exceptional individuals, according to whether they express inductive generalizations or definitional statements. According to the non-definitional (inductive) interpretation, actual individuals can be used as exceptions, as in (222). In this case, reference is made to an actual set of professors.

(222) I professori nella mia università portano la cravatta. Ma no, guarda Giovanni.
'The' professors in my university wear a tie. Oh no! Look at John!

When a rule is asserted, as in (223a), where a rule of my university is being described, the generalization hardly tolerates actual individuals as exceptions. Classes of individuals can be instead used as exceptions to rules.

(223) a. Nella mia università i professori portano la cravatta, (*)tranne Gianni
In my university, the professors wear a tie, (*)but John

b. Nella mia università i professori portano una cravatta, tranne quelli associati
In my university, the professors wear a tie, but the associate ones

Based on Farkas and de Swart's assumption that DG denotes a maximal set of entities, Mari (2011a) proposes an account that explicitly captures these distinctions and which spells out more carefully the role played by situations. Moreover, the proposed account derives the intensionality of the maximal referent introduced by the definite in a more principled way (without assuming that by virtue of denoting the maximal entity of a lattice, that entity is intensional, as in Chierchia (1998)). Her view builds on Schwarzschild's (2009) recent implementation according to which definites denote a fixed set of elements in a situation and come equipped in the logical form with a situation variable. Along with Kratzer (2002), Mari assumes that situations are parts of worlds. Situations and worlds are thus introduced as variables in the LF. Various operations can be enacted over the domain of these variables, and thus various interpretations can be obtained.

1. The world variable and the situation variable are lambda-abstracted (224). In this case, once the world and the situation of evaluation are fixed, what the sentence asserts is that the members of a maximal sum (represented as ιX) all have a certain property Q. Q being a distributive predicate, universal quantification over members of the maximal entity denoted by the plural definite is obtained.

(224) $\lambda s, w\, \iota X(P(\iota X, s, w) \wedge \forall x \in \iota X Q(\iota X, s, w))$
For a given world w, a situation s, and the maximal sum X of individuals, the maximal sum is P in s,w, and for all elements x in X, x is Q in s,w.

With these binding of the variables s and w, the *inductive* generalization is obtained. This analysis applies to (222). Since it is entailed that there are actual individuals, actual exceptional individuals can be accommodated.

2. The world variable and the situation variable are bound by a universal quantifier (225). In this case the definitional reading of the sentence is obtained: if one of the members of the maximal sum is a *P* entity, then it is also a *Q* entity.

(225) $\forall s, w\, \iota X(P(\iota X, s, w) \rightarrow \forall x \in \iota X Q(x, s, w))$
For all worlds *w*, situations *s*, and the maximal sum *X*, if the maximal sum is *P* in *s*,*w*, then, for all elements *x* in *X*, *x* is *Q* in *s*,*w*.

This analysis applies to (223b). Since the existence of actual individuals is not entailed by the expressed definition, it is difficult to accommodate actual individuals as exceptions.

The idea behind the latitudes of accommodation of exceptions is that these have to be of the same semantic type as the individuals which the generalization is about. When the generalization is about actual individuals, actual individuals can be used as exceptions. When the generalization is about classes (i.e. sets of actual and non-actual individuals bearing a certain description), classes can be used as exceptions.

3. In a third configuration, the world is lambda-abstracted and the situation variable is bound by the universal quantifier.

(226) $\lambda w, \forall s\, \iota X(P(\iota X, s, w) \wedge \forall x \in \iota X Q(\iota X, s, w))$
For a given world *w*, for all situations *s* and the maximal sum *X*, the maximal sum is *P* in *s*,*w*, and for all elements *x* in *X*, *x* is *Q* in *s*,*w*.

This derives the intended interpretation for (227). In these worlds, in all situations in which there is a madrigal, a madrigal is popular.

(227) I madrigali sono popolari. (see (221b))
The madrigals are popular.

The analysis proposed by Mari (2011a) strengthens the point we have made above: the force of the generalization depends on the type of the situation/world that is targeted (see also Corblin, present volume). If actual situations and worlds are considered, (224) is obtained. If non-actual situations and worlds are considered (225) is obtained. This explains how DGs are able to express both definitional and non-definitional statements, as only (225) expresses the causal relation which is characteristic of definitional statements and is absent from non-definitional ones (analyzed as in (224)).

Moreover, treating DGs (and BPs) as referring to sets of individuals, and treating universal quantification as brought about by the distributive predicates finds some support in recent works in cognitive science showing that generics appear earlier than quantifiers in natural language (see discussion in section (1.3.2.3) below).

1.3.1.1.7 Plural indefinites in French The question of the interpretation of plural generic indefinites (*des*, Fr.; *dei*, It. ...) in Romance languages has been overlooked in the literature on generics, mostly because the distributions are puzzling. Here we

focus on French. The core observations related to the use of *des N* in generic sentences are the following.

1. *Des N* is not always felicitous in contexts where *un N* is.

(228) a. Un carré a quatre côtés.
A square has four sides.

(228) b. *Des carrés ont quatre côtés.
'des' squares have four sides.

2. *Des* can be used when a group[21] denoting noun is used.

(229) Des jumeaux se ressemblent dans les moindres détails.
'Des' twins resemble each other to the smallest detail.

3. *Des N* can be used when N is modified (see Heyd 2002).

(230) Des carrés bien formés ont quatre côtés.
'Des' well-formed squares have four sides.

Various views have been proposed for these data (see in particular de Swart 1991; Corblin 1997; Dobrovie-Sorin and Laca 1996, and Dobrovie-Sorin and Mari 2007a,b). As for the latter case, it has been argued that the modifier introduces a *when*-clause, which goes into the restriction of GEN, which, in this case quantifies over the situations that this restriction provides (the analysis provided is along the lines of de Swart 1991). Individuals are bound to situations via a skolem function f.

(231) GEN s [well-formed ($f(s), s$)] [four-sided ($f(s), s$)]

A disagreement remains for the contrast between (228b) and (229).

Corblin (1997) explains that *des* is avoided in generic sentences for optimality reasons. Since the generalizations using the indefinite singular (228) and the indefinite plural would both concern singular individuals, the indefinite singular is preferred. This explanation does not elucidate under what conditions *des* can be used.

Dobrovie-Sorin and Mari (2007a,b) have proposed that *des* can be used only if the nouns contribute a suitable domain of quantification for GEN. They propose the following rule of quantification:

(232) *Constraint on quantification*: a quantifier can only bind individuals.

Following Link (1984) and Landman (1989b), they assume that groups are individual and thus can be bound by GEN. The LF that they propose for (229) is given in (233):

(233) GEN X[X is a *group* of twins][X resemble each other]

[21] Here we use the term informally.

Dobrovie-Sorin, present volume, further explores this hypothesis, resorting to a ban against quantification over part-whole structures, in line with Dobrovie-Sorin and Mari (2007a,b).

1.3.2 Genericity and normality

We conclude this introduction by considering the relation between genericity and normality and comparing three views of the notion of *normality*. The theories presented here do not consider the lexical contribution of the determiners, and mainly focus on plurals in English. We begin by considering Ariel Cohen's (1999a) statistical view, and contrast it with more normative views, such as those of Asher and Pelletier (1997) and Nickel (2008).

1.3.2.1 Inductive judgments Ariel Cohen (1999) proposes a unified account of generics (234), and frequency statements (235), in terms of relative probability.

(234) Birds fly.

(235) Birds always fly.

His probability-based analysis is intended to account for some puzzles, among which are the following:

1. A generic can be true even in the absence of instances supporting the generalization it expresses, as shown by the classical example (236):

(236) Mary handles the mail from Antarctica.

This is said to be true even for the descriptive reading of (236): according to Cohen, in order to have the truth of (236) without actual supporting instances it is not necessary to give a prescriptive reading of this sentence, which would be motivated e.g. by the description of Mary's duties in her job contract.[22]

2. Generics and frequency statements are time-intensional but not world-intensional, as is shown by the truth-conditional difference between (237) and (238) in the scenario described below (238), and by the truth-conditional equivalence between (237) and (239) in the scenario described below (239).

(237) A computer (always) computes the daily weather forecast.

(238) A computer (always) computes the main news item. Scenario: The daily weather forecast turns out to be the main news item today, as it is predicted that a big rainstorm will hit Paris.

[22] It seems to us that the truth of (236) under its *descriptive* reading requires that actual instances of Mary handling the mail from Antarctica have occurred by the reference time. It is precisely the past occurrence of events of the relevant type which enables one to make a descriptive generalization.

(239) A computer (always) computes Mary's favorite column. Scenario: Mary's favorite column in the newspaper is the column of the daily weather forecast.

Notice that in the rainstorm scenario the descriptions *the daily weather forecast* and *the main news item* turn out to corefer w.r.t. the present time, but do not corefer w.r.t. *any* time, as tomorrow the main news item might well be something other than the weather forecast. This means that the two descriptions are not intensionally equivalent w.r.t. the time parameter. On the other hand, in the scenario of Mary's favorite column not only do the descriptions *the daily weather forecast* and *Mary's favorite column* corefer w.r.t. the present time, but, given the general stability of people's preferences, they corefer w.r.t. *any* time within a significant part of Mary's lifespan (possibly within the whole of Mary's lifespan, if Mary's preference persists throughout all her life), so that they can be said to be (at least in part) intensionally equivalent w.r.t. the time parameter. However, given the contingence of Mary's preference for the weather forecast, which need not hold in other possible worlds, the descriptions *the daily weather forecast* and *Mary's favorite column* are not intensionally equivalent w.r.t. the world parameter. This would show that intensional equivalence w.r.t. the time parameter is all that is required to preserve the truth of generics and frequency statements.

3. They are different from temporary generalizations, as shown by the fact that, if all Supreme Court justices by sheer happenstance have a prime social security number at this moment, (240) would be true but (241) would be false:

(240) All Supreme Court justices have a prime social security number.

(241) Supreme Court justices have a prime social security number.

4. They imply a regular distribution of events in time.
5. Judgments concerning their truth are more uncertain than judgments concerning the truth of quantified sentences.
6. For them to be true it is not enough that the majority of individuals which are in their actual domain satisfy their predicates.

As to the Logical Form of such statements, Cohen (1999) assumes that they involve dyadic quantifiers expressing relations between properties. The quantifier in a frequency statement like (235) is the frequency adverb *always*, whereas in a generics like (234) it is a covert generic quantifier GEN. The Logical Forms of (234) and (235) are (242) and (243), respectively, given along with the relative probability judgments that they correspond to:

(242) GEN(bird(x), fly(x)) P(fly | bird) > 0.5 (the probability of an object flying given that the object is a bird is greater than 0.5)

(243) always(bird(x), fly(x)) P(fly | bird) = 1 (the probability of an object flying given that the object is a bird is equal to 1)

The probability judgments reported above are interpreted in a Branching Time framework (Thomason 1984), the idea being that when we make a probability judgment, not only do we consider the sequence of events that we have actually observed, but we also consider possible continuations of that sequence into the future.

Definition: Relative probability in Branching Time $P(\psi \mid \phi) = l$ *iff* for every admissible history H and $\epsilon > 0$, there is an initial segment H' of H such that for every H" which is a continuation of H' and is continued by H the relative probability of ψ among ϕ in H" differs from l by less than ϵ. Admissible histories are required to be sufficiently long so as to have the relative probabilities in the subhistories H" come close to the limiting value l by whatever value ϵ, however small it may be, and to contain instances of ϕ, as histories without such instances will make the relative probabilities of ψ among ϕ undefined, they are required to be continuations of the actual history, and to be similar to the actual history. On this analysis (234) is true just in case in every admissible history H, the probability of an object x flying in H given that x is a bird in H is some value l greater than 0.5. A homogeneity requirement is introduced as a presupposition of generics and frequency statements, according to which the relative probability in every part of a suitable partition of any admissible history H must be the same as the probability in the whole H. Suitable partitions are contextually determined, and sometimes it may be unclear what partition is relevant and different speakers may entertain different partitions. This explains why speakers give more uncertain judgments about the truth of generics than about the truth of overtly quantified statements.

1.3.2.2 Reasoning with default Pelletier and Asher (1997) propose a modal conditional analysis of generics in which a relation of accessibility between worlds based on a relativized notion of normality plays a crucial role. One of the main points on which the authors base their proposal is that generics have truth conditions, though these are more complex than the truth conditions of episodic sentences. As we have mentioned above, the opposite view that they reject is that generics have the status of rules and thus would not be truth-valued assertions in the first place. Another point to which they devote significant discussion is the intensional character of generics, and in this respect they make an extensive criticism of purely extensional quantificational theories. A central property that they wish to explain is the well-known tolerance to exceptions, e.g. the fact that the truth of (244) is compatible with the existence of dogs that due to particular accidents are not four-legged, and their related ability to trigger logical inferences based on a defeasible rule of *modus ponens*, as shown by (245).

(244) Dogs have four legs.

(245) (a) Dogs have four legs. (b) Fido is a dog. (c) Therefore (defeasibly) Fido has four legs.

Concerning the problem of tolerance to exceptions, particularly puzzling are sentences like (246).

(246) Peafowls lay eggs.

Sentence (246) poses a special problem insofar as the tolerance to exceptions that it displays is massive: assuming temporarily that generics are quantificational, all male peafowls are excluded from the domain of quantification. On the intensional analysis they propose, generics turn out to have truth conditions, which for the authors is a welcome result. The modal conditional analysis can be illustrated by considering the logical form that it assigns to sentence (247). This is given in (248), and makes use of a dyadic operator GEN with similar syntactic properties as the GEN of Krifka et al. (1995). The modal truth conditions of the GEN formula are then given by the quantificational formula (249) below, according to which the generic operator is defined by means of a universal quantifier binding x and another universal quantifier over possible worlds entertaining a certain relation to the actual world (as in Stalnaker's (1968) and Lewis's (1973) classical analyses of conditional sentences):

(247) Birds fly.

(248) GEN[x][bird(x)] [fly(x)]

(249) $\forall x \forall w$ [(x is a bird in w & w is normal with respect to w_0 and to x's being a bird) $\rightarrow$ (x flies in w)]

The truth conditions in (249) can be paraphrased as follows: for every object x, the set of worlds that are normal with respect both to the actual world and to the proposition of x's being a bird is a subset of the set of worlds in which x flies. This analysis, though involving a universal quantifier over individuals, can account for the fact that (247) can be true in spite of some birds (e.g. penguins or ostriches) not being able to fly. The mechanism by which this is accounted for is the intensional component represented by the universal quantification over possible worlds: individual birds (including penguins) are considered with respect to possible worlds in which they possess all the properties that are normal for a bird in the actual world, and then they are claimed to fly relative to such worlds. The intuition is that relative to worlds in which penguins possess all the properties that are normal for a bird in the actual world, penguins do fly. This is an intuition that we could express by the true conditional *If penguins possessed all the properties that are actually normal for a bird, then penguins would fly*. This analysis also explains why logical inferences based on a rule of modus ponens, drawn from a major generic premise, are defeasible: the reason is that the minor premise, being a factual statement, does not say whether the world relative to which Birdie is said to be a bird (i.e. the actual world) is one in which Birdie possesses all the properties that are normal for a bird in the actual world. The crucial point here is that by the accessibility relation underlying GEN it is not guaranteed that the

actual world itself is among the possible worlds accessible from it (the accessibility is not a *reflexive* relation). To deal with the massive exception tolerance of the duck example considered above, the authors acknowledge that the intensional component encompassing the normality condition is not enough. For one thing, we may observe that besides sentences like (246) above, there are also sentences like (250), which also exhibit massive exception tolerance:

(250) Peacocks have colorful feathers on their tails.

If the only factor that was responsible for the exception-tolerance property of (246) was the normality condition seen above, then (246) and (250), which are intuitively both true, could not be both true: if it were normal for peafowls to lay eggs, then this would imply that it would be normal for peafowls to be hens (as only female peafowls can lay eggs), and this in turn would imply that it would not be normal for peafowls to have colorful feathers on their tails (as only male peafowls can have such colorful feathers), but this would mean that (250) would be false, which is not. The authors propose that there is also a mechanism of covert domain restriction which is operative in examples like (246) and (250), by which the former is somehow restricted to peahens, while the latter to peacocks. This suggestion is tentative, but the authors present it without developing it into an explicit account. Asher and Pelletier (this volume) take on this issue and deal with it more in depth.

1.3.2.3 The notion of 'normality' Nickel (2009) criticizes quantificational views of generics by showing the failure of what he takes to be the best possible implementation of the quantificational paradigm, namely the view for which the generic quantifier has the force of *most*. He refers to quantificational views of generics based on *most* as *majority-based views*, and criticizes them on the basis of true generics like (251), which he claims to be equivalent to the sentential coordination (252):

(251) Elephants live in Africa and Asia.

(252) Elephants live in Africa and elephants live in Asia.

What makes his criticism particularly interesting for us is that unlike previous criticisms of the quantificational view of generics, such as the now classical analysis of Pelletier and Asher (1997), it does not consider an extensional version of this view, but a sophisticated intensional version, and shows how even such a sophisticated version does not stand up to the threat of cases like (251) above. Consider a simple version of the majority-based view (one which is already sophisticated enough to account for the intensional character of generics). On this account, (253) has an LF like (254), whose truth conditions are informally stated in (255):

(253) Ravens are black.

(254) GEN[ravens] [black]

(255) GEN[ravens] [black] is true *iff* in a suitable domain, most ravens are black

By relativizing to a suitable domain, (255), one accounts for the modal nature of generics, in particular one excludes that (253) may wind up false in a case in which, by a mere accident, all ravens actually existing at the time of evaluation have become white. While this analysis may well account for the truth conditions of (253), Nickel observes that in order to cope with (256), and with the fact that this sentence does not entail (257) (far from being so, the former is true while the latter is false), a majority-based view has to accommodate a restriction of the domain of quantification.

(256) Chickens lay eggs.

(257) Chickens are hens.

Intuitively, when we evaluate (256), we consider the distribution of the property of laying eggs not amongst chickens *tout court*, but amongst a restricted domain, the domain of those chickens 'that are even in the business of producing offspring' (Nickel 2009: 634) – where this restrictive condition entails that such chickens must be hens. This domain restriction, as Nickel recognizes was pointed out by Ariel Cohen (1999b), is determined on the basis of the sentence's main predicate *lay eggs*, which is clearly related to the possible ways of producing offspring. This account can predict why (257) is false: the restriction induced by the predicate *hens* is to chickens that have some gender, and this is a much larger domain than in the case of (256). Following Ariel Cohen (1999b) in assuming predicate-induced domain restrictions, the general form of the majority-based view can be represented as in (258), where ALT(F) is the set of alternatives to the property F and ∨ALT(F) is the property of having at least one of the properties in the set ALT(F):

(258) GEN[A] [F] is true *iff* in a suitable domain, most As that are ∨ALT(F) are F

In the case of (256), ∨ALT(lay eggs) is equivalent to the property of being able to produce offspring in some way or other, so that the sentence is predicted to be true just in case in a suitable domain (larger than the actual world at the time of evaluation), most chickens that are able to produce offspring in some way or other, produce offspring by laying eggs. Nickel shows that even this very sophisticated majority-based view of generics cannot account for the truth of the equivalent generics (251) and (252). According to this theory, (252) has the LF (259), whose truth conditions are (260):

(259) GEN[elephants; live in Africa] & G[elephants; live in Asia]

(260) GEN[elephants] [live in Africa] & GEN[elephants] [live in Asia] is true *iff* in a suitable domain, most elephants that are ∨ALT(live in Africa) live in Africa and in a suitable domain, most elephants that are ∨ALT(live in Asia) live in Asia

Given the plausible assumptions that the suitable domains in the two conjuncts of the truth condition in (260) are the same domain, and that the domain restriction

properties ∨ALT(live in Africa) and ∨ALT(live in Asia) in this truth condition are the same property (plausibly, the property of living in some habitat or other), the majority-based analysis makes the wrong prediction that for (252) to be true (and the same holds for (251)), there must be elephants that live both in Africa and in Asia, which is plainly incorrect. In view of problematic examples like (251), Nickel proposes an inquiry-based account in which the truth of a generic sentence is not a matter of what is true most of the time but a matter of what inductive target is established in a conversation, where an inductive target in turn determines a way (or, possibly and crucially, different alternative ways) of being normal in some respect. The concept of being normal is assumed by Nickel as a primitive concept, for which no analysis in statistical terms is provided. In the case of the problematic (251), a plausible scenario in which we can imagine this sentence uttered is one where the inductive target of the conversation concerns the habitats in which elephants normally live, and the crucial point is that this inductive target determines more than one way of being normal: relative to one such way w1, it is normal for elephants to live in Asia, while relative to another such way w2, it is normal for them to live in Africa. Nickel's intuitive point here is that it is equally normal for elephants to live in Africa and to live in Asia, although relative to different ways of being normal (with respect to the same feature of living in a certain habitat). The truth conditions that Nickel's account assigns to (252) (and hence to the equivalent sentence (251)) are given in (261), where we still have (universal) quantification over elephants, but this is crucially dependent on a higher existential quantification over ways of being normal, so that the domain of the universal quantifier is not the same in the two conjuncts:

(261) GEN[elephants] [live in Africa] & GEN[elephants] [live in Asia] is true *iff* there is a way w1 of being a normal elephant w.r.t. its habitat, and all elephants that are normal in w1 live in Africa, and there is a way w2 of being a normal elephant w.r.t. its habitat, and all elephants that are normal in w2 live in Asia

We observe that Nickel's semantic account of generics, like those of Asher and Pelletier (1997) and Ariel Cohen (1999a), retains a crucial aspect of the quantificational views, namely the idea that generics of the form *As are Bs* do ultimately involve a form of quantification over individuals exemplifying *A*'s property, in this case universal quantification. In this respect, it must be noted that, although he criticizes previous accounts of generics based on the idea that they express some kind of quantificational relation between the subject and the predicate, and in particular Cohen's proposal to specify the quantificational import of the generic quantifier in terms of relative frequency of a property inside a reference class, Nickel's own account as well seems to leave it open how we should make sense of the observation made by some psychologists who report that generics are acquired comparatively earlier than quantificational sentences (e.g. Leslie 2008)—which would seem to suggest that generics might not be quantificational in the end (as noted by Carlson 1977b). Cimpian et al. (2010) have

recently claimed: 'Although generics imply that the properties they refer to are prevalent (Gelman, Star, and Flukes, 2002), we argue that they do not mark quantification *per se* (see also Carlson 1977a; Leslie 2008; Prasada 2000). Generics are a linguistic means of expressing knowledge about categories, and as such their interpretation is unlikely to be based solely on frequency information.' Even though Nickel's proposal still retains semantic machinery from quantificational approaches, his emphasis on the process by which the topic of a conversation determines a way in which members of a category can be said to be normal and on a primitive concept of normality, not defined in frequentist terms, makes it closer to such theoretical perspectives, currently more familiar amongst cognitive scientists, as we have briefly recalled above.

1.3.3 Presentation of the papers in the volume

A first set of papers investigate genericity in the subject DP.

Carmen Dobrovie-Sorin's paper 'Generic Plural and Mass Indefinites' investigates the constraints on the distribution of plural indefinite generics in French and investigates the constraints on plural quantification.

Bert Le Bruyn, Min Que, and Henriëtte de Swart's paper 'The Scope of Bare Nominals'. Carlson (1977b) established that bare plurals in English always take narrow scope. The authors give a full presentation of the English version of the experiment and a preview of the Mandarin Chinese and Dutch versions. These results shed doubt on the received view of the scopal properties of English bare plurals and, if replicated for other languages, will force a change in the way we model the semantics of bare nominals universally.

Stefan Hinterwimmer's paper 'Free Relatives as Kind-Denoting Terms' shows that the puzzling behavior of Free Relatives as definites in some contexts and indefinites in others is best accounted for if we locate the ambiguity in a covert operator that either returns an extensional or an intensional (maximal) sum individual.

Gerhard Schaden, in his paper 'Two Ways of Referring to Generalities in German', shows that in nominal 'reference to a generality' in German, nouns may appear either bare or with a definite determiner. He investigates the distribution of both variants and the relative impact of discourse structure.

The following set of papers address the question of genericity in the verbal domain.

Nora Boneh and Edit Doron's paper 'Hab and Gen in the Expression of Habituality' argues, based on the study of English habitual forms, that two different modal operators may be found in the expression of habituality: Gen, a quantificational modal operator, and Hab, a summational modal operator. The paper also discusses how the proposed operators interact with mood on the one hand, and two different aspectual

dimensions on the other: a viewpoint aspect distinction between imperfective and perfective, and a perspective distinction between internal and external (retrospective) perspective.

Patricia Cabredo Hofherr's paper 'Bare Habituals and Singular Indefinites' examines habitual sentences across various languages. Based on the scope properties of bare singulars in bare habituals she argues that habituals should not be analyzed in terms of a scope-taking plurality operation but in terms of a plurality allowing distributive readings with plural arguments. This plurality resembles degree expressions such as *beaucoup* 'a lot', as degree expressions similarly do not induce scope ambiguities.

Fabio Del Prete's paper, 'Imperfectivity and Habituality in Italian' proposes a semantic analysis of Italian imperfective sentences which uniformly accounts for their habitual and progressive readings. The main contribution is a non-quantificational account of imperfective habituals, based on a semantic analysis of verbs in terms of plural events and a modal/temporal analysis of imperfective aspect as a forward-expanding operator in a branching time model.

Anastasia Giannakidou and Eleni Staraki's paper 'Ability, Action and Causation: From Pure Ability to Force' shows empirically that Greek distinguishes ability as a precondition for action, and ability as initiating and sustaining force for action. The key, they argue, is not perfective aspect (as is commonly thought), since actualized ability emerges in Greek also with imperfective aspect and present tense. The crucial factor, we argue, is causation, which triggers a shift from pure ability to ability as action-initiating energy.

Paula Menéndez-Benito's paper 'On Dispositional Sentences' deals with the interpretation of dispositional sentences such as *This car goes 200 khp*. It defends a hypothesis, originally proposed by Dahl (1975), according to which dispositional sentences express existential quantification over worlds. Following up on work by Lekakou (2005), the covert possibility modal contributed by dispositionals is taken to select a particular type of circumstantial modality.

Friederike Moltmann's paper 'On the Distinction between Abstract States, Concrete States, and Tropes' discusses and defends a distinction between 'abstract states' and 'concrete states', a distinction that has recently been proposed by Maienborn to account for the peculiar semantic behavior of stative verbs. An explicit ontological account of the notion of an abstract state is given and the distinction between abstract and concrete states is related to the category of tropes (particularized properties).

The last set of papers address the question of the interpretation of generic sentences.

Nicholas Asher and Francis Jeffry Pelletier, in their paper 'More Truths about Generic Truth', defend and extend the modal approach to the analysis of generics. They review several recent criticisms of this view and argue that the view withstands them. We extend the modal approach by providing a sketch of a compositional analysis.

Ariel Cohen's paper 'No Quantification without Reinterpretation' asserts that the covert quantifier GEN is generated by the hearer, as a process of reinterpretation of the input. It establishes a difference between the generic and the habitual readings. In generics, GEN is generated by a pragmatic process of Predicate Transfer, whereas in habituals it is generated by a semantic process of type-shifting. Thus while it is the same quantifier in both constructions, the process by which it is generated is responsible for the differences between them.

Francis Corblin's paper 'The Roots of Genericity: Indefinite Singulars vs Definite Plurals' builds on the observation that generic readings of singular indefinites in French (as opposed to plural definites) are rare and always come with a modal flavor. It is assumed that this reading is triggered by a mechanism of Universal Closure, which is only triggered when the default mechanism, Existential Closure, is ruled out.

Manfred Krifka's paper 'Definitional Generics' investigates the interpretation of indefinite generic sentences and argues that these are definitional statements.

Bernhard Nickel's paper '*Dutchmen are Good Sailors:* Generics and Gradability' presents a novel treatment of generics such as 'Dutchmen are good sailors', exploiting the interaction between a generic operator and gradable predicates.