

Integrating tense, aspect and genericity*

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This paper proposes an integrated theory of tense, aspect and genericity building on the work of Moens (1987) for tense and aspect in English.

I start by motivating the treatment of tense and genericity at the same level, by showing that (1) it is the same linguistic system that is at work in both cases; (2) there are some facts of language that only receive an adequate explanation if the two phenomena are dealt together, namely, the "stative paradox" and the somehow strange behavior of activities. To handle these two facts, I propose the existence of two kinds of states.

I then discuss briefly two different proposals to handle habituality in the camp of tense and aspect, and motivate the use of Moens (1987)'.
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I proceed by overviewing in some detail Moens' framework and propose some revisions motivated by the work of Sandström (1993), Kent (1992) and Santos (1991).

The rest of the paper is then dedicated to give an analysis of several ingredients of the English and Portuguese tense and aspect systems, namely the import of several tenses, of the progressive, and of some temporal adverbials.

1.A common ground

I want to argue here for an integrated treatment of aspect and genericity. My primary motive was the semantics of Imperfeito, a past tense in Portuguese whose main meaning seems to be habitual. (The same happens with simple present both in English and in Portuguese, however, this fact has remained somehow in the shadow due to the notion of "atemporal" truths often invoked to describe the English present.) This seems to indicate clearly that habituality is one aspect, and furthermore an important one for the Portuguese tense and aspect system.

The other motivation came from the study of a recent overview on genericity (Krifka et al., 1992), where much more than I expected implicitly concerned aspect. I thus started to investigate several possible points of contact between these two traditionally separate fields of linguistics: tense & aspect and genericity. The first reflections on this matter can be found in (Santos & Viol, 1993), where, however, only English was discussed. In this paper, I present some more data and a detailed analysis of several facts concerning the Portuguese tense system. I shall nevertheless provide an overview of the conclusions in the paper mentioned above (Sections 2 and 3).

2.The same linguistic system

* This is the original (much larger) version of a paper presented at the Encounter of the Portuguese Linguistics Association, in Coimbra, the 1st October 1993, to appear in *Actas do IX Encontro Nacional da Associação Portuguesa de Linguística*. The published paper is simply a shortened version thereof, apart from Note 3, inspired by the comments at the Encounter, and from the discussion in Section 3.2., which adds a little correction to what stands in the published paper.

Is the same grammatical system used for both tense and aspect and genericity? The answer seems to be definitely yes. Let us look at some arguments in favour of this stand:

2.1. Lexical aspect

Lexical aspect is essentially present in the definition of genericity. I show this by summarizing what is said in Krifka et al. (1992) which is purportedly an introduction to genericity.

Krifka et al. (1992) contend that sentences can be subdivided into generic and particular ones, and that generic sentences have a stative flavor. In addition, they use the aspectual class of the predicates to subclassify generic sentences (more precisely, characterizing sentences), proposing the following classification:

episodic Episodic sentences refer to a specific location in space and time, and are thus non-generic. E.g. *I entered the room.*

They seem to overlap with events in Bach (1986)'s or Moens (1987)'s terminology. Notice however that, following Cooper (1986) and Link (1987), statives which are located in space are also included in this class and are called "episodic statives"¹. E.g. *Simba is in the cage* or *She stands in the doorway*. Most progressive sentences also belong to the "episodic stative" kind.

habitual Habitual sentences are built from an episodic predicate, but have a stative flavor, and represent an habit, a frequent pattern. E.g. *John smokes.*

Habituals have thus always an episodic counterpart, therefore have to be rendered by grammatical means, like simple tenses and plural complements (*He builds houses, he smokes, he made shoes*).

For Krifka et al. (1992) they are dispositional, in the sense that they represent a property that is either assigned by observing past behavior (*Mary smokes*) or by predicting future one (*This machine crushes oranges*).

lexical-characterizing Lexical characterizing sentences are stative sentences which are built from a stative predicate, and therefore do not have an episodic counterpart. They can be further subdivided in

dispositional in some sense generic, representing a property that is either assigned by observing past behavior or by predicting future one: *know French, like John, be intelligent.*

non-dispositional representing a property which is assigned by a fixed event in the past: *be married, be male, be a member of the Communist party.*

The following table depicts Krifka et al. (1992)'s classification:

episodic predicate	stative predicate	episodic stative predicate
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¹In fact, Link (1987) defines states by not being located in space (or, alternatively, events by being located in space), by which criterion episodic statives are not even statives.

generic	habitual	lexical-char.	
		dispositional	
not generic	episodic	lexical-char.	episodic stative
		non-dispositional	

Summing up, the distinction between the two kinds of characterizing/generic sentences is cast in terms of an aspectual difference; furthermore, one of the consequences of genericity for sentences involving episodic predicates is the change of aspect of the whole sentence (given the claim that generic sentences are stative).

Aspect is thus an integral part of genericity, and, from a practical point of view, a sound and decidable aspectual classification is a precondition for concrete genericity studies.

2.2. Tenses

The use of particular tenses and aspects strongly licenses the interpretation of a sentence/text as generic or particular. As mentioned above, simple present in English and Imperfeito in Portuguese tend to select a generic reading, while progressive in both languages tends to enforce a particular one.

Ele lavava carros. (lit. He washed cars; He was a car washer)

He drives buses.

One may even wonder whether we have generic tenses and particular tenses, or, on the contrary, whether tenses have a generic/particular dimension along with a purely temporal one. For English at least, one has to decide for the second hypothesis, since all tenses can be given a temporal use.

2.3. Temporal clauses

When-clauses (and *as*-clauses) are used both for (temporally) anchoring particular sentences in discourse and for creating rule-like habitual or generic statements (see Santos & Viol (1993, chapter 1), and also Sandström (1993, page 187)). This has been acknowledged in the literature by referring to "temporal *when*" and "atemporal *when*" (see G. Carlson, 1979). These two uses of *when* cannot, however, be characterized by morphosyntactic different contexts in which they appear, since it is possible to construe sentences which are ambiguous between the two interpretations:

The subdits rose when the king entered the room. (used to, or at that particular time)

Os súbditos levantavam-se quando o rei entrava na sala.

Os súbditos levantaram-se quando o rei entrou na sala.

When he makes coffee, you pretend to vomit. (a regular habit, or an order)

Quando ele faz café, tu finges que vomitas.

Quando ele fizer café, finge que vomitas.

2.4. The role of arguments and quantification

The influence of the arguments of a verb in a clause (or better, of the whole structure of the clause) is pertinent for the two conceptual domains: On one hand, the influence of

plurality for the aspectual classification of a sentence is well-known since Verkuyl (1972), cf.:

John built dams. We pedaled over bridges. (activity or state (habitual))

John built the dams. We pedaled over the bridges. (accomplishments)

On the other hand, the kind of plurality at stake can also help to decide whether a sentence is generic or not.

Dodos did not fly. (generic)

The dodos did not fly. (particular)

In general, decisions as to kind denotation of (bare plural) arguments can have an impact in the aspectual classification of the sentence:

M.P.'s protest at embassy. (accomplishment or state (habitual))

Optimists win. (achievement or state (habitual))

L. Carlson (1981) explained the analogies between the verbal and the nominal domains by proposing that the distinction between definite and indefinite quantification is at work in both cases.

In fact, if one maps situations into objects, one finds that events are countable, processes are mass, and states are abstract (Bach, 1986, Sandström, 1993). Given this parallel, we proposed in Santos & Viol (1993) that explicit nominal quantification also had a role in the determination of the aspectual value of the whole sentence, in that quantifiers like *most*, *few* and *no* could be (at least partially) responsible for generic readings. In fact, *all*, *most*, *few* and *no* seem to be the nominal counterparts of the sentential *always*, *usually*, *rarely* and *never*, which are widely mentioned as inducing genericity (see Krifka et al., 1992).²

However, we also observed that for particular sentences the quantification can either attach to the noun or to the sentence without significant change of meaning, while for generic sentences it cannot.

Most men starve in the desert = *Men mostly starve in the desert.*

In this room, most men are drinking tea = *In this room, men are mostly drinking tea.*

Most men voted 'yes' = *Men voted mostly 'yes'.*

Undoubtedly, one of the most obvious links between temporal and generic domains are the so-called frequency adverbs: adverbs like *usually*, *often* and even *always* or *never* usually render a sentence generic. In fact, one of the genericity criteria suggested by Krifka et al. (1992) is precisely meaning preservation by adding the adverb *usually*.

2.5. Temporal adjuncts

Finally, temporal phrases may also have a say in whether a sentence is generic or not:

A. *John killed ants for an hour.* (activity)

B. *John made shoes during the war.* (habitual state)

Sentence A without the temporal phrase could be generic (adding "for a living" would disambiguate it), but not with the *for*-adverbial. Sentence B, on the contrary, without the temporal phrase is more easily read as an activity or accomplishment.

²Bennett & Partee (1972, page 26) even describe one sense of *usually* as 'most a out of every b'. And Bennett (1981) analyses bare plural generics by postulating a "sweep" transformation that erases precisely this kind of frequency adverbs.

3. Advantages of an integrated treatment

Summing up the previous section, it is the same kind of factors that are at play in both particular and generic sentences. There does not seem to be a separate grammatical system to convey habituality or genericity. In Santos & Viol (1993), we addressed briefly the two questions:

Can the study of genericity also contribute for the study of tense and aspect?

What have tense and aspect researchers had to say about genericity?

On one hand, it is clear that particular linguistic analyses in each domain can be made useful in the other. For example, one can use the kind-denoting criteria for bare plurals to decide on the aspectual class of the whole sentence.

However, more interesting conclusions were reached by comparing the two domains, namely, a new view of states and of activities that I will elaborate below.

3.1. Statives re-analysed: the "stative paradox"

I believe that under the stative label two different realities have been hiding for long, and I dubb them **permanent** versus **temporary** states. Roughly, the first describe a property, an essential fact about something or someone, a characterizing feature; the second describe a contingency, a state of affairs, a temporary fact³.

There have been other proposals for a subclassification of states: I have just described Krifka et. al. (1992)'s three kinds (lexical-characterizing, habituals, and episodic statives); in Moens (1987), also four kinds of states are mentioned: consequent, progressive, habitual and lexical, distinguished in terms of the linguistic process associated with them. L. Carlson (1981) shows the existence of dynamic states, already mentioned by Dowty (1979), which I also used in Santos (1991b) for Portuguese.

Moens (1987, page 52) also mentions that states that express inalienable properties are said to behave somehow differently than "ordinary" states, in that they resist combination with *for-* or *until-* adverbials:

? *I was quite tall until I met Harry.*

? *The cepteryx was a mammal for several centuries.*

The dichotomy permanent/temporary is also the traditional wisdom involved in (one of) the explanation(s) of the *ser/estar* distinction in Portuguese and Spanish, which goes like this: In

Ele é maluco/ Ele está maluco. (He is mad)

the sentence with *ser* denotes a property of him, while the sentence with *estar* denotes a temporary state he is in. This very same distinction has also been invoked to explain the

³After the oral presentation of this paper at the IX Encontro da APL, Fátima Oliveira (personal comm.) warned me against the use of this terminology. What I am after here is the distinction between spacio-temporally located ('temporary') and not spacio-temporally located ('permanent'). Maybe the use of 'atemporal' for this last category would be better, however, they can (and are) located by tense: cf *Martin Luther King was black*.

I should also mention that the distinction between essential and contingent properties (see Krifka et al., 1992) is not being addressed here: they are both included in my permanent states (from an aspectual point of view, I contend they have the same behavior).

Finally, it is never enough to emphasize that these are linguistic, as opposed to real-world, categories, therefore the same situation can be (aspectually) described as being a permanent or a temporary state.

varying acceptance of progressive with English states. The following examples are from Bach (1981):

I live in California/ I am living in California.

Two plus two equals four. / Two plus two are equalling four.*

In the first pair of sentences, progressive highlights temporariness. In the second, a permanent state has no interpretation where temporariness can be called to play a role.

I would like to argue here that, in the work of tense and aspect in the logical semantics framework, two conflicting views of states have subsisted, and according to me, both with convincing arguments. They are simply a partial view, since each theory neglects the other kind of states (and statives).

For the view held in e.g. L. Carlson (1981), states are attributed the property of being true at moments of time (extendible homogeneously to intervals), in opposition to the other aspectual classes. The examples show that the adherents to this view are dealing mainly with what I call temporary states: *be a full grown man, remember, stand.*

The other view reflects the intuition that basically states are independent of time, while events are not, since they presuppose time to be actualized. Bach (1981, page 71) says: "states have an atemporal and abstract quality", and later talks of "the atemporality of states". It is obvious that the states that qualify here are what I call permanent states: *love John, know Physics, equal, know the answer, believe that.*

Bearing the assumption that habituals are stative, and accepting the translation of habitual sentences in Krifka et al. (1992) in terms of quantification over times or situations, states are also not given a temporal location at all (apart from a possible encompassing period that may be furnished independently in the text, e.g. *she used to smoke when she was a student*).

Now, we can state the "stative paradox": How can, in English, both the simple present and the progressive result in a state while constituting at the same time a well-known minimal aspectual pair? In fact, Vlach (1981) and Moens (1987), among others, argue that the progressive has a stative character, while Krifka et al. (1992) mention that the present tense is an inducer of genericity (habituality) and that habitual sentences are aspectually stative.

The solution of this paradox is the use of two kinds of states, and consider progressives as denoting temporary states, and habituals permanent states. Both analyses are thus tenable. Further examples that motivate this separation will be given in the remainder of this paper.

3.2. Generics and activities

Two basic varieties of genericity are usually acknowledged: reference to a kind, and propositions expressing a general property. Generic sentences can thus be generic because they contain a kind-denoting term, or because they are in themselves what is called characterizing sentences.

While there does not seem to be any preferred aspectual class when the sentence merely exemplifies a kind-denoting NP,

The rat reached Australia in 1770. The panda is dying out. (achievements)

Mary hates cigars. The weed was an important factor in last year's economic disaster. (states)

Man visited the moon in 1969. (accomplishment)

German teenagers watch six hours of TV daily. (activity)

characterizing sentences tend to originate either from stative predicates (in which case they are called lexical-characterizing, see above) or from activity ones (in which case they are habitual).

In fact, going through the set of habitual examples used in Krifka et. al. (1992), we were struck by the fact that most have an activity as the main verb when the sentence is habitual. Of the only sentences we were able to find that did not contain a (lexical) process expression (8 out of 50), four had a bare plural NP in object position, which in most theories of aspect turns the overall verb phrase into an activity, so one is only left with:

Typhoons arise in this part of the Pacific.

An Anopheles mosquito carries malaria.

Whales give birth to live young.

Bob jumps 8.90 meters.

Incidentally, these sentences are among the most problematic to handle for any account of genericity to date.

I contend therefore that activities are more inherently habitual (or easier to read habitually) than other aspectual classes. Events (i.e., things other than states and activities) have to be forced, by some pluralization, to be activities before they can have an habitual interpretation. Cf.

He works at INESC.

He runs to school.

He dances.

? *He kills ants.*

That is, an activity only refers to a temporal period which is temporally extended, unbounded, and obeys the subinterval property down to some minimal subinterval (the traditional description of an activity) when it is used in the progressive. In fact, the progressive selects one single time point of that period, most analyses contend, making the progressive stative, as was mentioned above. It seems that only in some restricted non-tensed contexts can one activity still denote an activity.

I saw him run.

To run in a sunny day is a pleasant activity.

When the progressive is not present, an activity has a generic flavor or is unacceptable (if we refuse to interpret ant-killing as a profession or hobby).⁴ This behavior will be explained below.

4. The proposal

Given that states and activities are so intimately connected with genericity that cannot be treated separately from habituality, I propose to study generic and non-generic sentences at the same level. I will start by an overview of formalizations of habituals. Then I will describe in some detail Moens (1987)'s aspectual network, and its revisions, before I actually use (my version of) it to give a description of several Portuguese and English tense and aspect phenomena.

⁴ Of course, for this remark to make sense, one has to hold the opinion that habituals are not aspectually activities. This is my opinion, but, for instance, L. Carlson (1981) treats habituals as activities.

4.1. Formalizing habituals

In the modern literature on tense and aspect, it is common to consider habitual interpretation as a separate aspect and neglect it. Model theoretic analyses of habituals are rare. L. Carlson (1981) exemplifies one such, handling habituality as a second semantic interpretation, brought about by aspectual rules of interpretation that "reduce the truth of a sentence on the relevant secondary sense to the truth of the same sentence in its basic primary sense in periods related in a systematic way to the period of evaluation" (page 42).

Interestingly, he proposes a distinction which is generally neglected: the distinction between iterative interpretation, habitual interpretation **and** dispositional interpretation. Carlson states: "a habit may or may not involve a disposition, but a disposition need not be manifested in a habit". He classifies both iteratives and habituals as activities, but seems to view dispositions as states.

Another proposal, which has the merit of trying to encompass a wide range of temporal-aspectual phenomena, is Moens (1987) aspectual network. Moens models aspect changes as transitions in a network whose nodes represent aspectual values. (A detailed presentation of this framework will be given in the next section. Here I am only concerned with the specific details of the treatment of habituals.) Habitual states are treated on a par with the other states and with events, therefore, one node stands for habituals. Of transitions resulting in an habitual statement, Moens says "English has no explicit markers and thus can be made freely" (page 51). A closer inspection of the aspectual network reveals that habitual states have to come out from points (i.e., punctual non-resultative events such as *tap*, *wink*, etc.), which in turn could have originated from achievements, accomplishments or activities.⁵

Moens mentions the fact that habitual states can be turned into an activity, which can then combine with the progressive auxiliary, denoting "habits in progress" (page 62):

Max was running a mile in less than 4 minutes until he bought a new watch.
I was walking to work last winter.

He also argues that habituals are stative by applying his most reliable stativity criterion, namely, the accessibility test with punctual temporal expressions (page 99): a stative expression overlaps with the time described by the adverbial, while iterated activities have to be read inchoatively (cf. third sentence).

When I last saw Harry, he took two lumps of sugar in his tea.
When I met Richard, he sold 2 cars a day.
When I came in, Tina played the sonata several times.

4.2. Moens' aspectual network

4.2.1 The original proposal

Moens (1987), Moens & Steedman (1988) present an aspectual calculus based on a network. The import of the several bearers of aspect in text is modelled through transitions among the nodes.

⁵Even though Moens uses a terminology of his own, I will use throughout this paper Vendler (1967)'s terminology, with the addition of points from Moens, dynamic states from L. Carlson and later series from Freed (1977).

The nodes. Moens (1987, pages 94ff) considers the aspectual network to be classifying propositions, and chooses as basic propositions of English those denoted by sentences in the simple past, with subjects syntactically and semantically singular. However, he also mentions that "the network can be used to classify all these linguistic units" (smaller units than sentences, such as verbs or verb phrases), by actually classifying sentences whose rest of the constituents does not bring any aspectual changes.

The ontology. Each node represents an aspectual class, of which Moens considers five distinct ones (see previous note). An aspectual class is defined in terms of a nucleus, which maximally comprises a preparatory phase, a culmination point and a consequent state. Aspectual class is equated with event type. Changes in aspectual class add or delete parts to events.

The transitions. The network specifies the transitions among aspectual classes that are possible in English. (Kent (1992) calls them transition types). Transitions correspond to aspectual operations, which are brought about by the existence of some morphosyntactic device, such as the perfect, the progressive, or a *for*-adverbial. Moens describes specific linguistic operators in a functional way:

OPERATOR: aspectual class 1 ---> aspectual class 2.

One important detail of Moens' framework is the existence also of unmarked transitions, i.e., transitions that can be made without an explicit or even implicit clue. In fact, Moens proposes two different kinds of unmarked transitions, i.e., transitions that can be made without an explicit clue:

- (1) the ones brought about by **coercion** (also a key concept in his theory, describing a change of aspectual class brought about by the application of an aspectual operator whose definition requires a different kind of input) and
- (2) transitions unmarked "all the way down", in which an expression is interpreted as belonging to a different aspectual class without any objective operator to license it (incidentally, this is how Moens handles habituality, see above, section 4.1.).

4.2.2. An example

Moens does not explicit the aspectual import of tense. In fact, in Moens & Steedman (1988), it is even stated that tenses have a rather different character, being concerned with temporal reference. Nevertheless, I chose to exemplify the import of present tense in his framework, since I believe that tenses are carriers of aspect as well. In my view, the English simple present (in its habitual sense) changes activities into habitual (which I take to mean permanent) states.

PRESENT: activities ---> permanent states.

Let us analyse the simple sentence *John runs*. *run* is an activity, since it corresponds to the basic proposition *John ran*. The singular subject does not change its aspectual character, so *John run* is still an activity, and, according to this analysis, simple present turns it then into a permanent state, *John runs*.

On the other hand, the network does not allow for unmarked transitions from accomplishments into activities, and this is how the unfelicity of *John builds a house* is accounted for. Present tense applies to sentences with an accomplishment verb, for instance in the case *John builds houses*, only if they have been coerced into an activity before, as in this case by the plural object. Moens' "points", on the other hand, do allow

for unmarked transitions into activities, and therefore *He hiccups* (meaning he usually does) can get an habitual interpretation. The import of the present tense in this case is twofold: Points get coerced into activities that then get transformed into permanent states.

4.2.3. Some revisions

First of all, the ontology in terms of missing/existing parts of an entity nucleus seems to be satisfactory only as far as non-states are concerned: Even though, at first sight, a schema comprising a part of each main aspectual class (respectively, an activity, an event, and a state) cannot fail to be right, the consequent state is not allowed to occur without a culmination, which makes it unusable for modelling states in general (i.e., apart from consequent states). Therefore, states have no real treatment in Moens' theory. According to Herweg (1991), this is a typical shortcoming of an event-based approach.

Second, the fact that basic propositions already carry tense does create a problem for other languages where there is not such an aspect neutral tense (in fact, it is not even settled for English that past simple be such a tense. I challenge this claim in section 4.3.4.). For all purposes, the use of the network for computing the final aspect could start from a classification of verbs, and have arguments change aspect instead of treating some arguments different from others. (Let me clarify this. Moens has plural arguments changing aspect but singular not. One could also think of singular arguments to activity verbs making them accomplishments (as in *run to the store*), much in the same way of having plural arguments modifying accomplishment verbs making them activities as in *build houses*).

As detailed in Santos (1991b), I believe aspect to be a property of verbs, and, because verbs are essential parts of clauses, inherited by the clause level⁶. I contend moreover that, as more complex expressions containing a verb are being built, aspect values can be produced which are not available at the lexical level. One such non-lexical aspect is precisely habituality, another is plurality (brought about by plural NPs or frequency adverbs). Seeing the aspectual network as an aspect computing device, only to final nodes of such a process does one need to give a semantic interpretation.

Thirdly, the matter of unmarked transitions is widely controversial. First, it encompasses an empirical claim: Kent (1992) noted that without a broad-coverage analysis of the English tense and aspect system, one cannot decide whether a given transition type is unmarked or marked. Second, the "all the way down" unmarked transitions could be modelled as well as ambiguous aspect classes, as I proposed in Santos (1991b). Interestingly, this was the path taken by several other researchers that tried to formalize Moens (1987)'s approach, namely Lascarides (1988) and Kent (1992).

The existence of free transitions naturally poses problems for the implementation or even formalization of the aspectual network (see the references above), because it introduces an element of indeterminism and withdraws from evaluation. I will therefore only use transitions licensed by grammatical or discourse clues. I consider coerced transitions licensed (even though in an "oblique" way) by the operators who coerce them.

However, as far as coercion is concerned, one could also wonder whether an operator defined for more than one output class would not do the same job. I.e., for the example of Section 4.2.2., one could have

PRESENT: points ---> permanent states

⁶Moens & Steedman (1988, page 17) also end up talking about the "uninstantiated propositions" associated to verbs.

as well. Still, generally one interpretation seems to be more natural or intuitive than the others, so I will continue to use the notion of coercion. (Note, by the way, that Moens accepts (and often resorts to) repeated coercion, i.e., trips around the network invoking more than one unmarked transition.)

4.3. The new (partial) aspectual networks

Given the revisions proposed above, I proceed to present two aspectual networks, a revised one for English and one for Portuguese. Instead of describing transition types, though, I will concentrate on particular aspectual transitions, labelled by the linguistic markers. Since in this paper I will only present some transitions, the networks are only partial.

My point of departure are the following aspectual classes, which, with the exception of the two kinds of states, have been described in more detail elsewhere (Santos, 1991a, 1991b, 1992). I make the simplifying assumption that the same aspectual classes are common to English and Portuguese (even though not obviously their members):

temporary states (location in time and space required): *to be hungry, in love, in Paris*

accomplishments (location in time and space greater than a point): *to build a house, write a book, crush an orange*

permanent states (no location required): *to be mad, black, male*

achievements (location in time and space punctual): *recognize, win*

activities (location in time and space greater than a point): *to run, work*

dynamic states (like temporary states or activities): *to live in Paris, stand, hang*

acquisitions (like achievements or temporary states): *to remember, know*

points (location in time and space punctual): *to tap, wink, cough*

series (location in time and space greater than a point): *to crush oranges*

Figure 1: English partial network

4.3.1. The progressive

The English progressive makes a temporary state out of accomplishments, activities, dynamic states and series. Cf. *he is building a house, he is running, he is living in Paris, he is building houses*. So it is modelled as

PROGRESSIVE:activities---> temporary states,

while accomplishments, series and dynamic states are defined as being coercible into activities, licensed by the progressive. Apart from the refinement of temporary states, this is also Moens' rendering (see pages 55ff).

To substantiate my claim that the progressive results in temporary states, note that (1) both the sentences involving the (present) progressive and those which are lexically temporary states are read as involving an implicit NOW; (2) in the past tense, both accept punctual temporal adverbials; (3) both do not accept the progressive, except with a three step coercion of the (lexical) states into points, then series and finally activities: cf. *He's being stubborn*.

The Portuguese progressive does not differ remarkably from its English counterpart. However, it is worthwhile to emphasize that the auxiliary *estar* is, when main verb, the prime example of a temporary state (as opposed to *ser*). There are nevertheless two differences between the two languages. One concerns the 'futate' progressive, not available in Portuguese, and which will not be discussed here; the other shows in the lexical class of 'dynamic states' which is far more numerous in English, since it contains all position verbs (e.g. *sit, stand, hang, lie*), to which the progressive applies yielding a temporary state. The corresponding verbs in Portuguese (*sentar, estar de pé, pendurar, deitar*) belong to the class of achievements, and are turned into the corresponding temporary states by another linguistic device, the passive with *estar*:

Ele estava sentado à janela. He was sitting by the window.

Figure 2: Portuguese partial network

4.3.2. The present tense

I have analysed above (section 4.2.2.) the English present tense as creating a permanent state, when applied to activities, dynamic states and series. Cf. *He dances, he lives in Paris, he coughs*. Portuguese present tense behaves like the English one on this respect⁷.

It remains to be argued that habituais do behave as lexical permanent states. For this purpose, note that, in both cases, (1) only scope/durative adverbials are allowed (no punctual ones); (2) the sentences do not need any temporal anchoring, that is, they are quite easily read as properties essentially independent of time or location.

4.3.3. Adverbials with *for, durante and por*

For-adverbials transform activities and temporary states into accomplishments. Cf. *to be in Paris for two years, to run for two hours*. Moens (1987, pages 50ff) models *for* as

FOR: activities ---> accomplishments,

Points and temporary states are coerced into activities, and I assume that accomplishments and achievements are priorly coerced into points. Note that the specification of the kind of state models adequately the before unexplained fact that only some states could be coerced into activities.

Portuguese translates *for*-adverbials in a threefold manner: when accompanying present perfect, by present and *haver*-clauses; otherwise, with the prepositions *durante* or *por*. It is this last distinction that will concern us here. Let us look at some examples involving these prepositions: First of all, while they are felicitous in roughly the same contexts, there is one important exception, noted in Santos (1991a):

Ele saiu por dez minutos. He left for then minutes.

This sentence is felicitous uttered any time after "he" left, while the corresponding one with *durante* only is allowed after the ten minutes passed and "he" is back again. English *for* has this same behavior, as noted in Moens (1987, page 52), but he discards it as an unrelated use of *for*. My analysis of the example presented is as follows: the achievement is coerced into its result state (namely, "be out/away"), which is of a temporary nature. Thus

FOR/POR: temporary states --> accomplishments.

In addition, I contend that this description encompasses all uses of *por*, which most naturally occurs with states, activities, dynamic states and acquisitions:

Ele foi professor por dois anos. He was a teacher for two years.

Ele viveu em Lisboa por dois anos. He lived in Lisbon for two years.

Ela trabalhou na IBM por dois anos. He worked for IBM for two years.

Ela correu por dois minutos (mas depois abrandou). She ran for two minutes (but then moved slower)

Ele correu na Fórmula 1 por 3 anos mas nunca acabou uma prova. He drove F-1 cars for three years but never managed to go till the end in a contest.

Ele lembrou-se dela por muitos anos He remembered her for many years.

To sum up, *por* brings with it the notion of plan and agentivity, and, interestingly, it invokes also a notion of temporariness. Conversely, I analyse *durante* as an operator with the following definition⁸:

DURANTE: activities ---> accomplishments.

⁷with the proviso that the import of *haver*-clauses is first dealt with, and *haver*-clauses make the sentence particular, located in time, and thus non-generic and non-permanent.

⁸*Durante* can be used with ordinary NPs as well, such as *durante a guerra* (during the war). I am here only analysing the cases where it is used in connection with a temporal measure phrase.

This explains why for dynamic states the difference among *durante* and *por* is negligible, while achievements cannot be input to *durante* through coercion into their result state. The same also happens with acquisitions.

Ela correu durante duas horas e meia. She ran for two and a half hours.

Ele viveu na Holanda durante três anos. He lived in Holland for three years.

Ele fez sapatos durante dezoito anos. He made shoes for eighteen years.

Ela foi missionária durante dois anos. She was a missionary for two years.

4.3.4. Simple past tenses

English past simple, in my opinion, turns accomplishments into achievements, cf. *he built a house, he was in Paris for two years, he ran for two hours*. This is clearly in disagreement with Moens (1987) where past simple is aspect neutral 'par excellence'.

On the other hand, I claim it does not modify aspect for states (temporary or permanent): cf. *He was a sailor, He was sitting at his desk*. Activities, in turn, have to be coerced to accept a past simple, and they can be so in two ways, either into habitual states or into accomplishments. Cf. *He ran* with the two possible continuations: *when he was studying at IST* or *as we had arranged beforehand*.

The output of Imperfeito is a permanent state, and activities are its departing point.

IMPERFEITO: activities ---> permanent states.

In contrast, all accomplishments have to be pluralized. Achievements and points have to be coerced into series which are then turned into activities.

Ele lavava carros. He was a car-washer.

Ele dançava no Bolshoi. He used to dance in Bolshoi.

Ele reconhecia as pessoas sem esforço, mesmo que não as visse há anos. He would recognize people effortlessly, even when he had not seen them for years.

Ele batia à porta com estrondo. He used to knock at the door noisily.

As far as states are concerned, Imperfeito is aspect neutral (cf. *Ele era parvo* and *Ele estava parvo*, the permanent and the temporary version of *He was stupid*, respectively).

Perfeito, on the other hand, seems to change states and activities into events, while leaving events unchanged. As far as states are concerned, it makes them temporally bounded, which implies a change of state, and, therefore, an event.

Ela esteve doente. (She was temporarily sick but later she recovered)

Ela foi católica. (She has been a Catholic but changed her creed)

In addition, it coerces the habitual state into a temporary state.

PERFEITO: temporary state ---> achievements

Activities in Perfeito are in general ambiguous between an habit that is no longer (i.e., a permanent state, which gets turned into the event of having changed), and a bounded occurrence of the activity, i.e., an event, as is the case with past simple.

Ele correu (na Fórmula 1). He has been a F-1 driver once; He drove in a contest.

Past simple and Perfeito seem thus to agree in their treatment of activities, by coercing them in two opposite ways.

4.3.5. Present perfect and Pretérito Perfeito Composto (PPC)

As far as the English present perfect is concerned, I follow Sandström (1993, pages 120ff) in ascribing it two analyses. The first represents the so-called 'resultative perfect':

PRESENT PERFECT: achievements ---> permanent states

and is commonly described as asserting a result state. By making it a permanent state I account for its unfelicity with temporal adverbials, e.g., **he has written a book last year*.

The other interpretation of the English perfect, referred in the literature by 'extended now' is given as

PERFECT: activities ---> temporary states.

This explains why the following are felicitous English sentences, *He had been living in Boston for three years in the 1st September 1992/that evening/now*.

Looking now at the Pretérito Perfeito Composto (PPC), it is interesting to note that Comrie (1985, page 81) describes it as habitual. I see it rather as an operator mapping series into temporary states (holding at a period that stretches until 'now')i.e.:

PPC: series ---> temporary states.

The motivation for this analysis can be seen in the following examples:

Ele tem comprado muitos livros. He has been buying many books.

Ele tem andado cansado ultimamente. He has been tired lately.

Ele tem estado em casa. He has been at home lately.

Ele tem corrido. He has been running lately.

The last three examples require the notion of a phase for states and activities (unindividuated event types), proposed in Herweg (1991) and Sandström (1993). These are coerced into points by the existence of the PPC, and then turned into series. Incidentally, given that the last example sentence involves a set of distinct runs, it motivates the separation of the two classes of activities and series.

5.Final remarks

What I presented above is an analysis of tenses and temporal devices in simple sentences. The narrative realm behaves differently, as is clearly demonstrated by Sandström (1993). Therefore, the fact that stative *Quando*-clauses in Imperfeito do not denote an habitual state, e.g., in *Quando ele construía a casa, o telhado desabou* (when he was building the house, the roof fell down), does not constitute a valid counterexample to the theory.

Second, it should be clear that I only discussed the aspectual import of tenses in this paper. Their referential, deictic and anaphoric, use was not even mentioned.

Still, I hope to have presented convincing evidence for a description of natural language that treats tenses and other aspectual devices at the same level as habituality. By doing this, I hope to have also given an adequate description of some peculiarities of English and Portuguese within such an integrated framework. Evidently, a lot of work remains to be done, especially concerning the empirical validity of my claims.

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