Maling, J., and *A. Zaenen.* 1982. A Phrase Structure Account of Scandinavian Extraction Phenomena. The Nature of Syntactic Representation, ed. by P. Jacobsen & G. Pullum, 229–82. Dordrecht.

Montague, R. 1974. Formal Philosophy. Selected Papers of Richard Montague, ed. by R. Thomason, New Haven, London.

Partee, B. 1970. Opacity, Coreference, and Pronouns. Synthese 21. 359–85.

Postal, P. 1971. Cross-Over Phenomena. New York.

Quine, W. O. V. 1960. Word and Object. Cambridge, MA.

Reinhart, T. 1976. The Syntactic Domain of Anaphora. Massachusetts Institute of Technology dissertation. Cambridge, MA.

–. 1983. Anaphora and Semantic Interpretation. Cambridge.

Reuland, E. 1983. Antecedent in PP's: Structural versus Linear Conditions on Binding. Groninger Arbeiten zur Germanistischen Linguistik. 233–47.

Ross, J. 1966. On the Cyclic Nature of English Pronominalization. To Honor Roman Jacobson, 1669–82. The Hague.

Smaby, R. 1979. Ambiguous Coreference with Quantifiers. Formal Semantics and Pragmatics for Natural Language, ed. by F. Guenthner & S. Schmidt, 37–75. Dordrecht.

Solan, L. 1983. Pronominal Reference – Child Language and the Theory of Grammar. Dordrecht.

Stechow, A. v. 1990. Layered Traces. Selected Papers from the Third Symposium for Logic and Language, ed. by J. Goldberg, L. Kalman & Z. Szabo. Budapest, to appear.

Stowell, T. (to appear). Adjuncts, Arguments, and Crossover. Natural Language and Linguistic Theory.

Wasow, T. 1972. Anaphoric Relations in English. Massachusetts Institute of Technology dissertation. Cambridge, MA.

Webelhuth, G. 1989. Syntactic Saturation Phenomena and the Modern Germanic Languages. University of Massachusetts dissertation.

Wiese, B. 1983. Anaphora by Pronouns. Linguistics 21. 373–417.

Williams, E. 1977. Discourse and Logical Form. Linguistic Inquiry 8. 101–39.

–. 1986. A Reassignment of the Functions of LF. Linguistic Inquiry 17. 265–300.

–. 1988. Is LF Distinct from S-Structure? Linguistic Inquiry 19. 135–46.

Yang, D.-W. 1983. The Extended Binding Theory of Anaphors. Theoretical Linguistic Research 1. 195–218.

Zimmermann, T. 1986. Transparent Adverbs and Scopeless Quantifiers. Foundations of Pragmatics and Lexical Semantics, ed. by J. Groenendijk & M. Stokhof, 81–99. Dordrecht.

Wolfgang Sternefeld, Tübingen (Deutschland)

48. Genericity

1. Some Basic Terminology

In this article, we will discuss syntactic aspects of a phenomenon of natural language which basically belongs to semantics. We begin by deliminating the phenomena which have been subsumed under the concept of genericity.

The paradigm cases of genericity are exemplified by the subject NPs in the following sentences.

(1a) *The lion* is a ferocious beast.
(*singular definite generic NP*)
(1b) *A lion* is a ferocious beast.
(*singular indefinite generic NP*)
(1c) *The lions* are ferocious beasts.
(*plural definite generic NP*)
(1d) *Lions* are ferocious beasts.
(*bare plural generic NP*)
(1e) *Gold* is precious.
(*bare singular generic NP*)

These sentences are similar, as their subject NPs do not refer to any concrete object, like Simba, the lion, or to a specific quantity of gold, at least not in the readings we are interested in. Another similarity may be seen in the fact that the sentences in (1) can be considered as a kind of universal quantification (every lion is a ferocious beast, every quantity of gold is precious). But there are important differences between sentences (1a–1e) and sentences with true universal quantifiers, insofar as generic sentences are often interpreted less strictly than sentences with universal quantifiers. Furthermore, the lack of reference to a specific object is not tied to the quasiuniversal quantification, witness the following examples:

(2a) The lion will be extinct soon.
(2b) Gold is a rare metal.

Plural definite generic NPs (1c) seem to have a rather marginal status, and we will ignore them for the rest of this article. But we should consider at least one further NP type; we will call these NPs "taxonomic", because the NPs refer to kinds viewed as elements of a taxonomy (cf. Bacon 1973).

(3) *Several cats* live in Africa, for example the lion and the leopard.
(*taxonomic NP*)

It has been noted that every generic NP discussed so far can occur in contexts where it is quite clearly to be interpreted as non-generic. Furthermore, there seems to be no clear NP marker of genericity in the paradigm cases (1) in English, and we do not know of any in other languages (see Gerstner-Link 1988). It is, however, arguable that there are expressions which only occur in generic sentences. An English example is the NP (not the noun) *man*.

(4) *Man* has lived in Africa for more than two million years.

Things are different with taxonomic NPs since fairly clear markers exist like *kind* in *several kinds of cats*, or the German suffix *art* in *eine Katzenart*.

As nearly every NP would permit a generic and a non-generic reading, it is remarkable that there are few cases of real ambiguity, as the context will normally disambiguate these readings. For example, in English the progressive is often incompatible with a generic interpretation of the NP:

(5a) *Lions* are roaring. (= some lions)
(5b) *Lions* roar. (= lions in general)

For this reason, linguists have often considered the whole clause as the locus of genericity and have introduced concepts like *generic tense* (cf. Chafe 1970, Jackendoff 1972, Lawler 1973, Dahl 1975, Carlson 1977).

Most influential has been the theory of Carlson, who assumed that bare plural and mass terms always refer to kinds, and that it depends on the verbal predicate whether the predication is reduced to a predication about specimens of the kind. This explains the lack of ambiguity in the NPs of (5a, b) and some other facts, like the narrow scope of non-generic bare plurals and mass terms, the possibility of anaphoric relations between generic and non-generic NPs (cf. section 5), and the possibility of conjoining verbal predicates which seem to enforce different readings, as in the following example (due to Schubert/Pelletier 1987):

(6) Snow is white and is falling right now throughout Alberta.

Carlson relates that verbal distinction to the distinction between *episodic* and *habitual* (and in general, *stative*) predicates (cf. also Chafe 1970, Lawler 1973), as in

(7a) John is smoking.
(7b) John smokes.

In doing so, Carlson assumes an ontology with three sorts of entities: *kinds, objects*, and *stages*, that is, spatio-temporal manifestations of objects and kinds. Objects may "realize" kinds, and stages may "realize" objects or kinds. Now, predicates like *be roaring* or *be smoking* are special insofar as they can be reduced to predicates about realizations. For example, the predicate in *Lions are roaring* is attributed to the kind *Leo leo*, the lion, but this internally reduces to the claim that there are stages of that kind which are roaring. Similarly, the predicate in *John is smoking*, although it is applied to the object John, is reduced to an attribution to a stage of John. The widely used terms *stage-level predicate* (for episodic predicates) and *individual-level predicate* (for stative/habitual predicates) originate in that theory.

2. Types of Genericity

In this section, we will have a look at the distribution of different types of generic NPs with respect to different classes of predicates. We will focus on five diagnostic contexts.

(i) There are predicates which impose the selectional restriction on one of their arguments that it must denote a kind. Let us call them *kind predicates*.

(8a) *The lion* was exterminated in Asia by 1000 A. C.
(8b) **Simba* was exterminated in Asia by 1000 A. C.

Further examples of kind predicates are *x be extinct, invent x*. The distribution of kind predicates with different kinds of supposedly generic NPs shows the following pattern:

(9a) *The lion* is extinct.
(9b) **A lion* is extinct.
(9c) ?*Lions* are extinct.
(9d) *A cat* (namely the lion) is extinct.
(9e) *Bronze* was invented in the 30th century B. C.

Kind predicates allow, as we see, for singular definite generic NPs (9a), taxonomic NPs (9d) and bare mass terms (9e). Bare plural NPs (9c) are also accepted, although e. g. (9a) seems to be preferred to (9c). Kind predicates do not, however, combine with indefinite generic NPs (cf. 9b).

(ii) *Collective predicates* like *gather* need a plural or collective NP in non-generic sentences, like *the witches* or *the committee*. In generic sentences they combine with some singular generic NPs as well, as pointed out by Gerstner (1979).

(10a) *The antelope* gathers near waterholes.
(10b) **An antelope* gathers near waterholes.
(10c) *Antelopes* gather near waterholes.
(10d) *A mammal* (namely the antelope) gathers near waterholes.

(iii) In many cases, a generic sentence does not report an event, but a characteristic property. Now, sentences which report an event are *dynamic*, and sentences which report a property are *stative*. Stative verbs accept any kind of generic NPs, but it is interesting to look at those generic NPs which are accepted by dynamic verbs as well. The evaluation of the following examples is strictly confined to the generic interpretation.

(11a) *The rat* reached Australia in 1770.
(11b) **A rat* reached Australia in 1770.
(11c) ?*Rats* reached Australia in 1770.
(11d) *A rodent* (namely the rat) reached Australia in 1770.
(11e) *Rice* was introduced in East Africa some centuries ago.

(iv) As noted by Lawler (1973), indefinite generic NPs cannot combine with predicates expressing *accidental properties*. (Since dynamic predicates always express accidental properties, this explains why indefinite generic NPs cannot combine with dynamic verbs.) Lawler considered *popular* as an accidental, and *polyphonic* as a necessary predicate for madrigals. We then have the following distribution:

(12a) The madrigal is popular./The madrigal is polyphonic.
(12b) *A madrigal is popular./A madrigal is polyphonic.
(12c) ?Madrigals are popular./Madrigals are polyphonic.
(12d) A type of music (namely the madrigal) is popular./A type of music (namely the madrigal) is polyphonic.
(12e) Music is popular./Music is homophonic or polyphonic.

(v) Finally, we will discuss the generic NP itself. Vendler (1967) and Nunberg/Pan (1975) pointed out that not all nouns allow for a definite generic NP. According to Vendler, the noun must not be too general in meaning; this explains the following contrast:

(13a) The Incas did not have *the wheel*.
(13b) ?Monkeys do not use *the instrument*.

Nunberg/Pan observed that the kind to which the noun of a definite generic NP is associated must be well-established. There are no equivalent restrictions for the nouns of indefinite generic NPs (the following example is Carlson's):

(14a) The Coca Cola bottle has a narrow neck.
(14b) *The green bottle has a narrow neck.
(14c) A Coca Cola bottle has a narrow neck.
(14d) A green bottle has a narrow neck.

What do the five tests tell us? We have found rather similar distribution patterns, which show that they do not reflect the idiosyncratic behavior of nouns and verbs, but may hint at a general classification of generic NPs. It seems clear that two main classes of generic NPs exist, and we will refer to them as *D-generic* and *I-generic*, according to their most prominent representatives.

D-generics	*I-generics*
sing. def. generic NPs	indefinite singular generic NPs
taxonomic NPs	bare plural generic NPs
bare sing. generic NPs	bare singular generic NPs
bare plural generic NPs (?)	

Here, bare singulars (mass nouns) and bare plurals are assigned to both classes, reflecting their compatibility with both sets of diagnostic contexts. The question mark after bare plural generic NPs indicates that they are not the best choices in the respective context, but they clearly are acceptable.

In the following two sections, we will have a look at the semantic properties of the two classes of generic NPs in order to explain their syntactical behavior.

3. D-Genericity

Let us assume that D-generic NPs refer to *kinds*. A kind like *Leo leo*, the lion, is, in turn, an individual. There are differences, of course, between kinds and objects, which can be accounted for in at least two different ways. Either kinds are regarded as concrete individuals, which differ from individuals like a specific lion in that they can occur at the same time in different places. This view is inherent, e. g., in Quine (1960). Or kinds are regarded as abstract entities, which are linked to concrete entities (in our example, the specific lions) as their *realizations*, as in Carlson (1977).

A typical means of referring to individual entities are *proper names*. The semantic difference between common nouns and proper names is that the former may be applied to many entities, whereas the latter refer, at least in principle, only to single entities. What does this mean in the case of definite generics? Consider a common noun like *lion*. As a proper name, it refers to a kind, the lion; and as a common noun, it applies to every realization of that kind.

What about the syntactic differences? Proper names do not normally require a determiner in English. Common nouns come in two classes: mass nouns like *rice* can go without determiner, whereas count nouns like *lion* cannot, except when pluralized. The following table lists NPs which could possibly have a D-generic reading.

(15a) *lion	(15a′) rice
(15b) ?lions	(15b′) *rices
(15c) the lion	(15c′) *the rice

The acceptability of these forms can be explained as follows: Normally, a common noun in its morphologically simplest form, i. e. a singular common noun in languages like English, should be interpretable as a proper name of a kind. This is exemplified by (15a′). A singular count noun cannot have NP status because it has an obligatory argument which must be filled by a numeral or a determiner; therefore (15a) is out. There are two remedies for this situation. The first (15b) consists in pluralizing the count noun, which binds the number argument. The second (15c) is the application of the definite article, an option that is possible in English for proper names (e. g. *the Sudan*). For mass nouns, no such remedy is called for; (15b′) and (15c′) are therefore not acceptable as definite generics.

This analysis of kind-reference is supported by languages which do allow for an NP like *lion*, and languages which obligatorily use the definite article with names. An example of the first type is Chinese.

(16) Lâohû jué zhông le.
tiger vanish CLASSIFIER ASP
'the tiger is extinct'

An example of the second type is colloquial (southern) German. Here, the prototypical proper names, namely personal names, bear the definite article, cf. *der Karl*. Consequently, the definite article is used more often for definite generic NPs, even in the mass noun case:

(17) Der Reis ist ein Grundnahrungsmittel.
The rice is a basic food.

In section 1, we have remarked that definite plural NPs like *the lions* may marginally be taken as generic as well; they would simply represent both strategies, pluralization and explicit marking of definiteness.

We have analysed D-generic NPs as proper names. There is a second way to refer definitely to individuals, namely by definite descriptions, like *the lion we saw yesterday*. The basic difference between these two ways is that the referent of a proper name can typically be identified on the basis of the background knowledge; it is an entity that can be spoken about without supposing any context. On the other hand, the referent of definite descriptions must be identified in the context or in the situation of the utterance. To analyse D-generic NPs as proper names entails that their referents are parts of the background knowledge, and need not be identified in the context or situation.

We can offer two observations to substantiate this claim. First, we have seen that definite generic NPs cannot be construed from every noun, but that the nouns must be connected with a well-established kind (cf. (14)). But this means that the kinds must be part

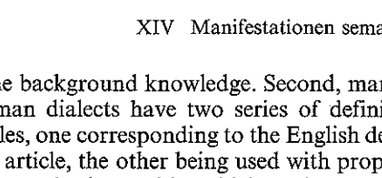
of the background knowledge. Second, many German dialects have two series of definite articles, one corresponding to the English definite article, the other being used with proper names and other entities which are known on the basis of the background knowledge of speaker and hearer (see Ebert 1970 for Frisian). As we would have expected, definite generic NPs bear this article, too. Consider, for example, Bavarian; (18a) is a case with a normal definite description, and (18b) is a generic sentence.

(18a) I håb a Bia und a Limo
I have a beer and a lemonade
bschdäid.
ordered.
Dees/?As Bia wår guad.
The beer was good.

(18b) As/*Dees Bia is daia.
The beer is expensive.

Another way to refer to kinds are taxonomic NPs, given that they show the same distribution as definite generic NPs in the tests of section 2. As taxonomic NPs may be indefinite, they cannot be taken as names of a kind. To understand their semantics, remember that kinds are often organized into taxonomical hierarchies (see Kay 1971 for natural taxonomies). Such taxonomies can be visualized as trees:

(19)



Each node represents a kind, and the lines show the *subspecies* relation between kinds. An obvious link between the subspecies relation and the relation of realization is that the realizations of a subspecies must be realizations of the superspecies. Although such 'folk' taxonomies are less developed than scientific taxonomies in many fields, they essentially have the same structure.

Up to now, we have singled out two meanings of nouns like *cat*, one applying to realizations of the kind *Felis*, the other to the kind *Felis* itself. There is a third meaning, namely one which applies to the subspecies, e. g. the species *Leo leo*, or the species *Felis silvestris forma domestica* (which is synonymously named *cat* in English). In this reading, *cat* is a kind predicate. The kind predicate meaning is most obvious when mass nouns are construed like count nouns (e. g. *wines*), and there are some nouns which only have this meaning, like *halogen* or *alloy*. Thus, it is easy to explain why taxonomic NPs have a similar distribution as definite generic NPs: it is because they refer to the same sort of entities, namely kinds.

It is interesting to note that this ambiguity of many count nouns between an object-related and a (sub)kind-related interpretation in a language like English is resolved in classifier languages, as they typically use different classifiers for object reference and kind reference (cf. Chinese *yi zhông xiong* 'a kind of bear' and *yi zhi xiong* 'an individual bear').

The well-known *type/token* distinction can be treated as a case of this ambiguity of count nouns. For example, *book* may refer to individual books ('tokens'), like the book with the red cover on top of my shelf, or to a subspecies of books ('type'), like Milton's *Paradise lost*. In a sentence like *This book sells well* it is obviously the latter reading which is selected.

We now turn our attention to the *semantics* of sentences with D-generic NPs. The most interesting question revolves around how properties of kinds relate to properties of their realizations and subspecies. There seems to be three basic cases:

(i) If the realizations or subspecies of a kind have a *characteristic property*, then this can be projected to the kind. To handle examples like *the lion has a mane*, one has to assume that *a mane* has narrow scope relative to the projection operator. In section 5, we will come back to this interpretation.

(ii) If some realization or subspecies of a kind has a property as the first one of its fellow-realizations or fellow-subspecies, then this too can often be projected to the kind. This explains cases like (20a); we will call it the *avantgarde* interpretation. However, this interpretation is not possible with any predicate, cf. (20b); predicates which are projected obviously must be considered as relevant for the kind.

(20a) Man set foot on the Moon in 1969.
(20b) ?Man jumped over 8.90 meters in 1968.

(iii) In other cases, we can ascribe a property to a kind because some *representative object* which realizes that kind has this property. Two examples:

(21a) In Kenya they filmed the lion.

(21b) At that night, the lion was roaming the kraal.

In (21a, b), only one or a few lions are involved in the reported events; still these properties are attributed to the whole kind. The precise conditions under which we can speak about kinds in that fashion remain unclear. One is that the identity of the object, and maybe even the number of the objects involved, are not relevant and not known in cases like (21).

(iv) Kind predicates like *be extinct* are not projected from realizations or subspecies, but the realizations or subspecies must meet certain conditions specified in the lexical semantics of kind predicates. For example, saying that the dodo is extinct is tantamount to saying that there are no living specimens of this kind anymore.

To conclude this short exposition of the semantics of D-generics, we want to remark that there has been a discussion in the philosophical literature whether kinds can be assumed at all (cf. Bacon 1973, with references). Most importantly, if all possible predicates (whose extensions are the elements of the power set of the set of individuals) had a unique correspondent in the set of individuals, this would lead to a cardinality problem. For example, if the cardinality of the set of individuals is n, then the cardinality of the power set is 2^n, and this means that the elements of the power set cannot be embedded in a bi-unique way into the set of individuals. There are different possibilities to solve this problem, for example by restricting the syntactic rules of kind name construction (cf. Chierchia 1982) or by supposing so-called Scott Domains as model structures (cf. Turner 1983; cf. also Chierchia e. a. 1989). But as we have seen, the class of common nouns which can occur in definite generic NPs is quite restricted, hence it should be possible to represent this restricted class twice, as sets and as individuals.

Kinds have been the topic of another philosophical debate, namely in the discussion of so-called *natural kinds* (cf. Schwartz (ed.) 1977). As natural kind terms, like *the lion*, are treated exactly like other kind names, like *the bachelor*, we will ignore this discussion here.

4. I-Genericity

Whereas the locus of D-genericity is essentially the NP, the locus of I-genericity is the sentence. It appears that there is a generic operator which is responsible for the non-accidental reading which we have found with our examples of indefinite generic NPs. This operator is similar to modal operators in having wide scope over the sentence.

What we have called "indefinite generic NPs" can be considered as simple indefinite NPs. As the genericity depends solely on the sentence operator and not on the NP, any indefinite NP should be possible with a generic reading, and this is what we have found (cf. example (14)).

The reason why an indefinite NP can have different semantic effects is that its interpretation crucially depends on the operators which have scope over them. According to Kamp (1981) and Heim (1982), an indefinite NP is not interpreted as a quantifier, but as a predicate applying to a variable. Definite pronouns, in turn, pick up that variable. The variables can be interpreted in two ways: First, they may be bound by an existential quantifier ranging over the whole text (*existential closure*), as in the following example, where ∃ represents that existential closure:

(22) A farmer bought a donkey. He beat it on the way home.
∃[FARMER(x) ∧ DONKEY(y) ∧ BOUGHT(x, y) ∧ BEAT(x, y)]

Second, they may be bound, under certain syntactic conditions, by other operators, such as quantificational adverbs (cf. Lewis 1975):

(23) Always, if a farmer owns a donkey, he beats it.
∀(FARMER(x) ∧ DONKEY(y) ∧ OWN(x, y); BEAT(x, y))

Here, the universal quantifier ∀ binds both variables x and y (it is an *unselective quantifier*). Its syntax is related to the framework of Generalized Quantifier Theory; it has two 'arguments', the first is called *Restrictor* and the second, *Matrix*. One gets the ordinary, first-order quantifier in this case simply by replacing ";" by "→". The generic operator can be treated in a similar way (cf. Heim 1982, Farkas/Sugioka 1983, Schubert/Pelletier 1987). As a first approximation, we may have the following representation:

(24) A lion is a ferocious beast.
∀(LION(x); FEROCIOUS_BEAST(x))

Similarly as in (23), the 'universal' interpretation of the indefinite NP *a lion* is not due to that NP itself, but to a quantificational operator. This operator is covert in (24), but

it (or something similar to it) may be made overt with sentence operators such as *usually* or *typically*.

This analysis of I-genericity as induced by a dyadic operator supersedes another one, put forward by Lawler (1973), Carlson (1977), and others, where I-genericity is induced by a monadic operator that maps the verbal predicate to a 'generic' predicate. Carlson (1989) showed that this theory cannot cope with cases where we have more than one generic interpretation, as in the following:

(25) A computer computes the (daily) weather forecast.
  (a) ∀(COMPUTER(x); ∃y[WEATHER_FORECAST(y) ∧ COMPUTE(x, y)])
  (b) ∀(WEATHER_FORECAST(y); ∃x[COMPUTER(x) ∧ COMPUTE(x, y)])

Reading (a) says that computers in general compute the weather forecast; reading (b) says that the daily weather forecast is in general computed by a computer. The second reading, which is actually the one which is factually true, could not be explained with a monadic verb operator.

One aspect of this treatment of I-genericity is unsatisfactory: Generic sentences differ from universal quantifications semantically — they are both stronger and weaker than universal quantifications. On the one hand, they are stronger, as they do not capture mere accidental generalizations (cf. Dahl 1975). For example, if every member of a certain club happens to own a white VW, the generic sentence *A member of this club owns a white VW* would be inadequate, as this would specify an essential rule about club membership. On the other hand, I-generic sentences are weaker than universal quantifications, as they allow for exceptions. For example, (24) would still be true even if there are some lions which are quite friendly.

It is obviously not possible to choose just another quantifier instead of the universal quantifier. The second problem cannot be handled by that, because we can come up with counterexamples even for very weak quantifiers (cf. Carlson 1977). For example, a sentence like *A mosquito carries malaria* might be considered as true, even if very few mosquitos actually carry malaria. And the first problem is clearly out of reach for any strengthening of the quantifier, as even the universal quantifier is not strong enough. So let us assume a generic operator GEN which is similar to quantifiers insofar as it binds variables, but different from them in its essential semantic properties. A sentence like (24) would get the following interpretation:

(26) GEN(LION(x); FEROCIOUS_BEAST(x))

There are several routes which can be taken to spell out the semantics of the GEN operator. Perhaps the most promising ones are to take it as a *modal operator*, or to interpret it as a *non-monotonic inference rule*.

A modal analysis was proposed, among others, by Dahl (1975) and Heim (1982). In this approach, the GEN operator is a necessity operator. It can be analysed similar to the operator in conditional sentences, which are closely related to I-generic sentences and which are a traditional application for modal theories (cf. Lewis 1973, Kratzer 1981). The basic idea is that the necessity operator expresses a quantification over a set of possible worlds that are compatible with certain assumptions and are most similar to some world (the real world or some ideal world). The background assumptions, and the specific similarity relation, are typically given by the context. For example, (26) would be interpreted as saying: In those worlds in which animals behave according to their inherent predispositions, and which are most similar to our world, every lion is a ferocious beast. This does neither imply that in the actual world, every lion is a ferocious beast, nor would the (accidental) fact that every lion is a ferocious beast in our world imply that we have the same matter of facts in the possible worlds in which animals behave according to their predispositions.

The type of modality that we find with I-generic sentences can vary widely. It can be linguistic necessity or analyticity as in (27a) (cf. Burton-Roberts 1976, Strigin 1985) or mathematical necessity as in (27b). In these cases, the set of worlds under consideration is the set of all possible worlds; hence we do not find exceptions. The modality can be based on our factual knowledge of the world, as in the examples we have considered so far. And it may be a deontic modality, invoking certain laws or rules of behavior, as in (27c); in this case, we even should expect exceptions in the real world:

(27a) A spinster is unmarried.
(27b) Two and two equals four.
(27c) A boy doesn't cry.

(27d) Three kiwis were sold for one dollar last week.

Up to now we have not considered sentences like (27d), which could also be analysed as indefinite generics, except that they hold relative to time and place. We think that this is another, more restricted modality. One could, of course, assume different default operators for different modal dimensions. But as it is a common phenomenon of natural languages that the dimension of modality is left open (cf. the semantics of modal verbs like *must*), we think that this parameter is filled pragmatically.

Another possible interpretation of GEN is in terms of a nonmonotonic inference rule. These rules are such that they allow us to draw conclusions in absence of positive knowledge to the contrary; but in case we arrive at positive knowledge at a later point, a former conclusion may have to be retracted. For example, (26), the semantic form of *a lion is a ferocious beast*, says that whenever an object x satisfies the restrictor, here LION(x), and we have no positive information whether it satisfies the negation of the matrix, here ¬ FEROCIOUS_BEAST(x), then we can conclude FEROCIOUS_BEAST(x). However, this conclusion can be defeated if we later learn that x is not in the extension of FEROCIOUS_BEAST. There are various ways to spell out formally such non-monotonic inference rules, for example by default rules (cf. Reiter 1980); see Ginsberg (1987) for an overview.

Our analysis explains why I-generic sentences have non-accidental predicates. To say that any x which is specified by a property A has a certain property B by default is only possible when there are law-like relations between A and B. If all entities that have property A would have property B simply by accident, then every accidental change of situation can change this fact. Since nonmonotonic inference rules should be intrinsically conservative against such changes, they cannot be used to express facts which are only accidentally true.

There are examples which seem to falsify our claim that I-genericity can be captured by assuming a default operator:

(28a) A bird lays eggs.
(28b) A turtle grows very old.

One can argue that only female birds lay eggs, and that turtles only rarely live to be very old since nearly all of them are killed by predators when still young. But these putative counterexamples can be rejected if one remembers the restriction in our explication of the GEN operator that there should be *no reason why the matrix does not hold.* The fact that only female animals lay eggs and that a life can be shortened by external causes are such reasons. Of course, this shows that one has to expect a lot from pragmatics and background assumptions to arrive at a correct interpretation of generic sentences. But this is quite a common phenomenon in the semantics of natural language.

Let us leave the complex issue of the semantic interpretation of the GEN operator. We want to point out some merits of the analysis of I-genericity in terms of an operator like GEN. (i) It explains why the verbal predicate is always in a certain mood. This can be understood as a direct reflex of the GEN operator, which has scope over the verbal predicate. A theory which assumes that I-genericity is a phenomenon that is essentially restricted to the NP cannot capture this as easily. (ii) In our analysis generic propositions are reduced to propositions about concrete entities in the extension of the nominal predicate. This explains why there are no special kind predicates with indefinite generics. (iii) Our analysis explains why there can be no avantgarde interpretation in indefinite-generic sentences: if a predicate applies to only some exceptional individuals, then it cannot apply to *any* individual by default. — Our analysis can be extended to other kinds of indefinite NPs as well, e. g. to bare plurals and bare mass nouns in their I-generic interpretation (see e. g. (28), where *dogs* should be applicable to individuals consisting of one or more dogs).

There are some interesting questions that arise with the assumption of GEN from a syntactic viewpoint, for example where the GEN operator is situated in the syntactic derivation, and which principles determine the distribution of syntactic material to the restrictor or the matrix. Here, we can only offer some observations.

First of all, note the difference in the following examples when uttered with wide (not contrastive) focus:

(29a) A líon ¦ is a ferocious bèast.
(29b) A líon was in the cage.

An I-generic sentence like (29a) typically has two parts, which may be identified as theme and rheme. There is an optional pause be-

tween them, the rheme bears the main stress, and the theme bears secondary stress. Sentences with normal indefinite subjects have no optional pause, the subject bears the main stress, and there is a tendency to use the *there*-construction (*There was a lion in the cage*). They can be considered as wholly rhematic. That I-generic NPs are thematic becomes very clear in languages like French which have special constructions for indefinite thematic constituents:

(30) Des garçons, ça ne
Boys PRON NEG
pleure pas.
cry NEG
'Boys do not cry'

Note that the accent pattern of (29a) is typical for sentences with operators which bind a variable.

(31a) Every líon | is a ferocious bèast.
∀(LION (x); *ferocious_beast* (x))

(31b) If a farmer has a dónkey | he bèats it.
∀(FARMER (x) ∧ DONKEY (y) ∧ HAVE (x, y); BEAT(x, y))

Obviously, the restrictor of a quantificational operator forms the background against which the matrix is evaluated. This fits neatly into the distinction between *theme* and *rheme* as developed in the Prague School: the theme can be identified with the restrictor, and the rheme with the matrix. As the theme has secondary stress and the rheme has main stress, and both are separated by an optional pause, the accentual patterns exemplified by (31a, b) can be predicted.

The accentual pattern of I-generic sentences can be explained in the same way, if they are analysed as consisting of an operator with a matrix (the indefinite NP) and a restrictor (the verbal predicate). Furthermore, this explanation also deals with sentences with indefinite generic NPs which are not in subject position. The generic reading of these sentences is clearly favored if not the final NP (as usual with transitive verbs), but the verb bears the main stress (cf. (32)). This can be explained if we assume that all indefinite NPs which are to be interpreted generically are assembled in the matrix of the GEN operator. We then have the following interpretations:

(32) An antelope feàrs a lion.
GEN(ANTELOPE (x) ∧ LION (y); FEAR (x, y))

The observation that non-focused expressions go to the restrictor also holds for atemporal *when*-clauses, which are discussed by Carlson (1979) and Farkas/Sugioka (1983). Here, the *when*-clause, which typically does not bear the main sentence accent, adds additional conditions to the restrictor of the GEN operator:

(33) Dogs are intelligent when they have blue eyes.
GEN(DOGS (x), HAVE-BLUE-EYES (x); INTELLIGENT (x))

Without going into the construction rules for the semantic representations in these examples, it is clear that the GEN operator should be introduced at some point in the syntactic derivation, as other constituents of the sentence – NPs, *when*-clauses etc. – must be mapped to one of its two argument positions, according to their focus properties. On the other hand, there are cases where we may assume that GEN is part of the lexical entry of a verb itself. A case in point is the following:

(34) Sally loves càts.

In addition to a reading with *cats* in narrow (contrastive) focus, (34) has a reading where the whole verbal predicate *loves cats* is in focus. In this case, we may assume that *loves* has a lexical entry containing the GEN operator which maps the object to the right argument irrespective of theme/rheme-distinctions (for example, λPλx GEN(P(y); LOVE(x, y))). Note that the object in these cases is typically a bare plural; *Sally loves a càt* strongly tends to the specific reading of *a cat*.

5. Phenomena Related to Genericity

In this section, we will treat some phenomena which are related to one or the other form of genericity – in particular, habituals, explicit quantification, generic anaphora, and cases of mixed genericity.

Let us start with *habituals*, whose relation to (I-)genericity was observed frequently (cf., among others, Chafe 1970, Lawler 1973, Carlson 1977). Habitual predicates are related to some basic verbs and express a disposition which can be spelled out by predicating the bare verb to the subject referent. In English, habituals may be marked periphrastically by *used to*, but often are not marked at all. (In other languages, e.g. in Swahili, habituals may be marked morphologically). As dispositions are properties and not events, habitual verbs are always stative; the progressive, therefore, which is restricted to dynamic verbs, excludes an habitual interpretation. This explains the following readings:

(35a) John smoked. (habitual, non-habitual)
(35b) John used to smoke. (habitual)
(35c) John was smoking. (non-habitual)

The relation between habituals and I-genericity can be formally incorporated either, as in Carlson (1977), by the notion of a stage (cf. section 1), or by the introduction of variables over 'occasions' or *situations* (cf. Lawler 1973, Schubert/Pelletier 1987). With such situation variables s, we can give an interpretation of habituals in terms of the GEN operator:

(36a) John smòkes after dinner.
GEN(x = JOHN ∧ AFTER-DINNER(s) ∧ IN(x, s); SMOKE(x, s))

(36b) John smòkes.
GEN(x = JOHN ∧ IN (x, s); SMOKE (x, s))

(36a) says that typically, if John (= x) is in an after-dinner-situation s, John smokes in s. Note that *after dinner* is unstressed, i.e. thematic, and therefore must belong to the restrictor of the default operator. This seems to be a fair account of the truth-conditions of (36a), and shows that we may use the GEN operator both for I-generic sentences proper and for habitual sentences. In (36b), however, the situations are not specified any further. The semantic representation amounts to: If John is in a situation, he typically smokes in that situation. This looks as a much too strong interpretation – even if John is a heavy smoker, we do not expect him to smoke when he is sleeping, or in the non-smoking section of a restaurant, or in a public place in Massachusetts. But depending on the semantic interpretation of the GEN operator, our analysis may still work. If we interpret it as a rule for nonmonotonic inference, then the knowledge that s satisfies one of these conditions would have as a consequence that John does not smoke in s, and this positive knowledge would preempt the conclusion warranted by the nonmonotonic inference rule that John does smoke in s. Given such an interpretation, (36b) may not be too strong after all.

There is a distinction in the literature on habituals which can be captured neatly in our formalization. Lawler (1973) and Dahl (1975) distinguished between *existential* and *universal* genericity (or habituativity). Sentences like the following one can have both readings:

(37) John drinks beer.

As a universal generic sentence, (37) means that John has the habit of beer drinking; as an existential generic sentence, (37) means that John does not object to drinking beer. Lawler assumes two generic quantifiers to deal with this distinction. We do not think that this is necessary. Lawler already noted that the readings of (37) are differentiated by intonation, but fails to give a detailed description. Characteristically, in the universal generic reading, the whole VP is in focus (with the accent on *beer*), whereas in the existential reading, *drinks* is in focus (it bears the sentence accent). So we should assume the following distribution of semantic material to restrictor and matrix:

(38a) GEN(x = JOHN ∧ IN(x, s); ∃y[BEER(y) ∧ DRINK(x, y, s)])

(38b) GEN(x = JOHN ∧ BEER(y) ∧ IN(x, s) ∧ IN(y, s); DRINK(x, y, s))

(38a) means that in a situation s, John typically drinks beer (the interpretation of GEN weakens that, similarly to the case 36b). (38b) means that in a situation s where beer is around, John drinks it (again, the interpretation of GEN weakens that – for example, John could have decided to drink wine, and therefore does not drink beer at that occasion). Actually, there is a third reading of (37), again with stress on *beer*, where *beer* is in narrow focus and which expresses that beer is the favourite (alcoholic) beverage of John. This can be expressed according to our rules, and quite adequately, by putting only *beer* into the matrix:

(38c) GEN(x = JOHN ∧ DRINK(x, y, s); BEER(y))

Let us now look at the relation between genericity and *explicit quantification*. As noted above, sentences with NPs containing explicit quantifiers like *every lion* have to be interpreted more strictly than generic sentences; they do not allow for exceptions. But even sentences with quantifiers like *the most* or *many* differ fundamentally from generic sentences (cf. Carlson 1977). We have seen that quantifiers of this sort cannot render the modal quality of I-genericity. Another difference is that in evaluating sentences with nominal quantifiers, one has to know the extension of

the common noun on which the NP is based (this is the standard Generalized Quantifier analysis). For example, in order to evaluate the sentence *most lions have a mane*, one has to compare the extension of lions in general with the extension of lions which have manes. For an I-generic sentence, on the other hand, it is irrelevant how large the extensions are.

Related to this fact is the observation of Dahl (1975) and Croft (1986) that the extension of the common noun can be contextually restricted only in the case of nominal quantifications:

(39) There were lions and tigers in the circus ring.
  (a) (Every lion)/(each lion)/(most lions)/ roared.
  (b) *Lions roared.

In (39a), the relevant common noun extension is clearly restricted to the individuals in the circus ring. A generic sentence cannot be restricted in this way. There is, however, one determiner which behaves very similar to I-genericity, namely *any*:

(40) Any lion roars.

It is evident that (40) has the characteristic properties of I-generic sentences; for example, it needs a stative, non-accidental predicate (cf. **Any lion is roaring*), and the noun extension cannot be restricted by the context. Therefore, an NP like *any lion* should be analysed similarly to *a lion*, i.e. as an indefinite NP. The difference between normal indefinite NPs and *any*-NPs is that *any*-NPs are always non-specific, and that they explicitly convey the meaning that nothing hinges upon the particular choice of a referent (cf. Vendler 1967). This extra component should explain why (40) is interpreted more strictly than the corresponding generic sentence *a lion roars*. If nothing hinges on the choice of the referent, then there is no reason why the proposition does not hold for any particular referent.

Let us now look at *generic anaphora*, as in the following examples:

(41a) John killed *a spider* because *they* are ugly.
(41b) John didn't keep *a spider* because *they* are ugly.

The natural reading of the second clause of (41a, b) is that generally, spiders are ugly. *They* clearly should be analysed as referring to a kind. Now, if one assumes that a pronoun has to refer to an entity which was introduced in the preceding text, then it is unclear why the pronoun *they* is possible: in (41a), it can be argued that the first clause introduces only a single spider, and in (41b), no spider is introduced at all.

To treat phenomena like that, we might assume that an NP containing a common noun in any case introduces a kind (cf. also Kamp/Frey 1986). This analysis can be integrated in the one we have developed above, because we too have assumed that a common noun is related to a kind.

It is interesting that in the examples we have considered so far, the generic pronoun is plural. But it can be singular, too, as in (42a). If the antecedent is plural, however, the pronoun must be plural, too (42b):

(42a) John shot a lion, although it is protected.
(42b) John shot lions, although (they are)/ (*it is) protected.

This can be explained by three interacting principles. The first one is syntactic: if the antecedent is plural, i.e. has a marked agreement feature, then the pronoun must bear the same feature. The second one is that reference to kinds is possible with plural NPs, although this is not the preferred way. The third principle is that in cases where the pronoun could refer to both the individual entity and the kind which is introduced by a singular antecedent NP, a plural pronoun is chosen to refer to the kind. This is done in order to exclude reference to the individual, which is clearly more prominent than reference to the kind. But if it is clear for other reasons that the pronoun refers to the kind, e.g. because it is an argument of a kind predicate as in (42a), then singular pronouns are also allowed.

Another phenomenon which is related to generic anaphora are indefinite pronouns like *some* and *one* (or German *welche*), as exemplified in

(43a) John bought a spider, and Mary bought one, too.
(43b) John bought milk, and Mary bought some, too.

Indefinite pronouns can be analysed as *referring* to a kind which is introduced in the preceding context, and as *introducing* a realization of this kind. Thus, they share properties of definite and indefinite expressions.

There are cases of anaphora with indefinite generic NPs as well:

(44) A lion is a ferocious beast. It has huge claws.

It is clear how (44) can be interpreted along the lines that we argued for above: Take a lion, and it will typically be a ferocious beast. Moreover, this lion will typically have huge claws. That means that the second sentence has to be interpreted against the restrictor of the first. This poses compositionality problems because in interpreting the second sentence, one must be able to "look into" the first one.

Let us finally have a look at sentences where *both kinds of genericity* meet (which of course supports our distinction between two elementary kinds of genericity, reference to kinds and generic quantification). One example:

(45) The lion has a mane.

Clearly, *the lion* can have a D-generic interpretation, and the whole sentence is I-generic (it expresses a typical property, note also that we could have overt adverbial modifiers, like *usually*). The meaning of (45) could be rendered by an I-generic sentence like *A lion has a mane* as well.

Cases like (45) may be treated by assuming that definite NPs are related to a variable not by the identity relation, but by a relation IS. If x and y are objects or kinds, then x IS y is true just in case x = y. However, if x is an object and y is a kind, then x IS y is true in case x is a realization of y, which we write as R (x, y). This is the case of (45):

(46) GEN(x IS LEO; ∃y[MANE (y) ∧ HAVE (x, y)])
= GEN(R (x, LEO); ∃y[MANE (y) ∧ HAVE (x, y)])

We get a correct interpretation, saying that a realization of the kind *Leo*, that is, a lion, typically has a mane.

There is independent evidence for the IS relation. We may reconstruct the representative object reading of sentences such as (21) with it (that example could be rendered as: ∃x[WE_FILMED(x) ∧ x IS LEO], whose second conjunct reduces to R(x, LEO). Furthermore, we can imagine someone in a zoo, pointing to the lion Simba, saying: *This is the lion*. We can explain this by assuming that he pointed at Simba and attributing to it the property that it stands in IS-relation to the kind LEO, that is, SIMBA IS LEO, which is tantamount to R(SIMBA, LEO).

Let us conclude by stressing the main point of this article: Genericity has to be dissociated into two separate concepts, namely D-genericity (reference to kind) and I-genericity (a kind of modal quantification). One can speculate why genericity was ever identified as a single concept in the first place. The reason probably is that in some paradigm cases, we find both kinds of genericity in the same sentence. The supposed similarity of the two kinds of genericity, however, is only superficial, a kind of family resemblance at best.

This article was written in May 1987, and slightly revised in 1990. A more elaborate treatment of genericity can be found in Krifka et al. (to appear).

6. References

Bacon, John. 1973. Do generic descriptions denote? Mind 82. 331–347.

Burton-Roberts, Noel. 1977. Generic sentences and analyticity, Studies in Language 1, 155–196.

Carlson, Gregory. 1977. A unified analysis of the English bare plural. Linguistics & Philosophy 1. 413–456.

–. 1977. Reference to kinds in English. Amherst: Ph. D. dissertation. Published 1980, New York.

–. 1979. Generics and atemporal When, Linguistics and Philosophy 3. 49–98.

–. 1989. The semantic composition of English generic sentences. Property theory, type theory, and semantics, Vol. 2, Semantic issues, ed. by G. Chiercha, B. Partee & R. Turner, 167–191. Dordrecht.

Chafe, Wallace. 1970. Meaning and the structure of language. Chicago.

Chierchia, Gennaro. 1982. Nominalizations and Montague Grammar. Linguistics and Philosophy 5. 303–354.

Croft, William. 1986. Universal quantifiers and generic expressions. Stanford University, MS.

Dahl, Östen. 1975. On generics. Formal semantics of natural language, ed. by Edward Keenan, 99–111. Cambridge.

Ebert, Karen. 1971. Referenz, Sprechsituation und die bestimmten Artikel in einem nordfriesischen Dialekt (Fering). University of Kiel doct. dissertation. Nordfriisk Institut, Bredstedt.

Farkas, Donka, and Yoko Sukioka. 1983. Restrictive if/when clauses. Linguistics and Philosophy 6. 225–258.

Frey, Werner, and Hans Kamp. 1986. Plural anaphora and plural determiners. University of Stuttgart, MS.

Gerstner, Claudia. 1979. Über Generizität. Munich: M. A. thesis.

Gerstner-Link, Claudia. 1988. Über Generizität. Generische Nominalausdrücke in singulären Aussagen und generellen Aussagen. University of Munich doct. dissertation.

Heim, Irene. 1982. The semantics of definite and indefinite noun phrases. Amherst: Ph. D. dissertation. Published 1988, New York.

Jackendoff, Ray. 1972. Semantic interpretation in Generative Grammar. Cambridge, MA.

Kamp, Hans. 1981. A theory of truth and semantic representation. Formal methods in the study of language, ed. by J. Groenendijk, Th. Jannsen & M. Stokhof, 277–322. Amsterdam.

Kay, Paul. 1971. Taxonomy and semantic contrast, Language 47. 866–887.

Kratzer, Angelika. 1977. Semantik der Rede. Kronberg.

–. 1980. Die Analyse des bloßen Plurals bei Gregory Carlson. Linguistische Berichte 70. 47–50.

Krifka, Manfred et al. (to appear). Genericity. An introduction. The generic book, ed. by G. Carlson & F. J. Pelletier. Chicago.

Lawler, John. 1973. Studies in English generics. Papers in Linguistics 1. Ann Arbor.

Nunberg, Geoffrey, and Chiahua Pan. 1975. Inferring quantification in generic sentences. Papers of the 15th Meeting of the Chicago Linguistic Society. 412–422.

Quine, Willard van Orman. 1960. Word and Object. Cambridge, MA.

Schubert, Lenhart K., and Francis J. Pelletier. 1987. Problems in the representation of the logical form of generics, bare plurals, and mass terms, New directions in semantics, ed. by E. LePore London.

Schwartz, Stephan P. (ed.) 1977. Naming, necessity and natural kinds. Ithaca.

Strigin, Anatolj. 1985. Eine Semantik für generische Sätze, Linguistische Studien 125. 1–85.

Turner, Raymond. 1983. Montague Grammar, Nominalizations and Scott's Domains. Linguistics and Philosophy 6. 259–288.

Vendler, Zeno. 1967. Linguistics in Philosophy. Ithaca.

Claudia Gerstner-Link, Munich (Germany)/
Manfred Krifka, Austin, Texas (USA)

49. Focus Particles

1. Introduction

Within the heterogeneous class of traditional adverbs, several subclasses can be distinguished on the basis of syntactic and semantic properties. One of these subclasses singled out because of the interaction of its elements with central syntactic and semantic processes and recognized as a separate lexical class in a wide variety of recent grammar handbooks, is the class of focus particles (focusing adjuncts/subjuncts, scalar particles, focus adverbs, etc.). A first identification and characterization of this class can best be based on semantic criteria. It is a striking property of the relevant expressions that the contributions they make to the meaning of a sentence varies with their position in a sentence and with the location of the sentence stress (nuclear tone). In other words, these expressions interact with the focus-background structure of a sentence. In the following examples, the focus of a sentence – often also referred to as 'the focus of the particle' – is written in capital letters, as is customary in the literature:

(1 a) Even/only GEORGE writes poetry.
(1 b) George even/only WRITES poetry.
(1 c) George writes even/only POETRY.

The location of the nuclear tone does not clearly and unambiguously identify the focus of the particle. Prosodic prominence is neither a necessary nor a sufficient criterion for interpretation as focus (Rochemont 1986, 19 ff). But within the vast majority of cases a nuclear tone is placed within the focus domain of the particle. A clear delimitation of the focus is only possible on the basis of the context and some appropriate tests:

(2 a) What did John do? – He only BOUGHT SOME APPLES.
(2 b) What did John buy? – He only bought SOME APPLES.

Moreover, focus particles can be associated with more than one focus:

(3) Jones claimed that he could sell refrigerators to the Eskimos, but in fact he couldn't even sell WHISKEY to the INDIANS (cf. Anderson 1972).

The property of being sensitive to and interacting with focus is a property that focus particles share with epistemic adverbs (*possibly, probably*), evaluative adverbs (*surprisingly, oddly enough*), interrogative pronouns, corrective (metalinguistic) negation (*not... but*) and attitudinal verbs (*regret, doubt*). Furthermore, in languages in which polar interrogatives are distinguished from declarative sentences not through word order, but through the addition of particles these particles may also identify the focus of the question:

(4 a) (Finn.) Saksaako Kari puhuu? – 'Is it GERMAN what Kari speaks?'
(4 b) Kariko puhuu saksaa? – 'Is it KARI who speaks German?'
(4 c) Puhuuko Kari saksaa? – 'Does K. SPEAK GERMAN?'

Generalizing from such observations, Jacobs (1988, 95) has argued that every focus of a sentence should be analyzed as the focus of some operator (Relational Focus Theory) and that in addition to such overt focus inducers as listed above, we should also postulate covert focus inducers such as interrogative, declarative or other illocutionary operators. As a first approximation the focus of a particle can be defined as that string of expressions which is set off from the rest of the sentence by prosodic prominence and which is specifically affected semantically by the particle. As a result of the focusing and the interaction with the particle, the denotation of the relevant expression is related to a class of denotations of the same type, the alternatives to the focus value. It is, however, not only the focus that the contribution made by a particle to the meaning of a sentence depends on. Focus particles are also scope-bearing elements, so that their contribution to sentence meaning also depends on the scope they take within a sentence, just like that of quantifiers. Given that the particles *also* and *only* have the same focus in the following two examples, the difference in the interpretation of these two minimal pairs must be due to a difference in scope. In (3) relative scope is marked by the left-to-right sequence of the scope-bearing expressions, whereas in (4) it is the division into tone groups ('tonality') that identifies the scope:

(5 a) George also drinks WHISKEY very rarely.
(5 b) Very rarely does George also drink WHISKEY.
(6 a) /Only SPANISH is spoken throughout the city/
(6 b) /Only SPANISH is spoken/throughout the city/

In (5 a) whiskey is described as another beverage that George drinks rarely, whereas in (5 b) George could very well drink something very often in addition to a rare whiskey. In (6) the local adverbial takes wide scope over the focus particle if it occurs in a separate tone group. Thus, Spanish is the only language spoken in the relevant city in (6 a), whereas it is the only intelligible language in all districts according to (6 b).

Semantically, the scope of a particle can be represented by an open sentence whose variable is bound by a λ-operator. This double dependence of the contribution made by a particle to the meaning of a sentence can now be characterized in more detail as follows: Focus particles, and in fact all types of focusing, relate the denotation of a focus to a set of denotations of the same type. Some particles, such as E. *even, merely, let alone*, etc. also impose a structure, typically a partial order, on this set of alternative values. It is a matter of pragmatics rather than semantics that these alternatives to a focus value (i. e. people in (1 a) beverages in (5) etc.) are the ones that are relevant and under consideration in a given context. Such alternatives can be given in the preceding context or in appended clauses introduced by *let alone* or *but also*.

(7 a) He did not even SAY HELLO, let alone TALK TO ME.
(7 b) Not only did he REFUSE TO PAY HIS DEBTS, he also INSULTED ME.

In addition to establishing such a relation to alternative values, focus particles also typically either include or exclude such alternatives as possible values for the propositional schema in their scope (cf. Taglicht, this volume). On the basis of this latter property focus particles can be divided into two groups: (i) additive or inclusive particles like E. *even, also, too, either* and restrictive or exclusive particles like E. *only, merely, alone*, etc. In addition to these two groups, Quirk et al. (1985) list a third group of 'particularizers' with such members as *especially, partic-*