

# Temporal order, short-term memory and the processing of conjunctive sentences

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Conjunctive sentences that report two past events give rise to so-called *temporal implicatures*, i.e. they suggest that the described events happened in the order of mentioning: (1a) suggests that Julia got married after finishing her PhD, whereas (1b) suggests the reverse order.

- (1) a. *Julia finished her PhD and got married.* b. *Julia got married and finished her PhD.*

In Grienan framework this phenomenon is described as follows: semantically (1a) and (1b) are equivalent and the literal meaning of the connective “and” does not include the information about the temporal order of events. The temporal asymmetry arises pragmatically, based on one of the submaxims of the Maxim of Manner, requiring interlocutors to be “orderly” in their communication. Other accounts suggest that the effect may not be a purely pragmatic phenomenon (Kamp and Reyle, 1993; Partee, 1984).

Many conjunctive sentences describe events that are linked in some way and we often have “script” knowledge regarding the natural order in which the events normally happen (e.g. *She washed her hair and dried it*). However, the events do not need to be related, in which case the only temporal order that is suggested is the order in which the events are mentioned. For example, *Julia read a book and sang a song* reports two events that could theoretically happen in any order. Furthermore, the temporal implicature may sometimes not arise, if the order of events is not contextually relevant.

The project’s research question is whether the temporal ordering is inherent to the meaning of conjunctions and/or the structure of our narration, or whether it arises solely based on contextual factors, such as the link between the reported events. Here, I present results of an **ongoing** ERP experiment investigating the effect of temporal order violation on the processing of conjunctive sentences in contexts where the order is based on the presented scenario and not on the script knowledge. The experiment consists of a paradigm resembling a memory game, in which participants assign points to a virtual player and read sentences describing the game events. Depending on the condition, the order of the game events is either **relevant** or **irrelevant** for the assignment of the points. The target sentences describe the events in the **correct** or **reversed** order.

Our preliminary results (N=10) show a **late positivity effect** for the violation of the temporal order, observed on the first noun at which the order violation can be detected. This effect appears to be independent on whether the order is relevant for the points’ assignment.

## References

Kamp, H. and Reyle, U. (1993). *From discourse to logic*. Dordrecht: Kluwer.

Partee, B. H. (1984). Nominal and temporal anaphora. *Linguistics and Philosophy*, 7(3):243–286. <http://www.jstor.org/stable/25001168>.