

## This Week's Citation Classic®

Kintsch W & van Dijk T A. Toward a model of text comprehension and production.  
*Psychol. Rev.* 85:363-94, 1978.  
[University of Colorado, Boulder, CO; and University of Amsterdam, The Netherlands]

The semantic structure of texts can be described both at the local microlevel and at a more global macrolevel. A model for text comprehension based on this notion accounts for the formation of a coherent semantic text base in terms of a cyclical process constrained by limitations of working memory. Furthermore, the model includes macro-operators, whose purpose is to reduce the information in a text base to its gist, that is, the theoretical macrostructure. These operations are under the control of a schema, which is a theoretical formulation of the comprehender's goals. The macroprocesses are predictable only when the control schema can be made explicit. On the production side, the model is concerned with the generation of recall and summarization protocols. This process is partly reproductive and partly constructive, involving the inverse operation of the macro-operators. The model is applied to a paragraph from a psychological research report, and methods for the empirical testing of the model are developed. [The SSC® and the SCJ® indicate that this paper has been cited in more than 800 publications.]

the salient characteristics of the texts to be investigated as well as the reader's responses to these texts, which were often free recall protocols. With "Toward a Model of Text Comprehension and Production," T.A. van Oijkand I added a new element in 1978: no longer concerned with merely analyzing language, we proposed to model how subjects understand and produce that language. That is, we shifted the level of discourse from descriptive systems to process models. This proved to be a major step, leading up to the current scene which is characterized by rich experimental and theoretical work on discourse processing from a large group of researchers in psychology, education, linguistics, and artificial intelligence.

What is important for me about this paper is that it was a beginning, not an end. Our 1983 book<sup>2</sup> is an elaboration of this article, showing how the framework developed there could be applied to a broad range of discourse comprehension phenomena. The next step beyond that was a 1988 paper,<sup>3</sup> where the previously neglected problem of knowledge use was approached in a new way: A hybrid model combining the virtues of production systems and connectionist constraint satisfaction mechanisms was introduced to model the role of knowledge in comprehension.

Van Dijk, a Dutch linguist, and I began to collaborate in 1975. I had read his dissertation and he had read some of my work, and we were both interested. He came to Boulder, and we spent several exciting days in animated discussion. When I woke up the day after he left, and he arrived in Amsterdam, we both found that we could not remember anything from our discussions. On future occasions we were careful to take copious notes, so that we could work for several months independently on the ideas we had generated together. This sounds quaint in the days of e-mail, but it worked well for quite a few years. After the 1983 book our ways separated, van Dijk turning in a socio-linguistic direction, whereas I chose to stay with the initial cognitive emphasis on language comprehension and memory.

Fifteen years after its publication "Toward a Model of Text Comprehension and Production" is still a paper graduate students read to learn about text processing. There have been many new developments in this field, but they have built on the foundation provided in this paper, rather than supplanting it

### The Long and Crooked Way Toward a Model of Text Comprehension

Walter Kintsch  
Department of Psychology  
University of Colorado  
Boulder, CO 80309-0345

In the early 1970s psychologists were busy (re)discovering meaning and discourse. The cognitive revolution was young, vigorous, and victorious, and, having discarded nonsense syllables, we were impatient with word lists and even isolated sentences, and wanted to work with real texts. We turned to linguists and logicians to show us how. Several authors developed systems for the representation of meaning which proved to be quite useful in that they allowed a great deal of psychological experimentation with textual materials. My own contribution to this effort was *The Representation of Meaning In Memory*.<sup>1</sup> These systems provided unite of analysis, such as the "proposition," not to be confused with its logical ancestor, that allowed us to scale and measure

1. Kintsch W. *The representation of meaning in memory*. Hillsdale, NJ: Erlbaum, 1974. 279 p. (Cited 890 times.)

2. Tan Dijk T A & Kintsch W. *Strategies of discourse comprehension*. New York: Academic Press, 1983. 418 p. (Cited 205 times.)

3. Hnuch W. The use of knowledge in discourse processing: a construction-integration model. *Psychol. Rev.* 95:163-82, 1988. (Cited 95 times.)

Received June, 1993