

**PM, Propositional Model, a Computational
Psycholinguistic Model of Language Comprehension
Based on a Relational Analysis of Written English**

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Abstract

PM (Propositional Model) is a computational psycholinguistic model of written language comprehension. PM is a highly interactive model. Written English text is processed directly into propositional representations. There is no separate syntactic analysis and no distinctly syntactic representations exist. The processing mechanism is lexically driven and most knowledge of language is assumed to be encoded in the lexicon. Of particular importance to the processing mechanism are the relational lexical items in the input text. These lexical items set up expectations which drive the processing mechanism and determine the possible propositional structures.

PM's system of representation is propositionally based. Propositional representations consist of predicates (i.e. relations) along with their associated arguments. There are two basic types of arguments: (a) object arguments, and (b) propositional arguments. Based on a categorization of English sentence types in terms of the above propositional categories, eight basic propositional forms have been identified. Examples of each propositional form are presented and possible extensions are discussed. The representation of object arguments is also considered. PM's system of representation is at a level of abstraction above that of traditional grammar. The relationship between PM and traditional grammar is explored.

The processing of written English text into propositional representations is driven by the expectations of the relational elements in that text. If a relational element expects an argument to occur before it in the text, then that argument is assumed to be available in short-term memory. If the relational element expects an argument to occur after it, then the relational element must be retained in short-term memory until the argument is available to be instantiated into it.

The development of PM has been most heavily influenced by the research of Y. Wilks (Preference Semantics), R. Langacker and G. Lakoff (Cognitive Linguistics), T. Givon (Functional-Typological Grammar), W. Kintsch and J. R. Anderson (Propositional Representations), G. A. Miller and P. Johnson-Laird (Lexical Semantics), and P. Johnson-Laird (Mental Models).