Generics, habituals, and iteratives

Sentences may express information about particular events, such as:

(1)   Mary ate oatmeal for breakfast this morning

But sentences can also express regularities about the world which constitute generalizations over events and activities:

(2)   Mary eats oatmeal for breakfast

Unlike (1), the truth of (2) does not depend on Mary eating oatmeal for breakfast at any particular time and place, but instead it is the regularity of occurrence that is asserted, and the truth conditions of the sentence are tied to that regularity.

Sentences of the sort exemplified in (1) are sometimes called "episodic" sentences. The class of episodic sentences also includes examples where a plurality of individuals or events occurs. The examples (3-5) exemplify sentences which are episodic but whose truth-values depend upon multiple occurrences of particular events:

(3)   Mary and George ate oatmeal for breakfast
(4)   Each student in the class handed in a completed assignment

(5)   Every day last week, Mary ate lunch at a restaurant

Such examples are episodic. In contrast, examples such as (1) are often called "habitual" or "generic" sentences. In some instances, habituals are termed "iteratives", but insofar as the terminology implies that iteratives and habituals are the same thing, it can be misleading (see Comrie (1976) p. 27 for extended comments on the use of the term in Slavonic linguistics). Iteratives are a subclass of aspectual operators, and do not produce generic or habitual sentences but rather are episodic in nature. Payne (1997) describes iteratives in the following way: "Iterative aspect is when a punctual event takes place several times in succession." (p. 39)   That is, what is produced is a series of events of the same type, which occur in a sequence (i.e. not simultaneously) and are intuitively connected with one another in time (i.e. not spaced "too far" apart). Such iterative interpretations are especially common for semelfactive verbs like *cough* or *flap (a wing)*'. In English, *John coughed* can be understood as saying that he coughed once, or in a series, repetitively. In some languages, iteratives are marked morphologically, typically by an inflectional affix on the verb though commonly in other ways such as by reduplication, as in Quileute (Greenberg et. al. (1978)). Iteratives, when specifically marked, also lend themselves to additional implications, especially those of intensity and/or prolongation. In English, *John coughed and coughed* is iterative in interpretation, like one understanding of the simple *John coughed*, but in addition implies that he coughed each time with intensity and/or that he coughed for a prolonged period. Often there are implications that the intensity or prolongation are inappropriate, or a sign that something is wrong. These implications, however, are not a part of iterativity per se, but an additional, associated meaning above and beyond. It is also commonly noted that

progressive or continuous aspectual constructions often imply iteration. In *The bird is flapping its wings* the most natural interpretation is that there is a series of wing flappings (though an extended single flap might also be described in this way). But again iteratives are not the same as progressive and continuous constructions, having different and distinguishable semantic contents.

Unlike iteratives, habituals and generics do not denote a connected series of events, even though there is the root intuition that repetitiveness is involved. Terminology is not entirely standardized; one also finds the terms "customary", "usitative", "nomic", and "frequentitive" applied to generics and habituals, though ocasionally with more specialized meanings. The term "generic" predominates in the formal semantics literature, and "habitual" appears most dominant in the more descriptive literature. Some reserve the term "generic" for habitual sentences with subject noun phrases that have generic rather than specific reference (see *generic reference*), though this is not standard practice. The term "habitual" itself is potentially misleading. Lyons (1977) notes that, "The term 'habitual' is hallowed by usage; but it is something of a misnomer in that much of what linguists bring within its scope would not generally be thought of as being a matter of habit" (p. 716).   The following examples would also qualify as habituals according to the general pattern of usage:

(6)   Glass breaks easily (a disposition)

(7)   Bishops move diagonally (a rule of a game)

(8)   Robert works for the government (an occupation)

(9)   Soap is used to remove dirt (a function)

(10)   A wise man listens more than he speaks (a moral injunction)

Like iteratives, generics and habituals may be morphologically marked, normally by an inflectional affix or a free form in the verb's "auxiliary" complex, though also through a wide variety of other formal means. Habitual markers are typically classified as a member of the aspectual system, though This morphological marking is in addition to the variety of means lexically available (e.g. "tends to", "has a habit of", etc.) and is a component of meaning of most frequency adverbs such as *usually*, *often* or *always*. Payne (1997) cites the example of Ewe:

(11)   É-du-a   mɔli

       3sg-eat-HAB rice

       'S/he eats rice'

Dahl (1985) in a cross-linguistic survey notes similar marking in Guarani, Georgian, Kammu, Czech, Akan, Wolof, and others. Similar markers can be found in a wide variety of other languages, noted in specific studies (e.g. Swahili, Guyanese English, Tamazight, Awa, Zapotec, Navajo, etc.). These cooccur with predicates classified as events and processes, but not, in general, with stative predicates. Most commonly, though. in languages which have specific morphological expression of habituality, one can also express habituality via a regular (usually tensed) form, often in the imperfective if the language makes an imperfective/perfective distinction, though also very commonly in the maximally unmarked tensed forms of the language (see Dahl, 1995). Semantic

differences are occasionally noted in languages which have a marked and an unmarked expression of habituality, but to date little research has been conducted on this question. One particular form appears with considerable regularity. This is a specialized remote past tense form, functioning like English *used to*. Further, formal distinctions not associated with the auxiliary and inflectional system of the verb also may be reflective of a habitual/episodic distinction, as in the *wa*/*ga* distinction in Japanese, the *når*/*da* 'when' distinction in Scandinavian, or the *ser*/*estar* distinction in Spanish. While on occasion iterative forms and habitual forms are identical, this is not indicative of any special semantic connection as more commonly languages use syncretic future forms, progressives, and imperfectives to express habituality, among a wide variety of other possibilities.

While generics and habituals appear to make reference to a multiplicity of events, reminiscent of the episodic examples in (3-6) or iteratives, generics and habituals are quite different in character. For one, the resultant sentence is aspectually stative (though derived from a nonstative), or at least shares major properties with other statives. For instance, in a narrative discourse a generic sentence does not 'move' the time forward, as do events and processes, but rather, like other instances of statives, appears to provide background or setting information. Like statives, generics and habituals also observe the subinterval property (Dowty, 1979). That is, if a habitual is true for a period of time, it is also true for any smaller interval within that same period of time, no matter how short.

Generics and habituals also have, as pointed out by Dahl (1975), an intensional component of meaning lacking in episodics. This intensionality may be observed, in part, in the "non-accidental" understanding of generics and habituals. This is the notion that the varying events generalized over are a part of a larger generalization, and not some happenstance (Pelletier and Schubert, 1989). For example, imagine you encounter some very, very small town in which all residents, entirely unbeknownst to one another, chew (only) sugarless gum. It could be sheer happenstance, but if one accepts the following as true:

(12)   Residents of this town chew sugarless gum

one commits to the notion that this is not sheer happenstance, but that there is some underlying cause or causes of this particular behavior (e.g. the town dentist instructs people to avoid sugared gum; it is the only brand the local store carries, etc.). The particular cause or causes need not be speciically identified, but it does give rise to the counterfactual implication that if a person were to become a town resident, he or she too would likely chew sugarless gum, too, as a result of becoming a town resident, even if they had not done so before.

Being generalizations, generics and habituals also have the property of tolerating exceptions. The initial instinct is to treat generics and habituals as universally quantified sentences. However, if you learn that Elena eats oatmeal for breakfast, she need not eat oatmeal at every breakfast. Or, the commonly found example *Birds fly* is tolerant of

exceptional penguins, ostriches and other flightless birds. The limits of this exceptionality has proven extremely difficult to quantify—how long must Elena go without eating oatmeal for breakfast before the generalization no longer holds? How many flightless birds need there be in order for *Birds fly* no longer to be thought true? While some quantitative understanding of exceptionality plays a role, most researchers agree that generics and habituals require an additional component of meaning, or a different arrangement of meaning altogether, to give an account of exceptionality.

The most commonly assumed semantic analysis of habituals and generics is outlined in Krifka et. al. (1995). This is a fundamentally quantificational analysis of habitual sentences. It posits an operator, which is often implicit in the linguistic form, which is a dyadic relation between the interpretations of two constituents partitioned from the sentence it is operating on, a "restrictor" and a "matrix" or "nuclear scope", in keeping with the most commonly accepted semantic analysis of quantification. As this dyadic operator is focus-sensitive, generic sentences can be ambiguous according to which constituent meaning is assigned to the restrictor and matrix. For example, Milsark (1974) notes the ambiguity of the sentence *Typhoons arise in this part of the Pacific*. As discussed in Carlson (1989), if the subject noun phrase *typhoons* is understood as the restrictor, and the predicate of the sentence the matrix, then the interpretation assigned is akin to asserting that generally speaking, if something is a typhoon, it then arises in this part of the Pacific ocean (and not elsewhere). If, on the other hand, *in this part of the Pacific* is assigned to the restrictor, then the resulting interpretation is that, in this part of the Pacific, there arise typhoons (from time to time), and perhaps elsewhere as well.

Word order in English and other languages can affect how the sentence is partitioned by this and other focus-sensitive operators (Diesing, 1992 discusses German at some length). For instance the English sentence *In this part of the Pacific arise typhoons* has only the latter of the two readings.

Krifka et. al. (1995) describe the generic operator as a "default quantifier" in order to account for exceptionality and intensionality. Other researchers take a different approach, such as modifying possible worlds to enrich the interpretive structure with a notion of "normality" or "prototypicality"(e.g. Eckhardt, 2000; Heyer 1987). The basic idea here is that one can reduce the generic operator to a universal statement relativized only to the most typical or normal individuals of the domain, or to "normal worlds". Cohen (1999) suggests that the generic operator is a quantificational operator similar in contents to "most", though relativized to a partition of individuals and situations that is pragmatically driven, and not determined by the focus structure of the sentence. For instance, in asserting that mammals bear live young, one is partitioning the set of mammals by gender and age, as only mature (fertile) females have such capability. Meanings of habituals and generics are often expressed in Artificial Intelligence and Computer Science by way of default reasoning systems and non-monotonic logics. Such systems are designed to draw logical conclusions in the face of absence of information. According to this understanding then a generic or habitual is information assumed to hold for any given relevant instance, unless specific information is given otherwise.

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Abstract

Generics, habituals, and iteratives all have something to do with the notion of event repetition. However, iteratives expressly state repetition of events whereas generics and habituals designate generalizations over repeated events. Though not adhered to uniformly, a 'habitual' sentence makes a generalization over repeated events with subject noun phrases denoting individuals or groups of individuals, whereas a 'generic' sentence has a subject that denotes a type of thing. Generics and habituals are distinguished from iteratives in several ways, among them that the former sentences are stative, whereas the latter are non-stative. Generics and habituals introduce intensionality. Generics and habituals are also focus-sensitive.

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Greg Carlson (M.A. University of Iowa, 1974; PhD University of Massachusetts at Amherst, 1977) has been at the University of Rochester in Rochester, New York,since 1987, where he is Professor of Linguistics, Philosophy, and Cognitive Sciences; he served as chair of both Linguistics and of the Foreign Languages departments, and is currently chair of the Department of Linguistics. He also taught at the university of California at Irvine, (the University of Iowa (1985-87), Wayne State University (1978-85), the LSA Summer Institute, the European Summer School, the University of Wisconsin, the University of Trondheim (Norway), and visited at the Max Planck Institute (Nijmegen) His research interests include natural language semantics, focusing on the semantics of generics and bare plurals and related issues; he also conducts research in experimental psycholinguistics, with other strong interests in philosophy and computer science. Much of this research has been supported by NSF and NIH. Publications include *Reference to Kinds in English* (Garland, 1980), "Marking constituents" (1983), *The Generic Book* (Chicago, edited with F. J. Pelletier, 1995), "Generic Passages" (*NLS*, 1997), and) 'The Average American Has 2.3 Children" (*Journal of Semantics*, 2002). He served as editor in chief of *Linguistics and Philosophy* (1992-1997).