

Hab and Gen in the Expression of Habituality

We show that habituality is expressed in natural language by various combinations of modal and aspectual operators. We argue that two different modal operators Gen and Hab may be found in the expression of habituality, and show how they interact with two different aspectual dimensions: a viewpoint aspect distinction between imperfective and perfective, and a perspective distinction between internal and external (retrospective) perspective.

We assume that Gen is the operator defined in Carlson (1977), and assigned modal semantics in Krifka *et al.* (1995). Gen is a quantificational operator in that it quantifies not only over worlds but also over events. Yet not all habitual sentences involve quantification over events. This insight is due to Lenci (1995), who emphasized a contrast between quantificational and non-quantificational habitual sentences, mentioned also in Krifka *et al.* (1995), (cf. Kleiber 1987, van Geenhoven 2001, Rimell 2005):

- (1) a. Mary smokes a cigarette after dinner b. #Mary smokes a cigarette

(1a) is felicitous since *a cigarette* can scope under Gen, allowing a different cigarette per after-dinner smoking event. The anomaly of (1b) indicates that it does not contain a quantifier over events. Kratzer (2005) accounts for the specific interpretation for *a cigarette* by attributing the plurality of events in (1b) to lexical cumulativity: the verb in (1b) denotes an event of smoking a cigarette which consists of a sum of events all of which involve that same cigarette. The plurality of events in (1b) is thus the output of an operator distinct from Gen, which has been called Hab (Schoorlemmer 1995). Unlike Gen, Hab does not quantify over events, but is based on event summation. Yet a satisfactory definition of Hab has not been proposed so far. van Geenhoven's (2004) definition is extensional (as is Scheiner's 2002), and relies on events with temporal gaps between them, whereas we show that gaps are not actually necessary. Ferreira (2005) characterizes Hab as the plural counterpart of the progressive operator Prog, where Prog is defined on an atomic event, and Hab – on a sum of events. Like Ferreira, we think that Hab is intensional, but we think that its intensionality is distinct from that of Prog, i.e. these are operators with different accessibility relations:

- (2) a. This student writes good papers. b. This student is writing good papers.

The sentence in (2a) describes a disposition of the student, expressed by iterations of good-paper writing in all worlds close to the ideal world of the modal base. In (2b) on the other hand, the good-paper-writing may very well be accidental, with the progressive only requiring the continuation of the particular sequence of good-paper-writing in those accessible worlds where these particular good papers are written.

In the definition we propose for Hab we explicitly define it as an operator which depends on summation of events in all the accessible worlds of the modal base $MB_{t,w}$ which is a set of nomic alternatives to world w at time t , ordered with respect to an ideal world where dispositions hold indefinitely once initiated. As such it can be distinguished from accidental event plurality, and does not in general require actualization, though it requires initiation (a concept which we define). Thus, Hab unlike Gen, does not quantify over events, but is dispositional.

The second part of the paper consists in classifying English habituality expressions according to whether they include Gen or Hab. In the past tense, English is rich in habitual forms, and displays three different expressions of habituality (cf. Tagliamonte & Lawrence 2000, Binnick 2005):

- (3) (In those days), she (a) smoked / (b) used to smoke / (c) would smoke.

In (a), the simple past tense form of the verb appears, in (b) and (c) – two periphrastic forms.

While (3a-b) are freely used to report past habits, (3c) mainly expresses a habit when it is part of a larger context involving modal subordination. Carlson & Spejewski (1997) therefore propose to view this periphrastic form as constructed with a Gen operator. We agree, and further argue that the habitual form with *would* is always constructed with Gen, thus sharply contrasting with the habitual interpretation of the simple past tense (3a) and of the periphrastic form with *used to* (3b)

which are the output of Hab and do not involve Gen. The contrast is observable with respect to the wide-scope-only reading of an indefinite with the latter, but not with the former. In the following attested example, only the use of *would* is possible, since *used to* or the simple past would result in the same church being habitually rebuilt:

- (4) In the interests of unity, Constantine deliberately blurred distinctions between Christianity, Mithraism and Sol Invictus. Thus he **would build** a Christian church in one part of the city and, in another, erect statues of the Mother Goddess Cybele and of Sol Invictus, the sun god.

Next we show aspectual differences between the three habitual forms, and relate them to the position of the operator in the derivation of the sentence: Hab is a modal adverb merged below aspect, and thus can be the input to both imperfective and perfective aspect, while Gen is a modal operator merged above aspect and imposing selectional restrictions on it (Chierchia 1995). Simple habituais and *used to* habituais, which involve Hab, are indeed neutral with respect to viewpoint aspect: although the default interpretation is imperfective they may also be interpreted perfectively. *would* habituais are only interpreted imperfectively. One illustration of this comes from the possibility of modification by durational adverbs such as *for-x-time*, which mark perfectivity, measuring the length of the habit:

- (5) a. I used to smoke for ten years (and I quit two years ago). (Internet)
 b. I smoked for ten years. c. #I would smoke for ten years.

The two forms instantiating Hab are distinguished from each other in terms of the availability of a Perspective Time P (defined following Kamp & Reyle 1993) in addition to the Reference Time R, and a precedence relation holding between R and P in the case of *used to* habituais, contrary to the other two habitual forms, where R and P can overlap. One diagnostic for the precedence relation between R and P characterizing the external (retrospective) perspective of *used to* is exemplified in (6)-(7), where compatibility with the adverb *now* indicates that the clause describes a state holding at P.

- (6) Mary was very happy. She **now worked** in a bookshop. / *She **now used to** work in a bookshop.
 (7) Any plan for the future depended on the term of the girl's life now ending, and neither could speak of that. Sometimes, though, the boy **would now talk** of the past. (Internet)

In the talk, we develop a full discussion on the interaction between viewpoint aspect and perspective with respect to the source of the termination implicature with *used to* habituais, which will complete the picture we draw here of the division of labor between the three English habitual forms. We close by noting that the morphological link between habituality and counterfactuality (cf. Iatridou 2000) depends on Gen, not Hab.

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