Habituals and the Progressive

Susan Rothstein   Fred Landman

Bar-Ilan University   Tel Aviv University

susan.rothstein@ biu.ac.il   landman@post.tau.ac.il

Part 1: The Problem

Habituals appear to be stative. They show general stativity effects:
- Habituals in English appear in the simple present tense (1a), like statives (1b), unlike episodic predicates (1c).

(1)   a. John smokes.   (only habitual reading available)
         b. Mary knows French.
         c. #Bill eats a banana right now.

- The present perfect + V + *since* gives a 'universal perfect' interpretation for habituals (1a), like statives (1b), unlike episodic predicates (1c).

(2)   a. John has smoked since 1992 (and still smokes)
         b. John has known French since he was a child.
         c. #Bill has eaten a banana since 10 *a.m.* this morning.

- Habituals occur naturally with *always,* like statives and unlike episodics:

(3)   a. John has always smoked.
         b. Jane has always loved Mary.
         c. ?Bill has always eaten a banana.
         (c.f. Bill has always eaten a banana for breakfast.)

Standard explanation (following Taylor 1976, Dowty 1979):
Habituals are like statives because they hold at points, i.e. they are homogeneous down to instants. If Mary has known French since 1992, she has had that knowledge at every point since 1992, even if she was not displaying it or using it. If John has smoked since 1992, he has had the habit of doing so at every point since 1992, even when he was not displaying smoking behaviour. Thus **the habit of smoking** holds at points of time.
Having a habit is being in a (continuous) state.

However, unlike statives, habituals can occur in the progressive, like episodic predicates:

(4)   a. John is still smoking.
         b. #Jane is still loving Mary.
         c. Bill is still eating a banana.

Crucially, the felicitous (4a) has a **habitual reading** in the progressive (as well as an episodic reading). On the episodic reading, (4a) asserts that an individual event of smoking is in progress. e.g. "Where is John? Outside. He is still smoking." On the habitual reading, (4a) asserts that the habit of smoking is still current and NOT that an event of John smoking is currently going on. "Tell me now, while he is asleep: is John still smoking?"

Standard explanation (Dowty 1979, Vlach 1981, Landman 1992): The progressive operates on *events*, not (in general) on states. Vlach: the progressive **turns** eventive predicates into stative predicates. Landman: the progressive requires **stages** and only events have stages.
.

The paradox: **Habituals have stativity properties, so they must hold at instants. Habituals occur in the progressive, so they must denote events with stages (and do not hold at instants).**

Our solution: Following the proposals of Landman and Rothstein 2010, 2012a,b for bare plurals involving event types with a kind argument, we propose a three-step analysis of habituals:

I. We start with a set of events that can in principle be regarded as **witnesses** for a habit.
II. This set of events is turned into an **incrementally homogenous process event type** by an iteration operation (along the lines sketched in Landman and Rothstein).
III. This process is turned into a habit state by a stativizing operator (related to the stativizing event type operator proposed in Landman 2000).

While the stative denotes stage III of this process, it allows (in English) shifting to the process of stage II, hence allowing the progressive.

Before making this more precise this we make two points:

Caveat One: Progressive habituals are a phenomenon different from so-called 'stage level states': *lie, sit, stand.*
(5)   a. The book is lying on the table.
         b. The sock is lying under the bed.

Languages like Dutch, Brazilian Portuguese allow stative habituals, but do not allow progressives of stage level states:

(6)   a. Pedro está   fumando   ultimamente/agora.   (Brazilian Portuguese)
            Peter be.PRS.3SG smoke.GER lately/now
             'Peter has been smoking recently (habitual reading)/now (episodic reading)

         b. #Meu carro está   ficando perto da   praia ultimamente/#agora.
             my car   be.PRS.3SG lie.GER near   of-the beach lately/#now
            OK: 'My car has been lying near the beach recently' (habitual)
            Unacceptable: 'My car is lying near the beach now/at the moment (episodic).

In Dutch, habituals in the perephrastic progressive are by far not as common as they are in English, but they *can* be found. (7a) is one of several examples of the progressive habitual

'aan het schilderen/painting', found by searching the internet. The periphrastic progressive is impossible with stage level statives like (7b):

(7) a. Ik ben weer aan het schilderen. Binnenkort zal ik hier m'n werk plaatsen.
      I am again painting.   Soon   will I here my work place
      I am again painting. Soon I will display my work here [on facebook]
   b. #Het meisje/de sok is onder de tafel aan het liggen.
       The girl/the sock is under the table lying /
       The girl/the sock is lying under the table

Caveat Two. Not all progressive operators can apply to habituals. In particular, periphrastic progressives seem to induce episodic readings. In Dutch, despite the felicity of (7a), in general habitual interpretations are very difficult for periphrastic conditionals, as in (8a). This is also true in French (8b):

(8) a. ?Jan is de laatste tijd weer aan het roken.
        Jan is lately   again smoking
    b. Jean est en train de fumer une cigarette.   (French)
        Jean is   smoking   a cigarette" (only episodic reading)

These caveats show that there is reason to look for an analysis *specific* to habitual statives, rather than trying to give **one** analysis that accounts for all cases of stative progressives.

Part 2: Incremental homogeneity, witnesses and inertia stages

As is well-known, aspectual *for*-phrases are felicitous with predicates denoting **homogenous** eventualities, like states and activities, but not with predicates denoting **heterogeneous** eventualities, like accomplishments and achievements.

(9) a. #John arrived for two hours.
    b. #Mary swallowed a pill for two minutes.

However, in iterations, *for*-phrase modification is felicitous, **despite** the fact that the VPs involved denote heterogeneous eventualities, as discussed in Landman and Rothstein, 2010, 2012b.

 (10) a. John coughed for several minutes.
      b. He swallowed a pill every hour for two days
      c. Guests arrived for two hours.
      d. The jogger arrived at a kilometre pole every ten minutes for an hour.
      e. Susan drank half-a-glass of juice every twenty minutes for twenty-five hours.

   cough - semelfactive.
   swallow (a pill) - semelfactive *single event*
   arrive (at a kilometre pole) - achievement
   drink half-a-glass of juice - accomplishment

In all these cases an iteration operation creates a homogeneous process out of a set or sequence of heterogeneous events. In (10a) the *for* phrase modifies an activity, an iteration of semelfactives (Rothstein 2004, 2008). (10b-e) contain explicit iteration operators e.g. *every two hours.*

Idea – based on Landman's analysis of activities: (Landman 2008)
I. Homogeneity of processes is incremental homogeneity. Activities are iterations of minimal events, which hold at intervals (Dowty 1979, Rothstein 2004) and are not homogenous down to instants.

e waltz

e_5 waltz

e_4 waltz

e_3 waltz   pause

e_2 waltz

e_1 waltz
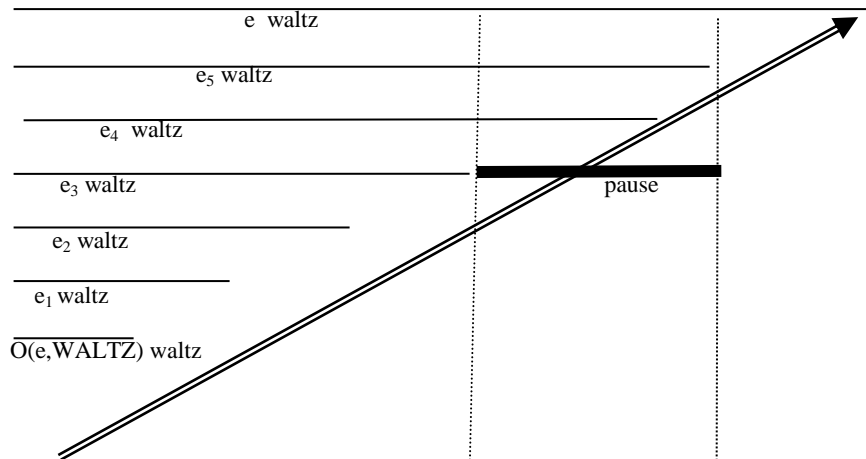
$O(e, \overline{WALTZ})$ waltz

An event of waltzing is established by an **onset event O(e,WALTZ)**, which holds at the minimal interval big enough to host a minimal event of waltzing. A **process** of **waltzing** e is incrementally homogeneous because every subinterval of the running time of e which **incrementally** extends the running time of the onset of that waltzing contains a walzing stage of e (a waltzing event cross-temporally identical to e).

II. Essential in this is the concept of **inertia stage**: an inertia-stage of waltzing e is a stage e' of e which counts as a stage of waltzing (an early version of the same event e) in virtue of the **earlier part of e',** not in part of the latter part.
Thus an inertia stage of a waltzing may typically be a stage consisting of a lot of swirling around **followed by** some temporary inaction (catching our breath before continuing).

III. Inertia stages explain why processes allow pauses: pauses are **not there** incrementally, they indicate inertia stages which **continue to** count as waltzing because of **the accumulated waltzing activity in their initial part.**

Analysis of the cases in (10): This analysis of activities extends to **constructed processes.**
-An iteration operation builds out of an accomplishment/achievement event type an incrementally homogenous process event type.
-The accomplishment/achievement events are the **witnessing events justifying inertia stages:**

Incrementally accumulation of witnessing events justifies the postulation of inertia stages building an incrementally homogenous process.

4

Example: **The derivation of the process reading of *dogs barked* (all night):**

Witnessing events:

all night

Fido   woof woof   woof
  Rover   arf arf   arf   arf
    Tarzan   yap yap   yap yap

An incrementally homogenous process e of barking with kind-subject $KIND_{dog}$

all night

Fido   woof woof   woof
  Rover   arf arf   arf   arf
    Tarzan   yap yap   yap yap

       e

$KIND_{dog}$ $PROCESS_{bark}$
dogs   *barked*

Sample inertia stages and their witnesses (singular barking events of instances of the kind).

all night

Fido   woof woof   woof
  Rover   arf arf   arf   arf
    Tarzan   yap yap   yap yap

e_1
e_1'
e
e'

$KIND_{dog}$ $PROCESS_{bark}$
dogs   *barked*

The witnessing events form the justification for the formation of a single process: incremental homogeneity has **memory**: all 11 barking events count as witnesses for the process e **via** inertia stages. Inertia stages carry the process over pauses, because witnesses are cumulative.

So far we have given an example of an episodic iterative process which is built from/ witnessed by events which are themselves not necessarily processes. An analogous account is given in Landman and Rothstein (2010, 2012b) for the example in (10c): *Guests arrived for two hours* makes an assertion about an incremental process with the kind GUESTS filling the subject. It is witnessed by individual events in which individual guests arrive at intervals. How much witnessing is necessary is contextually dependent. With *Guests arrived for two hours,* the witness events are achievements, thus the inertia intervals are larger than the witnessing intervals.

Part 3. The analysis of habituals

What is the difference between states like *the traffic light is green* and **habitual states** like *Fred smokes*?

T is red   T is green   T is red
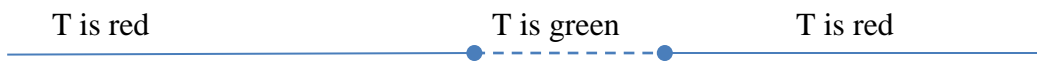
The state of T being green is brought about by an event BECOME-GREEN, sustained by a state BE-GREEN, and ended by an event STOP-BE-GREEN. There are no witnessing events which support the state of being green which are themselves *be green* events.

A smoking habit is a much less stable state and is **witnessed by smoking events.**
A habit is a generalization (with predictive power) over an iteration process.

We assume an iteration operator which maps pluralities of (non-overlapping) events in P onto an **iterative episodic process in P.**
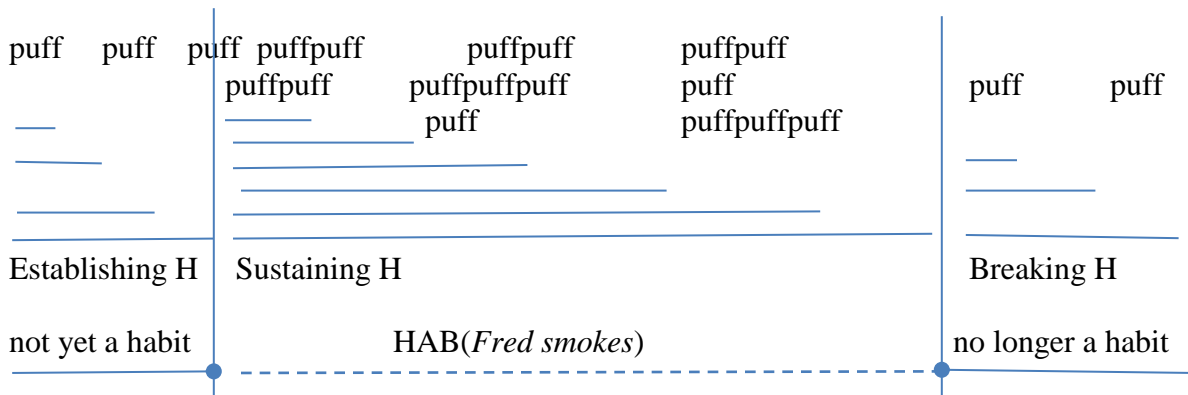**An iterative process is NOT a habit, but it is a necessary condition for a habit:**

(11) a. I have seen John smoke from time to time, but it's not really true that he smokes.
    b. John smoked every time a graduate student defended her Ph.D. thesis.

Iterative episodic processes are witnessed by episodic events. The frequency of the episodic events justifies (or not) the postulation of a habit.

More precisely:
-The habit state comes into being by an **establishment process which is witnessed by cumulatively by the accumulation of smoking events** (more and more puffs). This is the ONSET of the habit.
-The habit state continues to hold by a **sustenance process which is witnessed cumulatively by smoking events (regular puffs)**.
-The habit state ends (usually) by a **breaking the habit process which is witnessed cumulatively by smoking events** (fewer and fewer puffs).

6

```
puff    puff   puff  puffpuff              puffpuff           puffpuff
                     puffpuff       puffpuffpuff           puff                puff        puff
    __                                           puff        puffpuffpuff
                     _____                                            ___
    _____          _____                                        _____
                     _____                             _____
    _____        _____
```

Establishing H	Sustaining H		Breaking H
not yet a habit	HAB(*Fred smokes*)		no longer a habit

With this, we assume a three step derivation:

FRED SMOKE   The type of (activity or accomplishment) events of Fred smoking.

ITER($_{\text{Fred smoke}}$)   The iterative homogenous process built from and witnessed by the series of non-overlapping events of Fred smoking.

HAB(ITER$_{\text{Fred smoke}}$) The state of being a habit sustained by that process.

We focus on sustaining the habit.
We propose that there is a process sustaining the habit:

$$\text{SUSTAIN(HAB(ITER}_{\text{Fred smoke}}))$$

SUSTAIN(HAB(ITER$_{\text{Fred smoke}}$)) gives us that portion of ITER$_{\text{Fred smoke}}$ which justifies the habit. This process is itself witnessed by the individual events of Fred rolling one of his dark Dutch tobacco cigarettes and smoking it.

Since **all** the puffs are relevant as witness events, the default assumption would be that the sustaining process is **precisely the episodic process** ITER($_{\text{Fred smokes (a cigarette)}}$) which takes the individual smoking events and turns them into one homogenous process.

In summary: **The semantics of the habitual is built from the iterative process sustaining the habit.**

Part 4. Progressive Habituals

PROG applies to processes. In Landman (1992) processes are events that have stages. Habits are states and do not have stages. However, the process sustaining the habit, SUSTAIN(HAB(ITER$_{\text{Fred smoke}}$)), does have stages. Salient stages are individuated via the events that witness the iterative process.

PROG triggers a shift from the infelicitous PROG(HAB(ITER$_{\text{Fred smoke}}$)) to the felicitous PROG(**SUSTAIN**(HAB(ITER$_{\text{Fred smoke}}$)).

(12) I am really upset! John is smoking

(12) asserts that the process sustaining a habit is in progress.
This shift is facilitated by adverbials of time which make reference to the stage in a process:

(13) a. John is *now* smoking   –   The process sustaining the habit is past the onset stage.
      b. John is *still* smoking –   The process sustaining the habit is continuously witnessed.
      c. John is *no longer* smoking – There are no more witness event supporting the
                                        sustaining process.

5. **Supporting evidence**

(14) is in principle ambiguous between a habit derived as in part 4 and a modal (with one of
a number of possible modal bases).

(14) Susan teaches on Tuesdays.

The analysis assumes that habits are supported/sustained by processes which are themselves
witnessed by individual events. As a habit, (14) must be supported by an incremental
process witnessed by events of Susan teaching on Tuesdays. It must thus allow the
progressive.

(15) Last year, Susan was teaching on Tuesdays.

This predicts that examples like (16a) cannot be analysed as habits, since they are not
derived from incremental processes, and (16b) is thus correctly predicted to be infelicitous.

(16) a Mary handles the mail from Antarctica
     b. # Last year Mary was handling the mail from Antarctica, but none arrived.

Selected References
Dowty, D. (1979) *Word Meaning and Montague Grammar*. Dordrecht: Kluwer.
Landman, F. (1992) The progressive. *Natural Language Semantics* **1**, pp. 1-32.
Landman, F. (2008) 1066: differences between tense-perspective-aspect systems of English and Dutch. In:
    S. Rothstein (ed.), *Theoretical and Crosslinguistic Approaches to the Semantics of Aspect*.
    Amsterdam/Philadelphia: John Benjamins. pp. 107-166.
Landman F. & S. Rothstein (2010). Incremental homogeneity and the semantics of aspectual *for* phrases. In M.
    Rappaport Hovav, I. Sichel and E. Doron (eds.) *Syntax, Lexical Semantics and Event Structure,* OUP.
Landman F. & S. Rothstein (2012a,b) The felicity of aspectual *for*-phrases Part I and II. *Language and Linguistics
    Compass* 6/2 85–96, doi: 10.1002/lnc3.3242011 . 97–112, doi: 10.1002/lnc3.3232011
Rothstein, S. (2004) *Structuring events.* Blackwell: Oxford.
Rothstein, S. (2008) Two puzzles for a theory of lexical aspect: the case of semelfactives and degree adverbials. In
    J.Dölling, T. Heyde-Zybatow and M. Shaefer (eds), *Event Structures in Linguistic Form and Interpretation*.
    Mouton De Gruyter:Berlin. pp175-198.
Taylor, B. (1977) Tense and Continuity. *Linguistics and Philosophy* **1.2**, 199-200.