

## Imperfectivity and Habituality in Italian

Fabio Del Prete  
Institut Jean Nicod

**The Phenomenon.** Italian bare imperfective sentences allow for both habitual and progressive readings, according to whether the reference time is a large or a small interval (Bertinetto 1986). This is shown in (1a) for the Presente (Indicative Present), and in (1b) for the Imperfetto (Indicative Imperfect):

- (1) a. (In questo periodo / In questo momento) Gianni viaggia in treno.  
In this period / In this moment Gianni travel(Pres, 3sg) in train  
'(Nowadays / At this moment) Gianni travels / is traveling by train.'  
b. (In quel periodo / In quel momento) Gianni viaggiava in treno.  
In that period / In that moment Gianni travel(Imp, 3sg) in train  
'(During that period / At that moment) Gianni used to travel / was traveling by train.'

There is a puzzling contrast, however, between (2a) and (2b):<sup>1</sup>

- (2) a. (# In quel periodo / √ In quel momento) Gianni viaggiava su un treno InterCity.  
In that period / In that moment Gianni travel(Imp, 3sg) on a train InterCity  
'(During that period) Gianni used to travel on an InterCity train.' Habitual #  
'(At that moment) Gianni was traveling on an InterCity train.' Progressive √  
b. (In quel periodo / In quel momento) Gianni guidava un'auto sportiva.  
In that period / In that moment Gianni drive(Imp, 3sg) a car sports  
'(During that period) Gianni used to drive a sports car.' Habitual √  
'(At that moment) Gianni was driving a sports car.' Progressive √

Both (2a) and (2b) are bare imperfective sentences with a singular indefinite embedded in their VPs. Sentence (2a), however, strongly prefers the progressive reading, as shown by the oddness of the time adverbial *in quel periodo* (which requires a habitual interpretation), while (2b) is fine on both the progressive and the habitual reading. If (2a) is accepted on the habitual reading at all, it is interpreted as implying that during the relevant past period Gianni used to travel on the same InterCity train. A similar effect is observed in (2b): on the habitual reading, the sentence implies that Gianni used to drive the same sports car.

I provide a solution to the above puzzle which is based on the semantic assumptions (A1)-(A3) and the pragmatic theory (A4):

- (A1) Imperfective morphology contributes a forward-expansion of a reference situation in Branching Time (Deo 2009).  
(A2) Verbs can inherently refer to pluralities of singular events (Krifka 1992, 1998, Landman 1996, Laca 2006, Kratzer 2008), where pluralities include singularities as special cases.  
(A3) Singular indefinites are existential quantifiers over singular individuals, with scope bounded to the VP in which they are embedded (Diesing 1992).  
(A4) Sentences can be odd because they have implications (in a wide sense, which covers both implicatures and entailments) that conflict with common knowledge (Magri 2009).

No one of the assumptions in (A1)-(A4) is new in itself. As far as I know, however, combining these assumptions to account for the above puzzle is something that has not been done before.

**The covert quantifier analysis.** On a quantificational analysis of their habitual reading, imperfective sentences involve a covert habitual quantifier, whose meaning and syntactic position in the sentence would be similar to the meaning and syntactic position of the quantifying adverb *sempre* 'always' in (3):

- (3) Gianni viaggiava sempre in treno.  
Gianni travel(Imp, 3sg) always in train  
'Gianni always traveled by train.'

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<sup>1</sup> The same point holds for the corresponding examples in the Presente.

(3') Always<sub>s</sub> [ $\varphi(s)$ ] [ $\exists e$  [Gianni-travel-by-train( $e$ )  $\wedge$  Occur( $e, s$ )]]

The Q-adverb ‘Always’ in (3') is a binary universal quantifier binding a situation variable, and the formula ‘ $\varphi(s)$ ’ provides its implicit restriction (Krifka et al. 1995). Accordingly, the interpretation of (3) is that for every situation  $s$  such that  $s$  is  $\varphi$  (where  $\varphi$  could plausibly be the property of being a situation in which Gianni is on travel), an event of Gianni traveling by train occurs at  $s$ . A major problem for this analysis is that if we insert *sempre* in (2a), the habitual reading becomes possible, as is shown by (4):

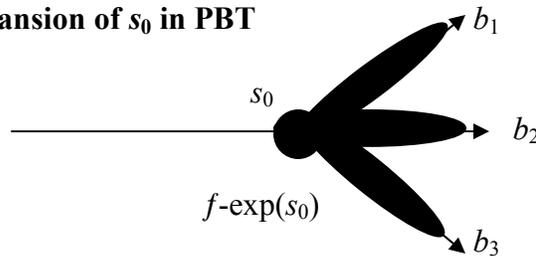
(4) (In quel periodo) Gianni viaggiava sempre su un treno InterCity.  
 ‘(During that period) Gianni always traveled on an InterCity train.’

On the quantificational analysis, the contrast between (2a) and (4) is unexpected. What is unclear is why (2a), unlike (4), cannot mean that on every relevant situation Gianni traveled on an InterCity train, with the train possibly co-varying with the single traveling episodes.

**The proposal: the semantic model.** First, I propose a variant of Branching Time, which I call Partial Branching Time (PBT). PBT is based on Kratzerian situations: instead of having moments (i.e. instantaneous events maximally extended through space) as basic elements partially ordered by temporal precedence, PBT has situations. The central idea of Branching Time is extended to PBT: every situation has a unique past and many possible futures. Further, I assume event structures with plural events as in Krifka (1998), the main difference with respect to Krifka being that my event structures incorporate PBT structures, not linear time structures. The temporal trace function  $\tau$  maps any event  $e$  onto the minimal situation  $s$  at which  $e$  occurs. Temporally discontinuous (plural) events and situations are allowed. In particular, if  $e$  is a temporally discontinuous plural event,  $\tau(e)$  will be a temporally discontinuous plural situation. Given the possible discontinuity of  $s'$ , the relation of temporal inclusion  $s \subseteq_s s'$  will not require that  $s$  be a mereological part of  $s'$ , but only that the left boundary of  $s'$  temporally precede the left boundary of  $s$  and the right boundary of  $s$  temporally precede the right boundary of  $s'$ .

**The proposal: the semantic analysis.** On the analysis that I propose, Presente and Imperfetto only differ from each other with respect to their tense properties, while they share the same imperfective feature IMPF, whose entry is given in (6) below. To model the semantic contribution of IMPF, I make use of two formal concepts: (a) an operation  $f\text{-exp}(s)$  which expands a situation  $s$  forward in PBT (this effect is represented in Fig. 1 below), and (b) a topological operator THR (read ‘throughout’) which takes an event property  $P$  and a (branching) situation  $s$  and ‘spreads out’  $P$  over  $s$ , in the sense defined in (5) below.

**Fig. 1: forward-expansion of  $s_0$  in PBT**



(5)  $\text{THR}(P, s)$  iff  $\forall b [b \subseteq_s s \rightarrow \exists e [P(e) \wedge b \subseteq_s \tau(e)]]$

(6)  $[[\text{IMPF}]] = \lambda s. \lambda P. \text{THR}(P, f\text{-exp}(s))$

[ $b$  is a branch of  $s$ , i.e. a sub-situation of  $s$  which lives in a single world-history; the branches of  $s$  represent *expected continuations* of the initial part of  $s$ .]

Given (A2) and (A3), the VP ‘Gianni drive a car’ has the denotation in (7), where  $e$  can be either singular or plural. Crucially, if  $e$  is plural, the same car  $x$  is identified as the theme argument of all singular sub-events of Gianni driving a car.

(7)  $[[\text{Gianni drive a car}]] = \lambda e. \exists x [\text{car}(x) \wedge \text{drive}(e, \text{Gianni}, x)]$

Let’s go back to sentence (2b). Its LF is (2b’), which corresponds to the truth-conditions in (2b’):<sup>2</sup>

<sup>2</sup> The condition ‘ $s <_s \text{now}$ ’ in (2b’), by which the reference situation  $s$  has to precede the situation of utterance *now*, is a presupposition determined by the past tense of the Imperfetto.

(2b') PAST[IMPF[[un'auto sportiva]<sub>x</sub>[Gianni guidare x]]]

(2b'') [ $s \prec_s \text{now}$ ]  $\forall b [b \subseteq_s f\text{-exp}(s) \rightarrow \exists e \exists x [\text{sports-car}(x) \wedge \text{drive}(e, \text{Gianni}, x) \wedge b \subseteq_s \tau(e)]]$

If  $s$  in (2b'') is a large situation, as required by the adverbial *in quel periodo*, the forward-expanded situation  $f\text{-exp}(s)$  is also large. In order for any branch of  $f\text{-exp}(s)$  to be included by the temporal trace of an eventuality  $e$  of Gianni driving a sports car,  $e$  must be a plural event made up of singular events of Gianni driving a sports car. A plurality of such singular events is spread out over the reference situation and its expected continuations, and the resulting reading is that Gianni habitually drove a certain sports car, which is predicted to be the same across the singular sub-events. If  $s$  in (2b'') is a small situation, as required by the adverbial *in quel momento*, the branches of the forward-expanded situation  $f\text{-exp}(s)$  may be included by the temporal trace of a singular event of Gianni driving a sports car. The natural choice for instantiating the Davidsonian quantifier is indeed a singular event in this case, which is spread out over the reference situation and its expected continuations. The resulting reading is that a singular event of Gianni driving a sports car was in progress at  $s$ . Notice that the analysis does not have the unintuitive side effect that the sports car may vary with each branch  $b$  of  $f\text{-exp}(s)$ : the reference situation  $s$  itself has to be included by the trace of the event  $e$  having car  $x$  as its theme, and this implies that there must be a part of  $e$  which has already occurred at  $s$ , so that the car  $x$  involved in this part of  $e$  is the same which is expected to be driven in the continuations of  $s$ .

The semantic analysis (A1-A3) and the pragmatic theory (A4) jointly explain why (2a) is odd on the habitual reading: if  $s$  is a large situation, in order for any branch of  $f\text{-exp}(s)$  to be included by the temporal trace of an eventuality  $e$  of Gianni traveling on an IC train,  $e$  must be a plural event of Gianni traveling on an IC train, with the train being the same across the singular sub-events of the same type. But the proposition that Gianni habitually traveled on the same IC train conflicts with common knowledge: people who are used to travel by train normally travel on trains which differ across different traveling episodes. This explains why (2a) sounds odd on the habitual reading.

**Conclusion.** This paper provides a unified analysis of progressive and habitual readings of Italian bare imperfective sentences, in an event framework with PBT. On the proposed analysis, the difference between the two interpretations is related to the distinction between singular and plural events (Ferreira 2005): bare imperfective sentences are non-quantificational, while they involve plural events on their habitual reading. The analysis explains why a bare imperfective sentence with a singular indefinite embedded in its VP implies that the referent of the indefinite is the same across different episodes. This effect would be difficult to explain on a theory relying on a covert habitual quantifier. The oddness of the habitual reading of imperfective sentences like (2a) is explained on the basis of a mismatch between their implications of uniqueness and common knowledge.

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