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Author(s): Brian MacWhinney

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New directions in discourse processing. Edited by ROY O. FREEDLE. (*Advances in discourse processes*, 2.) Norwood, NJ: Ablex, 1979. Pp. xv, 336. \$23.95.

Reviewed by BRIAN MACWHINNEY, *University of Denver*

This collection of articles shows how frame theory can be used to describe a variety of issues in the area of discourse processes. From this evidence, it seems that such application of frame theory is here to stay.

It has often been noted that modern frame theory is not unlike the older theories of schemata proposed by writers such as Kant, Herbart, James, Köhler, Bartlett—and even Aristotle. But, in its modern incarnation, this theory has also emerged as an interlingua facilitating communication between the various sub-specializations that constitute the field of cognitive science. In their introduction to the current volume, M. Adams and A. Collins ('A schema-theoretic view of reading', 1–22) show how this interlingua can be used to account for letter recognition, word recognition, sentence parsing, and story-grammar processing. In a somewhat different vein, Deborah Tannen ('What's in a frame?', 137–81) shows how speakers can operate within a nested set of sociolinguistic role frames, including that of an 'experimental subject', a 'film viewer', or a 'film critic'. On yet another level, Tannen uses frame theory to handle grammatical phenomena such as ellipsis, false starts, and relativization.

This surprisingly powerful approach is really quite simple. Frames (or schemata or scripts) are viewed as data structures composed of a set of 'slots', which can be filled by variables which may assume default (i.e. presupposed) values. Frames may embed themselves recursively or hierarchically. The activation of a given frame during processing can occur on the basis of data from its components (bottom-up), or its membership in a higher-order frame (top-down), or cross-level expectations. (For further discussion of the notion of a frame, see the introductory article by Adams & Collins, the first half of the article by Tannen, and articles published elsewhere—Minsky 1975, Rumelhart 1977, and Rumelhart & Ortony 1977).

It is important to note that most current uses of frame theory involve post-diction rather than prediction. This is, given a set of behavioral data, writers often find it possible to propose a set of frames that might have produced those data. In only a few studies have frames been used in an attempt to predict actual behavioral data; and in these, there is often a variety of simple alternatives to the frame-theoretic account. Thus, the study by N. Stein and C. Glenn ('An analysis of story comprehension in elementary school children', 53-120) attempts to demonstrate the reality of certain story frames by scrambling sentences within passages. However, as is argued in the adjacent article by Warren, Nicholas & Trabasso (p. 49), poor recall of scrambled passages can also be explained in terms of a disruption of normal inferential processes. In fact, experimental demonstrations of the psychological reality of frames GENERALLY turn up results that can be attributed to such alternative processes as analogy, response competition, or simple inferencing. Despite these problems, attempts to provide some experimental basis for frame theory will undoubtedly continue. Meanwhile, the theory can play an important role in allowing us to articulate a unified theory of discourse processing.

Although the general research direction represented in this collection seems promising and exciting, the actual findings reported are often less than fully substantive. Let us examine each article in its order of appearance.

The first article, by Adams & Collins (noted above), is well-written; it provides a useful review of the application of frame theory to text processing on the level of the word as well as on the syntactic, semantic, and interpretive levels.

W. Warren, D. Nicholas & T. Trabasso, 'Event chains and inferences in understanding narratives' (23-52), present a taxonomy of inference types which is then related to an 'event chain' model of narrative discourse. It is difficult to evaluate this article, because the exact goal of analysis is never made fully explicit. However, certain problems with the taxonomy should be noted; e.g. inferences regarding the referents of pronouns are distinguished from inferences regarding the referents of full NP's—but such a distinction is basically unmotivated, since both types of inference make similar use of processes such as anaphora, deixis, and topicalization (Halliday & Hasan 1976). A second problem here is that the authors attempt to explain referential inferences exclusively in terms of the frames supplied by 'world knowledge'. In fact, syntactic and textual frames seem to play equally important roles in determining many referential inferences (Charniak 1973). A third problem is that the authors propose a division of causal inferences into (a) voluntary acts performed by animate beings, (b) involuntary acts performed by animate beings, and (c) acts performed by inanimate beings. Certainly the animate/inanimate distinction is realistic enough, but how can one know when an act of an animate being is involuntary? Moreover, one may wish to ask what importance these different frame types have for a theory of human inference.

The article by Stein & Glenn, already mentioned, reports a series of attempts to use recall measures to demonstrate the psychological reality of the frames known as story grammars. However, as noted by Warren et al., the results can also be explained in terms of a theory of inferences based on world knowledge. Since the inferential theory is needed anyway, it is not clear why one needs to postulate psychological reality for story-grammar frames on the basis of these data. Similar criticisms apply to a number of other studies in the cognitive literature (Kintsch & Van Dijk 1976, Mandler & Johnson 1977, Rumelhart 1975, Thorndyke 1977).

Roy Freedle and G. Hale 'Acquisition of new comprehension schemata for expository prose by transfers of a narrative schema' (121-35), attempt to demonstrate the psychological reality of discourse frames in a somewhat different and rather ingenious manner. They note that, when kindergartners are first told a story in a narrative style, and then retold the same story in an expository style, the recall of the expository passage is greatly facilitated. Freedle & Hale argue that these results demonstrate the facilitation of processing by frame transfer. They seem to

be using the notion of frame here in a fairly specific sense to refer to the particular frame generated by a particular narrative. However, as in the Stein & Glenn study, it is not clear whether the whole frame is being transferred, or rather the individual fragments or segments of the story.

In her long but rewarding paper (mentioned above), Tannen applies frame analysis to a series of film descriptions gathered from Greek and American college students. This work is part of a series of studies organized by Chafe 1977a,b, to examine the ways in which subjects recall and verbalize material contained in a short movie with a very loose plot and no dialog. In her paper, Tannen capitalizes on the notion of frame to provide a unified account of phenomena on quite different levels. First she discusses the ways in which subjects impose speech-act frames on the over-all communicative task. Then she notes how subjects use world-knowledge frames regarding events and objects to generate descriptions. She finds that Greek and American subjects produce different importations to their stories, as a result of cultural differences in their frames for objects and events. Finally, she lists a variety of textual and grammatical devices that provide evidence regarding the operation of frame-based expectations. This paper is a 'must' for anyone interested in discourse processes.

Three shorter papers follow. 'Toward a phenomenology of reading comprehension', by D. Nix and M. Schwarz (183-96), shows how a subject may respond to a text-processing task not on the basis of the stimulus itself, but on the basis of his/her own desires and frame-based expectations. 'Sociological approaches to dialogue, with suggested applications to cognitive science', by Roy Freedle and R. Duran (197-206), makes the important point that sociolinguistic patterns can be profitably treated as higher-order frames. Finally, Elinor Ochs, 'Social foundations of language' (207-21), shows how the use of a particular syntactic phenomenon (left-dislocation) derives quite directly from the fabric of the social interaction. (For further interesting data on the phenomenon of left-dislocation, see Duranti & Ochs 1979.)

'Modes of thinking and ways of speaking', by S. Scribner (223-43), examines the apparent inability of people in traditional cultures to reason syllogistically. She claims that this behavior indicates an unwillingness to accept the frame of syllogistic reasoning, rather than a true cognitive disability. To support her analysis, Scribner separates out the responses in which 'individuals used evidence contained in the premises' (233) from the responses in which they did not use such evidence. She finds that answers of the former type are never wrong. This seems to be powerful support for Scribner's original claim; but one can argue that failure to use evidence from the premises occurs when subjects are not sure of the logical status of their answers, and therefore try to avoid the formal task. Scribner herself lists three such avoidance strategies, and probably more exist. In general, it seems that a full evaluation of the logical abilities of tradition-oriented people will require not only a more detailed analysis of these avoidance strategies, but also the construction of corresponding modifications in the experimental task.

In the last three papers, the influence of frame theory is far less evident. Deborah Keller-Cohen, 'Repetition in the non-native acquisition of discourse' (245-71), analyses the use of repetition by two children learning English as a second language. She shows how they tend to impose turn-taking rules acquired in their first language to the task of producing English discourse. Perhaps the most interesting finding in this study is the fact that, over the eight-month course of the study, simple repetition tended to decline, while repetitions including additional (i.e. 'new') material tended to increase. Unfortunately, this trend seems to be significant for only one child, and significance levels are not reported for either subject.

L. Cherry, 'The role of adults' requests for clarification in the language development of children' (273-86), presents an interactive process model of requests for clarification in adult-child speech. The basic concept seems reasonable enough; however, in the summary flow-chart (276), tests are confused with actions. Moreover, it is not clear how one can relate the proposed processing sequence to the suggested typology of clarification requests. Or do the process model and the typology represent separate theoretical formulations?

Finally, P. Clements, 'The effects of staging on recall from prose' (287-330), attempts to demonstrate the psychological reality of Grimes's theory of staging (1975). There seems to be little new here, since the basic results have already been published by Kintsch & Keenan 1973 and by McKoon 1977.

Despite these problems with individual studies, the collection as a whole presents a nice picture of how frame theory can be applied to discourse processes. The book is well edited, and will be useful to anyone interested in exploring this new direction in discourse processing.

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The pidginization process: A model for second language acquisition. By JOHN SCHUMANN. Rowley, MA: Newbury House, 1978, Pp. ix, 190.

Reviewed by WILLIAM WASHBAUGH and FRED ECKMAN,
University of Wisconsin, Milwaukee

Analogies, in any intellectual discipline, are constructed so as to illuminate a murky issue by borrowing some light from a transparent one. The analogy at hand in this book is constructed in hopes of illuminating the process of second-language