Generics
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Introduction

Generics are statements such as “dogs are mammals”, “a tiger is striped”, “the dodo is extinct”, “ducks lay eggs”, and “mosquitoes carry the West Nile virus”. Generic statements express general claims about kinds, rather than claims about particular individuals. Unlike other general statements such as “all dogs are mammals” or “most tigers are striped”, generics do not involve the use of explicit quantifiers (such as “all” or “most” in these examples). In English, generics can be expressed using a variety of syntactic forms: *bare plurals* (e.g. “ducks lay eggs”), *indefinite singulars* (e.g. “a tiger is striped”), and *definite singulars* (“the dog is a mammal”). (Sometimes, habitual statements such as “Mary smokes” or “John runs in the park” are classified generics, but we will not follow this practice here.)

The truth conditions of generics have proved quite puzzling for theorists. For example, “dogs are mammals” seems to require for its truth that all (possible) dogs be mammals. “A tiger is striped” or “ravens are black”, however, are somewhat more forgiving, since they are compatible with the existence of a few stripeless albino tigers, and white albino ravens. “Ducks lay eggs” and “a lion has a mane” are more forgiving still; these generics are true even though it is only the mature members of one gender which possess the relevant properties. This truth conditional laxity is limited in scope, however: we do not accept “ducks are female” or “lions are male”, even though every egg laying duck is a female duck, and similarly *mutatis mutandis* for maned lions. Finally, we accept “mosquitoes carry the West Nile virus”, even though fewer than one percent of mosquitoes carry the virus, while also rejecting “books are paperbacks”, when over eighty percent of books are paperbacks. The correct analysis of the truth conditions for generics is a matter of great controversy among theorists working on the problem.

1. Generic and Existential Interpretations

The interpretation of sentences containing bare plurals (BP), indefinite singulars (IS), or definite singulars (DS) can be either generic as in (1) respectively or existential/specific as in (2):

(1) Tigers are striped
A tiger is striped
The tiger is striped.
(2) Tigers are on the front lawn
A tiger is on the front lawn
The tiger is on the front lawn.

The subjects in (1) are prima facie the same as in (2), yet their interpretations in (1) are intuitively quite different from those in (2). In (2) we are talking about some particular tigers, while in (1) we are saying something about tigers in general.

There are some tests that are helpful in distinguishing these two readings. For example, the existential interpretation is *upward entailing*, meaning that the statement will always remain true if we replace the subject term with a more inclusive term. For example, if it is true that tigers are on the lawn, then it will also be true that animals are on the lawn. This is not so if the sentence is interpreted generically. For example, it is true that tigers are striped, but it does not follow that animals are striped (Lawler 1973).

1.1 Stage Level and Individual Level Predicates

We might wonder why the interpretations of (1) are so different from the interpretations of (2). The most prominent explanation is that, at least for BP generics, the interpretations depend on whether the predicates in question are *stage-level* or *individual level*. In particular, stage-level predicates are thought to give rise to existential interpretations, while individual level predicates give rise to generic ones (Carlson 1977).

Intuitively, the distinction between these two types of predicates has to do with whether the predicate denotes a property that may well be had fleetingly (making for a stage-level predicate) versus a property that is more stable and long-lasting (making for an individual level predicate). Examples of stage level predicates include the predicates ‘is drunk’, ‘is barking’, and ‘is on the lawn’ – these properties are normally had only

temporarily, or at least intermittently. Individual level predicates express more stable and persistent properties, e.g. ‘is tall’, ‘is a mammal’, and ‘is female’. There are a variety of contexts in which only one type of predicate is acceptable, for example we can say “John saw Mary drunk/barking/on the lawn”, but not “John saw Mary tall/a mammal/female”.

1.2 D-Generics and I-Generics

It is helpful to separate out two categories of generic statements. Our first category includes statements such as “tigers are striped”, “ravens are black”, “a lion has a mane”, and “the dog is carnivorous”. These statements are naturally thought of as expressing generalizations about individual members of the kind. For example, we might suppose that “tigers are striped” is made true by enough individual tigers possessing stripes. The exact nature of these generalizations is highly controversial.

In our second category, we have statements like “dinosaurs are extinct”, “the dodo is extinct”, “tigers are widespread”, and “the domestic cat is common”, which are often thought to predicate a property directly of the kind in question, rather than expressing generalizations concerning its members. For example, in saying “dinosaurs are extinct”, one says something about the kind *dinosaur*, namely that that kind of thing is extinct. We may notice that it is not possible to say of an individual dinosaur Dino that Dino is extinct, since only a kind can be extinct.

Examples of this second category are often referred to as D-generics (‘D’ for ‘definite’) while examples of the first are known as I-generics (‘I’ for ‘indefinite) (Krifka 1987). Much of the work on the semantics of generics has been focused on I-generics, since they have proved the most elusive. It is widely accepted that D-generics are singular statements which predicate properties directly of kinds. For example, “tigers are extinct” predicates the property of *being extinct* directly of the kind *Panthera tigris*, and would be true just in case *Panthera tigris* had the property of being extinct (Krifka et al. 1995). The semantics of I-generics have proved much less tractable.

2. The Semantics of Generics

A great deal of work has been done on the semantics of (I-)generics, particularly on bare plural (I-)generics. It is easy to see why this is so: “Ducks lay eggs” is a true generic,

while “ducks are female” is false, yet it is only the female ducks who ever lay eggs. “Mosquitoes carry the West Nile virus” is true, and “books are paperbacks” is false, yet less than one percent of mosquitoes carry the virus, while over eighty percent of books are paper backs. How are we to account for these puzzling facts?

It is clear that generics are not equivalent to universal statements, but rather permit exceptions – that is, generics can be true even if some (or sometimes many) members of the kind lack the property in question. Generics also do not mean ‘most’; it is false that most mosquitoes carry the West Nile virus and true that most books are paperbacks, but our intuitions about the truth/falsity of the corresponding generics are reversed.

A significant number of theories concerning the meaning of generics have been offered over the years. I will briefly summarize some types of prominent theories that have been proposed in recent years. I will not register any criticisms of the theories here, but the reader is directed to Krifka et al (1995), Cohen (1996) and Leslie (2008) among others for critical discussion. Most of the theories in this section focus primarily on bare plural generics.

2.1 Possible Worlds Approaches

Many accounts of generics are framed in terms of some or other type of quantification over possible worlds (see Semantics, possible worlds). Usually, these possible worlds are employed to capture the intuition that generics tell us something about what is *normal* for members of a kind. For example, it is natural to think that a generic such as “tigers are striped” tells us something about normal tigers; the only exceptions to it are those tigers who are albino, and so in some respect out-of-step with the norm for the kind. Similarly, “dogs have four legs” may strike us as true because the only dogs who do not have four legs either have birth defects or have met with misfortune. Possible worlds are helpful here, because they allow us to consider, say, worlds in which things go *as normally as possible* for a given tiger, even if life is *actually* quite abnormal for that tiger. The accounts that fall, broadly speaking, into the category of possible worlds approaches differ in details, but tend to share at heart the idea that

generics are concerned with what is normal for a kind (for a sophisticated example of such an account, see Pelletier and Asher 1997).

2.2 Relevant Quantification

In light of generics such as “ducks lay eggs”, some theorists have argued that generics involve quantification over *relevant* individuals, where context determines which individuals are relevant. On such views, when we consider a generic such as “ducks lay eggs”, only the mature, fertile female ducks enter into our evaluation of the sentence, because, e.g., they are the only potential egg-layers. The question that arises is how exactly to determine which individuals are relevant. Schubert and Pelletier (1987) are an example of such a view, and offer an interesting discussion of how context and other factors contribute to determining which individuals are relevant to evaluating a given generic.

2.3 Stereotypes and Prototypes

A somewhat different approach to the semantics of generics is taken by theorists who suppose that generics express stereotypes or prototypes. On such views, “tigers are striped” would express that the stereotypical or prototypical tiger is striped, and likewise, “sharks attack bathers” would express a belief about the stereotypical or prototypical shark. Depending on the account, these may be either culturally held convictions, or beliefs had by individuals (examples of such accounts include Geurts 1985 and Declerk 1986).

2.4 Probabilitistic Approaches

Cohen (1996) argues that generics can be understood in terms of comparative probabilities. There are two different ways for a generic to be true on Cohen’s view. The first way can be illustrated by “tigers are striped”. This is a true generic because (roughly speaking) a randomly chosen tiger is more likely than not to be striped.

The second way a generic can be true involves comparison with other kinds. For example, on Cohen’s account, “mosquitoes carry the West Nile virus” is true because (again roughly speaking) if we pick a mosquito and another insect at random, the

mosquito is more likely than the insect to carry the West Nile virus. Thus on Cohen's view, generics are made true (or false) by such probabilistic considerations.

2.5 Generics and Psychology Recent work in psychology led by Susan Gelman and her collaborators shows that generics are very easily acquired by young children. In particular, generics are understood by young children more easily than explicit quantifiers such as "all" and "some" (Hollander, Gelman, and Star 2002). This is prima facie puzzling since, as the above discussion indicates, the semantics of generics look to be very complex. Leslie (2008) argues from these considerations and others that generics give voice to cognitively primitive generalizations. She further argues that, once we understand the role that generics play in our psychology, we can develop an account of when generics are true and false. Leslie divides generics into three categories: characteristic (including items such as "ducks lay eggs"), majority (e.g. "cars have radios") and striking (e.g. "mosquitoes carry the West Nile virus"). These different classes have different requirements that the world must meet for us to accept the corresponding generic. Leslie (forthcoming a) also argues that the nature of these generic judgments has played a role in the formation of some types of racial, ethnic, and religious prejudices.

3 Indefinite and Definite Singular Generics

Singular generics introduce their own sets of complications. Unlike bare plurals, singular generics can easily be infelicitous. For example, it is perfectly fine to say (3) or (4):

(3) A madrigal is polyphonic

(4) A football hero is popular

But not (5):

(5) *A madrigal is popular

(Notice, however, that the plural version of (5) "madrigals are popular" is perfectly felicitous (though perhaps false).) Lawler (1973) notes that indefinite singulars are only felicitous when they express properties that are somehow "necessary", "essential" or "inherent" to the kind. Subsequent work on indefinite singular generics has tended to

agree with Lawler's description, and has been mostly concerned with analyzing his notions in more precise ways.

Definite singular generics appear to invoke constraints similar to those of indefinite singulars, but also some more besides. For example, definite singular subjects are often infelicitous if they do not refer to well-established kinds (Krifka et al 1995; example from Carlson 1977, attributed to Barbara Partee):

(6) The coke bottle has a narrow neck

(7) *The green bottle has a narrow neck

Definite singular generics have received the less attention overall than indefinite singulars, while bare plurals have received by far the most discussion in the literature.

4 New Directions

Generics continue to be a topic of considerable interest to linguists, philosophers, and more recently, psychologists. There has recently been an explosion of interest among psychologists concerning generics (e.g. Gelman 2003). Recent and on-going work in psychology has been examining issues such as how children acquire generics, how adults process generics, the role of generics in reasoning, and the influence of generics in various forms of prejudice. This new range of empirical findings will surely be a significant influence on the topic going forward.

References and Further Reading

Carlson, G. (1977). *Reference to Kinds in English*. Ph.D. dissertation, University of Massachusetts, Amherst. (This is a classic treatment of the formal semantics of generics, and contains and extensive discussion of stage vs. individual level predicates, and their role in the interpretations of bare plurals.)

Carlson, G. and Pelletier, F. J. (1995) *The Generic Book*. Chicago: University of Chicago Press. (A collection of formal semantics papers on generics, many of which are very difficult to understand without a linguistics background.)

Cohen, A. (1996). *Think Generic: The Meaning and Use of Generic Sentences*. Ph.D. dissertation, Carnegie Mellon University. (This work contains powerful criticisms of many views, and presents a probabilistic approach to generics.)

Declerk, R. (1986). “The manifold interpretations of generic sentences.” *Lingua*, 68, pp.149-188. (The work includes a presentation of a generics-as-stereotypes view.)

Gelman, S. A. (2003). *The essential child: Origins of essentialism in everyday thought*. New York: Oxford University Press. (This lovely book, written by a psychologist, presents most/all of the empirical work on generics that was available in 2003. See chapters 7 & 8.)

Geurts, B. (1985). “Generics.” *Journal of Semantics*, 4. (This piece includes a presentation of a generics-as-stereotypes view.)

Hollander, M. A., Gelman, S. A., & Star, J. (2002). “Children’s interpretation of generic noun phrases.” *Developmental Psychology, 38*, pp. 883-894. (An empirical paper presenting evidence that three year olds interpret quantified statements as generics.)

Krifka, M. (1987). *An Outline of Genericity*, partly in collaboration with Claudia Gerstner. SNS-Bericht 87-23, University of Tubingen. (A semantics paper in which the distinction between I- and D-generics is drawn.)

Krifka, M., F. Pelletier, G. Carlson, A. ter Meulen, G. Chierchia, and G. Link. (1995). “Genericity: An Introduction”. In G. Carlson and F. J. Pelletier (eds.) *The Generic Book*. Chicago: Chicago University Press, pp. 1-125. (A detailed and comprehensive survey of work done on generics before 1995. It is often very technical, and will be hard to follow for those without a background in formal semantics.)

Lawler, J. (1973). “Studies in English generics.” *University of Michigan Papers in Linguistics* 1(1). (The first major work on the semantics of generics. It elegantly lays out many of the problems that a person working on generics must confront.)

Leslie, S. J. (2008). “Generics: Cognition and Acquisition”, *Philosophical Review*, 117(1), pp. 1-47. (A psychologically-oriented approach to generics which argues that they give voice to cognitively primitive generalizations, and that an account of their truth conditions can be given (only) after we understand the nature of these generalizations.)

Leslie, S. J. (forthcoming a). “The Original Sin of Cognition: Fear, Prejudice, and Generalization”, *The Journal of Philosophy*. (A discussion of how the nature of the judgments expressed by generics may have contributed to some forms of prejudice.)

Leslie, S. J. (forthcoming b). “Generics”. In D. G. Fara and G. Russell (eds.) *The Routledge Companion to the Philosophy of Language*. (A more detailed overview of recent work on generics; like this entry, it is aimed at a non-expert audience.)

Pelletier, F. and N. Asher. (1997). “Generics and Defaults”. In J. van Benthem and A. ter Meulen (eds.) *Handbook of Logic and Language*. Cambridge, MA: MIT Press, pp. 1125-1179. (Another classic; this article includes a presentation of a possible worlds account of

generics, and a discussion of entailments involving generics. Some familiarity with logic is needed to understand the details.)

Schubert, L.K. & Pelletier, F.J. (1987). "Problems in Representing the Logical Form of Generics, Bare Plurals, and Mass Terms". In E. Lepore (ed), *New Directions in Semantics.* Academic Press, pp. 387-453. (An example of a ‘relevant quantification’ account of generics, with a discussion of the sources of the restrictions.)