

Signalling rhetorical relations in participial and gerundive clauses in European Portuguese

Sentences with non-finite adverbial clauses (NFA) can convey different rhetorical relations (RR) in European Portuguese (EP), which can be easily identified whenever there is a discourse marker (DM) present (cf. (1)). In most of these cases, the lexical information carried by the DM is sufficient to infer the relation of meaning. The task becomes much more difficult when NFA are not introduced by any DM (cf. (2)). In these cases, we have to rely on other information sources. Our aim in this presentation is to determine how the RR are signalled in NFA, in particular, gerundive and participial clauses that are not introduced by any DM.

- (1) *Logo que anunciada a ideia, as mulheres aderiram maciçamente a ela. (Corpus)*
As-soon-as that announced the idea, the women adhered massively to it.
As soon as the idea was announced, the women adhered massively to it.
- (2) *Anunciada a ideia, as mulheres aderiram maciçamente a ela.*
Announced the idea, the women adhered massively to it.
As soon as the idea was announced, the women adhered massively to it.

Asher & Lascarides (2003)'s theoretical framework includes RR whose inference depends on two sorts of information sources: linguistic (the most relevant), as lexicon and compositional semantics, and non-linguistic, as world knowledge. These sources, combined with the semantics of RR, provide the necessary knowledge to compute RR. Within linguistic sources, tense, aspect and lexicon play a crucial function (Asher & Lascarides (2003), a.o.; for EP, Silvano (2010), Cunha & Silvano (2008), a.o.). Regarding lexicon, the relevance of certain cue-phrases is undisputable and they have been central for automatic annotation of RR (cf. Penn Discourse Treebank and RST Discourse Treebank). However, not all RR are signalled by cue phrases and the same cue-phrase may signal different RR (Silvano (2010)). Thus, other lexical units and the relation they establish with each other are essential to solve underspecification (cf. Pustejovsky (1995), Asher & Lascarides (2003), Taboada (2013)). In fact, to fully capture the process of inference of RR, and to be able to extract them automatically, we have to consider other ways of signalling them, besides DM (cf. Taboada (2009; 2013)).

In the sequence of works such as Cunha, Leal & Silvano (2008) and Leal, Silvano & Oliveira (2016) for the EP, the main problems we intend to address in our research are: (i) which rhetorical relations are conveyed by sentences with gerundive and participial clauses? (ii) which linguistic information sources intervene in the process of inference of rhetorical relations in the absence of DM?

We will show that in EP there is a correlation between the temporal and aspectual nature of the participial and gerundive forms and the type and diversity of RR that are available in these structures. To achieve this goal, we built a newspaper genre *corpus* to be annotated manually with RR.

Our analysis led to some conclusions. With respect to sentences with participial clauses, the temporal and aspectual features (Duarte & Oliveira (2010)) of the past participle impose some restrictions on the RR that can be ascribed to these sentences. In fact, depending on whether the past participle is eventive, resultative or stative (cf. Duarte & Oliveira (2010); Embick, (2004)), we are able to infer different RR. Furthermore, the data reveals that the clause of participle does not locate in all cases the situation of the main clause in the resultant state, contrary to what is assumed, which allows for different temporal relations and different RR between the situations represented by the two clauses. By default, the past participle is resultative, the temporal relation established between the situations in these structures is temporal successivity and the RR we infer is Narration (cf. (2)). However, when the past participle is stative as in (3), the temporal relation is of overlapping, which leads to a different RR, Background.

- (3) *Acesa a luz, todos os pormenores do quarto eram visíveis.*
Turned-on the light, all the details of-the bedroom were visible.

Being the light turned on, all the details of the bedroom were visible.

As to the data of sentences with gerundive clauses, our analysis reveals that the simple gerund behaves differently from the perfect gerund. Following Leal (2001; 2011) hypothesis about the temporal information of the gerund, which is related to the Temporal Perspective Point (PPT) (cf. Kamp & Reyle (1993)) and partially determines the aspectual properties and temporal readings of the predications, we consider that in EP the simple gerund bears the feature [present] and the perfect gerund the feature [past]. These features influence the process of interpretation of this type of discourse. For instance, the temporal restriction imposed by the perfect gerund limits the RR that can be inferred whenever this form is present. Since the situation described by the gerundive clause is always anterior to its PPT, which is by default the time interval of the main situation, the RR available are the ones with the temporal consequence of anteriority between the gerundive clause and the main clause (cf. (4)). Nonetheless, when interpreting gerundive clauses, other factors can be responsible for other readings, such as the aspectual nature of the gerund (eventive or stative), as well as the position of the gerundive clause.

- (4) *Foi o caso (...) de uma vítima que, tendo sido colocada no porta-bagagens, que ficou mal fechado, acabou por cair à estrada. (Corpus)*
It was the case (...) of a victim who, having been placed in-the trunk, that stayed badly closed, ended by fall to-the street.
It was the case (...) of a victim who, having been placed in the trunk, that wasn't properly closed, ended up by falling into the street.

We argue that a global and systematic research of NFA, with a semantic approach of temporal and aspectual features, will not only lead to a better understanding of the mechanism of processing RR, but also will improve their production and comprehension in automatic processes like translation and automatic sentence reduction. The expected result of our proposal is a contribution to a better understanding of (i) the temporal and aspectual features of participial and gerundive adverbial clauses; (ii) the signals which can be used to identify the correct RR, manually and automatically; (iii) the meaning postulates of RR.

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