Deixis in Narrative: A Cognitive Science Perspective

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There once was a group of researchers at the State University of New York at Buffalo called the Discourse and Narrative Research Group. Contrary to what the prototypical story opening to this review suggests, this group still exists, proof of which is their publishing a book of more than 500 pages (!) on deixis in narrative, studied from the perspective of cognitive science. The book is a collection of 20 separate papers, almost all written by one or more members or former members of the group.

The book's central topics are how deixis is used in narrative discourse, in particular, and how it is experienced by the reader. The study of deixis is approached from many different angles, including philosophy, theoretical and empirical linguistics, psycholinguistics, developmental psychology, literary criticism, and artificial intelligence; in short, at least all the disciplines constituting cognitive science.

The book is organized into four parts: Part I: Deictic theory; Part II: Deictic tracking in narrative; Part III: Subjectivity in narrative; and Part IV: Expansions of deictic theory.

In Part I, Erwin M. Segal, who is the head of the research group, introduces the theoretical framework, **Deictic Shift Theory**, that underlies most of the research presented in the rest of the book (Chapters 1 and 3). The main idea behind this theory is that a reader of a narrative is assumed to create a mental model of the "story world," and to imagine locating himself or herself within this world. Thus, the deictic center of the reader is shifted from the real-world situation to an image of himself or herself at a location within the story world. The reader experiences and interprets the story from this deictic center, which may move as the story unfolds. The author of the narrative can manipulate the deictic center of the reader by writing the story using a certain perspective (for instance, first-person narration, or represented speech). Part I also includes studies on deixis from a philosophical approach and a literary-criticism approach, as well as an implementation of Deictic Shift Theory to analyze literary texts (Zubin and Hewitt, Chapter 6). Two other chapters (4 and 5) are devoted to the computational approach of Stuart C. Shapiro, which is based on the SNePS knowledge-representation and reasoning system.

Part II contains computational theories, based on SNePS, of time and space in narrative, as well as psycholinguistic studies on the acquisition of deictic terms by children and the comprehension of spatial deictic terms by readers of narratives.

Part III comprises chapters about subjective experience in fictional narrative; i.e., the ways in which authors can represent subjective thoughts of characters or make objective statements about the story world. Most of these studies are rather exploratory, in the sense that different types of narrative in different languages are analyzed. In

particular, the use of (anaphoric) reference in different (subjective or objective) contexts is a topic of interest here.

Part IV provides extensions to deictic theory in the sense that discourse other than narrative and nondeictic topics are discussed here. Genres other than narrative include persuasive texts, way-finding directions, and interjections in discourse. David P. Wilkins convincingly argues that interjections should be treated as deictics (Chapter 16). Leonard Talmy (Chapter 19) tries to provide a cognitive foundation for the entire domain of narrative, in the form of a taxonomy of (deictic and nondeictic) parameters. In Chapter 20, a literary story is analyzed using Deictic Shift Theory and some of Talmy's categories.

The book is well-organized, and does not suffer from incoherence, a common deficit of collections of separate papers. This is accomplished, on the one hand, by the editors, who have written an instructive preface in which they glue the chapters together, and, on the other hand, by the authors, who have taken much effort to explain why their work fits into this particular volume. The latter becomes clear, for instance, by frequently occurring references to work by the other authors.

In general, the chapters provide much insight into how narrative works, especially in the ways that an author can lead readers through the story world, in terms of place, time, and the experience of subjectivity. Much of this work is empirically oriented, i.e., existing narratives are analyzed with respect to the factors mentioned above, sometimes supported by psycholinguistic evidence.

Computational linguists will probably find some of these chapters too "descriptive." However, they are served by some other authors who have tried to formalize some relevant factors, and have actually succeeded in producing algorithms that can comprehend simple narratives. The well-known work by Stuart C. Shapiro concerning SNePS, which was designed for research in artificial intelligence and cognitive science, is extended to the context of narrative to represent intensional knowledge by introducing a **story operator** to distinguish the reader's beliefs from the story world (Rapaport and Shapiro, Chapter 4; Shapiro and Rapaport, Chapter 5), and further, to represent time (Almeida, Chapter 7) and space (Yuhan and Shapiro, Chapter 8). Another author who tries to formalize aspects of narrative is Janyce M. Wiebe (Chapter 11), who has written an algorithm for processing reference in subjective and objective contexts. The algorithm is used by Bruder and Wiebe (Chapter 15) to carry out psychological experiments to study the recognition of subjectivity by readers.

As becomes clear from the editors' preface, the goal of the Discourse and Narrative Research Group is very ambitious. They aim at ultimately developing a complete theory of narrative fiction that will cover a broad range of types of narrative texts, as well as both the author's creation process and the reader's comprehension process. Given this ambitious goal, I hope they will live long and happily ever after to be able to achieve it!

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