Potts G R. Information processing strategies used in the encoding of linear orderings. *J. Verb. Learn. Verb. Behav.* 11:727-40, 1972.
[Department of Psychology, Indiana University, Bloomington, IN]

People were tested for their ability to remember a short paragraph. They responded more quickly and accurately to inferred information than to the information that was actually presented. This result provided strong evidence for the constructive nature of comprehension and memory. [The *Social Sciences Citation Index*® (*SSCI*®) indicates that this paper has been cited in over 100 publications since 1972.]

George R. Potts
Department of Psychology
University of Denver
Denver, CO 80208-0204

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"This research, which was to become my dissertation, was stimulated by a National Science Foundation-sponsored institute on 'Theories of Higher Mental Processes' held at the University of Minnesota in the summer of 1970. It was an exciting time for the cognitive group at Minnesota because two graduate students, John Bransford and Jeff Franks, had just completed a series of studies that effectively discredited the most influential theory of discourse comprehension and memory of the time.[1,2] They showed that people do not comprehend and remember discourse by constructing and storing the linguistic deep structure of individual sentences. Unfortunately, they did not provide any well-specified alternative. If people do not store deep structures, what do they store? When I returned to Indiana University that fall, I decided to try to address that issue.

"I began by asking a fairly simple question about the form of the stored information; namely, do subjects deduce and store inferences while they are reading or are such in-ferences made only at the time the subjects are tested? To answer this question, it was first necessary to find a type of information structure that enabled a clear distinction between information that was necessary and information that was redundant and therefore deducible. Linear orderings had this property. If a person is told the relation between the adjacent pairs in such an ordering (e.g., 'The bear is smarter than the hawk,' 'The hawk is smarter than the deer'), the transitivity inherent in the relation makes it possible to deduce more remote relations (e.g., 'The bear is smarter than the deer'). The decision to use linear orderings in this project was, without a doubt, the luckiest decision I made.

"My initial intent had been to examine how long it took subjects to respond to inferences as a function of the number of study trials. Though it seemed clear that reaction time to the deducible pairs should initially be longer than reaction time to the presented pairs, I felt that if subjects deduced and stored inferences while studying, this difference should decrease with increased study opportunities. I was quite unprepared for the actual results. Reaction time was substantially shorter and the proportion correct was higher on the deducible pairs than on the presented pairs. This effect was demonstrated by virtually every subject right from the very first study trial.

"Why has this paper been so frequently cited? The basic result provided very clear evidence for the constructive nature of comprehension and memory and, because the logical structure of a linear ordering is so clear-cut, it provided the basis for a variety of highly testable hypotheses regarding how such relationships might or might not be stored cognitively. In addition, the work proved to be relevant to work in an unexpectedly wide range of areas[3] including the comparison of visual stimuli, the comparison of information in semantic memory, the processing of set-inclusion relationships, the study of children's logical abilities, and the Huttenlocher-Clark controversy[4,5] over how people solve three-term series problems."

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3. Potts G R, Banks W P, Kosslyn S M, Moyer R S, Riley C A & Smith K H. Encoding and retrieval in comparative judgements. (Castellan N J, Jr. & Restle F, eds.) *Cognitive theory.* Hillsdale, NJ: Erlbaum, 1978. Vol. 3. p. 243-308.
4. Clark H H. Linguistic processes in deductive reasoning. *Psychol. Rev.* 76:387-404, 1969. (Cited 215 times.)
5. Huttenlocher J. Constructing spatial images: a strategy in reasoning. *Psychol. Rev.* 75:550-60, 1968. (Cited 125 times.)

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