



SCUOLA
NORMALE
SUPERIORE
PISA

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Iterativity vs. habituality (and gnomonic imperfectivity)

(provisional version of a paper which, in shortened version, will appear in a collective volume edited by Robert Binnick)

1 Introduction

Habituality, as commonly conceived, presupposes a more or less regular iteration of an event, such that the resulting habit is regarded as a characterizing property of a given referent. The notion of habituality is thus strictly related to iterativity, although it should not be confused with it. In this paper we aim at defining the respective features of habituality and iterativity and at placing them both in the framework of the broader notion of “verbal pluractionality” on the one side, and of “gnomic imperfectivity” on the other side.

The latter term is proposed here for the first time (see sect. 3). As for pluractionality (henceforth **PA**, or **PA.al** for the corresponding adjective), it was originally introduced by Newman (1980) and was subsequently used to cover the variety of phenomena studied by Dressler (1968), Cusic (1981) and Xrakovskij (1997) among others. These include first and foremost the following:¹

- event-internal PA (called ‘iterative’ by Bybee et al., 1994 and ‘multiplicative’ by Shluinky, 2009): the event consists of more than one sub-event occurring in one and the same situation (*Yesterday at 5 o’ clock John knocked insistently at the door*);
- event-external PA: the same event repeats itself in a number of different situations (*John swam daily in the lake*).

The two types may be combined, as in: *John knocked daily at Anne’s door*. Since in this paper we shall only deal with event-external PA, the term PA should be understood from now on in this particular sense, unless otherwise specified. Habituality and iterativity belong in this type. It is further useful to distinguish

¹ The terminology varies from scholar to scholar. The one adopted here aims at being as transparent as possible.

between the ‘macro-event’ (i.e., the whole series of singular events making up a PA.al event) and the ‘micro-events’ (each of the singular events comprised in a PA.al event).

PA may be expressed by a number of linguistic tools. Many languages present dedicated verbal morphemes, or morphemes which may convey this interpretation besides other ones. Examples will be provided below. Alternatively, PA may be expressed by lexical means, most typically adverbs (*John wrote a letter* vs. *John wrote a letter daily / every week-end / on several occasions* etc.). In some cases, the context may suggest the relevant reading by pragmatic inference, as in: *John and Anne wrote letters to each other*. In this example, the combination of plural direct object and reciprocal yields the intended interpretation. A special case of PA is ‘reduplicativity’, whereby the event is repeated exactly twice, often implying a sort of reverse action (Dressler’s ‘reversative’), particularly with movement verbs. Many languages present dedicated reduplicative morphemes, such as the It., and generally Romance, prefix *re-/ri-* (which, however, does not always carry this meaning): e.g. *andare* ‘go’ vs. *riandare* ‘go again’. As the English translation shows, reduplicativity can be expressed lexically. Another type of context typically yielding PA is provided by correlative constructions (called ‘polypredicative iterative-correlative’ by Xrakovskij and ‘usitative’ by Shluinky), such as: ‘When(ever) / each time / if X, (then) Y’.

With respect to the relative frequency of the occurrences, one may further distinguish ‘frequentative’ (Dressler; Bybee et al.) or ‘saepitive’ (Xrakovskij) from ‘raritive’ (Xrakovskij) or ‘discontinuative’ (Dressler). Here again, although the largely prevailing means of expression are lexical (e.g. adverbs like *often* and *seldom*), one may find dedicated morphemes, showing that these distinctions are indeed cognitively relevant. Further reason to consider these notions relevant for our purpose is the well-known observation that PA.al events may be purely potential, showing mere predisposition (hence, an extreme form of raritive), rather than actually implemented PA (cf. Shluinky’s notion of ‘capacitative’). Such is the case of sentences like *This engine vibrates*, which may refer to an engine that has not yet been switched on. As will be argued below, these sentences are related to habituality in interesting ways.

To these notions, the following ones, definitely marginal for our present concern, could be added:

- “Distributive” vs. “non-distributive” PA (Dressler), depending on whether different vs. identical participant(s) are involved. Distributivity divides in turn into subject- vs. object-distributive, and the two options are not mutually

exclusive.

- “Dispersive” vs. “ambulative” (Dressler), whereby the action takes place in different points of space simultaneously vs. successively.

A further point worth mentioning, although once again marginal to our concern (for it falls within the realm of event-internal PA), is the observation put forth by Xrakovsky (1997, p. 4, 8) that the notions of plurality and duration are strictly related. Indeed, *John addressed incessant questions to the policeman* conveys at the same time the meaning that the questions were many and that the event covered a certain time extension. Van Geenhoven (2004) exploited this observation for a unified analyses of two readings of ‘for X time’ expressions, depending on the type of predicate involved (durative vs. non-durative). If intensity is taken into consideration, one can further distinguish between “intensive”, “attenuative”, “accelerative”, “exaggerative” etc. Although the above inventory is not exhaustive, it is more than enough to show the wide range of phenomena comprised under the general category of PA.

As already mentioned, adverbials play an important role in PA.al sentences. The relevant types, i.e. those specifically involved in PA.al situations, may be classified as follows:

- Cyclicity adverbials: *every five minutes, annually, every Sunday, always at noon...*
- Frequency adverbials: *whenever the train was late, always, rarely, sometimes, occasionally, time and again, often, regularly...*
- Habituality adverbials: *habitually, usually...*
- Reiteration adverbials: *(about) seven times, several times, many times...*

These types are not mutually exclusive. One may for instance build complex adverbials, summing up the features of reiteration and cyclicity: *twice a day, almost ten times a year*. Besides, different types of adverbials may coexist in one and the same sentence: e.g. *Sarah always* (frequency) *wrote to me every Christmas* (cyclicity). Furthermore, the adverbials may refer to the two types of PA independently of each other: e.g., *Every Saturday evening* (cyclicity, event-external), *Sam knocked twice* (reiteration, event-internal) *at her girl-friend’s door*.

2 Habituality vs. iterativity

In this section, we propose a number of criteria to set apart habituality from

iterativity within (event-external) PA. The aim is to show that the distinction depends on aspect. To set out the ground, consider the following examples:

- (1) a. In the past few years, Franck has often taken the 8 o' clock train.
 b. When he lived in the countryside, Franck would usually take the 8 o' clock train.

Both sentences are PA.al. However, (1)(a) presents a plain state of affairs: it is a fact that Franck has taken the given train several times in the given period. All arguments and circumstantials are on the same level; the sentence establishes a relation between an individual (Franck), an object (the train) and a time-interval (the past few years). Sentence (1)(b), by contrast, presents a situation (taking a morning train) as a characterizing property of an individual (Franck) during a given interval. The important difference is that (1)(b), asserts a property which should be understood as a defining feature of the individual at stake, whereas (a) falls short of this, merely asserting something about his habits. Thus, although the two sentences speak of the same facts, they present them in crucially different ways. This difference has to do with aspect, as the following discussion will show. In sect. 4 a formal account will be proposed.

The first feature to consider is numerical specification of the micro-events. We call this REITERATION SPECIFIABILITY. Languages like English or Dutch – where the Simple Past is ambiguous between perfective and (with specific regard to habituality) imperfective reading – do not show any restriction (2a), but Romance languages (or any language with an explicit aspectual contrast in the past domain, such as Bulgarian among the Slavic languages) are transparent to it (2b-e):²

- (2) a. Last year, John visited his mother eleven times.
 b. Pendant l'année passée, Jean a visité [PF] sa mère onze fois.
 c. * Pendant l'année passée, Jean visitait [IPF] sa mère onze fois.
 'Last year, Jean visited [PF = (b) / IPF = (c)] his mother eleven times'.
 d. * Pendant l'année passée, Jean visitait [IPF] sa mère à peu près onze fois / quelques fois / plusieurs fois / un nombres indéterminé de fois.

² In this paper French will be used to illustrate explicit aspectual contrasts, although French only exhibits such contrast in the past-domain. For ease of the reader, PF and IPF stand for 'perfective' and 'imperfective', respectively.

‘Last year, Jean visited [IPF] his mother more or less eleven times / a certain number of times / several times / an indefinite number of times’.

e. Pendant l’année passée, Jean visitait [IPF] sa mère rarement / souvent.

f. Pendant l’année passée, Jean a rarement / souvent visité [PF] sa mère.

‘Last year, Jean seldom / often visited [IPF = (e) / PF = (f)] his mother’.

g. Last year, John seldom / often visited his mother.

The reason why (2)(c) is rejected by native speakers (or at least considered as stylistically very marked) is straightforward: specifying the number of the micro-events is equivalent to specifying the duration of the macro-event, i.e. tantamount to closing the interval corresponding to the event-time (its ‘temporal trace’). As (2)(d) shows, the numerical specification needs not be exact; in such cases, the interval is nevertheless implicitly closed. The above examples show that interval-closure is ostensibly compatible with perfective tenses (2)(b), but incompatible with imperfective ones (2)(c-d). By contrast, (2)(e) is perfectly acceptable, because *rarement* ‘seldom’ and *souvent* ‘often’ (unlike, despite appearance, *quelques / plusieurs fois* ‘some / several times’) does not refer to the number of the micro-events, but to their frequency of occurrence. Needless to say, *souvent* and *rarement* are compatible with perfective tenses (2)(f), but this should cause no surprise.

Further support to the aspectual interpretation of the above data stems from the Past Progressive (3)(b), as opposed to the Simple Past (3)(a), in conjunction with adverbials of delimited duration. Whatever the formal implementation of this contrast may be, it is a fact that perfectivity implies intervals of (at least potentially) specifiable duration, whereas imperfectivity is orthogonal to this:³

- (3) a. Little Mary cried for 10 minutes.
 b. * Little Mary was crying for 10 minutes.

The closing of the event-time interval may also be obtained via numerical specifications attached to internal arguments, as in (4). Example (4)(b) shows that Eng. *used to*, although not a fully-fledged habitual operator in all of its uses (see sect. 5), shares the same restriction as the Romance imperfective tenses (4)(d), unless a frequentative adverbial projects the repeated event over an unspecified number of

³ Needless to say, (3b) can be rescued under special circumstances. For instance, if it is pragmatically implied that little Mary was crying, as usually, for her daily 10 minutes.

occurrences:

- (4) a. Lou wrote five letters. [iterative]
 b. Lou used to write five letters *(every evening). [habitual]
 c. Louis a écrit [PF] cinq lettres [iterative]
 d. Louis écrivait [IPF] cinq lettres *(chaque soirée). [habitual]
 ‘Louis wrote [PF = (c) / IPF = (d)] five letters’.

We call ‘iterativity’ the kind of PA conveyed by (2)(a-b) and (4)(a,c), and habituality that conveyed by (2)(e,f) and (4)(b,d). The important point to be retained is that the contrast between iterativity and habituality is of an aspectual nature. This was somehow implicit in Comrie (1976) and Bybee et al. (1994), who placed habituality within the realm of imperfectivity, although they were not fully explicit concerning iterativity as here understood.⁴ The fact that the observation raised here is not universally pointed out has in part to do with the aspectually ambiguous nature of the tenses that may convey habituality in some languages. However, if (2)(a) is analyzed *vis-à-vis* (2)(b-c), it becomes immediately obvious that it is a case of iterativity, rather than habituality. As for (2)(g), it is compatible with both readings (habitual (2)[e] and iterative (2)[f]). Coherently with this, Binnick (2005) observes that the English Simple Past is not a marker of habituality: it may simply convey this reading in the appropriate contexts. The semantic interpretation lying behind the contrast iterative / habitual will be detailed below.

As a corollary to the above discussion, one should observe that habituality adverbials (see the classification in sect. 1) are perfectly compatible with habitual sentences, but much less so with iterative ones. This fact may go unnoticed in languages with non-explicit aspectual morphology, but becomes immediately evident otherwise. This constraint follows from the intrinsically indeterminate nature of such adverbials, which is obviously orthogonal to the notion of closed interval implied by the perfective view:

- (5) a. ?? D’habitude, Olivier a écrit [PF] des poèmes [iterative]
 ‘Usually, Olivier wrote [PF] poems’.
 b. D’habitude, Olivier écrivait [IPF] des poèmes. [habitual]

⁴ To avoid confusion, one should note that in Bybee et al. the term ‘iterative’ refers to what in this paper is called event-internal PA.

‘Usually, Olivier wrote [IPF] poems’.

The second feature to consider is TEMPORAL LOCALIZATION. Habituality can occur at all temporal domains (6), including future-in-the-past (Binnick, 2005), whereas iterativity is impossible to obtain in the present domain (7). Since iterativity presupposes a closed interval, (7)(b) is obviously ill-formed, for the speech-time’s time-sphere is unbounded by nature.⁵ This constraint thus follows from the aspectual nature of iterativity. By contrast, since habituality consists of attributing a property to a given referent, rather than asserting anything specific about the PA.al event itself, it may have present-reference. When the Present tense is used as in (7)(d) to depict situations including the present time-sphere but valid beyond that, it can only have a habitual meaning; indeed, due to the framing adverbial (*chaque année*), the reiteration specification remains vague:

(6) *Habitual*

- a. Dans le passé, les membres de ce club se mettaient [IPF] une cravate rouge dans les occasions officielles.

‘In the past, the members of this club wore [IPF] a red tie on official occasions’.

- b. Les membres de ce club le mettent une cravate rouge dans les occasions officielles.

‘The members of this club wear a red tie on official occasions’.

- c. Les membres de ce club se mettront une cravate rouge dans les occasions officielles.

‘The members of this club will wear a red tie on official occasions’.

- d. Marc imaginait [IPF] que, dans le futur, les membres de ce club se mettraient une cravate rouge dans les occasions officielles.

‘Marc guessed [IPF] that, in the future, the members of this club would wear a red tie on official occasions’.

(7) *Iterative*

- a. Pendant l’année dernière, Luc a perdu [PF] son parapluie trois fois.

‘Last year, Luc lost [PF] his umbrella three times’.

⁵ Xrakovskij (1997: 31) observes that in the speech-time’s domain only event-internal PA may be found. This is definitely true as far as the contrast with iterative (event-external) PA is concerned, not with respect to present-referring habituality.

- b. * Luc perd son parapluie trois fois.
 ‘Luc loses his umbrella three times’.
- c. Je prévois que Luc va perdre son parapluie trois fois pendant l’année
 prochaine.
 ‘I foresee that Luc will lose his umbrella three times in the next year’.
- d. Chaque année, Luc perd son parapluie trois fois. [habitual]
 ‘Every year, Luc loses his umbrella three times’.

This said, one should add that habituality is best observed in the past-domain, for self-explaining reasons. Besides, in many languages, there is no aspectual device to mark the perfective vs. imperfective opposition in the future-domain, so that the contrast iterative vs. habitual must be inferred from the context.

The third feature concerns the role of the TIME-FRAME. The sentences presented so far provide a few examples of framing adverbials. Apparently, they have the same function in both iterative and habitual contexts. For instance, in both (2)(a) – iterative – and (2)(e) – habitual – the framing adverbial helps to conveniently localize in time the PA.al event. If the adverbial were not there, the reader would interpret the PA.al event with respect to the whole life of the individual mentioned. Alternatively, a broader situational context would provide the appropriate frame: e.g., *when he lived in Paris / as a young boy / during his mother’s illness*.

Careful inspection reveals, however, that the framing adverbials of iterative and habitual sentences do not share the same constraints. A strictly delimited time-frame is perfectly acceptable in (8)(a), while it does not sound perfectly felicitous in (8)(b), in the sense that the sentence is not self-sufficient. In order to improve it, one should best add something like: ... *dans la période suivante / ensuite, il a fait une longue vacance* ‘in the following period / afterwards, he took a long holidays’; the framing interval should thus be viewed against the background of other (preceding or following) analogous intervals. This suggests that the real object of discourse of the imperfective situation is Jacques himself, rather than what he did in the given period. In other words: while the time-frame of (8)(a) is exactly delimiting, for it refers to the events contained in it, the identical adverbial of (8)(b) cannot possibly delimit its topic of discourse, for Jacques’s existence obviously extends beyond the given period. Similar observations may be attached to the subsequent examples. The vaguely delimited time-frame of (8)(c-d) is hardly compatible with the perfective view. The same holds with respect to the vaguely defined period alluded to by *auparavant* ‘earlier’ in (8)(e-

d):

- (8) a. Entre le 1 mai 2009 et le 31 mars 2010, Jacques a écrit [PF] des articles / six articles.
 ‘Between May 1st 2009 and March 31st 2010, Jacques wrote [PF] some articles / six articles’.
- b. ? Entre le 1 mai 2009 et le 31 mars 2010, Jacques écrivait [IPF] des articles.
 ‘Between May 1st 2009 and March 31st 2010, Jacques wrote [IPF] some articles’.
- c. Dans le passé, je me levais [IPF] tous les jours à 7 heures.
- d. ?? Dans le passé, je me suis levé [PF] tous les jours à 7 heures.
 ‘In the past, I got up [IPF = (c) ; PF = (d)] every day at 7 o’ clock’.
- e. Pendant qu’auparavant je me levais [IPF] tous les jours à 7 heures, maintenant je me lève à 8 heures.
- f. ? Pendant qu’auparavant je me suis levé [PF] tous les jours à 7 heures, maintenant je me lève à 8 heures.
 ‘While earlier I got up [IPF = (e) ; PF = (f)] every day at 7 o’ clock, now I get up at 8’.

This difference can be captured by proposing that framing adverbials receive a different interpretation depending on the aspectual choice: “strictly delimiting” in perfective-iterative sentences, “vaguely localizing” in imperfective-habitual sentences. In terms of information structure, these adverbials behave as Topics in both interpretations.⁶ Their function is to restrict the temporal validity of the situation, unless the latter is assumed to be valid at all times (9)(a), or at least during a period coinciding with the life-span of the referent (9)(b). The temporal delimitation may include the speech-time (9)(c) or be separated from it (9)(d). When the latter situation applies (as is typical of past habitual contexts), there is a conversational implicature to the effect that the intended condition is no more valid. Such implicature may however be cancelled (9)(e). But here again a significant contrast arises: while (9)(f) is perfectly acceptable as a habitual sentence, (9)(g) should rather be interpreted in the

⁶ As for the Topic vs. Focus interpretation of temporal adverbials, see Bertinetto et al. (1995) and De Swaart (1999). As an example, consider:

- (i) a. *At 5 o’clock*, Peter had already left. (Topic)
 b. Peter had already left *at 5 o’clock*. (Focus)

experiential sense ('it has already occurred, at least once, that X'). This contrast stems again from the aspectual nature of the PA.al event. Sentence (9)f merely cancels (due to the adverb *déjà* 'already') the implicature that the property attributed to Serge does not extend to speech-time; (9)(g), by contrast, is not about a characterizing property of Serge, but rather about a contingent series of events performed by him. In other words, perfective-iterative sentences are purely factual and the events they refer to may be purely occasional, hence they do not have a characterizing import:

- (9)
- a. The Earth revolves round the Sun.
 - b. Philip used to go to bed very early.
 - c. These days, Jim walks to work.
 - d. Last year, Jim used to walk to work.
 - e. Last year, Jim used to walk to work and he still does.
 - f. L'année dernière, Serge jouait [IPF] déjà au tennis deux fois par semaine.
 - g. L'année dernière, Serge a déjà joué [PF] au tennis deux fois par semaine
 'Last year, Serge already played [IPF = (f) / PF = (g)] tennis twice a week'.

In this connection, one should observe that the framing adverbial of sentence (2g), repeated as (10)(a), receives two readings depending on the intended PA.al interpretation. In the perfective-iterative reading, *last year* is strictly delimiting, so that the number of visits is (in principle) exactly countable. In the imperfective-habitual reading, instead, the same adverbial does not refer to a strictly delimited period of time within which the visiting event could be enumerated, but should rather be taken as a reference time with respect to which John's characteristics of sporadic / frequent visitor is asserted. This should be considered a forth defining feature of the iterative vs. habitual contrast, that we call ENUMERABILITY. It can be regarded as an extension of the reiteration-specifiability feature. Since, in the habitual interpretation, the topic of discourse is John's habits, it makes no sense to define the exact number of visits that occurred in the given period of time, nor to define the numerical threshold needed to assess the relative frequency in connection to adverbs such as *seldom* / *often*. To clarify this point, let us make the conventional assumption that, in the given context, *seldom* means 'once every six months' while *often* means 'twice a week'. Considering that one year contains 2 semesters and 52 weeks, the perfective-iterative reading would directly entail that John visited his mother twice (*seldom*) vs. 104 times (*often*). No such deduction is allowed, however, by the imperfective-habitual reading,

where the only thing that matters is the relative density of visiting events in the reference interval. In the latter reading, (10)(a) simply asserts that John is a ‘once-every-six-months-visitor’ vs. ‘twice-a-week-visitor’. To provide another illustration, consider (10)(b-c). Suppose, to simplify again the matter, that in the intended period there were 1000 club members and that there was one meeting every month. In the iterative reading (b), one can easily count how many tie-wearing events (and by how many people) there were in the given interval. In the habitual reading (c), by contrast, it makes no sense to indulge in such computations. What this sentence asserts is that whoever was a club member (independently of their actual number) and for no matter how many meetings there used to be, every club member would adopt the given behavior:

- (10) a. Last year, John seldom / often visited his mother.
 b. L’année dernière, les membres du Chelsea Club se sont mis [PF] une cravate bleu dans leur réunions.
 c. L’année dernière, les membres du Chelsea Club se mettaient [IPF] une cravate bleu dans leur réunions.
 ‘Last year, the members of the Chelsea Club wore [PF (b) / IPF = (c)] a blue tie during their meetings’.

The following table recapitulates the four features discussed in this section. It is immediately obvious that they are intimately related to one another:

	PERFECTIVE-ITERATIVE	IMPERFECTIVE-HABITUAL
REITERATION SPECIFIABILITY	+ specifiable	– specifiable
TEMPORAL LOCALIZATION	only past- and future-referring	all temporal domains
TIME-FRAME	strictly delimiting	vaguely delimiting
ENUMERABILITY	potentially enumerable	non-enumerable

The subtle, but crucial semantic difference contrasting the iterative and the habitual reading will be made explicit in sect. 4 below. In the remainder of this section we shall examine some minor, yet relevant details.

The extension of the time-frame (our third feature) can be very large (*in the good old times*) or fairly short (*last week*). The latter option poses an interesting puzzle, apparently contradicting the numerical-specifiability constraint. Given (11)(a-b), one can easily compute the exact micro-events’ number. This should lead to

unacceptability of (11)(b) for reasons discussed in relation to (2)(c-d); yet, (11)(b) is perfectly acceptable. Once again, the solution to this puzzle will be provided in sect. 4:

- (11) a. La semaine dernière, Pierre est allé [PF] au cinéma chaque soirée. [iterative]
 ‘Last week, Pierre went [PF] to the movies every night’.
- b. La semaine dernière, Pierre allait au cinéma chaque soirée; maintenant il ne sort presque jamais. [habitual]
 ‘Last week, Pierre went [iPF] to the movies every night ; now he hardly gets out’.

Correlative structures yield a special case of time-frame. They may be construed both perfectly as in the iterative sentence (12)(a), and imperfectly as in the habitual sentence (12)(b). Interestingly, in hypothetical correlative structures perfective sentences take on an adversative reading such that the PA.al interpretation becomes less salient (12)(c), while imperfective sentences (12)(d), due to the aspectual value, retain the PA.al (specifically, habitual) character of the corresponding temporal constructions. Needless to say, pragmatic reasons constrain the acceptability of correlative sentences (13):

- (12) a. Chaque fois que Jean l’a appelée, Sylvie est (toujours) venue.
 b. Chaque fois que Jean l’appelait, Sylvie venait (toujours).
 ‘Every time Jean called her, Sylvie (always) came [PF = (a) ; IPF = (b)]’.
- c. Si Jean a fait des objections, il a (pourtant / ? toujours) eu de bonnes raisons.
 d. Si Jean faisait des objections, il avait (pourtant / toujours) de bonnes raisons.
 ‘If Jean raised objections, he (nevertheless / always) had good reasons [PF = (c) ; IPF = (d)]’.
- (13) * Quand la tante arrivait, Joséphine était française.
 ‘When(ever) the aunt came, Joséphine was French [IPF]’.

Temporal correlative constructions require the same aspectual choice in both clauses, but this does not exclude other possibilities. Imperfective proleptic dependent clauses may allow the time-frame reading in pragmatically appropriate contexts

(Binnick, 2005, p. 364). The first clause of (14)(a) can thus be interpreted both in a strictly correlative fashion ('whenever X, Y') or in terms of a framing adverbial ('in the period when X, Y'), still preserving the main clause's habitual reading. Sentence (14)(b), by contrast, can only have the time-frame interpretation, for the two clauses do not share the same aspectual choice; within this time-frame, the perfective main clause takes on a PA.al (obviously iterative) reading. Sentence (14)(c), like (14)(a), is ambiguous, but in a different way: its necessarily correlative interpretation may either refer to a semelfactive situation ('in the only occasion when X, Y) or to a correlative (and purely iterative) situation, within a strictly delimiting time-frame. Finally, (14)(d) is ill-formed, for on the one hand it cannot have a correlative reading (no shared aspect), and on the other hand it cannot fulfill the habitual reading implied by the main clause, due to the strictly delimiting nature of the (framing) proleptic perfective clause:

- (14) a. Quand j'écrivais [IPF] de la musique, j'achetais [IPF] beaucoup de papier.
 b. Quand j'écrivais [IPF] de la musique, j'ai acheté [PF] beaucoup de papier.
 c. Quand j'ai écrit [PF] de la musique, j'ai acheté [PF] beaucoup de papier.
 d. * Quand j'ai écrit [PF] de la musique, j'achetais [IPF] beaucoup de papier.
 'When I wrote [IPF = (a,b) ; PF = (c,d)] music, I bought [IPF = (a,d) ; IPF = (b,c)] a lot of paper'.

3 Habituals and other gnomic imperfectives

As noted above, habitual sentences, unlike iterative ones, are intrinsically characterizing: they attribute a defining property to the intended referent(s). This makes them similar to other types of sentences, which equally have a characterizing function. In languages with explicit aspectual marking (at least in specific temporal domains, like the past), all such types of sentences are expressed by means of imperfective devices. Since their function consists of expressing a generalization of some kind, we shall refer to this whole class as 'gnomic imperfectives'. To this class we assign the following types: habitual, attitudinal, potentials (Shluinsky's 'capacitative'), individual-level (= IL) predicates, generics:⁷

⁷ We are aware of the vagueness of some of these labels (e.g. the distinction between potential and attitudinal), as well as of the difficulty of spelling out their semantic properties. Further investigation may suggest to merge some of them or, alternatively, to identify further subtypes. Our argument in this

- (15) a. At that time, John would easily get angry with his colleagues. [habitual]
 b. John smokes cigars. [attitudinal]
 c. John speaks Swahili. [potential]
 d. Elina is Finnish. [IL-predicate]
 e. Dogs have four legs. [generic]

Not all of these types involve PA. From this point of view, habituais and generics are definitely orthogonal. As for attitudinals and potentials, they are intermediate cases, for the number of repetitions needs not be large, although in general one should assume that at least some micro-event repetitions must have occurred, in order to so qualify the individual(s) at stake. In this section we shall briefly examine the respective differences, while the semantic profile will be treated in sect. 4.

Generics and IL-predicates are not only necessarily stative, they even denote a permanent stative property, even when their referent(s) do not exist any more: in (16)(a), for instance, the permanent property is delimited by the mammoths' period of existence. By contrast, habituais are often based on eventive predicates, as proved by their compatibility with agentive adverbs like *deliberately* (16)(b):

- (16) a. Les mammoths étaient [IPF] des mammifères. [generic]
 'Mammoths were [IPF] mammals'.
 b. Jean laissait [IPF] toujours la fenêtre délibérément ouverte. [habitual]
 'Jean always left [IPF] the window deliberately open'.

A feature opposing not only habituais to generics, but also the former to attitudinals and potentials, is the availability of passive conversion. While (17)(a) is the straightforward passive version of (16)(b), (17)(c) is by no means the passive of (17)(b), for although it is a property of beavers to build dams, it is not a defining property of the latter to be built by beavers (also human beings do). For identical reasons, this constraint extends to attitudinals and potentials: (17)(d-e) are not the passive cognates of (15)(b-c). Needless to say, (17)(f-g) are connected by passive conversion, but of course the former is by no means an attitudinal sentence:

paper does not rest on any specific commitment as for the number of these types. We simply aim at stressing the commonalities among them, supporting the grammatical relevance of the domain that we call "gnomic imperfectivity".

- (17) a. La fenêtre était [IPF] toujours laissée délibérément ouverte par Jean.
 ‘The window was [IPF] always left deliberately open by Jean’.
- b. Beavers build dams.
- c. ≠ Dams are built by beavers. [semantically incongruous]
- d. ≠ Cigars are smoked by John. [semantically incongruous]
- e. ≠ French is spoken by John. [semantically incongruous]
- f. John has smoked two cigars.
- g. Two cigars have been smoked by John.

An interesting feature of attitudinals and potentials consists of their actional nature. Although they are based, unlike IL-predicates and generics, on eventive predicates, they yield a stative predicate by actional coercion. For instance, although *smoke* is an eventive predicate in most contexts, as in (17)(f-g), sentence (15)(b) features a stative reading of the same predicate. Equally, although *speak* is normally eventive, its potential cognate in (15)(c) is stative. This property of attitudinals and potentials has been described at least since Bertinetto (1986). The permanent-stative nature of these predicates is confirmed by their incompatibility with the progressive (18)(a-b) or with agentive adverbs (18)(c-d). Sentence (18)(a) cannot be taken as a characterization of Joe’s personality, for smoking cigars needs not be a habit of his; he might be smoking cigars for the first time in his life. As for (18)(c), although it has a characterizing nature in as much as it is a habitual sentence, it is ostensibly eventive due to the agentive adverb. Similar observations can be put forth for the potentials in (18)(b,d):

- (18) a. Joe is smoking cigars in order to irritate his boss.
- b. Jim is speaking French in order to exclude Jack from the conversation.
- c. Joe deliberately smokes cigars in order to irritate his boss.
- d. Jim deliberately speaks French in order to exclude Jack from the conversation.

The stative coercion induced by attitudinals and potentials yields, so to say, a “second-order” stativization. The lexical meaning of the predicate involved remains eventive; every act of smoking or speaking is an event, rather than a state. Since, however, these sentences depict a general property of the given referent(s), they by definition refer to a state (the state of being a smoker, of being able to speak French,

etc.). Lenci (1995) provided a formal account of this particular actional coercion. This type of coercion should thus be kept apart from the one occurring in sentences like in (19), where the event is a state to begin with, due to the inanimate nature of the subject involved (literally speaking, frontiers do not run and announcements do not read). These are metaphorical extensions of the verb's meaning, producing new homophonic dictionary entries:

- (19) a. The state frontier runs along the river.
 b. The announcement reads: “No entry”.

Some scholars (such as Carlson, Doron, Scheiner, among others) have pointed out that even plain habituais are stative. This point deserves discussion. It is indeed a fact that habitual sentences, to the extent that they are characterizing, may be regarded as stative, despite the possible (indeed, frequent) eventive nature of the predicate involved (see (16)(b) above). This is implied by their semantic interpretation (see sect. 4): the property attributed to the intended referent(s) is valid at all instants, independently of whether the referent is performing the event in question at the given moment. From this point of view, habituais are exactly like all other types of gnomic imperfectives. However, stativity should not be considered a defining feature of habituality: it is a necessary, but by no means sufficient condition. Should stativity be a sufficient condition, then all stative predicates would implement habitual situations, but this is obviously not the case, as shown by (20)(a), depicting a purely contingent situation. Besides, stative predicates can appear in perfective contexts, clearly incompatible with habituality (20)(b). Moreover, in order for contingent (i.e., non-permanent) stative predicates to appear in habitual contexts, they need to be accompanied by explicit adverbs, such as *souvent* ‘often’ in (20)(d). Thus, they need lexical support to convey habitual meaning, whereas eventive predicates, at least in the appropriate contexts (as in (20)[e]), may express habituality in-and-by themselves, provided the appropriate aspectual choice is made:

- (20) a. A wine bottle is on the table.
 b. Une bouteille de vin a été [PF] sur la table pendant toute la journée.
 ‘A bottle of wine was [PF] on the table during the whole day’.
 c. L’année dernière, Jean était malade. [non-habitual]
 d. L’année dernière, Jean était souvent malade. [habitual]

‘Last year, Jean was [IPF] (often) ill’.

e. L’année dernière, Paul prenait le métro pour aller au bureau.

‘Last year, Paul took [IPF] the underground to go to his office’.

Note, finally that some predicates may have both a contingent and a permanent stative meaning, so that their relation to gnomicity varies according to the context:

(21) a. In this very moment, the Aula Magna contains two hundred people.

[contingent]

b. The Aula Magna contains three hundred people.

[permanent]

c. The doctor is available right now.

[contingent]

d. Firemen are always available.

[permanent]

The next section will detail the semantic analogy between all types of gnomic imperfectives.

4 Formalization

Spelling out the inferences licensed by habitual sentences and defining their semantic import has been the matter of an intense research debate, at the crossroad of theoretical semantics and philosophy of language. The goal is to provide an explicit and formal semantic representation of habitual sentences. Different models have been proposed. Their many differences notwithstanding, they share the common assumption that habitual sentences *stricto sensu* like (15)(a) should receive the same type of formal analysis as attitudinal, potential, individual-level and generic sentences (15)(b-e). This assumption is supported by the many properties these sentences share, justifying their grouping into the class that we propose to call “gnomic imperfectivity”. This section will thus focus on the formal semantic representation of the whole area covered by gnomic imperfectivity. However, we shall also highlight the specific features of the different subtypes of this class.

Our main tenets can be summed up as follows. Gnomic imperfective sentences form a coherent aspectual class, associated to a common semantic representation, to be regarded as the interpretation to be assigned to a specific subtype of imperfective aspect (namely, gnomic). The different subtypes of gnomic imperfectivity depend on

the lexico-semantic and pragmatic inferences associated to the event predicate and its arguments. All gnomic imperfective sentences express a law-like generalization, taken to represent a characterizing property of an individual or a class of individuals in a certain period of time. Formalizing gnomic imperfectivity amounts to provide a formal, explicit description of the notion of “law-like generalization” and “characterizing property”. The major contribution brought by formal semantic analysis is to specify the domain covered by gnomic imperfectivity, and to clarify its boundaries with respect to close notions such as iterativity, often and unwarrantedly confused with habituality.

The various models that have been proposed to formalize the semantic area of gnomic imperfectivity share more or less the following assumptions:

- There is a restricted set of predicates, i.e. IL-predicates like *tall*, *man*, *similar to*, etc, which inherently express characterizing, gnomic properties of individuals.
- Other predicates, such as *smoke*, *arrive*, *run*, etc., do not inherently express characterizing properties, but rather specific eventualities, hence the term “episodic” predicates. However, episodic predicates can also be used to express law-like generalizations over such eventualities and may thus represent characteristic properties by the help of a dedicated *semantic operator*. In the literature, this operator is called “generic” or “habitual”, depending on the model.
- The semantic operator brings about a semantic shift, with the effect that the sentence turns out to express a characterizing, gnomic property. We shall henceforth refer to this operator as the “gnomic operator”. IL-sentences present the same semantic representation as the other gnomic sentences, the only difference being that the latter express a characterizing property obtained by generalizing over the specific eventualities expressed by the episodic predicate.

The main parameters distinguishing the different formalization proposals concern the logical structure of gnomic sentences and the spelling out of the precise interpretation of the gnomic operator.

4.1. The logical structure of gnomic sentences

There are two main views on the logical form of gnomic sentences (cf. Krifka et al., 1995). In the former, the gnomic operator is a monadic operator that takes an episodic predicate and turns it into a characterizing one. In the latter, gnomic sentences have a relational structure, induced by a dyadic gnomic operator.

An example of the former approach is the classical analysis of Carlson (1977), whose ingredients consist of a monadic operator *Gn*, and of a rich ontology including individuals (e.g. John), stages (i.e. spatio-temporal slices of individuals such as John), and kinds (e.g. men, lions, etc.). Carlson assumes a distinction among episodic predicates, such as *is smoking* (22)(a), taking stages as their arguments (22)(b), hence labeled “stage-level predicates”; predicates ranging over individuals, such as *tall* (22)(c,d), hence labeled “IL-predicates”; and predicates directly taking kinds as arguments, such as *extinct* (22)(e,f), hence labeled “kind-level-predicates”. The gnomic operator *Gn* acts as a “sort-shifting” operator, changing stage-level predicates into individual- or kind-level ones, and IL-into kind-level predicates (22)(g-l):

- (22) a. John is smoking.
 b. **smoke_s(john_s)**
 c. John is a tall.
 d. **tall_i(john_i)**
 e. Dinosaurs are extinct.
 f. **extinct_k(dinosaur_k)**
 g. John smokes.
 h. **(Gn(smoke_s))_i(john_i)**
 i. Italians smoke.
 l. **(Gn(smoke_s))_k(italians_k)**

According to Carlson’s analysis, generic sentences like (22)(i) – or equivalently (15)(e) - express properties about kinds.⁸ Crucially, the different types of gnomic sentences have the same logical structure, which in turn is exactly the same as the one assigned to non-quantificational episodic sentences such as (22)(a), the only difference lying at the sortal level of the predicate arguments (i.e. stages vs. individuals vs. kinds). Since IL-predicates are stative, Carlson’s *Gn* operator turning stage-level predicates into individual-level ones can be regarded as a sort of stativizing device. Monadic operators for habitual sentences are also proposed by Boneh and Doron (2008; 2009) and by Scheiner (2003). Disregarding the differences, these are all stativizing operators, since they take scope over predicates of event and return a stative predicate HAB(P). However, these proposals do not rely on Carlson’s rich

⁸ For more details about the treatment of generic sentences and generic noun phrases, cf. Krifka et al. (1995) and Carlson (this volume)

ontology of stages and kinds, but rather on a neo-davidsonian ontology, containing events and times among individual entities (cf., among others, Davidson, 1967; Krifka, 1992).

The approaches adopting a dyadic gnomonic operator start from the assumption that generalizations like those conveyed by gnomonic sentences have a relational structure, which is expressed either overtly (as with conditionals and *when*-clauses (23)[a]), or covertly (as in universally quantified sentences (23)[b]). In fact, the latter sentence can be analyzed as expressing a relation of inclusion between the class of men and the class of animals:

- (23) a. If/When John meets Mary, he blushes.
 b. Every man is an animal.

Krifka (1988), Schubert and Pellettier (1989), Chierchia (1992), Lenci and Bertinetto (2000) among others proposed for gnomonic sentences the following relational logical form, associated to a sentence-level dyadic operator:

- (24) **GEN**($x_1, \dots, x_n; y_1, \dots, y_n$)[**restrictor**(x_1, \dots, x_n)] [**matrix**($x_1, \dots, x_n, y_1, \dots, y_n$)]

The restrictor specifies the conditions under which the state of affairs expressed in the matrix clause hold. The variables x_1, \dots, x_n range over individuals or eventualities, and are bounded by *GEN*, thus receiving a generic, quasi-universal interpretation. The variables only occurring in the matrix are instead existentially interpreted. Models that adopt this representation for gnomonic sentences also typically assume that predicates have an extra argument ranging over eventualities. The examples in (25) illustrate how some cases of gnomonic sentences can be represented according to the structure in (24) (for more details cf. Krifka et al., 1995):

- (25) a. Italians smoke after dinner.
 b. **GEN**(x, e) [**italian**(x) & **smoke**(x, e)] [**after_dinner**(e)]
 c. John smokes.
 d. **GEN**(e) [**normal_smoke_situation**(**john**, e)] [**smoke**($e, john$)]

Leaving aside for the moment the specific interpretation of the *GEN* operator, which will be discussed in section 4.2, the logical form in (25)(b) amounts to saying

that the typical situations in which Italian smoke are situations occurring after dinner, or similarly that if Italians smoke, they generally do so after dinner. Notice that in (25)(a,b), the material filling the restrictor and the matrix clause is derived from the sentence structure, after being “split” according to criteria determined by the sentence syntactic and/or informational structure. Indeed, many scholars have associated the relational structure of gnomic sentences with the bipartite structure induced by the topic-focus articulation (Krifka, 1988; Diesing, 1992; Chierchia, 1995; Krifka et al., 1995). Accordingly, topic materials fill the restrictor clause, while materials in the sentence focus fill the matrix. However, the relational analysis is extended to gnomic sentences like (25)(c), whose relational structure is not equally self-evident. In this case, it is commonly assumed that the restrictor contains pragmatically determined conditions about the normal constraints governing the occurrence of events. According to this analysis, (25)(c) can be paraphrased by saying that ‘in a normal smoking condition, typically John smokes’ (Krifka et al., 1995). Chierchia (1995) proposed that IL-sentences can also be assigned a relational schema similar to the one in (24):

- (26) a. John is intelligent.
 b. GEN(e) [C(j,e)][intelligent(john,e)]

In (26)(b), *C* is a contextually determined predicate identifying the normal “felicity” conditions for being intelligent. Thus, (26)(a) amounts to stating that, in situations such that one can show intelligence, John is normally intelligent. The relational approach is thus able to assign a uniform semantic representation to all subtypes of gnomic sentences.

The logical structure in (24) is exactly parallel to the one proposed for sentences containing quantificational event adverbials such as *often*, *always*, *seldom*, etc. (cf. among others, Lewis, 1975; Kratzer, 1981; Partee, 1995). Indeed, the generic operator *GEN* is considered as a sort of covert, default quantificational adverb, normally associated with aspectual morphology. Thus, the only difference between the logical forms of (27)(a) and (27)(c) would depend on whether the quantificational adverb is overtly expressed (thus replacing the default one) or not:

- (27) a. John smokes after dinner.
 b. GEN(e) [smoke(john,e)][after_dinner(e)]
 c. John always smokes after dinner.

d. Always(e) [smoke(john,e)][after_dinner(e)]

This type of analysis has the advantage of highlighting the strong semantic similarities between habitual sentences and sentences containing overt quantificational adverbs. Yet, the mere identification of the generic operator with a quantificational adverb is questionable, as argued by Lenci and Bertinetto (2000). This identification is *prima facie* justified by the fact that in languages, such as English, in which past habitual imperfectivity is not overtly marked, the presence of an explicit quantificational adverb is the only device to make a sentence univocally habitual. In fact, while (28)(a) is ambiguous between an episodic and a PA.al interpretation, (28)(b) has a PA.al reading only:

- (28) a. John smoked after lunch.
 b. John always smoked after lunch.

However, when past habitual imperfectivity is overtly marked by aspect morphology (like in French or Italian), the presence of a quantificational adverb is neither necessary nor sufficient to generate a gnomic interpretation, which is directly conveyed by the imperfective aspect (29)(a). Conversely, the same quantificational adverb with the perfective aspect, as in (29)(b), does not produce truly gnomic sentences, and only has an iterative reading referring to the factual occurrence of a series of events (for more evidence supporting this contrast, cf. Lenci and Bertinetto 2000). Lenci and Bertinetto (2000) suggested that gnomic sentences have a relational structure like that in (24), but claimed that the operator is purely aspectual, and should not be equated to a default quantificational adverb. The crucial argument in this respect is the essentially redundant nature of the adverb *toujours* in (29)(a), as opposed to its necessary presence in (29)(b). With raritive adverbs this becomes even more obvious. Sentence (29)(d) could not possibly be interpreted as a characterization of Jean's habits, due to the sporadic nature of the event; it is a mere contingent observation. Sentence (29)(c), by contrast, retains its characterizing meaning. In the latter case, the adverb is no more redundant and concurs in specifying the relative frequency of Jean's smoking habits. It is thus obvious, here again, that the presence of an explicit adverb has no impact on the possible triggering of the gnomic reading, despite its contribution to the PA.al meaning of the sentence. The actual discrimination between habitual vs. iterative PA is triggered by the aspect

morphology:

- (29) a. Jean fumait [IPF] (toujours) après le repas. [habitual]
 b. Jean a toujours fumé après le repas. [iterative]
 ‘John (always) smoked [IPF = (a) / PF = (b)] after lunch’.
 c. Jean fumait [IPF] rarement après le repas. [habitual]
 d. Jean a rarement fumé après le repas. [iterative]
 ‘John (seldom) smoked [IPF = (c) / PF = (d)] after lunch’.

One of the advantages of the relational model for gnomic sentences is its ability to account for the interaction between the interpretation of generic sentences and their syntactic and/or informational structure. As Carlson (1989) noted, modeling the generic operator as a monadic verb-phrase operator accounts for the fact that (30)(a) can have a twofold reading, predicating a characterizing property either of typhoons (30)(b), or of a particular area in the Pacific ocean (30)(c):

- (30) a. Typhoons arise in this part of the Pacific.
 b. It is a typical property of typhoons that they arise in this part of the Pacific.
 c. It is a typical property of this part of the Pacific that there are typhoons arising in it.

It is worth remarking that with normal intonation and default informational structure associating subjects with topics, (30)(b) is the most natural reading for (30)(a). Conversely, (30)(c) becomes salient once typhoons are focalized. These facts are nicely accounted for by the relational models, which can explain the two readings of (30)(a) as two alternative mappings of the sentence material in the restrictor and in the matrix clause. Reading (30)(b) corresponds to the case in which the subject appears in the restrictor as directly bounded by the generic operator, while (30)(c) corresponds to the case in which the subject appears in the matrix clause, thus receiving an existential interpretation. This approach can also explain why passivization disrupts generic sentences, as the contrasts in (31) show (cf. (17) above). Since one of the effects of passivization is demotion of the active subject from topic position, in (31)(b) *dam*, instead of *beaver*, is mapped onto the restrictor of the generic structure. Thus, the sentence states that being built by beavers is a characterizing property of dams, thereby yielding a semantic anomaly. By contrast, (31)(a) correctly

expresses a gnomic statement about beavers, i.e. their property as dam-builders. A parallel analysis can be developed to account for the contrast in (31)(c-d).

- (31) a. Beavers build dams.
 b. ?? Dams are built by beavers. [semantically incongruous]
 c. John smoked cigars.
 d. ?? Cigars are smoked by John. [semantically incongruous]

Despite its merits, the relational approach has its own weak points. Although one can interpret relationally even simple sentences such as *John smokes* or *John is intelligent*, this does not appear to be equally felicitous for other types of IL-predicates. The relational approach more or less explicitly assumes that gnomic sentences express generalizations over specific eventualities; hence, their close relationship to standard quantificational structure. This analysis can be extended to permanent stative predicates such as *intelligent* or *smoker*, for one can for instance assume that the IL-predicate *intelligent* can be viewed as a generalization over the different situations in which one behaves in an intelligent way. However, this analysis yields counterintuitive results with predicates like *tall* or *similar to*. Exploiting the analysis in (26), one would for instance propose that *John is tall* means something like ‘in the normal situations for being tall, John is tall’, which sounds extremely odd.

As a preliminary conclusion, we can say that monadic and relational models are both able to assign a common semantic representation to the whole family of gnomic sentences. However, they differ for the particular aspects of semantics structure they focus upon. Proposals adopting a gnomic operator acting at the verb phrase level emphasize two particular facets of gnomic sentences (including habituality), i.e. the fact that: (i) they express a characterizing property of some individual, and that (ii) they behave like a subset of stative predicates (IL-predicates, generics) that do so inherently. Thus, IL-statives and generics are assumed as a kind of bench-mark to mould the logical structure of the larger class of gnomic sentences, habituales included. As for relational models, they foreground the strong similarities between sentences expressing generalizations over events on the one hand, and conditionals, *when*-clauses and sentences containing quantificational adverbs on the other hand. The latter structures end up providing the basic logical schema to be extended to the other classes of gnomic constructions.

4.2. The interpretation of the gnomic operator

The gnomic operator has got different formal interpretations in the literature on generics and habituals. A critical survey of the major approaches can be found in Krifka et al. (1995). Here we would like to focus on a particular aspect of this debate: the opposition between “extensional” vs. “intensional” interpretations of the gnomic operator. In extensional models (such as, among others, those of Bonomi, 1995; Bonomi and Zucchi 2001; Delfitto 2002; Scheiner, 2003), both episodic and gnomic sentences refer to events occurring in the actual world. The difference lies in the fact that in gnomic constructions the event expressed by the predicate is bound by a “quasi-universal” quantifier. As noted above, in relational models this operator turns out to be interpreted in analogy with adverbs like *always*, which are truly universal quantifiers over events. The problem with the assumption that gnomic sentences are kinds of general statements, i.e. express a sort of universal propositions about objects and events, consists of the fact that (32)(a) does not exactly mean (32)(b), but rather something one could more appropriately paraphrase alongside (32)(c):

- (32) a. John goes to work at 8am.
 b. John always goes to school at 8am.
 c. John normally/typically/usually goes to school at 8am.

This difference is more problematic than it might *prima facie* appear. It is connected to the well-known fact that generics and habituals express generalizations that may tolerate exceptions (Krifka et al., 1995). For instance, (32)(a) is perfectly appropriate even if it happens that John sometimes goes to work at a different hour. This is also true for generics: for instance, *Italians drink cappuccino at breakfast* is perfectly true even if there are Italians that drink cappuccino at other times during the day. The notorious problem is that there is no principled way to specify the number of exceptions gnomic statements can tolerate before incurring into falsity. Gnomic sentences seem to express quasi-universal generalizations that only hold for “normal” or “prototypical” conditions.

Besides the “fault-tolerance” character of gnomic generalizations, there are other problems that the extensional interpretation of the gnomic operator has to face. As we saw in the former sections, the mere notion of regular iteration of an event is neither necessary nor sufficient to define an event as gnomic. First of all, event repetition (even a repetition that allows for exceptions) is entailed by no more than a subtype of

gnomic sentences, i.e. habituais *stricto sensu*, but it is not a necessary condition for the other types of gnomic constructions. Besides IL-predicates and generics (both inherently stative), this is illustrated by attitudinals and potentials as in (33)(a-b), which do not necessarily presuppose iteration, not even the occurrence of a single event. When we interpret them gnomically, these sentences are perfectly felicitous in conditions such that John actually never received a single letter from *Antarctica*, and the machine designed to crush oranges was never put at work. The generalization expressed by these sentences is simply supported by some feature connected to the “potential” function or role of the subject, rather than on the concrete actualization of this function. Since extensional models assume that gnomic sentences are extensional in the sense of expressing statements about the actual world, there is no easy way for them to tackle such cases:

- (33) a. John handles the mail from *Antarctica*.
 b. This machine crushes oranges.

However, the converse situation is also problematic. The mere repetition of an event for a fixed number of times simply characterizes the event as iterative, while habituality also requires that the iteration defines a sort of law-like generalization, up to the point of becoming a characterizing property of an individual for a certain period of time. Contrasts like those in (29)(a-b) above cast doubts on the suitability of extensional approaches to provide a proper semantic representation of gnomic sentences. Such approaches simply risk to blur the crucial semantic difference between truly habitual statements – expressed by the imperfective aspect, like in (29)(a,c) – and iterative ones – expressed by the perfective aspect, like in (29)(b,d) – which simply report factual event iterations, rather than normative generalizations. Similarly, it is hard for extensional approaches to properly capture the differences between habituality and iterativity with respect to reiteration specificity and enumerability (cf. sect. 2). Notice, for instance, that universal (or even almost universal) quantifiers are not *per se* incompatible with the specification of the exact number of individuals for which the statement holds:

- (34) a. Every/Most student in my class, that is 10, passed the exam.

It is thus plausible to argue that the incompatibility of habituality with reiteration

adverbials like *twice*, *many times*, etc. or the impossibility to deduce the exact number of occurrences of habitual events (cf. (10)) must have to do with semantic properties other than the mere fact of expressing extensional, quasi-universal quantifications.

Intensional models of the gnomic operator try to address the issues left open by extensional approaches, suggesting that gnomic sentences have an inherently normative character, akin to modal and counterfactual sentences (cf. Dahl, 1975; Kratzer, 1981; Krifka et al., 1995; Lenci and Bertinetto, 2000; Boneh and Doron, 2008; 2009). In this view, gnomic sentences do not express contingent statements about the actual world, but rather statements that need to be evaluated with respect to a contextually determined set of possible worlds or situations, the so-called “modal base” associated with the gnomic operator. The gnomic operator is thus interpreted intensionally as expressing a universal quantification over the set of possible worlds of the modal base. Thus, a habitual sentence like *John smokes in the garden* is true if and only if, in every possible world of the modal base which is most normal according to some contextually determined principle, every event of smoking by John occurs in the garden.

Leaving aside the formal details of this type of interpretation (the interested reader can refer to Krifka et al., 1995; Lenci and Bertinetto, 2000; Boneh and Doron, 2008), we shall focus here on the major reasons to prefer the intensional approach in the formalization of the semantics of habituals, as well as gnomic sentences in general:

1. Universal quantification over possible worlds is the hallmark of modal necessity. The fact that gnomic sentences express this sort of intensional quantification explains the law-like character of the generalizations they express. Since the set of possible worlds of the modal base can be suitably restricted, the gnomic generalization does not need to apply to every possible world, but only to pragmatically restricted ones. In other terms, while every gnomic sentence expresses a universal quantification over possible worlds, the set of possible worlds quantified over would be an open parameter, to be lexically or pragmatically determined. This explains why gnomic sentences vary with respect to the normative import they are associated with. For instance, *A triangle has three angles* undoubtedly has a stronger normative character than *Italians eat cappuccino at breakfast* or *John smokes in the garden*. Our claim is that these sentences all share the same intensional possible world semantics, while differing in modal-base choice. The former is a linguistically and grammatically relevant fact, determining the semantics of the gnomic imperfective aspect, while the latter is a mere

pragmatic factor.

2. When so conceived of, gnomic sentences appear to be neatly distinguished from iterative sentences. For instance, the contrasts (29)(a-b) and (29)(c-d) can be accounted for by the fact that, although both sentences contain the same quantificational adverb, only the former has an intensional interpretation, determined by the modal-like gnomic operator associated with the habitual aspect.
3. The fact that gnomic statements express law-like generalizations and yet allow for a potentially undefined number of exceptions is naturally explained by the intensional analysis. The universal quantification over possible worlds is only restricted to the most “normal worlds” in the relevant base (cf. Kratzer, 1981). Again, the criterion of what accounts for a “normal” world or situation is a non-linguistic issue, and should be explained in cognitive and pragmatic terms.
4. The intensional explanation can also account for the peculiar behavior of attitudinal sentences like (33). The definition of the intensional, gnomic operator does not require that the actual world belongs to the modal base. Thus, (33)(b) is true if and only if in all the worlds most normal with respect to the functioning design of the orange-crushing machine, the given machine crushes oranges. Given suitable contextual conditions, the generalizations expressed by gnomic sentences may not be actualized.
5. The data in (10) and the non-enumerability of habitual statements can now directly follow from their intensional character as generalizations over a potentially open-ended set of possible worlds and situations.⁹

To sum up, the hallmark of what we call “gnomic imperfective aspect” is the fact that it expresses law-like generalizations with a strong normative character. The use of intensional semantics based on quantification over possible worlds provides a useful formal model to make this unifying feature of gnomic sentences explicit and spelled out. Gnomic generalization is undoubtedly involved by habituality, a subtype of gnomic imperfectivity. Indeed, most of our generalizations are “inductively” derived by observing the regular occurring of events; this is surely the case with sentences like *John goes to work at 8am*. However, law-like generalizations can also be derived “deductively”. Simply observing the design of a machine, we can truly assert: *This machine crushes oranges*. In any case, we argue that the distinction between truly

⁹ Cf. Lenci and Bertinetto (2000) for an explanation of the incompatibility between habituality and iterative adverbials, within an intensional model of gnomic statements.

habitual sentences and other gnomic sentences lies outside the domain of aspectual semantics, and concerns other lexical and pragmatic factors. For instance, a sentence like *John sold used cars* involves, in the habitual reading, a normative generalization over multiple car-selling events by John. Yet, under special contextual conditions, the same sentence can be regarded as attitudinal, simply referring to John's particular profession as car-seller, without entailing that any single car-selling event actually occurred (as might be the case for an unsuccessful car-seller). In conclusion, the intensional approach has the advantage of providing a sort of division of labor between the truly semantic properties of the gnomic imperfective aspect, and other accessory pragmatic parameters.

5 Habituality and iterativity in selected languages

Slavic languages are, for good reasons, a traditional topic in aspectual matters. In studying this topic, however, one should consider the very peculiar structure of these languages. The best way to address the issue is by having Bulgarian in mind, rather than Russian or any other of the Slavic languages. Bulgarian has by and large preserved the structure of Old Church Slavonic, where the view-point-aspect opposition in the past-domain between perfective vs. imperfective tenses (Perfect and Aorist vs. Imperfect) coexisted with the explicitly marked lexical (actional, in the Vendlerian sense) contrast telic vs. atelic. The latter contrast is referred to, in the non-Slavic literature, by the pair 'perfective' vs. 'imperfective' verbs.¹⁰ This terminological merger between the aspectual and the actional domain is infelicitous, for it is a frequent cause of misunderstanding, although, admittedly, the confusion is in part justified by the less than perfect alignment of the Vendlerian contrast telic vs. atelic with the Slavic verbs' grammatical opposition. Indeed, not all 'perfectives' are telic (cf. the so-called delimitatives), while 'imperfectives' may occasionally be used in contexts conveying a telic meaning. This is not the appropriate place for discussing the matter at length. Suffice it to say that the interpretation suggested here about Bulgarian (namely that this language explicitly marks both the aspectual and the actional fundamental oppositions) comes very close to the truth and allows a fair

¹⁰ To avoid misunderstanding, we put these terms between quotes when they are used in the Slavic grammar's sense.

understanding of the way the verbal system of Bulgarian works.¹¹

Most other Slavic languages have completely lost (or almost completely, as is the case of Serb and Croatian) the two-way distinction still to be found in Bulgarian, with the result that the surviving distinction (the lexical opposition ‘perfective’ vs. ‘imperfective’) has taken up the job of conveying the aspectual contrast perfective vs. imperfective. Thus, ‘perfective’ verbs are typically used in view-point-aspect perfective contexts, and *vice versa* for ‘imperfective’ verbs. Since, however, the originally actional meaning is not obliterated, the combined result is a syncretic system, where actional and aspectual meanings are inextricably intertwined.

Of special interest for our purpose are the differences to be found among the various Slavic languages in the domain of habituality. First of all, while Russian makes use of ‘imperfective’ verbs to convey habituality (35)(b-c), Bulgarian has the choice between both kinds of predicates. If the event is telic, the lexical choice is ‘perfective’, although the tense used is aspectually imperfective (i.e. the Imperfect, as in Romance) (35)(a). This demonstrates that in Bulgarian the two-way distinction is indeed consistently exploited: the tense choice takes care of the view-point-aspect value, while the lexical choice conveys the appropriate telicity value. Since Russian only has at its disposal what used to be an actional distinction, the solution adopted consists in selecting the ‘imperfective’ predicate irrespective of its telicity value. This, however, is not the solution adopted by all Slavic languages. The opposite selection is done by Czech, as noted by Klimek (2006): in this language, habitual correlative constructions are expressed by ‘perfective’ verbs (35)(d), although other types of view-point-aspect imperfectivity (such as progressive aspect) are normally expressed by ‘imperfectives’:

- (35) a. Blg: Štom na-piš-ex^P pismo na mama, tja se obaždaše^I.
when prev-write-SG.IMPF letter to Mom she called-SG.IMPF
- b. Rus: Každyj raz, kogda ja pisal^I pis'mo mame, ona mne Perezvanivala^I.
every time when I write-SG letter to Mom she to.me call_back.SG
a-b = ‘Every time I wrote a letter to my Mom, she called me back’.
- c. Rus: Vsegda kogda on dostigal^I veršiny, on zažigal^I signali'nye ogni.
Always when he reach.PAST the top, he give.PAST smoke signals.
- d. Cze: Pokaždé když vystoupil^P na vrchol tak poslal^P kouřové signály.

¹¹ See Bertinetto and Lentovskaya (in press) for a historical reconstruction of the Slavic verbs' system.

Always when climb.PAST on top then send.PAST smoke signals.
 c-d = ‘Always when he reached the mountain top, he gave smoke signals.’

The interpretation we would like to propose is based on the following preliminary observation: in a habitual (hence, imperfective) situation, every micro-event within the macro-event is inherently perfective, for no micro-event could reiterate itself unless the previous occurrence has been completely carried out. As it happens, while Russian focuses on the imperfectivity of the macro-event, Czech focuses on the perfectivity of the micro-events. Both choices are logical, except that neither of them is perfectly transparent: they are both based on the extrapolation of a single semantic feature out of a richer context. But the point is that both systems, as compared with Bulgarian, are defective. Interestingly, Polish is an intermediate case: in the examples below, either both clauses contain ‘imperfective’ verbs (36)(a), or just the second one does (36)(b). The latter situation obtains in order to avoid the possible ambiguity as regards simultaneity vs. sequence (Klimek, 2006):

- (36) a. Pol: Za każdym razem gdy upadał^l, podnosił^l się.
 Every time when he.fall.PAST, he.stand_up.PAST
 ‘Whenever he fell, he stood up.
- b. Pol: Zawsze kiedy wspiął się^p na szczyt, dawał^l sygnały dymne.
 Always when he reach.PAST the top, he give.PAST smoke signals
 ‘Every time he reached the mountain top, he gave smoke signals.’

The lesson to be learned from (35)-(36) is that the way habituality is expressed in different Slavic languages is idiosyncratically diverse. Yet, it would be wrong to infer from this that habituality is aspect-neutral, as Filip and Carlson (1987) suggest on the basis of Russian vs. Czech examples. Or rather: their claim is certainly correct if one uses the term “aspect” for both view-point aspect and actionality; however, this is incompatible with the situation of Bulgarian, hence typologically implausible. Both Russian and Czech, as well as most Slavic languages, present defective systems, where aspect and actionality are strictly intertwined.¹² Thus, identifying the view-point-aspect value (perfective vs. imperfective) with the lexical choice ‘perfective’ vs.

¹² Needless to say, Germanic and Romance languages are also defective, although in a different way.

‘imperfective’ appears to be an instance of terminological reification. The example of Bulgarian, with its clearly defined boundary between aspect and actionality, should warn against this.

Another case that has recently been introduced into the literature is West Greenlandic. Van Geenhoven (2004) pointed out a number of affixes expressing iterative PA in this language. The interesting fact is that, given a PA.al context, these markers are obligatory, as shown by (37)(a) vs. (37)(b). Besides, these PA.al affixes express a variety of nuances normally conveyed by lexical devices (37)(c-e):

- (37) a. ? Nuka ullaap tungaa tamaat sanioqquppoq.
 Nuka.ABS morning.ERG direction.3SG.SG.ABS all.3SG go_by.IND.3SG
 ‘Nuka went for the whole morning (moving very slowly) to pass by’.
- b. Nuka ullaap tungaa tamaat sanioqquttarpoq.
 Nuka.ABS morning.ERG direction.3SG.SG.ABS all.3SG go_by.repeatedly.IND.3SG
 ‘Nuka went by repeatedly [*tar*] for the whole morning’.
- c. Nuka ullaap tungaa tamaat sanioqquteqattaarpoq.
 Nuka.ABS morning.ERG direction.3SG.SG.ABS all.3SG go_by.again_and_again.IND.3SG
 ‘Nuka went by again and again [*qattaar*] for the whole morning.’
- d. Nukap aasiaat toqorarpai.
 Nuka.ERG spider.ABS.PL kill.one_after_another.IND.3SG.3PL
 ‘Nuka killed one spider after another [*urar*].’
- e. Jaakup qimmit nerisititerpai.
 Jaakup.ERG dog.ABS.PL feed.one_by_one.IND.3SG.3PL
 ‘Jacob fed the dogs one by one [*titir*].’
- f. Nuka est passé pendant toute la matinée [e.g., devant le magasin].

What makes this language particularly remarkable is the fact that West Greenlandic appears to be the exact reverse of the Romance languages and Bulgarian. The latter languages obligatorily mark the contrast iterative vs. habitual by way of an aspectual opposition (perfective vs. imperfective), at least in the past-domain, but do not mark the contrast iterative vs. non-iterative. Indeed, the French translation of ((37)a) is perfectly grammatical (37)(f), although it could admittedly be improved (*il est passé et repassé*). West Greenlandic, by contrast, does the opposite: it obligatorily marks the aspectually-neutral contrast iterative vs. non-iterative, but has no way to mark the

aspectual contrast iterative vs. habitual (Sherkina-Lieber, 2008).¹³

Modern Hebrew has been discussed in relation to habituality by Boneh and Doron (2008), who pointed out the presence of two grammatical devices: the Simple Past (38)(a) and the periphrasis based on the root *hyy* ‘to be’ followed by the participial form of the main verb (38)(b). The authors note that both sentences may be interpreted in two ways: the former habitually and episodically, the latter habitually and modally (typically as the apodosis of a hypothetical structure):

- (38) a. Ya’el nas’-a la-‘avoda ba-‘otobus.
 Yael go.PAST-3SF to-work by-bus
 ‘Yael went to work by bus’.
- b. Ya’el hayt-a nosa’-at la-‘avoda ba-‘otobus.
 Yael hyy.PAST-3SF go-SF to-work by-bus
 ‘Yael used to / would go work by bus’.

However, as the authors note, Modern Hebrew (unlike Classical Hebrew) has no way to express aspectual distinctions. Thus, (38)(a) should be treated in the same way as the English Simple Past (cf. example (2)[g]). It is an aspectually underdetermined tense; it conveys habitual meaning in the appropriate context, but can express pure iterativity in sentences with numerically specified iteration, like (2)(a). As for the periphrasis in (38)(b), we are not in a position to decide to what extent it really is a habitually-sensitive device, but we would like to propose a test to decide about this, namely the use of reiteration adverbials (see the discussion relating to the examples in (2)). Should this sentence turn out to be ungrammatical if an adverb like *seven times* were added, that would be convincing argument that it is indeed a habitual device (besides having modal potentialities). The easy prediction concerning (38)(a) is, by contrast, that it would not be affected by the presence of such adverbials.

To prove the point, we would like to propose this testing strategy with the English periphrases “*used to / would + Infinitive*”, which are frequently quoted as habitual devices, although their presence in habitual contexts is far from overwhelming as compared with the Simple Past (Tagliamonte and Lawrence, 2000). Not all scholars agree on this, however. Binnick (2005) rejects *used to* as a habitual device, as opposed

¹³ Although sentences (23a-c) have a strong perfective flavor due to the delimitative adverbial, they could be constructed habitually, as in: *Nuka passait (et repassait) devant le magasin pendant toute la matinée* (as opposed to the purely habitual [23f]).

to *would*, considered as the past form of habitual *will*.¹⁴ The main reason to deny habitual value to *used to* lies in its usage with stative verbs, a fact noted at least since Comrie (1976). Both sentences in (39)(a-b) feature permanent stative predicates, although (for self-explaining pragmatic reasons) the extension of validity of the two events is different. Example (39)(b) could for instance be uttered during Phil's lifetime; in that case, it would not by definition cover the whole duration of his existence. What these sentences convey is the idea that the given situation held at some past interval detached from the speech-time. Because of this, Bertinetto (1992) considered this periphrasis as a "confinement-in-the-past" device, rather than a habitual one. More recently, Binnick (2005, p. 350-351) claimed that *used to* is a "current relevance" tense like the English Present Perfect, although symmetric to it: while the latter expresses current validity of a past event's result, *used to* divorces "the past situation from the present era".¹⁵ However, as Binnick himself points out (p. 345), this is no more than a conversational implicature, as proved by (39)(c) (see also (9)[e]). By contrast, the Present Perfect's entailment of current relevance can not be canceled (39)(d). This does not mean that Binnick's claim concerning the present-oriented nature of *used to* is incorrect; it means, however, that this periphrasis behaves exactly like the French Imperfect in contexts like (39)(e), corresponding to (39)(c):

- (39) a. The temple of Diana used to stand at Ephesus.
 b. Phil used to be the conductor of the parish choir.
 c. Erik used to be a member of the Volapük League (and he still is).
 d. Erik has broken his right leg (*which is now perfectly OK).
 e. Erik était [IPF] un membre de la Ligue Volapük (et il l'est toujours).
 'Erik was [IPF] a member of the Volapük League (and he still is)'.

This suggests a possible solution to the above dilemma. Supposedly, the reason why *used to* is compatible with stative non-PA.al contexts simply stems from the fact that it is an imperfective device, conveying some of the functions of the Romance

¹⁴ In this paper we shall not discuss Future *will*. Suffice it to say that we regard it as a possible habitual device for the obvious reason that the Future tense, in most languages, may receive this interpretation in the appropriate context. For instance: *Once this happens, the tiger will hunt for a slower prey, humans* (= example (113) of Binnick 2005).

¹⁵ Additional reason for the present-oriented nature of *used to* is the existence of its past-oriented version *had used to* (Binnick, p. 348), although its degree of grammaticalization is by far lower.

Imperfect, namely its gnomic value. Consider the following examples. Sentences (40)(a-b), just like (40)(c), may have intensional meaning: the former may refer to anybody who might have been a Chelsea Club member at the given time (beyond those who actually were), the latter to anybody who might have been Prime Minister (beyond the one who actually was). Needless to say, they can also refer to the ones who were actual club members and to the one who was the actual Prime Minister, but the important fact is that the intensional reading is available. By contrast, the perfective Past in (40)(d) can only refer to those who were actual club members: it has no intensional force. This proves that the English periphrases at stake, just like the Romance Imperfect, have gnomic import. This reading is admittedly also available to the English Simple Past (*wore, drove*) in the relevant, i.e. habitual, reading of (40)(a-b), which proves once more that the imperfective-habitual value can be expressed by this tense as well. However, as already observed, the Simple Past is aspectually ambiguous. Its prevalent perfective value is apparent in (40)(e), where the two periphrases are excluded due to the impossibility of the gnomic reading. By contrast, the gnomic (habitual) reading is perfectly acceptable in (40)(f) with any of the three devices. As for the French Imperfect in (40)(g), it is acceptable also in the non-habitual reading, but this is not surprising, for this tense may express any imperfective value, including the progressive one:

- (40) a. In that period, the members of the Chelsea Club used to wear / would wear blue ties.
 b. In that period, the Prime Minister used to drive / would drive a limousine.
 c. A cette époque, le Premier Ministre conduisait [IPF] une limousine.
 ‘In that period, the Prime Minister drove [IPF] a limousin’.
 d. Pendant une certaine période, les membres du Chelsea Club se sont mis une cravate bleu.
 ‘For a certain time, the members of the Chelsea Club wore [IPF] a red tie’.
 e. Woody Allen directed / *used to direct / *would direct *Annie Hall*
 f. Woody Allen directed / used to direct / would direct a film a year.
 g. Woody Allen dirigeait [IPF] *Annie Hall* / un film par an.

Given the imperfective-gnomic value of *used to / would*, it is no wonder that these periphrases are excluded from sentences like (41)(b), presenting reiterative adverbials, unless the events are projected onto a cyclic dimension (Binnick, 2005, p. 353). As the

discussion relative to the examples in (2) and (4) has shown, the comparison between (41)(a) and (41)(b) proves that the Simple Past, being aspectually ambiguous, may be understood as iterative (as in (41)[a]) or habitual depending on the context, whereas the periphrases only allow the habitual reading. We would thus like to propose the reiterative-adverbials-test as a kind of litmus test for assessing the actual semantic value of any alleged habitual device. Should the grammatical device under analysis disallow such adverbials, its habitual value is confirmed; otherwise, it should at best be regarded as an ambiguous device, if not as a plainly iterative device:

- (41) a. John left several times [= there were several episodes of John's leaving].
 b. John used to / would leave several times *(every months / every summer /...).

This said, we would like to point out a major difference between *used to / would* on the one side, and the Romance Imperfect on the other side. As (42)(a-b) show, with inherently-permanent stative predicates the two English periphrases are ungrammatical. Apparently, both entail that the situation referred to should be viewed as non-immune from interruption. Although the situation can be permanent, as in the relevant interpretation of (39)(a-b), it should nevertheless allow for interruption. Indeed, any temple may cease to exist and anybody may at some point cease to be choir-conductor; by contrast, Sam in (42) cannot possibly have shortened (unless in very implausible scenarios). The crucial difference between the predicates in (39)(a-b) and the one in (42) has to do with the cancellability of the intended property, and ultimately with its defining and necessary character: while being tall is a necessary property for the relevant individual, being choir-conductor is not. We thus propose to call 'defeasability' this specific feature of *used to / would*. It is important to note that the French translation in (42)(b) only admits the Imperfect; the Simple Past is no more acceptable in Modern French, nor in any other Romance language.¹⁶ This conclusively demonstrates that sentences like those in (42) are gnomic:

- (42) a. Sam was tall / *used to be tall / *would be tall.
 b. Sam était [IPF] haut / *fut haut.

¹⁶ The contrast perfective vs. imperfective was clearly available in such contexts in the early phases of the Romance languages (Dausen 1981). It is beyond the scope of the present paper to discuss the matter. See however Bertinetto (1987).

6 Typological observations

In this section we shall concentrate on the formal expression of PA; we shall thus only occasionally mention the non-PA.al types of gnomic imperfectives. The various languages exploit diverse grammatical tools to convey PA.al notions: reduplication, affixes, and lexical strategies (adverbials and verbal periphrases). These devices are not mutually exclusive: neither paradigmatically, for one and the same language may present both affixes and periphrases, nor syntagmatically, for one and the same sentence may exhibit both dedicated affixed and, e.g., frequency adverbials.

Event-internal PA is considered by Bybee et al. (1994, pp. 166ff) the earliest meaning of reduplication, although this device can have other functions, often coexisting in one and the same language. The authors point to a plausible developmental path, going from event-internal to event-external PA, and further on to progressive and general imperfective. Bybee et al. do not distinguish between iterative and habitual (see fn. 4), but their explicit mentioning of the imperfective value shows that they detect a link between PA and aspect. Xrakovskij (1997, pp. 39-41) quotes examples of languages with PA.al reduplication: unfortunately, it is not easy to state how frequent reduplication is as a formal tool for expressing PA.

The possibly most frequent such grammatical device consists of verbal affixes. Some languages may present affixes for both semelfactive and PA.al meaning. This is the case of Czech. In addition to the semelfactivity suffix exhibited (albeit not systematically) by all major Slavic languages (cf. Rus. *stuchat'* 'to knock (repeatedly)', *stuknut'* 'to knock once'), Czech also productively exploits the *-va-* suffix to mark PA: cf. *hrát* 'to play' vs. *hrávat si* 'to play habitually' (Filip and Carlson, 1987). PA is a stable meaning component of the verbs at stake: it is preserved at all temporal domains and even in the Imperative form. The *-va-* suffix is homophonous with the suffix used in all Slavic languages to yield the so-called "derived imperfective" verbs. It is however easily distinguishable from it: the latter suffix attaches to 'perfective' verbs, while the PA suffix only attaches to 'imperfective' verbs, including "derived imperfectives". It is thus plausible that the meaning of the Czech PA suffix is truly habitual, rather than merely ambiguous between iterative and habitual. The application of the reiterative-abverbial-test should, as suggested in the previous section, conclusively settle the matter. This reasoning should be extended to the PA.al affixes to be observed in many languages, in order to check their exact aspectual value (Shluinsky, 2009 and Filip and Carlson, 1987 list a number of examples). As for the PA suffixes sporadically to be found in Italian (as well as in most Romance varieties),

they are definitely event-internal markers. For instance, from *saltare* ‘to jump’, the derived *saltellare* ‘to make repeated and little jumps’ was obtained. However, as Bybee et al. observe (p.159), the PA affixes available in some languages may not distinguish between event-internal and event-external PA.

Languages presenting explicit perfective vs. imperfective morphology often do not distinguish between general imperfective, progressive and habitual (Comrie, 1976). The availability of this overt aspectual distinction, however, makes it possible to distinguish between iterative and habitual PA – as in the Romance languages – whereas languages (virtually) lacking overt aspectual morphology – like most Germanic languages – do not have this possibility (see the discussion in sect. 2). Even English, despite its dedicated progressive form, and despite the existence of its gnomic-oriented Simple Present and of the past-habitual periphrases *used to* and *would*, presents an aspectually ambiguous Simple Past. Needless to say, the existence of an overt progressive morphology is additional reason for the English Simple Present to have gnomic value (a situation also to be observed in Somali), but this is not necessarily the case. In languages like Italian and Spanish, the progressive periphrasis does not exclude the possible progressive interpretation of the Imperfect, nor the possible progressive interpretation of the aspectually neutral Present. In some languages, however, the habitual marker is independent of the temporal one, so that the two markers may coexist (Bybee et al. ,1994, p. 153).

Of special interest is the relation between stative verbs and imperfective morphology. If the latter is specifically restricted to the progressive aspect, its use with stative verbs is either excluded (**this house is belonging to Jim*), or it normally brings about a dynamicization effect (*today, John is being nasty*, i.e. ‘he is behaving in a nasty way’). This effect is also obtained by the PA affix *-katta-* of West Greenlandic, despite its aspectually neutral nature (Sherkina-Lieber, 2008). Shluinsky (2009) contrasts, in this respect, the behavior of Nenets (Samoyedic) and Komi-Zyrian (Ugro-Finnic): in the former language, the PA affix attached to a contingent-stative verb like the one meaning ‘love’ produces a PA.al event (‘falling in love repeatedly’), whereas with permanent-stative verbs it yields an ungrammatical result (‘*knowing something repeatedly’). In the latter language, the PA affix can attach to permanent-stative verbs, generating a gnomic interpretation quite similar to the one obtained by the Imperfect in Romance languages (cf. Fr.: *Jean connaissait très bien les règles*).

Equally remarkable is the relation to be observed between modality and habituality. In a number of cases, one and the same marker can express both meanings. This is the

case, for instance, of the past-habitual devices to be found in English (*would*), Hebrew (cf. the periphrasis discussed in the previous section), or Udmurt (Ugro-Finnic; Bybee et al., p. 158). In Bargam, spoken in New Guinea, the evidential marker is also used to convey habituality (Swintha Danielsen, pers. comm.), and this might not be an isolated case. Considering that modality-oriented grammatical devices are typically involved in hypothetical constructions, i.e. in prototypically intensional structures, the convergence in formal expression of modality and habituality markers lends further support to the view defended in section 4.2. Indeed, even the Romance Imperfect may receive a modal reading, e.g. in counterfactual contexts.

A fact worth mentioning is the possible temporal specialization of PA markers. The English Simple Present, for instance, with its PA.al (and, more generally, gnomic) meaning, is obviously restricted to the temporal domain overlapping the speech-time, including omnitemporal contexts (such as [9a]). Bybee et al. (p. 160) note that the only two cases of habitual Present – in their 89-languages corpus – exhibit a \emptyset -morpheme like the English Simple Present; it would however be rather daring to generalize on the basis of this observation. Indeed, as Haspelmath (1998) points out, the historical development of verbal markers from progressive to general imperfective and to habitual/gnomic appears to be a frequently observed drift in natural languages, as also noted by Marchese (1986) with respect to the Kwa languages of North-West Africa. The so-called Turkish Aorist is a case in point, being in fact a gnomic Present. In any case, there seems to be an asymmetry between the present- and the past-domain: past-habitual markers (to the extent that they really are what their name implies) are more frequent than present-habitual ones. This is unsurprising, since inducting a generalization requires a retrospective view. In Bybee et al.'s corpus, 19 languages exhibit a marker expressing habituality in all temporal domains, 10 have it restricted to the past and only two languages have a marker restricted to the present (actually, a \emptyset -marker). The Hebrew periphrasis quoted in sect. 5 is an example of a past-PA marker (possibly a true habitual marker), and so is the the *-ne* suffix of Bolivian Chaco Guarani, a true habitual-gnomic marker (Bertinetto, 2005). Consistently with this, the English periphrasis *used to* has lost its previously attested present-domain equivalent *uses to* (Tagliamonte and Lawrence, 2000). By contrast, Contemporary French is developing a present-habitual marker by means of the periphrasis “*aller* + Infinitive” (often used as a future-referring form), as the following example shows:

- (43) C'est pas un modèle de régularité, il va me téléphoner trois fois par jour et puis pendant une semaine plus rien; et quand je vais l'appeler, personne.
[spontaneous conversation, reported by Bres (2009)]

A poorly investigated topic is that of non-finite verb forms which may be interpreted habitually. Baker and Vinokurova (2009) quote such a case from Sakha (or Yakut, a Turkic language spoken in Siberia), but this is possibly a much more extensive phenomenon, as the following example suggests:

- (44) By wearing a blue tie, the Chelsea Club members exhibited their soccer identity.

Finally, we would like to mention the case of periphrases. In some languages this is the sole way to express PA. But periphrases may be redundantly used in addition to dedicated affixes. In Italian, besides the imperfective morphology that takes care of any gnomic value, there exists a number of periphrases: “*avere l'abitudine di / solere / esser solito + Infinitive*”. They are not strictly equivalent, however. The first one also admits perfective tenses, while the last two are restricted to imperfective ones. Despite this difference, *avere l'abitudine di* is incompatible with reiterative adverbials even when used with perfective tenses, unless a cyclic adverbial is added. This shows that the lexical contribution of the word *abitudine* ‘habit’ is enough to bring about a gnomic reading. This is reminiscent, *mutatis mutandis*, of the restriction to be observed in aspectually-sensitive languages with respect to adverbs meaning ‘usually / habitually’, as noted in (5)(a-b) above:

- (45) In passato, ho avuto l'abitudine di giocare a tennis parecchie volte *(all'anno).
‘In the past, I used to play tennis several times *(a year)’.

7 Conclusions

While habituality and iterativity are often conflated together in the literature, wide empirical evidence supports our claim that these categories should be kept apart, their *prima facie* similarity notwithstanding. The organization of their respective domains can be summarized as in fig. 1. The semantic space of habituality and iterativity can be viewed along two orthogonal dimensions: whether a predicate expresses a gnomic, characterizing property (horizontal axis), and whether a predicate expresses the

repetition of an event (vertical axis). Both habitual and iterative sentences have a positive value along the latter dimension, but they lie at opposite side with respect to the former, since only habituales represent the repetition of an event as a law-like generalization. On the other hand, gnomic generalizations are also expressed by other types of statements – such as generics, IL stative predicates, attitudinals, etc. -, where event repetition is *vice versa* either lacking or does not represent an essential condition.

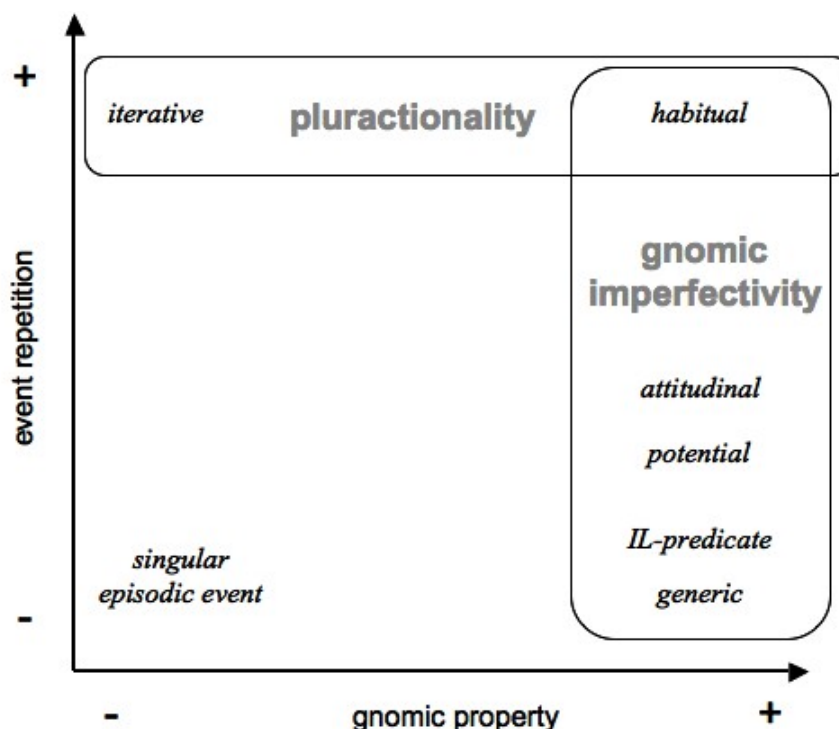


Figure 1 – The domains of gnomic imperfectivity and pluractionality

The two dimensions should be taken as forming a gradient space, rather than expressing polar oppositions. For instance, a habitual sentence such as *John goes to school at 8am* expresses event repetition at its highest degree, while *Mary seldom smokes in the lounge* – while preserving its gnomic character – is on the low scale of the event-repetition parameter. Conversely, a generic statement such as *Two plus two equals four* has a null value along the repetition dimension and a maximum value along the gnomic dimension. As we saw in sect. 4, among gnomic sentences there exists a variety of intermediate cases, where event repetition, although possible, is easily cancelable, depending on specific pragmatic conditions. Even the space covered by the gnomic dimension is continuous, since generalizations may differ as for the

type of normative force they convey.

We have also argued that the area covered by gnomic generalizations should receive a common grammatical representation in aspectual terms, mirroring the aspectual value that we call “gnomic imperfectivity”. On the other hand, habitual and iterative sentences can be subsumed under the general phenomenon of PA, whose relationship with aspect is complex and not univocal, for natural languages use various linguistic devices besides aspect to express event repetition. Habituals *stricto sensu* thus represent the intersection between the domains of PA and gnomic imperfectivity.

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