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# On the compositionality of temporal locating adverbial modification

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Semantic puzzles raised by temporal locating adverbials —e.g., *ce soir-là* (that evening), *à huit heures* (at eight), *pendant la réunion* (during the meeting), *deux jours plus tard* (two days later)— have been less focused on than those involving temporal quantificational or duration adverbials —*à toutes les réunions* (during every meeting), *en une heure* (in one hour) [13, 15, 9]. But these adverbials, whose semantics amounts to the location of a single eventuality with respect to a time or another eventuality, are involved in phenomena apparently jeopardizing the compositionality of adverbial modification. In this paper, we focus on French data for which we propose an account in Segmented Discourse Representation Theory (SDRT [1]).

The compositionality issue we are interested in here appears for our approach to locating adverbials, which assumes that the location relation is contributed by the adverbial itself [3, 18]. This is against the standard view of, e.g., [12, 14, 17] which assumes that the adverbial simply qualifies a temporal referent systematically introduced along with the location relation by the tense. The standard approach is unable to grasp the semantics of those locating adverbials that involve distance and other temporal relations than simple inclusion. It also cannot account for the fact that temporal NPs such as *that evening*, *monday*, *the following day* are referential expressions and should introduce themselves temporal referents.

As in DRT and SDRT, we use the coarse binary event / state ontological distinction among eventualities. Such a distinction is generally marked by tense (e.g., *Imparfait* and *Passé simple*) in French narrative texts, but possibly results from a combination of the Aktionsart of the argument-predicate structure, tense and aspect, and even the larger discourse context (see e.g., [14, 8]). It might be argued that finer-grained distinctions are needed [9, 6] but for the purposes of this paper, this binary distinction suffices.

We focus here on two sides of the compositionality issue: the change of the location relation in the semantics of the adverbial when combined with an event or a state as in (1) (see [14, 17]), and the change of eventuality category introduced by the semantics of the *Plus-que-parfait* when the locating adverbial changes position in the sentence as in (2) (see e.g., [11]).

- (1) a. *Ce soir-là* ( $t$ ), *Marie alla au cinéma* ( $e$ ) (That evening, Mary went to the movies)  
 $e$  is temporally included in  $t$
- b. *Ce soir-là* ( $t$ ), *il pleuvait* ( $s$ ) (That evening, it was raining)  
 $s$  and  $t$  temporally overlap
- (2) a. *Marie était rentrée à la maison à 8h* (Marie had come home at 8)  
location of the coming home event
- b. *À 8h, Marie était rentrée à la maison* (At 8, Marie had come home)  
ambiguous between location of the coming home event and location of the resulting state of having come home (i.e., being at home)<sup>1</sup>

[12, 14], as most formal semantic works on locating adverbials, disregarded the effects of different positions in the sentence. More recent work [13, 10, 11] follow syntacticians [16] who have shown that, although PPs usually are VP-adjuncts, preposed PPs<sup>2</sup> are not VP-adjuncts that have moved, but IP-adjuncts.<sup>3</sup> In particular, [10] shows that these different syntactic

<sup>1</sup>These two interpretations occur in contexts such as: *Qu'avait fait Marie ce soir-là ?* (What had Marie done that evening?) / *Où était Marie à 8h ?* (Where was Marie at 8?). Note that in English, the present perfect is not ambiguous (only resulting state reading).

<sup>2</sup>A right dislocation, as in *Marie était rentrée à la maison, à 8h*, something prosodically marked, is temporally interpreted as (2-b) and analyzed as IP-adjunct too.

<sup>3</sup>Locating adverbials do not have a fixed syntactic position, contrary to most adverbials. For instance, manner adverbials are always VP-adjuncts, and evaluative adverbials are always IP-adjuncts [5].

positions affect information partition, as illustrated by the different questions under discussion (QUD) in (3). However, this doesn't suffice to explain the changes in (1) and (2).

- (3) a. *John arrived at 8*: When did John arrive?  
b. *At 8, John arrived*: What happened at 8?

Other areas of linguistics have focused on the discursive implications of the IP-adjunct position of adverbials, something to be expected given their role external to the clause. In preposed IP-adjunct position, locating adverbials may take scope over several clauses grouped together in so-called “frames” thus transforming them in “frame introducers” [7]. In addition, preposed adverbials have a role in discourse segmentation as markers of discourse topic shifts [4]. In [18] we proposed a formal account of both the framing and the topic-shift roles within Segmented Discourse Representation Theory (SDRT [1]), on the basis of a new, “forward-looking”, use of discourse topics, originally introduced in SDRT for summarizing previous discourse. [2] shows that forward-looking topics are also involved in “inversed” occurrences of the discourse relation *Background*, as in (4-b) and as opposed to the standard (4-a), a discourse relation implying a spatio-temporal overlap between an event and a state.

- (4) a. *Marie rentra à la maison. Il pleuvait.* (Marie came home. It was raining.)  
b. *Il pleuvait. Marie rentra à la maison.* (It was raining. Marie came home.)

The present paper aims at showing that these two proposals can be combined and extended to explain the meaning changes involved in (1) and (2), preserving compositionality of adverbial modification.

Following [18], we assume that a standard existential closure on the semantics of an adverbial like *à 8h* in preposed IP-adjunct position yields an implicit clause (a new basic segment), corresponding to a new discourse topic. This forward-looking topic with initial propositional content “some event happened at eight”, similar to the QUD in (3-b), is expecting a segment to come (e.g., the clause modified by the adverbial and possibly others) to attach with the *Elaboration* relation to it.

Following [2] and classical studies on the anaphoricity of the French Imparfait, we assume that when a state is described in null context, there is an expectation that a foreground (an event or a sequence of events) is to come in the stage thus set. Indeed, (1-a) can stand alone and make a very short discourse, while (1-b) cannot. So, state-describing clauses in a null context also introduce a forward-looking topic segment (an event clause) expecting to be elaborated by some other event clause, and the state clause is attached by *Background* to this topic.

We now further assume that “non-spanning” locating adverbials, like those seen above, require that the eventuality they locate be an event, in contrast with “spanning” locating adverbials, like those built with the preposition *depuis* (since), which require to be combined with states. The location relation involved in a non-spanning adverbial like *ce soir-là* or *à 8h* is the temporal inclusion of the event in the time it refers to. This yields the standard interpretation of (1-a), even though the adverbial is IP-adjunct, because the main clause introduces an event and attaches to the topic with *Elaboration*, which also implies temporal inclusion, a transitive relation. When a non-spanning locating adverbial is IP-adjunct of a state-describing clause, as in (1-b), the main clause which introduces a state attaches to the topic (which is an event clause because of the adverbial) with *Background* instead (because of an ontological constraint of homogeneity imposed by the parthood relation in the semantics effects of *Elaboration*). This yields an overlap with the topic event, and so an overlap with the time *ce soir-là* refers to and in which the topic event is included, again recovering the standard interpretation. Note that the topic still expects some event-describing clause to elaborate it, which predicts that (1-b) cannot stand alone in null context.

Finally, to explain (2), we standardly [14, 8] assume that a perfect tense introduces both a past event and its resulting state. In a SDRT account, one eventuality must be identified as the

“main eventuality”<sup>4</sup> and since authors consider that the resulting state is focused on, it would seem natural to have the resulting state as the main eventuality, something adequate for the present perfect and the past perfect. For French *Passé Composé* and *Plus-que-parfait*, however, whether the main eventuality actually is the event or the state is decided by the discourse context, as seen in (2-b), and thus left underspecified.

When in VP-adjunct position, the composition process enables the adverbial expecting an event to locate the event that will be provided by the tense, a process in which the main eventuality label plays no role. When in IP-adjunct position, the attachment depends on the choice of the main eventuality (which depends on the context): if the event is chosen, the main clause will elaborate the topic segment generated by the adverbial, which is an event clause (because *à 8h* is non-spanning); if the state is chosen, the main clause will not elaborate the topic segment, it will attach by *Background* instead, with the expected semantic effects as above.

To sum up, our approach assumes a unique semantics for the adverbials and the tenses, and acknowledges the contribution of IP-level composition in discourse representation construction.

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<sup>4</sup>The main eventuality is a label on one eventuality of the segment, to be used at the semantics-pragmatics interface, i.e., at the discourse level, but this label plays no role within the semantics of the segment itself.

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