

Existential Generics

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Summary

While opinions on the semantic analysis of generics vary widely, most scholars would agree that generics have a quasi-universal flavor. However, there are cases where generics receive what appears to be an existential interpretation. For example, B's response is true, even though only the platypus and the echidna lay eggs:

- (1) A: Birds lay eggs.
B: Mammals lay eggs too.

In this paper I propose a uniform account of the semantics of generics, which accounts for the quasi-existential readings as well as for the usual quasi-universal ones.

Generics are focus-sensitive particles: their domain is restricted by a set of alternatives, which may be provided by focus. I claim that, unlike other focus-sensitive particles, generics may, but do not have to, associate with focus. When alternatives are induced, either by focus or by other means, generics get their usual quasi-universal readings. But when no alternatives are introduced, quasi-existential readings result.

I argue that generics, unlike adverbs of quantification, do not introduce tripartite structures directly, but are initially interpreted as cases of direct kind predication. Only when this interpretation fails to make sense, the generic quantifier is accommodated, and tripartite structures result. This two-level interpretation has the effect that while adverbs of quantification require focus to determine which elements go to the restrictor and which to the nuclear scope, and hence *must* associate with focus, generics do not, and hence allow no association with focus and quasi-existential readings.

1 Introduction

What is the meaning of generics and habituals? It sometimes seems there are as many theories as there are researchers who have investigated the issue (see Krifka *et al.* 1995; Cohen 1996; Pelletier and Asher 1997 for overviews). There are, however, two empirical phenomena on which most everybody would agree. One is the fact that generics and habituals are not universals; they allow exceptions. Thus, (2.a) is true although some mammals (e.g. the platypus) lay eggs, and (2.b) may be true even if there are some occasions of Mary's smoking that are not after dinner.

- (2) a. Mammals bear live young.
b. Mary smokes [after dinner]_F.¹

¹Here, and henceforth, $[\alpha]_F$ indicates that α is focused. Focus is often necessary to disambiguate generics. For example, while (2.b) means that Mary's smoking generally occurs after

The second fact is that generics and habituals, although allowing for exceptions, are still stronger than existentials, and typically require that “many” instances satisfy some property. Thus, the existence of a few egg-laying mammals is not sufficient to make (3) true, and if only a handful of the situations in which Mary smokes are after dinner, (2.b) will be false.

- (3) Mammals lay eggs.

Nonetheless, it turns out there are cases that contradict the second generalization, i.e. cases where the existence of only a few instances is sufficient to make the generic or habitual true. These are cases where generics and habituals appear to have the quantificational force of an existential. In this paper I will discuss a number of these cases, and propose an account within a uniform theory of genericity.

The rest of the paper is organized as follows. In section 2 I will present the data: constructions where generics are interpreted quasi-existentially. Section 3 will argue that these are, nevertheless, generics, rather than simple existentially quantified statements. In section 4 I discuss the claim that, in general, generics are evaluated with respect to sets of alternatives, and argue that the existential interpretation of generics arises in precisely those cases where alternatives are not induced. In section 5 I outline briefly the theory of generics I have developed elsewhere, and propose that it explains why existential readings arise when alternatives are not induced. Finally, in section 6, I discuss the differences from generics and adverbs of quantification with respect to the availability of existential interpretations, and implications of these differences on a general theory of the influence of focus on logical form.

2 Quasi-Existential Readings of Generics

2.1 Emphatic Affirmation

When a generic is uttered as an emphatic, contrastive affirmation, it appears to be interpreted existentially:

- (4) a. **A:** Nobody in India eats beef.
B: That’s not true! Indians [do]_F eat beef! (Clark Glymour, p.c.).
 b. **A:** When Mary smokes, it is never after dinner.
B: That’s not true! Mary [does]_F smoke after dinner.

B’s statements in sentences (4.a) and (4.b) are made as a refutation; they are meant to contrast with the claims that nobody in India eats beef and that Mary never smokes after dinner, respectively. For B’s response in (4.a) to be true, it is sufficient that *some* Indians eat beef, not that Indians, in general, do so; similarly, for B’s response in (4.b) to be true, it suffices that there exist some cases of Mary’s smoking after dinner, not that this be her typical behavior.

The sentences in (4) should be contrasted with their non-emphatic counterparts, (5) and (2.b), that get a regular generic interpretation.

dinner, (i) means what Mary does after dinner is generally smoke.

- (i) Mary [smokes]_F after dinner.

- (5) Indians eat beef.

Note that the difference between the emphatic and non-emphatic versions is that the former contain a dummy auxiliary that is focused, whereas the latter place the focus on some other constituent. This difference will turn out to be important in accounting for their different interpretations.

2.2 Emphatic Negation

Generics also receive a quasi-existential interpretation when the focused auxiliary expresses negation, rather than affirmation. For example, the existence of platypuses is apparently sufficient to render (6.a) false; and if Mary does sometimes smoke after dinner, (6.b) will be false.

- (6) a. Mammals [don't]_F lay eggs.
b. Mary [doesn't]_F smoke after dinner.

Since (6.a) is the negation of (3), it ought to be true. But the fact is that it is false. It appears as if (6.a) is interpreted not as the negation of the generic (3), but, instead, the negation of an existential statement saying that some mammals lay eggs. Since this statement is true, its negation, (6.a), is false.²

Similarly, (6.b) is the negation of (2.b). Suppose Mary smokes after dinner only every once in a while; in this case, (2.b) would be false, so we would expect (6.b) to be true. But, in fact, (6.b) is false in the situation described. Hence, it looks as if that (6.b) is not the negation of (2.b) after all; instead, it negates the statement that there exist occasions when Mary's smoking occurs after dinner.

Note that in order to get the quasi-existential reading in examples such as those in (6), the auxiliary must be focused. If focus is on another constituent instead, the quasi-existential reading disappears:

- (7) a. Mammals don't [lay eggs]_F.
b. Mary doesn't smoke [after dinner]_F.

Sentence (7.a) is interpreted as simply the negation of its counterpart (3); (7.a) is true because (3) is false, since it is not the case that mammals, in general, lay eggs. Similarly, (7.b) is just the negation of (2.b); it is true iff it is not the case that when Mary smokes it is, in general, after dinner.

2.3 Focus-Sensitive Particles

Von Stechow (1997) considers the interaction of *only* with generics and habituals. For example:

- (8) a. Only [mammals]_F bear live young.
b. We play soccer only if [the sun is shining]_F.

He treats *only* as an operator that applies to a sentence, its *prejacent*. The effect of applying *only* to a prejacent is to require that no relevant alternative to the prejacent is true. The prejacent of *only* in (8) are, respectively:

²Even if we claimed that the negation in (6.a) takes narrow scope with respect to the generic, this would not help. The sentence still ought to be true (just like (2.a)) since the vast majority of mammals have the property of not laying eggs.

- (9) a. [Mammals]_F bear live young.
 b. We play soccer if [the sun is shining]_F.

Thus, the truth of (8.a) requires that all sentences of the following form be false:

- (10) a. Birds bear live young.
 b. Reptiles bear live young.
 c. Fish bear live young.
 d. ...

Similarly, the truth of (8.b) requires the falsity of all sentences of the form

- (11) a. We play soccer if it rains.
 b. We play soccer if it's cloudy.
 c. We play soccer if it's dark.
 d. ...

However, if we treat the sentences in (9) as generics, this raises the following problem. Sentence (8.a) is false not because there is any class of animals (in the biological sense), other than mammals, that generally bear live young; in fact, there is none. While some fish and some reptiles do bear live young, none of the generics in (10) are judged true.³ However, the mere fact that there exist *some* non-mammals that bear live young, appears to be sufficient to render (8.a) false.

Similarly, the truth of (8.b) does not require that there be no other weather condition P s.t. if P holds, we play soccer. Rather, it is sufficient that there exists a weather condition P , in which the sun does not shine, and we *sometimes* play soccer if P .

Von Fintel demonstrates that if the prejacent is interpreted existentially, we get the correct reading. If (9.a) is taken to make the claim that some mammals bear live young, then all of its alternatives would be in the form of existentials too. Then, the truth of (8.a) would require that no existential statement about any other class but mammals hold, i.e. that there be no non-mammal that bears live young.

Similarly, suppose we interpret (9.b) and its alternatives existentially. Then, for every weather condition other than sunshine P , the truth of (9.b) requires the falsity of the claim that we sometimes play soccer when P holds, as desired.⁴

Von Fintel presents additional evidence indicating that the prejacent of *only* is interpreted existentially. Intuitively, a speaker who utters *only P* is committed to, in addition to the falsity of alternatives to P , the truth of P . It is under debate whether the truth of P is entailed, presupposed, or implicated by *only P*, but there is general agreement that it is implied in some form or another. Now consider the following examples:

- (12) a. Only [professors]_F are confident.
 b. Only [democrats]_F supported Clinton.

³Some of them, e.g. (10.c) are not judged false either; see Cohen (1999a) for an explanation.

⁴Some care must be taken in defining the semantics of *only*, since the alternatives are not necessarily mutually exclusive: the sun might shine and yet it might rain. But the precise semantics of *only* is not crucial for the points made here.

- c. Only [intelligent people]_F are physicists.
- d. Only [women]_F have blue eyes.⁵

Speakers who utter these sentences do not appear to be committed to the respective claims that professors are generally confident, Democrats generally supported Clinton, intelligent people are generally physicists, or women generally have blue eyes. However, they do appear to be committed to (again, either by way of entailment, presupposition, or implicature) the corresponding existential claims: that some professors are confident, some intelligent people are physicists, etc.

The evidence above notwithstanding, von Fintel rejects the existential interpretation of the prejacent, and goes on to account for the readings of the sentences in (8) as generics. That is to say, their respective logical forms can be put schematically as follows (where **gen** is the generic quantifier):

- (13) a. Only **gen**([mammal]_F, bear live young)
- b. Only **gen**([the sun is shining]_F, we play soccer)

His account of their readings is as follows. He takes the meaning of

- (14) Only **gen**([ψ]_F, ϕ)

to be

- (15) $\neg\mathbf{gen}(\psi', \phi) \wedge \neg\mathbf{gen}(\psi'', \phi) \wedge \dots$

where ψ' , ψ'' etc. are the alternatives to ψ . He proposes that generics obey the logical principles of the Excluded Middle and Contraposition. Then, (15) becomes equivalent to

- (16) $\mathbf{gen}(\phi, \neg\psi') \wedge \mathbf{gen}(\phi, \neg\psi'') \wedge \dots$

Which, under the assumption that the set of alternatives is exhaustive, is equivalent to

- (17) $\mathbf{gen}(\phi, \psi)$.

In effect, von Fintel proposes that the sentences in (8) have the same respective interpretations as:

- (18) a. Animals that bear live young are generally mammals.
- b. Generally, if we play soccer the sun is shining.

Von Fintel's proposal is problematic for a number of reasons. First, as he himself admits, the assumption that generics follow these logical principles is far from uncontroversial. Second, the paraphrases in (18) are not quite the desired interpretations. While the existence of one non-mammal species that bears live young is sufficient to render (8.a) false, (18.a) would still be true. Similarly, if, on rare occasions, we play soccer when it is cloudy, (18.b) would still be true, but (8.b) would be false.

Third, and perhaps most problematically, we get existential readings of generics with other focus-sensitive particles as well:

⁵Sentence (12.a) is von Fintel's; he ascribes (12.b) to Horn (1996), (12.c) to Barker (1993), and (12.d) to Kiss (1998).

- (19) a. Even [mammals]_F lay eggs.
 b. We play soccer even if [it rains]_F.

Sentence (19.a) requires only that *some* mammals lay eggs; it is, therefore, true. And (19.b) only requires that *sometimes* we play soccer in the rain, not that we do so as a rule. However, von Stechow's approach is tightly related to the semantics of *only*, and it is far from clear that it could be extended to other focus-sensitive particles.

2.4 Additives

Of particular interest is a special type of focus-sensitive particle, the additives. Just like *only* and *even*, additives give rise to quasi-existential readings. For example, following (20.a), (20.b) and (20.c) only require that some mammals lay eggs.

- (20) a. Birds lay eggs.
 b. Mammals also lay eggs.⁶
 c. Mammals lay eggs too.

Similarly, in the context of (21.a), both (21.b) and (21.c) require merely that we sometimes play soccer when it rains.

- (21) a. We play soccer if [the sun is shining]_F.
 b. We also play soccer if it rains.
 c. We play soccer if it rains too.

The additive *too*, has been discussed by Cavedon and Glasbey (1994). They consider the following example:

- (22) Mary smokes [before breakfast]_F. She smokes after dinner too.

Cavedon and Glasbey treat both sentences in (22) equally—they are both regular, quasi-universal generics. The first means that, in general, if Mary is smoking, it is before breakfast; the second—that it is after dinner. Cavedon and Glasbey attempt to account for the apparent contradiction by claiming that the two sentences are evaluated with respect to different contexts (or *channels*).

This proposal, however, is problematic. For one thing, it is not clear that there is a perceived change of context in the transition from the first sentence to the second. More importantly for the purposes of this paper, the second sentence does not appear to have the same interpretation as the first one. Suppose 90% of the times in which Mary smokes are before breakfast, and only the remaining 10% are after dinner. So she generally smokes before breakfast, but it is not the case that she generally smokes after dinner. Yet I think (22) would be, nonetheless, true. In contrast, if Mary smokes 90% of the time after dinner, and only 10% before breakfast, (22) would be false. So it appears that, whereas the first sentence in (22) receives the ordinary generic reading, the second sentence is interpreted quasi-existentially, just like generics with other focus-sensitive particles.

⁶Here, and in the other example sentences involving additives, I am omitting an indication of focus, since the location of focus in such sentences is, in fact, controversial. The matter will be picked up in section 4.2 below.

2.5 Unrestricted Habituals

Restricted habituals such as (2.b) and (9.b) above are normally interpreted generically. That is to say, (2.b) is taken to state that, in general, when Mary smokes, she does so after dinner; and (9.b) means that, in general, whenever the sun is shining we play soccer. However, if we remove the respective modifiers *after dinner* and *if the sun is shining*, the interpretations of the sentences change.

- (23) a. Mary smokes.
b. We play soccer.

What do sentence such as (23.a) and (23.b) mean? If we interpret them like other habituals, they would seem to require that, in general, a situation containing Mary is one in which she smokes, and a situation containing the speakers is one in which they play soccer. In other words, Mary smokes almost all of the time, and we play soccer almost all of the time. This is clearly far too strong a requirement.

There have been several suggestions about how to deal with this problem. Schubert and Pelletier (1989) propose that the relevant restriction is somehow provided by the context. This is undoubtedly true in many cases, e.g. when (23.a) is said to an airline clerk who is assigning Mary a seat on a plane, or when (23.b) is said in response to the question

- (24) What do you on Sundays?

Nevertheless, the context does not always provide a useful set of alternatives. The sentences in (23) make perfect sense, and causes the hearer to have certain beliefs regarding Mary and the speakers, respectively, even when uttered out of the blue.

Krifka (1988) proposes that unrestricted habituals express quantification over normal situations. For example, *John smokes* means that in all normal situations, John smokes. He does not provide any detailed theory of how a situation can be characterized as normal, but suggests that

[w]e simply derive from our theories about smoking and John which situations we would consider as abnormal for him to smoke in, and the range of these situations can be quite wide. For example, we could assume that *s* is abnormal in this respect if John is sleeping in *s*, or if John is eating in *s*, or if John is a guest in *s* and his hosts object to smoking, or that *s* follows a situation *s'* in which John has already smoked a cigarette. . . There might be many more reasons to assume *s* to be abnormal for John's smoking (p. 303).

One problem with this suggestion is that the notion of normality is vague, and the predictions of a theory based on it are not very clear (see Cohen 1996 for further arguments against theories of generics based on normality). Furthermore, regularly occurring abnormal events seem to affect the truth conditions of unrestricted habituals. Suppose Mary is constantly harassed by a militant smoker who forces him to smoke at gun-point, and, consequently, she smokes several cigarettes every day. It seems that, in this case, (23.a) would be true.⁷

⁷In contrast, (i) appears to be false nonetheless.

- (i) Mary is a smoker

Sentences like (i), however, are not habituals.

On the other hand, if Mary is very fond of cigarettes, but she stays as a guest at a house where no smoking is allowed, and never leaves it, it seems that (23.a) would be false. It seems, then, that what is relevant to the truth or falsity of (23.a) is how often certain situations occur, rather than whether or not they are considered normal. Even abnormal situations, such as being threatened by a trigger-happy militant smoker, or being a guest at the house of militant nonsmokers, have to be taken into account, if they occur often enough.

Strzalkowski (1988) proposes a different solution to the problem:

statements like *John smokes*, *John walks to work*, *This department handles mail arriving from Antarctica*, or *Mary writes to her mother*, describe activities which involve an element of repetition over time. Of course, this “repetition” has a different character for each of these statements. In the case of *John smokes*, for example, we would normally require that the activity occurs at least once a day (Strzalkowski 1988:5).

Strzalkowski’s account, however, is problematic. An explicit knowledge of the standards defining smoking does not seem necessary in order to judge the truth or falsity of (23.a). Moreover, how is one to know what the standards are? Strzalkowski claims the choice of standard is arbitrary, and is thus unable to predict which habituals are true and which are false.

Elsewhere (Cohen 1996) I have claimed that the standard is not arbitrary, but is dependent by an appropriate comparison class. For example, the standard for smoking, with respect to which (23.a) is evaluated, is dependent on common practices in the society which Mary belongs to. Mary would be considered a smoker, then, just in case, on a given happening, he is more likely to smoke than an arbitrary member of her society. However, I no longer believe that this is a correct statement of the truth conditions of (23.a); so long as Mary smokes, even if she smokes less than the average in the class she is compared to, (23.a) is true.

How, then, can we analyze unrestricted habituals? Of particular interest here is an earlier (Krifka 1987) suggestion of Krifka’s, according to which (23.a) makes the claim that there exist some conditions under which Mary would smoke, i.e. the sentence makes an existential statement. Importantly, Krifka does not take the existential quantifier to quantify over situations in which Mary smokes, but over conditions that bring about Mary’s smoking. That is to say, Mary’s smoking is possible; if the right conditions obtain, she would smoke.

Sentences similar to (23.b) have been discussed by Schubert and Pelletier (1989), who consider the following examples:

- (25) a. This car goes 200 kph.
- b. Kim reads German.
- c. Robin rides horses.

Schubert and Pelletier claim such sentences are ambiguous. They have a generic reading, that can be paraphrased as

- (26) a. Generally, when this car is being driven, it goes 200 kph.
- b. Generally, when Kim reads something, she reads in German.
- c. Generally, when Robin rides an animal, he rides a horse.

However, according to Schubert and Pelletier, these sentences also have a “capacity” reading. Under this reading, the sentences can be paraphrased as:

- (27) a. This car is capable of going 200 kph.
- b. Kim is able to read German.
- c. Robin knows how to ride a horse.

Under the capacity reading, (9.b) can probably be paraphrased as

- (28) We know how to play soccer.

What is common to both the Krifka’s (1987) interpretation of (23.a) and the capacity interpretation of (9.b) is that both appear to make a claim about the possible existence of situations: there may be situations in which Mary smokes, the car goes 200 kph, Kim reads German, Robin rides a horse, or we play soccer.

A similar observation is made by Dahl (1975). He considers the following sentence, from Lawler (1972):

- (29) Nephi’s dog chases cars.

According to Lawler, the habitual (29) is interpreted existentially: it does not require that Nephi’s dog chase cars all or most of the time, but only some of the time. Dahl agrees with Lawler’s judgment, but reinterprets (29) as making a statement about the possibility of Nephi’s chasing cars: “if he sees a car in a few minutes, it is not excluded that he will chase it” (p. 105).

Krifka (1987) accounts for his reading of (23.a) by positing that the restricting predicate is a predicate variable, existentially quantified. He does not, however, explain the source of this existential quantifier. Schubert and Pelletier (1989) treat their capacity reading as distinct from the generic reading, and assume that it does not involve the generic quantifier at all. In this paper I will propose that both readings, as well as the cases of existentially interpreted generics discussed above, can be accounted for uniformly, and that this account can be incorporated into a general theory of generics.

3 Existential Generics or Simple Existentials?

Given the quasi-existential interpretation of the sentences discussed above, we may suspect that they are not generic after all. Maybe, if a sentence looks like an existential, it simply is an existential.

It is well known that bare plurals may, in addition to their generic interpretation, receive an existential one:

- (30) a. Birds are flying overhead right now.
- b. Mechanics are available.

Sentence (30.a) does not express a typical property of birds, but the existence of some birds that are flying overhead; (30.b) is normally not taken to be about mechanics in general, but expresses the existence of some available mechanics.

Perhaps the sentences discussed above are no more generic than the sentences in (30). Perhaps they are simple existential statements,⁸ and thus pose no problem for a theory of genericity.

However, this solution will not do, for a number of reasons. First, we have seen that, in some cases, habituals too admit of existential readings. Unlike bare plurals, habituals are not normally considered to be ambiguous between generic and existential readings—they are only generic. Therefore, we would have to devise some theory explaining how, and under what conditions, sentences that appear to be habituals are actually interpreted existentially. To my knowledge, no such theory has been proposed.

Second, note that even in the non-habitual sentences, using a bare plural is not necessary to receive the existential interpretation. We can replace it with a definite singular, without a significant change in meaning:

- (31) a. **A:** Nobody in India eats beef.
 B: That's not true! The Indian does eat beef.
 b. The Martian mammal doesn't lay eggs.
 c. Only the Martian mammal bears live young.

The only restriction is that it must be possible to interpret the definite description generically; for example, *the mammal* cannot be read as a generic, but *the Martian mammal* can (see Vendler 1971; Carlson 1977; Dayal 1992; Bolinger 1980, among others, for accounts on the constraints guiding the distribution of definite singular generics). Unlike a bare plural, a definite singular cannot be interpreted as a simple existentially quantified variable—the following sentences are not equivalent to those in (30):

- (32) a. The bird is flying overhead right now.
 b. The mechanic is available.

Third, the sentences under discussion, unlike simple existentials, are *lawlike*. They express a generalization that is not temporary, and is expected to occur in the future with some regularity. Let us look at all our examples in turn, to clarify the point.

Suppose that during this year's mating season, a group of puritan zoologists took the trouble to prevent any male platypus from getting near any female platypus, so that this year no platypuses laid eggs, and, hence, no mammals laid eggs. Sentence (6.a), however, would remain false, and the sentences in (19) would remain true, provided that this is just a temporary situation, and we have every reason to believe that, in the future, platypuses will continue to mate normally.

Now suppose these same zoologists chose, instead, to prevent all non-mammals that bear live young (some fish, some reptiles) from mating. This would mean that, temporarily, no animals other than mammals bore live young. Still, since this would be a temporary state that would be expected to change the following year, (8.a) would remain false.

⁸Which is not to say that the derivation of the existential readings of sentences such as those in (30) is a simple matter. For theories of the existential readings of bare plurals see, among others: Carlson (1977); Diesing (1992); Kratzer (1995); Van Geenhoven (1996); Cohen and Erteschik-Shir (1997); Chierchia (1998).

Similarly, if on a single extraordinary occasion, perhaps when she was extremely nervous, Mary smoked after dinner, this would not make (6.b) false, nor would it make (4.b), (22) or (23.a) true.⁹ Rather, what is required is that, over a long period of time, we can regularly find after-dinner situations in which Mary smokes.

Now consider (4.a). B's response would not be judged true simply if there existed one Indian who happened to eat beef. Its truth requires that, throughout a long period of time, one may be able to find instances of Indians who eat beef.

If one cloudy day we happened to have played soccer because of extraordinary circumstances that are not expected to recur, this would not be sufficient to render (8.b) false, nor would it make (19.b), (21.b), or (23.b) true. And the truth of the sentences in (25) all imply that the car's ability to go 200kph, Kim's ability to read German and Robin's ability to ride horses is an enduring property, even if it is rarely, or even never, exercised.

I conclude, then, that what we are dealing with here is a case of generics, rather than existentially quantified statements. The goal of this paper is to pursue a uniform theory of genericity that is able to account for these existential generics, as well as for the usual quasi-universal readings of generics. Of crucial importance to such a theory will be the dependence of generics of sets of *alternatives*.

4 Sets of Alternatives

4.1 (Regular) Generics and Alternatives

As Schubert and Pelletier (1987) have already observed, generics and habituals are restricted to relevant cases. For example, let us reconsider the sentences in (2), repeated below as (33).

- (33) a. Mammals bear live young.
 b. Mary smokes [after dinner]_F.

Intuitively, (33.a) is not about all mammals. Male mammals are irrelevant, as are females that are too young or too old. The fact that these mammals do not, in fact, bear live young, does not affect the truth or falsity of (33.a); they simply do not matter. In contrast, female platypuses, that lay eggs, do matter, although they are not sufficient to render (33.a) false. Similarly, (33.b) is not about all situations involving Mary, but only about situations in which she smokes. What she does when she does not smoke is completely irrelevant to the truth or falsity of (33.b).

In Cohen (1996) I account for such facts by suggesting that a generic is evaluated with respect to a set of *alternatives*. Thus, (33.a) is evaluated with respect to alternative ways to procreate, say the properties of bearing live young, laying eggs, and undergoing mitosis. Then, only mammals that satisfy one of those alternatives, will be taken into account; all others are ignored. Since such

⁹Indeed, in a later paper, Krifka (1988) notes that the existence of a temporary, extraordinary situation in which Mary smokes (e.g. a militant smoker forcing him to smoke at gunpoint) is not sufficient to make (23.a) true. In fact, Krifka sees this as an argument against considering (23.a) existential at all, and goes on to propose an alternative theory. See Cohen (1996) for arguments against Krifka's revised theory.

mammals are, in fact, highly likely to bear live young, (2.a) is true. Similarly, the alternatives with respect to which (33.b) is evaluated are alternative times of smoking, e.g. after dinner, before breakfast, in the afternoon, etc. The sentence is true just in case a situation which involves Mary smoking at some time or other, occurs (generally) after dinner.

A different choice of alternatives may change the truth conditions of the sentence. Consider the following example:

- (34) People buy cheap goods from thieves.

This sentence is ambiguous. It may be interpreted with respect to alternative prices of appliances people buy from thieves, say $\{cheap, medium\ priced, expensive, \dots\}$. Under this reading, the sentence states that, in general, if a person buys something from a thief, the price will be cheap. The sentence would therefore be judged true, since presumably goods bought from thieves are relatively cheap.

Alternatively, we can interpret (34) with respect to alternative sources of cheap goods, say $\{from\ thieves, at\ garage\ sales, at\ auctions, \dots\}$. The sentence would then say that if a person buys something cheap from some source, it will generally be bought from a thief. Under this reading, (34) is probably false, since usually people buy cheap goods from other sources (e.g. garage sales).

The appropriate set of alternatives can be made explicit, using clefts, pseudo clefts, or *cleft-like* sentences (Doherty 2001), as in the following examples:

- (35) a. The kind of goods people buy from thieves are cheap ones.
 b. Where people buy cheap goods from is thieves.

Sentence (35.a) can only be interpreted to be about different prices of goods (hence true), whereas (35.b) can only be interpreted to be about different sources of cheap goods (hence false).

Another way alternatives can be induced is by focus, when it *associates* (in the sense of Rooth 1985) with the generic quantifier. For example:

- (36) a. People buy [cheap]_F goods from thieves.
 b. People buy cheap goods [from thieves]_F.

Sentence (36.a) is evaluated with respect to alternative prices of goods, whereas (36.b) is about alternative sources of cheap goods.

One note of clarification is in order: I am taking focus here to be what has sometimes been called “narrow,” “identificational,” or “restrictive” focus, i.e. those highlighted elements of a sentence that may be associated with focus-sensitive particles and induce alternatives. Narrow focus is often contrasted with “wide” or “information” focus, which is the part of the sentence containing new information (see K 1998 for the distinction between the two). Since almost all utterances contain some new information (otherwise why utter them?), “[a]n information focus is present in every sentence, but not every sentence contains an identificational focus” (K 1998:246).

Importantly, focus does not have to be associated with the generic quantifier, and may have other roles (Cohen 1999b). For example:

- (37) **A:** The kind of goods people buy from retailers are cheap ones.
B: No! The kind of goods people buy [from thieves]_F are cheap ones.

B's answer, just like (35.a), is about alternative prices of goods, hence it is true. Despite the focus on *from thieves*, the sentence is not evaluated with respect to various sources of cheap goods. In this case, the focus of B's answer serves a contrastive role; thus, we get the interpretation that B is correcting A's claim by stating that it is thieves, rather than retailers, that people buy cheap goods from. Perhaps the contrastive role of focus here comes from its association with some phonologically null **contrast** operator (cf. Partee 1991) or **assert** operator (Jacobs 1988); the important thing for us here is that, at any rate, the focus is not associated with the generic quantifier.

4.2 Existential Generics and Alternatives

Having discussed the notion of alternatives, let us see if we can identify a common characteristic of all types of existential generic discussed in section 2 above. I propose that in all these sentences, no alternatives are introduced. More precisely, the set of alternatives to the predicated property ϕ is just the singleton set $\{\phi\}$, and contains no other alternatives. This means that in these sentences alternatives are not introduced overtly, and, moreover, either there is no (narrow) focus, or the focused part is not associated with the generic quantifier.

Let us consider all the examples in turn, to substantiate this claim.

We will start with (4) and (6), repeated below:

- (38) a. **A:** Nobody in India eats beef.
B: That's not true! Indians $[\text{do}]_F$ eat beef!
- b. **A:** When Mary smokes, it is never after dinner.
B: That's not true! Mary $[\text{does}]_F$ smoke after dinner.
- c. Mammals $[\text{don't}]_F$ lay eggs.
- d. Mary $[\text{doesn't}]_F$ smoke after dinner.

In these generics, focus is on the auxiliary, and it has a contrastive meaning. Focus is not associated with the generic operator (but, perhaps, with the **contrast** or **assert** operator instead). Hence, focus does not induce alternatives for **gen**, and since there are no explicitly introduced alternatives, we are left with just a singleton set of alternatives, with respect to which the generic is evaluated.

One possible objection is the following. Although the focus on the auxiliary is not associated with the generic quantifier, one might claim that these sentences contain, in addition, the so-called second-occurrence focus, which *is* associated with **gen**.

Second-occurrence focus had been discussed in connections with puzzles such as the following:

- (39) A: John always takes $[\text{Mary}]_F$ to the movies.
B: No! $[\text{Peter}]_F$ always takes Mary to the movies.

The problem is that although focus is on *Peter*, it is not associated with *always* in B's utterance. B is not saying that whenever someone takes Mary to the movies, it is always Peter, but rather that whenever Peter takes someone to the movies, it is always Mary (and that A is wrong in saying that John, rather than Peter, behaves in this way). Partee suggests that in such cases B's utterance

inherits the focus structure of A's statement, so that, in addition to the focus on *Peter* (which is associated with the **contrast** operator) there is also focus on *Mary* (just like in A's utterance). It is this focus that is associated with *always*.

We can see the same phenomenon with generics and habituais:

- (40) A: Mary smokes [after dinner]_F.
 B: No! [Kate]_F smokes after dinner.

In B's answer in (40), focus is on *Kate*, and is not associated with the generic quantifier. Thus, the sentence does not mean that when someone smokes after dinner, it is generally Kate. Instead, B's utterance means that whenever Kate smokes, it is, in general, after dinner. Thus, **gen** appears to be associated with *after dinner* in B's answer, just like it is in A's; and this is usually explained by claiming that the focus structure of B's statement is somehow inherited from A's statement.

Perhaps, one could claim, the same thing happens with the sentences in (38); in addition to the focus on the auxiliary, it might be thought, there is also a second-occurrence focus, and it is this focus that induces alternatives and associates with **gen**.

This, however, will not do. Focus on the auxiliary allows no focus on the rest of the sentence, not even second-occurrence focus (cf. Creswell 1999 who claims that focus on the auxiliary indicates that the rest of the proposition is old). Consider an exchange similar to (39), but with focus on the auxiliary:

- (41) A: John never takes [Mary]_F to the movies.
 B: No! John always [does]_F take Mary to the movies.

B's statement does not get the interpretation that whenever John takes someone to the movies, it is always Mary. In other words, there is no second-occurrence focus on *Mary*. Rather, what B seems to be saying is that whenever the question of John's taking Mary to the movies comes up, he always takes her. The adverb associates with the auxiliary, i.e. with the truth polarity of the sentence in its scope (cf. Höhle 1992): whenever the truth of *John is taking Mary to the movies* is in question, it is true.

We can conclude, then, that focus on the auxiliary has the effect of disallowing focus on any other part of the clause, and that, consequently, the generics in (38) are evaluated with respect to singleton sets of alternatives.

Since I claim that in sentences such as those in (38) no alternatives are introduced, one might expect that if alternatives were forced explicitly, the sentences would lose their quasi-existential interpretation. This is, indeed, borne out:

- (42) a. What Indians eat [is]_F beef!
 b. The occasions on which Mary smokes [are]_F after dinner!
 c. The way by which mammals reproduce is [not]_F by laying eggs.
 d. The occasions on which Mary smokes are [not]_F after dinner.

Sentence (42.a) means that Indians generally eat beef; and (42.b) says that, in general, Mary smokes after dinner. Sentence (42.c), unlike (38.c), is true; (42.d) says that it is false that Mary generally smokes after dinner, not that she never smokes after dinner.

Let us now consider the examples involving overt focus-sensitive particles, repeated below:

- (43) a. Only [mammals]_F bear live young.
 b. Even [mammals]_F lay eggs.
- (44) a. We play soccer only if [the sun is shining]_F.
 b. We play soccer even if [it rains]_F.

These sentences exhibit the same characteristics: focus is associated not with the generic quantifier, but with the focus-sensitive particle, hence no alternatives are induced.

Note, once more, that when alternatives are explicitly introduced, the quasi-existential reading disappears:¹⁰

- (45) a. Only [mammals]_F are such that the way by which they reproduce is bearing live young.
 b. Even [mammals]_F are such that the way by which they reproduce is laying eggs.
- (46) a. The game we play is soccer only if [the sun is shining]_F.
 b. The game we play is soccer even if [it rains]_F.

Sentence (45.a), unlike (43.a), is a regular, quasi-universal generic: it implies that mammals, in general, bear live young, and that no other class has this generic property (i.e. there might be some non-mammals species that bear live young, but no class that has this property). Similarly, (45.b) implies that mammals, in general, bear live young, not that only some of them do, as (43.b) implies.

Sentence (46.a), unlike (44.a), allows that we sometimes play soccer in conditions under which the sun is not shining, so long as we don't do so in general. And (46.b) requires that we, in general, play soccer when it rains, not merely that we sometimes play soccer in the rain, as follows from (44.b).

Additives, as they occur in the examples repeated below, are an interesting case.

- (47) a. Mammals also lay eggs.
 b. Mammals lay eggs too.
- (48) a. We also play soccer if it rains.
 b. We play soccer if it rains too.
- (49) Mary smokes [before breakfast]_F. She smokes after dinner too.

There are two ways to consider additives: the traditional approach is to treat them as operators that associate with focus, just like *only* and *even*. If we choose this path, the same generalization would apply: the additive associates with focus, hence the generic has no focus to associate with, and no alternatives are induced.

An alternative way to consider additives is as particles that are, themselves, focused, and the associated element is a contrastive topic, rather than a focus

¹⁰This results in rather cumbersome sentences, but the judgments, I believe, are pretty clear.

(Krifka 1999). In this case, still, the part of the sentence that is inside the scope of the generic quantifier is focusless, and no alternatives are therefore introduced.

So, according to either account of additives, the generic in their scope is evaluated with respect to no alternatives. Indeed, when alternatives are overtly introduced, the quasi-existential reading disappears:

- (50) a. [Mammals]_F also are such that they way by which they reproduce is laying eggs.
 b. The game we play is soccer also when [it rains]_F.
 c. Mary smokes [before breakfast]_F. ?The occasions on which she smokes are [after dinner]_F too.

Sentence (50.a), unlike (20.b), says (falsely) that laying eggs is a characteristic property of mammals; sentence (50.b), unlike (48.a), says that we generally play soccer when it rains; and the second sentence of (50.c), unlike that of (49), is bad because it contradicts the first.

What about the case of unrestricted habituals? Here, I suggest, there is simply no (narrow) focus at all. Recall that while (almost) all sentences have information focus, i.e. indicate something new, there is no reason to expect that all sentences have narrow focus. Since there is no narrow focus to be associated with the generic quantifier, no alternatives are induced. As in the other cases, when we introduce alternatives overtly, the interpretation of the sentences changes:

- (51) a. The vice which Mary engages in is smoking.
 b. The game we play is soccer.
 c. The speed at which this car goes is 200 kph.
 d. The language in which Kim reads is German.
 e. The animals which Robin rides are horses.
 f. What Nephi's dog chases is cars.

Sentence (51.a) cannot mean that Mary smokes on occasion, but rather that, in general, whenever she engages in some vice, she smokes; (51.b) means that whenever we play a game, it is generally soccer; (51.c) means that whenever this car moves under some contextually specified conditions (perhaps when it moves as fast as it is able), it generally goes 200 kph; (51.d) means that whenever Kim reads something, it is generally written in German; and (51.f) means that, in general, when Nephi's dog chases something, it is a car.

What happens when we focus part of the habitual?

- (52) a. Mary [smokes]_F.
 b. We play [soccer]_F.
 c. This car goes [200 kph]_F.
 d. Kim reads [German]_F.
 e. Robin rides [horses]_F.
 f. Nephi's dog chases [cars]_F.

In this case, we can read the sentences as quasi-universal generics, rather than existentials: (52.a) means that whenever Mary engages in one of a contextually determined class of actions (e.g. vices), she generally smokes; (52.b) has a reading where, whenever we play some game, it is usually soccer; (52.c) has the (implausible) interpretation that whenever this car is driven, it generally goes 200 kph, etc.

Note that focus may have a different interpretation too—it may have a contrastive role. That is to say, the sentences in (52) can be used to refute somebody’s claim that Mary doesn’t smoke, that we don’t play soccer, etc. In this case, the existential interpretation of the sentences remains, because focus, even when present, does not associate with the generic quantifier (but, perhaps, with the **contrast** or **assert** operator).

5 The Interpretation of Generics

5.1 Generics Express Probability Judgments

To summarize the discussion so far: we have seen readings of generics that can be characterized as quasi existential, in contrast to the more familiar quasi-universal interpretation. We have noted one characteristic common to all these generics: no alternatives are introduced, either overtly or by way of (narrow) focus. The challenge is to find a theory of the usually, quasi-universal generics, such that the quasi-existential interpretation will follow from it in cases where no alternatives are induced.

In this section I will present just such a theory. It is a theory I have developed in previous work (Cohen 1996, 1999a). The presentation will, necessarily, be brief and programmatic; little justification will be given. To the extent that this theory proves successful in dealing with the phenomena discussed in the current paper, the reader may wish to consider it as an argument in favor of the theory as a whole.

I take genericity to involve a phonologically null generic quantifier, so that logical form of (2.a), for instance, is roughly:¹¹

(53) **gen(mammal, bear-live-young)**

What are the truth conditions of (53)? In Cohen (1999a) I argue that generics express probability judgments. Thus, (2.a) expresses the judgment that the probability that an arbitrary mammal bears live young is high. More concretely, I require this probability to be greater than 0.5:

(54) $P(\text{bear-live-young}|\text{mammal}) > 0.5$

Plausibly, a generic carries an implicature to the effect that the probability is substantially greater than 0.5; if the probability is only slightly higher than 0.5, a generic sentence may be judged odd. Note that a similar requirement holds for *most*. For example, the majority of Israelis voted for Binyamin Netanyahu in the 1996 elections, and, consequently, (55) is true.

(55) Most Israeli voters voted for Netanyahu in 1996.

¹¹But only roughly. We will revise this logical form in section 6 below.

However, given the fact that fewer than 51% of them voted for Netanyahu, (55) can be, and in fact sometimes was, criticized for being misleading.

Note the difference between the claim expressed by (54) and the claim that the majority of mammals bear live young. The former is *lawlike*, whereas the latter can be accidental. For example, suppose it so happened that all Supreme Court judges had a prime Social Security number; this would not suffice for us to claim that the *probability* for a Supreme Court judge to have a prime Social Security number is 1. This is because a probability judgment is taken to express a regularity, and not an accidental state of affairs.

In general, the generic

$$(56) \quad \mathbf{gen}(\psi, \phi)$$

is true iff

$$(57) \quad P(\phi|\psi) > 0.5.$$

The expression $P(\phi|\psi)$ is the conditional probability of ϕ given ψ ., which is traditionally defined as

$$(58) \quad \frac{P(\psi \wedge \phi)}{P(\psi)}$$

However, in order to avoid the distasteful need to divide by zero when $P(\psi) = 0$, I will, instead of (57), define the truth of conditions of (56) to be (cf. Halpern 1990):

$$(59) \quad P(\psi \wedge \phi) > 0.5 \times P(\psi)$$

Hence, (2.a) is true iff

$$(60) \quad P(\mathbf{mammal} \wedge \mathbf{bear-live-young}) > 0.5 \times P(\mathbf{mammal})$$

As it stands, (60) does not really explain the truth of (2.a). This is because the probability for an arbitrary mammal to bear live young is actually lower than 0.5. Indeed, we have to take alternatives into account; what (2.a) really is saying is that the probability for a procreating mammal (i.e. a mammal that satisfies the disjunction of the alternatives) to bear live young is greater than 0.5. If A is the relevant set of alternative, (2.a) is true just in case

$$(61) \quad P(\mathbf{bear-live-young}|\mathbf{mammal} \wedge \bigvee A) > 0.5.$$

Or, explicating the meaning of conditional probability:

$$(62) \quad P(\mathbf{mammal} \wedge \mathbf{bear-live-young} \wedge \bigvee A) > 0.5 \times P(\mathbf{mammal} \wedge \bigvee A)$$

Taking alternatives into account, I suggest the following definition of the truth conditions of generics:

Definition 1 *Let ϕ be a property, and $A = \mathbf{ALT}(\phi)$, the set of alternatives to ϕ . Then $\mathbf{gen}(\psi, \phi)$ is true iff*

$$P(\psi \wedge \phi \wedge \bigvee A) > 0.5 \times P(\psi \wedge \bigvee A).$$

5.2 Singleton Sets of Alternatives

If the theory described above is on the right track, it can account for the regular, universal-like interpretation of generics. Can it also account for their existential-like readings? I suggest that it can.

We have seen that when no alternatives are introduced, generics get a quasi-existential reading. What does it mean to say that no alternatives to the generic $\mathbf{gen}(\psi, \phi)$ are introduced? It means that the set of alternatives to ϕ is simply the singleton set $A = \{\phi\}$. Then, by definition 1, the sentence is true iff

$$(63) \quad P(\psi \wedge \phi \wedge \bigvee A) > 0.5 \times P(\psi \wedge \bigvee A),$$

which, in our case, becomes

$$(64) \quad P(\psi \wedge \phi \wedge \phi) > 0.5 \times P(\psi \wedge \phi),$$

or, simply,

$$(65) \quad P(\psi \wedge \phi) > 0.5 \times P(\psi \wedge \phi).$$

Note that (65) is satisfied iff

$$(66) \quad P(\psi \wedge \phi) > 0.$$

We can conclude that if $\mathbf{gen}(\psi, \phi)$ is evaluated with respect to a singleton set of alternatives, it requires a positive probability for $\psi \wedge \phi$. Recall that a generic implicates that the inequality is a substantial one: thus, the probability needs to be significantly greater than 0—it needs to be non-negligible.

I suggest that (66) is precisely the reading of the quasi-existential generics discussed in this paper. Thus, (4.a) says that there is a non-negligible probability for an Indian to eat beef, and (4.b) and (22) say that there is a non-negligible probability for Mary to smoke after dinner. Sentence (6.a), by being the negation of a generic that is evaluated with respect to a singleton set of alternative, states that the probability that a mammal lays eggs is zero. Similarly, (6.b) is true iff the probability for Mary to smoke after dinner is zero. Sentence (8.a) is true just in case mammals are the only class whose members have a non-negligible probability to bear live young, and the truth of (8.b) requires that sunny days be the only days in which there is a non-negligible probability for us to play soccer. Unrestricted habituals are also interpreted in the same way: there is a non-negligible probability that, at a given point in time, Mary is smoking, we are playing soccer, this car is going 200 kph, Kim is reading a German book, Robin is riding a horse, or Nephi's dog is chasing a car.

It is this requirement of non-negligible probability that gives these generics their existential flavor, without making them truly existential. Saying that there is a non-negligible probability that Mary smokes does not require that she smoke all or most of the time, but rather some of the time. On the other hand, one or two accidental, extraordinary occurrences of Mary's smoking would not suffice to make the probability non-negligible, hence would not suffice to validate the generic.

6 Generics as Focus-Sensitive Particles

Generics, then, may be evaluated with respect to a singleton set of alternatives. This means that they do not have to associate with focus; they may

be evaluated (and receive a quasi-existential interpretation) even when there is no narrow focus. In this, they are a special kind of a focus-sensitive particle; they may associate with focus, in the sense that focus may provide alternatives restricting the domain of the quantifier, but they do not have to. They are therefore different from other focus-sensitive particles, whose association with focus appears to be mandatory.

Take, for example, adverbs of quantification. The generic quantifier is often taken to be just another adverb of quantification, whose meaning is similar to *usually* or *generally*. Indeed, the sentences in (2) appear to mean, respectively, more or less the same as

- (67) a. Mammals generally [bear live young]_F.
 b. Mary generally smokes [after dinner]_F.

It would, therefore, be interesting to see whether sentences involving an overt *generally* have quasi-existential readings too. It turns out that, in fact, they do not:

- (68) a. Indians [do]_F generally eat beef.
 b. Mary [does]_F generally smoke after dinner.
 c. Mammals [don't]_F generally lay eggs.
 d. Mary [doesn't]_F generally smoke after dinner.
 e. Only [mammals]_F generally bear live young.
 f. Even [mammals]_F generally lay eggs.
 g. Mammals also generally lay eggs.
 h. We generally play soccer only if [the sun is shining]_F.
 i. We generally play soccer even if [it rains]_F.
 j. We generally also play soccer when [it rains]_F.
 k. Mary generally smokes [before breakfast]_F. ?She generally smokes [after dinner]_F too.
 l. Mary generally smokes.
 m. We generally play soccer.
 n. This car generally goes 200kph.
 o. Kim generally reads German.
 p. Robin generally rides horses.

Sentences (68.a) and (68.b) do not make existential claims; it does not suffice for their truth that only some Indians eat beef or that Mary only sometimes smoke after dinner.

Sentence (68.c), unlike (6.a), does not mean that no mammal lay eggs; rather, it is simply a negation of the claim that mammals generally lay eggs. Hence, unlike (6.a), (68.c) is true. Similarly, (68.d) doesn't mean that Mary never smokes after dinner, only that it is false that she generally does so.

Sentence (68.e) does not, unlike (8.a), say that mammals are the only type of animals that bear live young, only that they are the only ones that do so as a rule. Similarly, (68.f) and (68.g) require that mammals on the whole, not just a few of them, bear live young.

In the same way, (68.h), unlike (8.b), allows that we play on days that are not sunny, so long as we do not do so as a rule. And (68.i) and (68.j) require that we usually play soccer when it rains, not just occasionally.

The discourse in (68.k) is bad because the first sentence says that whenever Mary smokes it is usually before breakfast, while the second sentence contradicts the first by saying it is, in fact, usually after dinner. The infelicity of (68.k), in contrast with the felicity (22), indicates that the *generally* sentence does not receive a quasi-existential interpretation.

Sentences (68.l)–(68.m) do not receive an existential interpretation either. They say that any situation, out of a contextually defined set of situations, is, in general, such that Mary smokes in it, we play soccer in it, etc. In fact, without such a contextually defined set of situations, a sentence such as (68.l) is odd, because it implies that Mary smokes practically all the time.

It appears, then, that adverbs of quantification, unlike generics, cannot be evaluated with respect to a singleton set of alternatives. It follows that they *must* associate with focus; the focused element cannot be left to be associated with something else. The question, then, is why? Why are generics so special?

In order to answer this question, let us consider the interpretation of a sentence involving an adverb of quantification. Rooth (1985) notes that the following sentences have different truth conditions:

- (69) a. In Saint Petersburg, ballerinas always escorted [officers]_F.
- b. In Saint Petersburg, [ballerinas]_F always escorted officers.

Sentence (69.a) is true just in case, whenever a ballerina accompanied someone, it was invariably an officer (but officers may have had other companions as well); sentence (69.b), on the other hand, conveys the statement that, whenever someone escorted an officer, it was always a ballerina (but ballerinas may have accompanied other people as well).

Rooth suggests that the set of alternatives induced by focus restricts the quantification domain of the adverb. Thus, the adverb in (69.a) quantifies over the set of ballerinas who escorted someone, and the sentence says that such ballerinas always escorted officers. Sentence (69.b), in contrast, expresses quantification over officers who were escorted by someone, stating that such companions were always ballerinas.

Following Heim's (1982) proposal that adverbs of quantification induce a tripartite structure, Partee (1991) has formulated Rooth's proposal in the following way: focus is mapped onto the nuclear scope, the alternatives induced by it are mapped onto the restrictor.

It appears, then, that a sentence involving an adverb of quantification is evaluated in the following way. The adverb induces a tripartite form. This, in itself, is not sufficient to evaluate the sentence—we need to know which elements are mapped onto the restrictor, and which are mapped onto the nuclear scope. This is determined by focus and the alternatives it induces. Hence, adverbs of quantification *must* associate with focus; without focus, it is impossible to know what the logical form of the sentence is, and, hence, it is impossible to evaluate it.

Let us now look at generics. The situation there is somewhat different. Unlike overt adverbs of quantification, the generic quantifier is not explicit in the sentence; it must be accommodated by the listener. There are generics where such accommodation is unnecessary. For example:

(70) Pandas are an endangered species.

This sentence does not involve quantification; it predicates a property, being an endangered species, directly of the kind *panda*. Predication does not involve a tripartite structure, and its logical form is not dependent on the alternatives induced by focus.¹² For example, (71.a) and (71.b) have different foci, but the same logical form.

- (71) a. John [loves]_F Mary.
b. John loves [Mary]_F.

There are cases, however, where direct kind predication does not make pragmatic sense. For example, (72) does not mean that the kind itself eats bamboo shoots, but that individual pandas do.

(72) Pandas eat bamboo shoots.

Hence, the generic quantifier, **gen**, is accommodated. The argument of the sentence becomes its restrictor, and we get a quantificational statement, to the effect that, in general (i.e. with probability greater than 0.5), if *x* is a panda, *x* eats bamboo shoots (Cohen forthcoming).

The crucial point for our purposes here is that the restrictor is determined by the predicational structure, which does not depend on focus. Hence, at the stage where the restrictor of **gen** is determined, focus does not play a role. Focus, if present, can, of course, affect the meaning of the sentence, by inducing alternatives, as described in section 4.1 above. But it is not necessary to determine the logical form. Hence, generics, unlike other focus-sensitive particles, *may* associate with focus, but do not *have* to. When there is no focus, and alternatives are not introduced in some other way, generics receive quasi-existential interpretations; otherwise, they receive their regular, quasi-universal interpretations.

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¹²According to some theories it is dependent on topic; but this still does not make it dependent on focus, since topic is not the complement of narrow focus.

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