On the Generic Use of Indefinite Singulars

Ariel Cohen
Ben-Gurion University of the Negev

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Abstract

The distribution of indefinite singular generics is much more restricted than that of bare plural generics. The former, unlike the latter, seem to require that the property predicated of their subject be, in some sense, "definitional". Moreover, the two constructions exhibit different scopal behavior, and differ in their felicity in conjunctions, questions, and expressions describing the speaker's confidence. I propose that the reason is that the two expressions, in fact, have rather different meanings.

Carlson (1995) makes a distinction between inductivist and rules-and-regulations *theories* of generics. Instead, I draw a distinction between inductivist and rules-and-regulations *readings* of generics. On one reading, a generic expresses the way things are, and its logical form involves quantification; on the other reading, a generic refers to some rule or regulation (often a definition), and states that it is in effect. While bare plurals are ambiguous between the two readings, indefinite singulars can only refer to a rule or a regulation.

This difference between the two constructions follows from the fact that bare plurals, but not (nonspecific) indefinite singulars, are acceptable topics. The topic of bare plural generics, then, is the bare plural itself. It is mapped onto the restrictor of the generic quantifier, hence an inductivist reading is available. In contrast, this option is not open to indefinite singular generics. Thus, an inductivist reading is ruled out, and the only possible topic is a rule or regulation. The various differences between the two types of generic are then shown to follow.

1 The problem

There are a number of ways to express genericity in English. Among these are bare plurals and indefinite singulars (henceforth BPs and ISs, respectively). Both (1.a) and (1.b) can be interpreted generically.

(1) a. Madrigals are polyphonic.
b. A madrigal is polyphonic.

However, as Lawler (1973) observes, the distribution of the IS is quite limited, compared with that of the BP. While (2.a) receives a generic interpretation, (2.b) cannot.

(2) a. Madrigals are popular.

b. *A madrigal is popular.

It is important to emphasize that (2.b) is not false; it is simply unacceptable (under the generic interpretation). Burton-Roberts (1977) provides a number of additional examples, among which are the following:

(3) a. Kings are generous.
b. *A king is generous.

(4) a. Rooms are square.
b. *A room is square.

(5) a. Uncles are garrulous.
b. *An uncle is garrulous.

The distribution of generic readings of IS objects also behaves differently from object BPs. While (6.a) means that Kimberly hates plays in general, (6.b) can only mean that there exists a play that she hates, and cannot get a generic reading.

(6) a. Kimberly hates plays.
b. Kimberly hates a play.

Lawler (1973), Burton-Roberts (1977), and subsequent authors claim that the differences between BP and IS generics are due to the fact that the latter are restricted to properties that are, in some sense, "necessary," "essential," "inherent," or "analytic." Thus, whereas polyphonicity is an essential property of madrigals, popularity is not, hence the unacceptability of (2.b).

One unsatisfactory aspect this approach is that, in a sense, this is a description of the problem rather than a solution. No explanation is offered for the distinction between BPs and ISs: what is it about the meaning of the latter that does not allow them to be interpreted generically with a nonessential property?

Worse, this account is actually empirically inadequate. Nonessential properties *are* sometimes felicitously predicated of IS generics. If the property of being popular is not necessarily true of madrigals, neither is, presumably, the property of being a popular song. Yet (7) is much better than (2.b) (though, of course, it may be false):

(7) A madrigal is a popular song.

Note further that the addition of an adverb of quantification, a *when*-clause, or an *if*-clause, makes the generic reading of the IS quite acceptable with a nonessential property:

(8) a. A madrigal is always popular.
b. A madrigal is popular when it is short.
c. A madrigal is popular if it was written by Orlando di Lasso.

Another problem with the essential properties view is that it fails to account for acceptable but false IS generics.

(9) A madrigal is monophonic.

Sentence (9), for example, is quite acceptable, though false. Yet monophonicity is not an essential property of madrigals, in fact not a property of madrigals at all. Why can it be felicitously predicated of the IS in this case?

2 Reference to kinds

It is well known that there are generic sentences that seem to predict something directly of a kind, as in (10).

(10) Dinosaurs are extinct.

Clearly, no single dinosaur is extinct, but rather the species as a whole.

There are also generic sentences where this is not the case; for example, it is the individual dinosaurs, rather than the species as a whole, which can felicitously be said to have been huge:

(11) Dinosaurs were huge.

Following Krifka *et al.* (1995), I will call the type of generic exemplified by (10) *direct kind predication*, and generics like (11) will be called *characterizing generics*.

As the term may suggest, the logical form of a sentence expressing direct kind predication is that of simple predication. Sentence (10), for example, predicates the property of being extinct of the kind $\uparrow$**dinosaur**.[1] Sentences like (11), on the other hand, involve generic quantification; (11) expresses the claim that, in general, if x was a dinosaur, then x was huge.

There is one difference between BPs and ISs that is well established: only the former, but not the latter, may occur in sentences expressing direct kind predication. Contrast the acceptability of (10) with the unacceptability of (12):

(12) *A dinosaur is extinct.[2]

This observation naturally leads to the conclusion that only BPs, but not ISs, may denote kinds.

It is reasonable to assume that the difference in behavior between BPs and ISs somehow follows from this distinction. But how?

Krifka *et al.* (1995) suggest that all cases where the IS generic is disallowed are cases of direct kind predication. That is to say, just like (10) expresses a property directly of the kind $\uparrow$**dinosaur**, and not of individual dinosaurs, (2.a) expresses a property directly of the kind $\uparrow$**madrigal**. Specifically, unlike (1.a), the logical form of (2.a) does not involve the generic quantifier. Since ISs cannot occur in cases of direct kind predication, (2.b) is ruled out.

Krifka *et al.* propose a similar account of the impossibility of generic readings of sentences such as (6.b). They claim that a sentence with a stative main verb, such as (6.a), is a case of direct kind predication, predicating of the kind $\uparrow$**play** the property of being hated by Kimberly; since the IS *a play* may not denote a kind, the generic reading of (6.b) is ruled out.

[1] I am using Link's (1995) notation, according to which $\uparrow p$ is the kind denoted by the common noun whose meaning is p.

[2] There is a reading of (12) under which it is acceptable, the *taxonomic* reading, according to which some species of dinosaur is extinct. Under this reading, however, *a dinosaur* is interpreted existentially, rather than generically; the sentence does not express a fact about dinosaurs in general, but rather about some species of dinosaur. Note that, when read taxonomically, *some* can be substituted for *a* with no significant change in meaning:

(i) Some dinosaur is extinct.

Moreover, as Krifka *et al.* (1995) point out, in noun classifier languages (e.g. Chinese) generic and taxonomic uses of indefinites differ in the classifiers they require.

This move amounts to disposing with the quantificational account of genericity except for a small number of cases such as (1.a). It stipulates that a great many generics are, in fact, cases of direct kind predication, and that characterizing generics are the exception, rather than the rule. Since Krifka *et al.* themselves argue forcefully for a quantificational account of genericity, this move is disappointing.

Many of the generic sentences postulated to be cases of direct kind predication are intuitively about individuals, not kinds. While one might conceivably accept that (2.a) predicates popularity of the kind ↑**madrigal**, this is much harder to accept with other examples: (3.a) is clearly about the generosity of individual kings, and it makes no sense to talk about the generosity of the kind ↑**king**; similarly, being square can only be a property of individual rooms, not of the kind ↑**room**, and being garrulous only makes sense when applied to individual uncles, not to the kind ↑**uncle**.

Additionally, one way to test for cases of direct kind predication is to verify that it is impossible to modify the sentence by an overt adverb of quantification. For example, (13) is impossible, confirming that (10) is a case of direct kind predication:

(13) *Dinosaurs are $\left\{\begin{array}{l}\text{always}\\ \text{usually}\\ \text{sometimes}\\ \text{never}\end{array}\right\}$ extinct.

However, the following sentences are perfectly acceptable, indicating that (2.a)–(5.a) are all characterizing generics, rather than cases of direct kind predication.

(14) a. Madrigals are always popular.
b. Kings are usually generous.
c. Rooms are sometimes square.
d. Uncles are never garrulous.

It is even possible, though somewhat harder, to have an adverb quantify over the object of a stative verb:

(15) Mary usually hates dogs (but she likes Fido).[3]

An additional problem for Krifka *et al.*'s proposal arises when scope ambiguities are taken into account. One of the strongest arguments for a quantificational account of generics is that they display scope ambiguities. This, however, can be demonstrated with nonessential properties as well as with essential ones. For example, note that (16.a) is fine but (16.b) is bad:

(16) a. Madrigals are popular with exactly one music fan.
b. *A madrigal is popular with exactly one music fan.

According to Krifka *et al.*, therefore, (16.a) must be a case of direct kind predication, involving no quantification. But note that (16.a) exhibits a scope ambiguity. One reading is that, in general, for any given madrigal, there is exactly

[3]See also Diesing 1992 for more examples and discussion.

one music fan with whom it is popular; the second reading is that there is exactly one music fan who likes madrigals. Yet how could this be if the logical form of (16.a) involves no quantification?

I therefore conclude that sentences such as (2.a) are cases of characterizing generics, and not direct kind predication. The question then remains: why are ISs disallowed in such sentences?

3 Topicality

I agree with Krifka *et al.* that the relevant difference between BPs and ISs is that the former, but not the latter, may denote kinds. From this, however, it does not follow that generic sentences like (2.a) express direct kind predication. On the contrary, I will argue that (2.a), just like (1.a), is a characterizing generic, and makes use of the generic quantifier.

In order to see why this is so, we need to consider the notion of *topicality*. Topics, almost by definition, must be specific; they have to refer to some entity (or a set of entities). Generic BPs denote kinds, and kinds are individual entities (Carlson 1977). Therefore, generic BPs are specific, hence are licensed as topics. Generic ISs, on the other hand, cannot denote kinds, hence are not specific and may not be topics. Nongeneric ISs, on the other hand, may refer to a specific individual (these are the so-called *specific indefinites*) and may, consequently, be topics. The following minimal pair, from Reinhart (1981), illustrates this point:

(17) a. She said about sharks that they will never attack unless they are very hungry.

b. She said about a shark that it will never attack unless it is very hungry.

While (17.a) can be read generically, (17.b) can only be read as a statement about a specific shark.

Erteschik-Shir (1997) argues extensively for *the topic constraint*: every sentence must have a topic.[4]

In light of this constraint, let us now consider how the interpretation of a sentence such as (3.a), repeated below, is derived.

(18) Kings are generous.

In order to satisfy the topic constraint, this sentence must have a topic. The only potential topic is the BP *kings*.[5] Consequently, *kings* must be specific, so it must refer to a kind. The logical form of (18), then, is (19):

(19) **generous**(↑**king**)

[4]Putative counterexamples to this constraint are "out of the blue" sentences, such as the following:

(i) a. A man came in.

b. It is raining.

Erteschik-Shir accounts for such sentences by arguing that they do, in fact, have a topic, which she refers to as a *stage topic*, indicating the spatiotemporal coordinates of the discourse.

[5]Cohen and Erteschik-Shir (1997) argue that stage-level predicates also allow for a stage topic. But since *generous* is an individual-level predicate, it may only have a nominal topic.

While (19) is generated by the grammar, it cannot receive a sensible interpretation. The kind ↑**king** is not the sort of thing that can be generous—only individual kings can be.

Therefore, direct kind predication is ruled out, and a characterizing reading is derived from the logical form in (19) in the following manner. The phonologically null generic quantifier **gen** is accommodated. The kind ↑**king** is mapped onto the restrictor of **gen**, since topics always form the restrictor of a quantifier (Reinhart 1981; Chierchia 1992; Cohen 1996; Erteschik-Shir 1997; Cohen and Erteschik-Shir 1997). This, however, results in a type mismatch: the restrictor ought to be an open formula, rather than a kind. Therefore, ↑**king** is type-shifted to $C(x, \uparrow\textbf{king})$, which indicates that x is an instance of the kind ↑**king**.[6] Consequently, (20) is derived.

(20) $\textbf{gen}_x[C(x, \uparrow\textbf{king})][\textbf{generous}(x)]$

This logical form says that, in general, if x is an instance of the kind ↑**king**, then x is generous. This is the desired characterizing generic reading.

Note that according to this account, characterizing generics are derived from sentences expressing direct kind predication when the latter are ruled out on semantic grounds. A generic BP, then, always refers to a kind, even when it is interpreted as a characterizing generic. This is, in fact, a desirable conclusion. The same token of the BP may be used simultaneously by a generic expressing direct kind predication as well as by a characterizing generic:

(21) a. The dodo lived in Mauritius and (it) became extinct in the 18th century (from Heyer 1990).

b. Elephants are killed for their tusks and are therefore an endangered species.

c. The giant panda, which is an endangered species, feeds on bamboo shoots.

The statements that the dodo became extinct, and that elephants and giant pandas are endangered species, are all cases of direct kind predication. Therefore, the subjects of the sentences in (21) must denote kinds, even though the other clause of all these sentences is a characterizing generic. The most straightforward explanation for this phenomenon is that generic BP unambiguously refer to kinds.

Now, let us consider what happens if the subject is an IS, as in (3.b), repeated below:

(22) *A king is generous.

The IS in (22) does not denote a kind, hence cannot be a topic, and there is no other potential topic. Therefore, the sentence lacks a topic and is, consequently, ruled out, as a violation of the topic constraint. Note that, in this case, it is impossible to accommodate the generic quantifier to bind the variable introduced by the IS. This is because the determination of topic and focus provides

[6] Compare ter Meulen (1995), who proposes a similar type-shifting rule. C is similar to Carlson's (1977) representation relation R, but differs from it in that it allows collections, in addition to individuals, to be representatives of a kind; see Cohen (1996) for the details.

the input to semantic interpretation (Erteschik-Shir 1997). Since semantic interpretation is the stage at which accommodating the generic quantifier occurs, the characterizing generic cannot be derived unless the topic constraint is met.

There is an alternative way for the IS to be specific, hence to qualify as a topic: by being a specific indefinite, as in the following sentence:

(23) A king who once said "Paris is well worth a mass" was generous.

In this case, however, the sentence is clearly not a generic; (23) is about a specific king, Henri IV of France, rather than kings in general.

Adverbs of quantification, *when*-clauses, and *if*-clauses introduce a quantificational structure themselves, with no need for accommodation. Since the restrictor of the quantifier forms the topic, the sentences in (8) are fine.

In the case of object ISs, the sentence is not ruled out, since there is another potential topic, the subject:

(24) Kimberly hates a play.

However, since the IS is not the topic, it is mapped onto the nuclear scope, rather than the restrictor, and receives an existential, rather than a generic reading.

It should be pointed out, however, that there are cases when, in addition to existential readings, object ISs receive what appear to be generic interpretations:

(25) a. John loves a dangerous challenge.

b. Mary hates a messy room.

This phenomenon poses a threat to the theory advanced here, which ought to rule out generic readings of object ISs.

It is not that clear, however, that the sentences in (25) really are generic. Contrast them with the following sentences, which are undeniably generic:

(26) a. John loves dangerous challenges.

b. Mary hates messy rooms.

Sentence (26.a) (under its characterizing reading) means that, in general, if x is a dangerous challenge, then John loves x. The judgment on whether a challenge is dangerous is made by the speaker; thus, (27) is acceptable, and may be true.

(27) John loves dangerous challenges, because he doesn't realize that they are dangerous.

In contrast, when (25.a) is evaluated, the judgment on whether a challenge is dangerous or not seems to be John's; (28) cannot receive the quasi-generic interpretation:

(28) John loves a dangerous challenge, because he doesn't realize that it is dangerous.

What (25.a) seems to be saying is that John loves being faced with a dangerous challenge.

Similarly, (26.b) relies on the speaker's judgment of what counts as a messy room, and (29) is fine:

(29) Mary hates messy rooms, although she does not realize they are messy.

But (25.b), on the other hand, focuses on Mary's judgment of messiness, and (30) cannot be interpreted quasi-generically:

(30) Mary hates a messy room, although she does not realize it is messy.

What (25.b) seems to express is that Mary hates being faced with a messy room.

These interpretations of the sentences in (25) are reminiscent of the *de dicto* interpretation of existential objects. Thus, for example, (31), under its *de dicto* reading, is taken to mean that Gary is trying to bring about a situation where he is faced with a unicorn.

(31) Gary is seeking a unicorn.

I therefore propose that the quasi-generic readings of object ISs are actually existential, but they are existential *de dicto*. Hence, the existence of such readings is quite compatible with the account proposed here.

4 The generic reading of indefinite singulars

So far, we have explained why generic readings of ISs are impossible: genericity requires topicality, which requires specificity. BPs may become specific by denoting kinds, but ISs may not. However, this theory seems to throw the baby out with the bathwater; we know that sometimes generic readings *are* possible with ISs, as in (1.b). How, then, can we account for this fact?

Before answering this question, let us look more closely at the cases where generic readings of ISs are possible. There are some differences between the respective generic readings of ISs and BPs.

One difference between BP and IS generics is that it is hard to form felicitous questions with the latter. Although (1.b) is fine, turning it into a question, as in (32.a), is odd; this is in contrast with (32.b), which is perfectly acceptable.

(32) a. ?Is a madrigal polyphonic?

b. Are madrigals polyphonic?

There are special contexts where (32.a) is acceptable. It could be asked by a teacher testing a pupil, or as a clarification question, e.g.

(33) a. Is a madrigal polyphonic or monophonic?

b. Is a madrigal or a Gregorian chant polyphonic?

In contrast, (32.b) needs no such special context, and may be asked whenever the topic of conversation is related to madrigals.

A related observation is that, with a generic BP, it is possible to use expressions describing the level of confidence the speaker has in the truth of the sentence. In contrast, this is odd with a generic IS.

(34) a. $\left\{\begin{array}{l}\text{Certainly}\\ \text{Possibly}\\ \text{I am not sure that}\\ \text{I guess that}\end{array}\right\}$ madrigals are polyphonic.

b. ? { Certainly / Possibly / I am not sure that / I guess that } a madrigal is polyphonic.

Another difference between generic BPs and ISs involves scope. In general, a BP generic may exhibit a scope ambiguity. Consider the following sentence (from Schubert and Pelletier 1987):

(35) Storks have a favorite nesting area.

Sentence (35) is ambiguous. It has one reading where *storks* takes wide scope, i.e. for every stork there is a possibly different favorite nesting area. This reading is selected if (35) is followed by (36.a). But there is another reading, where *storks* receives narrow scope, and this is the reading where there is one favorite nesting area for storks in general; under this reading, (35) can be followed by (36.b).

(36) a. ... which other storks try to capture.

b. ... which is in my backyard.

Now consider:

(37) A stork has a favorite nesting area.

Sentence (37) only has reading where the subject gets wide scope; it can only be followed by (36.a), not by (36.b).

For another example, consider the following pair:

(38) a. Manned space missions consist of three brave astronauts.

b. A manned space mission consists of three brave astronauts.

Sentence (38.a) is ambiguous; it can either mean that the number of brave astronauts required to fly a manned space mission is three, or that there are three specific brave astronauts whose presence is required to fly a manned space mission. In contrast, (38.b) allows only the first reading, namely the reading where the subject takes wide scope. This contrast is evidenced by the fact that (38.a), but not (38.b), can be followed by

(39) ... namely Neil, Buzz, and Michael.

IS generics, then, can only be interpreted to have wide scope.

Most theories of generics claim either that both BP and IS generics are quantificational, or that neither are. The first type of theory would correctly predict the scope ambiguity of (35), but would fail to explain why (37) does not exhibit the same ambiguity. The second type of theory can explain (37), but then the scope ambiguity of (35) would be left unaccounted for. The difference between (35) and (37), then, presents a serious challenge to any theory that claims that the interpretations of BP and IS generics are the same.

5 Two readings of generics

Any theory of genericity, then, must do justice to the differences in interpretation between BP and IS generics. Carlson (1995) distinguishes between two

approaches to the analysis of generics: the *inductivist* view and the *rules and regulations* view. According to the inductivist approach, a generic sentence is true iff "sufficiently many" "relevant" individuals in the domain of the generic satisfy the predicated property. There are many specific types of inductivist theory, which vary mainly depending on which instances count as "relevant," (e.g. contextually restricted individuals, "normal" individuals, "typical" individuals, etc.) and how many is considered "sufficiently many" (e.g. all, most, "substantially many," etc.). Anyone who proposes that genericity involves quantification is committed to some version of the inductivist view.

According to the rules and regulations view, on the other hand, generic sentences do not get their truth or falsity as a consequence of properties of individual instances. Instead, generic sentences are evaluated with regard to rules and regulations, which are basic, irreducible entities in the world. Each generic sentence denotes a rule; if the rule is *in effect*, in some sense (different theories suggest different characterizations of what it means for a rule to be in effect), the sentence is true, otherwise it is false. The rule may be physical, biological, social, moral, etc. The paradigmatic cases for which this view seems readily applicable are sentences that refer to conventions, i.e. man-made, explicit rules and regulations, such as the following example (Carlson 1995:225):

(40) Bishops move diagonally.

Carlson describes the two approaches as a dichotomy: one has to choose one or the other, but not both. One way to decide which approach to choose is to consider a case where the behavior of observed instances conflicts with an explicit rule. Indeed, Carlson discusses just such a case. He describes a supermarket where bananas sell for $.49/lb, so that (41.a) is true. One day, the manager decides to raise the price to $1.00/lb. Immediately after the price has changed, claims Carlson, sentence (41.a) becomes false and sentence (41.b) becomes true, although the overwhelming majority of sold bananas were sold for $.49/lb.

(41) a. Bananas sell for $.49/lb.

b. Bananas sell for $1.00/lb.

Consequently, Carlson reaches the conclusion that the rules and regulations approach is the correct one, whereas the inductivist view is wrong.

While I share Carlson's judgments, I do not accept the conclusion he draws from them. Suppose the price has, indeed, changed, but the supermarket employs incompetent cashiers who consistently use the old price by mistake, so that customers are still charged $.49/lb. In this case, I think there is a reading of (41.a) which is true, and a reading of (41.b) which is false. These readings are more salient if the sentence is modified by expressions such as *actually* or *in fact*:

(42) a. Bananas actually sell for $.49/lb.

b. In fact, bananas sell for $1.00/lb.

BP generics, I claim, are ambiguous: on one reading they express a descriptive generalization, stating the way things are. Under the other reading, they carry a normative force, and require that things be a certain way. When they

are used in the former sense, they should be analyzed by some sort of inductivist account; when they are used in the latter sense, they ought to be analyzed as referring to a rule or a regulation. The respective logical forms of the two readings are different; whereas the former reading involves, in some form or another, quantification, the latter has a simple predicate-argument structure: the argument is the rule or regulation, and the predicate holds of it just in case the rule is "in effect."

A language that makes an explicit distinction between these two types of reading is French. In this language, generically interpreted plural nouns are preceded by the definite determiner *les*, whereas the indefinite determiner *des* usually induces existential readings. However, *des* may also be used to make a normative statement, i.e. to express some rule or regulation.

(43) a. Des agents de police ne se comportent pas ainsi dans une situation d'alarme.

'INDEF-PL police officers do not behave like that in an emergency situation.'

b. Les agents de police ne se comportent pas ainsi dans une situation d'alarme.

'DEF-PL police officers do not behave like that in an emergency situation.'

An observation which de Swart (1996) ascribes to Carlier (1989) is that (43.a) "would be uttered to reproach a subordinate with his behavior. [(43.b)] does not have the same normative value, but gives us a descriptive generalization which could possibly be refuted by providing a counterexample."

6 Indefinite singulars and rules

French, then, expresses the two types of reading differently. In English, on the other hand, generic BPs are ambiguous between inductivist and normative readings. But even in English there is one type of generic that can express only one of these readings, and this is the IS generic. While BPs are ambiguous between the inductivist and the rules and regulations readings, ISs are not. In the supermarket scenario discussed above, only (44.b) is true:

(44) a. A banana sells for $.49/lb.

b. A banana sells for $1.00/lb.

The normative force of the generic IS has been noted before. Burton-Roberts (1977) considers the following minimal pair:

(45) a. Gentlemen open doors for ladies.

b. A gentleman opens doors for ladies.

He notes that (45.b), but not (45.a), expresses what he calls "moral necessity."[7] Burton-Roberts observes that

[7] He is, though, pessimistic about the prospects of making this distinction precise.

> if Emile does not as a rule open doors for ladies, his mother could utter [(45.b)] and thereby successfully imply that Emile was not, or was not being, a gentleman. Notice that, if she were to utter... [(45.a)] she might achieve the same effect (that of getting Emile to open doors for ladies) but would do so by different means... For [(45.a)] merely makes a generalisation about gentlemen (p. 188).

Sentence (45.b), then, unlike (45.a), does not have a reading where it makes a generalization about gentlemen; it is, rather, a statement about some social norm. It is true just in case this norm is in effect, i.e. it is a member of a set of socially accepted rules and regulations.

An IS that, in the null context, cannot be read generically, may receive a generic reading in a context that makes it clear that a rule or a regulation is referred to. For example, Greenberg (1998) notes that, out of the blue, (46.a) and (46.b) do not have a generic reading:

(46) a. A Norwegian student whose name ends with 's' or 'j' wears green thick socks.

b. A tall, left-handed, brown haired neurologist in Hadassa hospital earns more than $50,000 a year.

However, Greenberg points out that in the context of (47.a) and (47.b), respectively, the generic readings of the IS subject are quite natural:

(47) a. You know, there are very interesting traditions in Norway, concerning the connection between name, profession, and clothing. For example, a Norwegian student...

b. The new Hadassa manager has some very funny paying criteria. For example, a left-handed...

Even IS sentences that were claimed above to lack a generic reading, such as (3.b) and (4.b), may, in the appropriate context, receive such a reading:

(48) a. Sire, please don't send her to the axe. Remember, a king is generous!

b. How dare you build me such a room? Don't you know a room is square?

7 The logical form of rules

What sort of thing is a rule? A general theory of rules is a deep philosophical question and is far beyond the scope of this paper. Fortunately, a complete theory is not necessary for our purposes here. I will discuss, then, only those aspects of a theory of rules that are needed for the interpretation of IS generics.

What does it mean to say, for example, that the rule expressed by (45.b) is followed? Perhaps the most straightforward way to represent this fact is to state that some conditional, represented schematically as follows, holds:

(49) $\textbf{gentleman}(x) \Longrightarrow \textbf{open-doors-for-ladies}(x)$

What exactly the conditional $\psi(x) \Longrightarrow \phi(x)$ means I will leave unspecified. It may simply mean extensional universal quantification, i.e. $\forall x(\psi(x) \rightarrow \phi(x))$, or perhaps some more intensional version.

One advantage of formula (49) is that it maintains the view of ISs as variables (Kamp 1981; Heim 1982), so that we do not need to assume that a generic IS has a different representation from that of a nongeneric IS.

A state of affairs that satisfies (49) will be said to conform with the rule, and a state of affairs where (49) is false violates the rule. It should be emphasized that although (49) is a proposition, a rule is not. A rule is not the sort of thing that may be true or false. A model that satisfies (49) does not make the corresponding rule "true"; but what we *can* say is that such a model conforms with the rule. In this sense, the role of (49) is reminiscent of that of a meaning postulate. Meaning postulates are used to define the set of models that conform with some convention, namely the interpretation of some expressions; similarly, conditionals such as (49) define the set of models that conform with some rule.

Let us assume, with Carlson (1995), that rules are basic, irreducible entities in the world. Rules are not formulas; however, they can be described by formulas. We can say that (49) describes a rule, by stating what proposition a state of affairs needs to satisfy in order to conform with the rule.

Some formulas, then, may describe a rule, just as some expressions may describe an individual. Let '!' be an operator which maps a formula to the rule it describes if there is such a rule, and is undefined otherwise. Thus, for example, the rule described by (49) is:

(50) $!(\textbf{gentleman}(x) \Longrightarrow \textbf{open-doors-for-ladies}(x))$

Sentence (45.b) predicates of rule (50) that it is in effect (in this case, socially accepted). Let us assume a predicate, **in-effect**, whose extension is the set of all rules which are in effect. The logical form of (45.b), then, is something like the following:

(51) $\textbf{in-effect}(!(\textbf{gentleman}(x) \Longrightarrow \textbf{open-doors-for-ladies}(x)))$

Note that (51) does not say that the rule is obeyed; all it says is that opening doors for ladies is part of the social norms dictating the appropriate behavior of gentlemen. Whether or not gentlemen actually abide by this rule is a different matter, which may be expressed by the BP generic (45.a), when it receives the inductivist reading.

Note that rule (50) is a specific entity; it is, therefore, licensed as a topic. It is important to emphasize that the topic of (45.b) is the rule rather than the IS. Hence the topic constraint is satisfied, and the sentence is acceptable; it may be true or it may be false, but it is not ruled out.

Not all formulas may successfully describe a rule, just like not all definite descriptions successfully refer to an individual. There is a set of individuals, in the common ground, such that an individual must be a member of this set for a definite description to refer successfully to it. If there is no such individual, the sentence containing the definite is rejected. Similarly, there is a set of potential rules; for a rule to be successfully described by a formula, it needs to be a member of this set. Being a potential rule does not necessarily mean that it is in effect; what it does mean that it is recognized as a rule that could conceivably hold. It may very well be that in this day and age, rule (50) is no longer accepted as a social norm; yet, even so, it is in the set of potential rules. Therefore, (51) may be false, but it is not ruled out, since (50) is defined.

When a sentence describes something which is deemed too odd to be a potential rule, the sentence is ruled out. Consider (52):

(52) *A gentleman has three fingers in his left hand.

The rule it describes would be something like:

(53) !(**gentleman**(x) $\Longrightarrow$ **have-3-fingers-in-left-hand**(x))

This is a very odd rule; it is clearly not in the set of potential rules. We do not consider (53) to be a possible rule guiding the behavior of gentlemen. Hence, (53) is undefined, and (52) is ruled out.

8 Definitions

Generic ISs, then, have a different logical from that of (the inductivist reading of) generic BPs: they express a rule or a regulation, rather than a quantificational statement. But what sort of rule or regulation does a sentence like (1.b) express? Surely there is no rule, physical, social, or moral, which requires that a madrigal be polyphonic. What rule, then, does (54) describe?

(54) **madrigal**(x) $\Longrightarrow$ **polyphonic**(x)

There is one type of rule which can be described by (54): a linguistic rule, namely a definition. That is to say, (54) is a meaning postulate providing (part of) the definition of a madrigal. The corresponding rule, (55), is a definition, or rather a partial definition, since the definition of a madrigal is not exhausted by the property of being polyphonic (Bierwisch and Kiefer 1969).

(55) !(**madrigal**(x) $\Longrightarrow$ **polyphonic**(x))

The logical form of (1.b), then, is (56).

(56) **in-effect**(!(**madrigal**(x) $\Longrightarrow$ **polyphonic**(x)))

This logical form is satisfied just in case the partial definition of madrigals as being polyphonic is in effect, i.e. accepted by the language community. Definitions of musical pieces in terms of the number of voices they require are considered quite sensible; consequently (55) is defined and (1.b) is acceptable, in fact true.

Note that being a potential definition, just like being any other potential rule, is not the same as being in effect. Any definition of a musical piece in terms of the number of voices is acceptable, including the definition of a madrigal as a monophonic piece of music. This is why (9), whose logical form is (57), is an acceptable sentence.

(57) **in-effect**(!(**madrigal**(x) $\Longrightarrow$ **monophonic**(x)))

However, the definition of madrigals as monophonic, though accepted as a potential definition, is not in effect. Consequently, the sentence is acceptable but false.

It is here that the distinction between essential and nonessential properties becomes relevant. One intuition about definitions, which goes back all the way to Aristotle, is that defining properties have to be, in some sense, essential to the definiendum. According to Aristotle, a proper definition of a term has to predicate of it properties that are essential to it, that are inherent in its very nature: "A definition is a statement of the essence of a thing" (*Topics*,

I.5). Aristotle has an elaborate theory of what it means for a property to be essential, but I cannot comment on his theory here. The important point here is not whether his theory is correct or not, but the intuitions underlying it; these intuitions, I take it, are largely shared by speakers today as well as in Aristotle's times.

It is for this reason that (2.b) is bad; being popular is not an essential property of madrigals, hence (2.b) is not a proper definition and is ruled out. BPs, on the other hand, can express an inductivist generic statement, and are not required to express a definition. This is why (2.a) is fine.

Some evidence for the claim that generic ISs often express definitions can be obtained by browsing a dictionary that uses whole sentences, rather than just fragments, to define words. In such dictionaries, count nouns are almost invariably defined using ISs. Here, for example, is the definition of **madrigal** provided by the Collins Cobuild English Language Dictionary (1987):[8]

(58) A **madrigal** is a song which is sung by several singers without any instruments. Madrigals were especially popular in England in the sixteenth century.

Note that the subject of the definition proper is the IS *a madrigal*, and the sentence describes its essential features. The second sentence is not part of the definition itself; having established what madrigals are, it provides some additional information about madrigals, namely their popularity. Just like (2.a), the subject of this sentence can only be a BP, not an IS.

The account of other unacceptable IS generics is similar: (3.b) is bad because being generous is not part of the definition of **king**; (4.b) is bad because being square is not part of the definition of **room**; and (5.b) is bad because being garrulous is not part of the definition of **uncle**. When these properties *are* used in a definition, the sentences become acceptable. For example, while being generous is not a defining characteristic of a king, it may be a defining characteristic of a *good* king, hence (59) is fine:

(59) A good king is generous.

It must be emphasized that, in order for an IS generic to be acceptable, the requirement is not that the predicate express an essential property of its argument, but that the property be perceived to be potentially essential. This is why (9) is acceptable, although false. While being monophonic is not a defining property of madrigals, it is perceived to be potentially so.

In this context it is instructive to consider an observation made by Dobrovie-Sorin and Laca (1996). They note that BP conjunction is, in general, more felicitous than IS conjunction in generic sentences:

(60) a. Elephants and turtles have a long life span.

b. *An elephant and a turtle have a long life span.

Dobrovie-Sorin and Laca observe that while (60.a) is perfectly acceptable, (60.b) is odd.

However, there are cases where generic IS conjunction is as acceptable as BP conjunction:

[8]Here and in all other definitions taken from the Cobuild dictionary, the defined word is in **bold**.

(61) a. Camels and dromedaries are very similar.

b. A camel and a dromedary are very similar.

Dobrovie-Sorin and Laca note that *be very similar* is a collective predicate, and propose that the collectivity of the predicate is the fact that accounts for the acceptability of (61.b).

This explanation, however, is unsatisfactory, since there are numerous collective predicates that do not allow generic IS conjunction:

(62) a. Camels and dromedaries gather near oases.

b. *A camel and a dromedary gather near oases.

(63) a. Camels and dromedaries meet in bars.

b. *A camel and a dromedary meet in bars.

(64) a. Camels and dromedaries form soccer teams.

b. *A camel and a dromedary form soccer teams.

Treating IS generics as definitions provides a simple solution to this puzzle. Usually, it makes little sense to define a conjunction of two terms. One may be interested in the definition of **elephant** or the definition of **turtle**, but what does it mean to define the conjunction **elephant and turtle**? It is for this reason that (60.b), (62.b), (63.b), and (64.b) are bad.

The only way in which a definition can make use of a conjunction is when one of the conjuncts is already known, and the other conjunct is defined in relation to it. Thus, (61.b) can be felicitously said to someone who knows what a camel is, but not what a dromedary is. This is a (partial) definition of **dromedary** in terms of **camel**. Hence, the reason why the property *be very similar* allows generic IS conjunction is not because it is simply a collective property, but what Lønning (1997) calls a *relational collective property*, i.e. one that states a relation between the members of the conjunction (or plural) it is predicated of. Thus, since (61.b) expresses a relation (similarity) between its two conjuncts, it gives information about dromedaries to one who already knows what camels are, and hence can be used as a partial definition of **dromedary**.

Whether or not a property is perceived to be definitional may depend on its form as well as on its meaning. Aristotle observes that definitions are often in the form of a genus and a differentia; the differentia distinguishes the terms to be defined from other species under the same genus. For example, given the classical definition of **man** as a rational animal, *animal* is the genus and *rational* is the differentia. According to Aristotle, if the genus and the differentia are essential properties, the result is a proper definition. But in any case, a statement in the form of a genus and a differentia is a definition, proper or not.

If we rephrase (2.b) in the genus and differentia form, without changing its meaning, the sentence becomes much more acceptable (though, of course, it may still be false). This is the explanation for the acceptability of (7), repeated below:

(65) A madrigal is a popular song.

Madrigal belongs to the genus *song*. Hence, it is easy to interpret (65) as a definition, with *song* being the genus, and *popular*—the differentia. Of course,

the definition is not a proper one: while being a song is an essential property of madrigals, being popular is not. Nevertheless, it is still a definition, hence (65) is acceptable.

The same explanation goes for (3.b), (4.b), and (5.b) above. If they are rephrased in the form of a definition, without changing their meaning, their acceptability will improve considerably:

(66) a. A king is a generous ruler.

b. A room is a square enclosure.

c. An uncle is a garrulous relative.

King is a species of the genus *ruler*, **room** is a species of the genus *enclosure*, and **uncle**—of *relative*. Hence, the sentences in (66) are readily interpreted as definitions (albeit improper ones), and are therefore acceptable.

If the sentence is clearly in the form of a definition, even kind predicates may modify a generic IS; consider (67.a), which is the definition of **dinosaur** from the Cobuild dictionary, and contrast it with (12), repeated below:

(67) a. A **dinosaur** was a large reptile which lived in prehistoric times and which is now extinct.

b. *A dinosaur is extinct.

A generic IS, then, expresses a partial definition of the concept denoted by the common noun. If the noun is ambiguous, the sentence constitutes a definition of one of its senses. This can be seen most clearly when one of the senses is much less frequent than the others, or is colloquial. Contrast (68.a) with (68.b).

(68) a. A chicken is a coward.

b. Chickens are cowards.

While (68.a) is naturally taken to be a definition of the colloquial term **chicken**, it is hard to construe (68.b) in the same way. The interpretation of (68.b) which suggests itself is the (rather odd) reading where chickens (the birds) are generally cowardly. Of course, (68.b) does have the definitional reading too, since BP generics are ambiguous between the two readings. But the latter reading is less dominant, because, given a choice between an ambiguous and an unambiguous form to say something (in this case, a choice between a BP and an IS generic), speakers normally would choose the unambiguous form (Grice 1975).

Similarly, while (69.a) defines the colloquial term **dog**, and is true, (69.b) is false, because it is taken to state of a class of animals (dogs) that they are products.

(69) a. A dog is a poor product.

b. Dogs are poor products.

We can now account for the differences in the respective generic readings of ISs and BPs. Sentence (1.a) predicates a property, polyphonicity, of madrigals. One may, however, wonder whether this is, in fact, true, or express varying levels of confidence in its truth. Therefore, in any context in which a discussion of the polyphonicity of madrigals is felicitous, so is questioning or doubting (1.a):

(70) a. Are madrigals polyphonic?

b. $\left\{\begin{array}{l}\text{Certainly}\\ \text{Possibly}\\ \text{I am not sure that}\\ \text{I guess that}\end{array}\right\}$ madrigals are polyphonic.

Not so for a definition. Recall that the topic of (1.b) is not madrigals, but the definition of madrigals. The sentence does not predicate a property of madrigals, but rather predicates a property (being in effect) of a certain partial definition of madrigals. Therefore, wondering whether (1.b) is true is only felicitous in a context in which the definition is salient. For example, an exchange between a teacher and a pupil, or a context where one does not perfectly remember the definition, and is seeking clarification. Only in such contexts is (71) felicitous.

(71) ?Is a madrigal polyphonic?

The scopal behavior of IS generics can also be now accounted for. Consider (37) and (38.b) again, repeated below:

(72) a. A stork has a favorite nesting area.

b. A manned space mission consists of three brave astronauts.

The subject wide scope reading of (72.a) is roughly (73.a); if a narrow scope reading were available, it would have the logical form (73.b):

(73) a. $\textbf{in-effect}(!(\textbf{stork}(x) \Longrightarrow \exists y(\textbf{nesting-area}(y) \wedge \textbf{has}(x,y))))$

b. $\exists y(\textbf{nesting-area}(y) \wedge \textbf{in-effect}(!(\textbf{stork}(x) \Longrightarrow \textbf{has}(x,y))))$[9]

The meaning represented by (73.a) is rather unproblematic. We can readily conceive of having a favorite nesting area as being part of the definition of **stork**. Consequently, the description of the rule successfully refers, and (72.a), under this reading, is fine.

In contrast, (73.b) requires, for its felicity, that there be some nesting area y, such that part of the definition of a stork be that y is its favorite nesting area. Since this is rather a bizarre definition, the description of the rule fails to refer, and the sentence would be ruled out under this reading—hence it is unavailable.

The same point can be made with respect to (72.b). It is not unreasonable to assume that the definition of a manned space mission includes the property *consists of three brave astronauts*. However, it is quite odd to think that there might be three specific brave astronauts such that some activity is defined to be a manned space mission if they take part in it.

In general, as, again, already noted by Aristotle, rules and definitions are not relativized to particular individuals; it is rarely the case that a *specific* individual forms part of the description of a *general* rule.

Even DPs of the form *a certain X* or *a particular X*, which usually receive a wide scope interpretation, cannot, in general, receive such an interpretation

[9]There is, in fact, one other possible reading:

(i) $\textbf{in-effect}(!(\exists y(\textbf{nesting-area}(y) \wedge \textbf{stork}(x) \Longrightarrow \textbf{has}(x,y))))$

This, however, would be ruled out immediately, since the argument of the operator '!' is not in the proper form '$\psi(x) \Longrightarrow \phi(x)$', hence it cannot be a possible rule.

in the context of a rule or a definition. This holds of definitions in general, not only of definitions with an IS subject. The following examples from the Cobuild dictionary illustrate this point:

(74) a. A **fanatic** is a person who is very enthusiastic about a particular activity, sport, or way of life.

b. Something that is **record-breaking** is better than the previous record for a particular performance or achievement.

c. When a computer **outputs** something it sorts and produces information as the result of a particular program or operation.

d. If something **sheers** in a particular direction, it suddenly changes direction, for example to avoid hitting something.

There are, nonetheless, rules that *are* relativized to individuals, and in such cases DPs may, and in fact must, scope out of the definition. For example, the official title for the head of government is dependent on the state; there are some countries where this person is referred to as the chancellor, but in others a different term is used. Hence, in the following Cobuild definition, *several European countries* scopes over the subject:

(75) The **chancellor** is the head of government in several European countries.

Definition (75) can only mean that there are several European countries where the chancellor is the head of government, not that the same chancellor heads several governments.

The same point applies to IS generics:

(76) a. A Mozart fan has a favorite composer.

b. A triathlon athlete competes in three sports.

A Mozart fan is defined as someone whose favorite composer is Mozart. Hence, the definition of a Mozart fan as someone whose favorite composer is x is dependent on who x is—x has to be Mozart. Consequently, there exists some composer x such that the definition of a Mozart fan is one whose favorite composer is x, and the narrow scope reading of the IS is fine.

The definition of triathlon involves competing in three sports: swimming, cycling, and running. Hence, there are three sports x such that there is a rule stating that a triathlon athlete competes in x, and the narrow scope reading of the IS is available.

A construction that has a similar scopal behavior to that of the IS generic is the imperative (Paul Dekker, personal communication). Imperatives, too, typically take wide scope over DPs that are embedded in them. For example, (77.a) can only be paraphrased as (77.b), not as (77.c).

(77) a. Let no more than 10 people in!

b. I tell you: for no more than 10 people x, let x in!

c. There are no more than 10 people x, for whom I tell you: let x in!

Imperatives are similar to rules in that they cannot be true or false, and they describe the way things are required to be rather than the way they actually are (cf. Huntley 1984). Also, imperatives can form the consequent of a conditional:

(78) a. If you find him, kill him!

b. If you escort a lady, open the door for her!

One might speculate that an imperative is the consequent of a rule; the antecedent may be vacuously true (as in (77.a)), or may have some content (as in the sentences in (78)). Establishing whether this is the correct interpretation of imperatives is beyond the scope of this paper; but if this speculation is correct, the observation that DPs cannot scope out of imperatives would thereby be explained.

9 Summary

The respective distributions of generic ISs and BPs are different because their respective interpretations are different. BPs may denote kinds, hence they may be topics and (after the accommodation of the generic quantifier and type-shifting) may yield characterizing generics.

ISs, on the other hand, cannot be topics, hence the option of characterizing generics is not open to them. However, there is another form of generic, one which denotes a rule or a regulation, and this interpretation of ISs is licensed.

In many cases, the rules expressed by generic ISs are linguistic rules, i.e. definitions. Whenever an IS sentence may, in terms of its meaning or form, be construed as a definition, the sentence may get a generic reading.

The respective logical forms of generic ISs and (one of the readings of) generic BPs are different, and only the latter express quantification. Construed in this way, it is thus not puzzling, but, in fact, hardly surprising, that the two forms have different distributions and different semantic properties.

Author's address

Ariel Cohen
Dept. of Foreign Literatures and Linguistics
Ben Gurion University
Beer Sheva 84105
Israel
arikc@bgumail.bgu.ac.il

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