

# Discourse Linking by Clitic Left Dislocation

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Interpreting a discourse involves the interaction of various sources of information. In addition to the linguistic knowledge given by the semantic content of an utterance, successful interpretation relies on, among other factors, the structure of the surrounding discourse, and the informational structure of an utterance which is reflected by the use of particular syntactic constructions. The question addressed in this paper is how the information flow between these knowledge sources can be integrated in a theory of discourse interpretation. We propose an account of a construction found in romance languages, clitic left dislocation, a device used to link an utterance to its preceding discourse. We will outline the contributions of pragmatics and general world knowledge.

**Framework.** Starting point is the assumption that discourse interpretation consists of at least two levels. At the first level, from the semantic content given by the linguistic data, an underspecified semantic representation can be constructed. For representation, we will use a variant of SDRT [3]. At the second level, semantic representations are further enriched by defeasible pragmatic inferences. This is a necessary part of the interpretation process: for an utterance to be understood as intended, referring expressions must be linked to entities in the world, and the utterance must be linked to its preceding discourse context. To represent these inferences, we use a nonmonotonic conditional operator ' $>$ ' [4].  $A > B$  means: *if A then normally B*.

We presume that the interpretation process involves constructing incrementally a structured mental representation of the discourse. In a successful interpretation, all information - not only expressed directly by linguistic means, but also indirectly inferred by pragmatic inferences - will be part of this discourse representation. Interpretation then can be seen as finding a minimal model for the discourse [8]. As byproducts, discourse relations are established, and the reference of anaphora are resolved.

Following [3], we assume the basic principle that discourses must be coherent, a property mainly achieved by two things. Firstly, an utterance is attached to the previous discourse by one or more discourse relations. Secondly, coherence can be augmented by coreferring discourse anaphora. They express a semantic relationship between two discourse referents. If this relationship is *identity*, then the anaphora is coreferential to its antecedent. In other cases, the particular relation, e.g. *part-of* or *element-of*, must be inferred by the hearer. Then we speak of indirect discourse anaphora, or bridging inferences, a notion first introduced by Clark [6].

**Clitic Left Dislocation.** Some languages, especially romance languages, have a special device often used to express bridging relations, called clitic left dislocation (CLLD). In these constructions, a phrase is moved out of its original position to the left periphery of a sentence. In the main sentence, a resumptive clitic pronoun is left behind. Dislocated phrase and clitic pronoun refer to the same entity. We present a Spanish example in (1).

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| (1) a. Juan preparó la comida.<br>Juan prepare-PAST DEF meal | b. La carne, la quemó.<br>DEF meat CL he-burn-PAST |
|--|--|

In utterance (2b), the noun phrase *la carne* ("the meat") is moved to the left periphery, and the clitic pronoun *la* is left behind. An utterance without CLLD in canonical form "Quemó

la carne." ("He burned the meat.") would also be acceptable, but it fits differently into the surrounding discourse. It seems that the dislocated phrase must be connected somehow to a preceding utterance. It is this difference that needs to be explained.

There is a discussion in the literature on the subject whether CLLD has a contrastive semantics or not. Following [5], (clitic) left dislocation in Romance has the discourse property of a *link*, an expression that directs the hearer to a given address in his mental discourse representation. The information carried by the utterance is entered under this address. As Brunetti claims, a link always implies the existence of an alternative set: the hearer has to select the address among a set of possible ones in the relevant context. Brunetti further argues that a link can have a contrastive interpretation or not, depending on the context. On the one hand, in a non-contrastive interpretation, the contextual alternatives to the link are simply not taken into account by the hearer. This is the case when CLLD is used to start a story. On the other hand, in a contrastive interpretation, the members of the alternative set are contrasted with each other. For this to be the case, the discourse context has to provide a subordinating discourse relation with a bridging anchor for the dislocated phrase in the superordinated constituent. To illustrate this point, look at the following data given by López [9].

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|---|---|
| (2) a. Juan ha traído los muebles en un camión.<br>Juan brought the furniture in a truck. | b. Abre el camión y<br>he-opens the truck and |
| c. # la mesa, la lleva a la cocina.<br>the table CL he-brings to the kitchen.             |   |

Discourse (2) is infelicitous. It conveys a *Narration* relation between (b) and (c), as indicated by the discourse marker *y* ("and") and the temporal sequence of events. In contrast, discourse (3) is perfectly acceptable. There is a *Narration* relation between (b) and (c), and (d) is an *Elaboration* of (c).

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|---|---|
| (3) a. Juan ha traído los muebles en un camión.<br>Juan brought the furniture in a truck. | b. Abre el camión y<br>he-opens the truck and |
| c. empieza a subirlos a casa.<br>he-starts to put-them into the house                     |   |
| d. La mesa, la lleva a la cocina.<br>the table CL he-brings to the kitchen.               |   |

López' explanation for this kind of data is as follows. Because in (2) only a coordinating *Narration* discourse relation can be established, there is no justification for the use of CLLD in this context. But in discourse (3), the subordinating *Elaboration* relation allows to identify the dislocated phrase *la mesa* ("the table") as part of *los muebles* ("the furniture") mentioned in (a) and (c).

Given the subordinating nature of contrastive CLLD utterances, we can claim that the dislocated constituent is the element of the alternative set which makes the predication of the sentence true. In example (1), the alternative set would be the meal, and it is true just for the meat that Juan burned it, not for the vegetables or any other part of the meal.

**Interpretation.** In Russellian tradition, the meaning of a definite noun phrase can be characterized as follows [1]:  $\lambda Q.Q(\iota x(B(x,a) \wedge P(x)))$ . This expression applies a predicate *Q* (the verb meaning) to the entity *x*, for which *P* (the meaning of the NP) is true and that is related by a bridging relation *B* to some contextually given antecedent *a*. Additionally, as Asher and Lascarides [2] point out, a definite noun phrase presupposes the existence of an underspecified discourse relation. In the case of a left dislocated definite NP, this relation can be further specified as subordinating. We slightly modify their representation of definites as given in [2] to reflect the constraint on discourse structure imposed by the dislocation: there must

be a subordinating relation  $R$  between the utterance  $u$  containing the dislocated element and some previous utterance  $u'$ . The parameter  $R$  has to be specified by a particular subordinating discourse relation in a process of pragmatic enrichment. In addition to the semantics explicitly expressed by the linguistic input, and apart from information about the discourse structure, some general world knowledge is necessary, formalized in (4).

- (4) a.  $\text{meat}(x) \wedge \text{meal}(y) > \text{part-of}(x, y)$
- b.  $e' : \text{prepare}(x, y) \wedge e : \text{burn}(x, z) \wedge \text{Rel}(z, y) > \text{part-of}(e, e')$

The default rule (a) says that meat can be part of a meal, possibly but not necessarily. The default rule (b) states that if something is burned that stands in a relation  $\text{Rel}$  to something being cooked, then the burning event is normally part of the cooking event. In the example, the relation  $\text{Rel}$  can be specified as *part-of*. By means of this rule, the preconditions to infer the subordinating *Elaboration* discourse relation, as shown in (5), are met. For space restrictions, we refrain here from a full representation as SDRS.

- (5)  $u_1 : \boxed{e_1} \wedge u_2 : \boxed{e_2} \wedge \text{part-of}(e_2, e_1) > \text{Elaboration}(u_1, u_2)$

Interpretation of a discourse consists of finding a minimal model for the discourse. This can be done by model generation [8]. Here minimality means to minimize the number of different discourse referents, unifying them whenever possible. At the same time the number of applied defaults is maximized. Formally, this preference can be captured by Cohen's [7] general low-ranked default (6) that means that unless there is evidence for the contrary, two discourse referents can be assumed to be equal.

- (6)  $> x = y$

The basic principle of discourse coherence makes sure that the numbers of discourse relations and anaphoric links are maximized.

## References

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