

Context Models in Discourse Processing

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THE NEGLECT OF CONTEXT IN PSYCHOLOGY

Linguists, discourse analysts, and psychologists generally agree that context crucially influences the structures and processing of text and talk. However, whereas they have developed sophisticated theories of discourse structure and comprehension, the detailed structures of context and how these constrain language use have received much less explicit attention.

If context is taken into account in the psychology of text processing at all, it is usually reduced to one or more independent variables that are assumed to affect text understanding, such as goals, task demands, previous knowledge, gender, age, or different types of readers. Although interest in contextual constraints is increasing in psychology, contextual analysis itself remains marginal when compared to the attention to the role of variable text structures and genres, inferences, knowledge, and their mental processing (Graesser & Bower, 1990; van Oostendorp & Zwaan, 1994; Weaver, Mannes, & Fletcher, 1995). Thus, the notion of context may be wholly absent in the subject index of representative recent books on text understanding (Britton & Graesser, 1996).

Linguists and discourse analysts have paid a great deal of attention to the role of context, but have failed to develop explicit theories of text-con text relationships. As is the case in psychology, most sociolinguistic accounts tend to examine such relationships in terms of simple covariation, instead of analyzing the precise nature and strategies of contextual influ-

ence. Following the early work of Dell Hymes and his SPEAKING model of context (Hymes, 1962), ethnographic approaches have so far been most interesting (Auer & Di Luzio, 1992; Duranti & Goodwin, 1992; Gumperz, 1982). In another development influenced by anthropological linguistics, functional-systemic linguistics and social semiotics show how the structures of discourse are to be defined in terms of the main dimensions of the context of situation or register, such as ongoing action, participant roles, channel, and symbolic purpose (Halliday, 1978; Martin, 1992).

The most extensive work on context has been carried out in the social psychology of language (Brown & Fraser, 1979; Giles & Coupland, 1991), following various approaches to the social psychology of situations (Argyle, Furnham, & Graham, 1981; Furnham & Argyle, 1981; Forgas, 1979, 1985). Thus, Brown and Fraser (1979) presented a situation schema consisting of components such as Scene—consisting of Setting (Bystanders, Locale, Time) and Purpose (goals, tasks, topic)—and Participants and their various properties and relationships. Wish and Kaplan (1977), using multidimensional scaling, identified five basic dimensions people use in the interpretation of social situations: (a) co-operative—competitive, (b) intense—superficial, formal—informal, (d) dominant—equal, and (e) task-oriented—nontask-oriented (see also Forgas, 1985; Giles & Coupland, 1991).

Against this background of theory formation in psychology, linguistics, and discourse analysis, the present chapter first argues that, strictly speaking, *contexts do not directly influence discourse or language use at all*. Rather, it is the *subjective interpretation* of the context by discourse participants that constrains discourse production, structuration, and understanding (see also Giles & Coupland, 1991). That is, given a communicative event in some social situation, its participants actively and ongoingly construct a mental representation of only those properties of this situation that are currently *relevant* to them. Herbert Clark (1996) recently developed a theory of some elements of such represented situations in terms of the common ground participants share and extend during joint discursive and other action (see also Barwise, 1989; Cohen & Siegel, 1991).

Second, extending earlier work on mental models, it is argued that such subjective interpretations of contexts are to be represented in specific models stored in episodic memory (*viz.*, context models). Such context models are assumed to exercise the crucial overall and local control over all processes of discourse production and comprehension. A detailed analysis of these control strategies does not merely show *that* context (indirectly) shapes text and talk, but also *how* this happens exactly. In other words, context models are the necessary cognitive interface between text and context.

Thirdly, I show that context models are a special case of a more general kind of model (*viz.*, experience models). Such experience models represent

the ongoing, subjective interpretation of everyday episodes in the lives of social actors. They are discussed against the background of earlier work on event interpretation and on episodic and autobiographical memory. It is stressed that both context models and experience models should not be confused with, or reduced to, the familiar situation models of current theories of text processing. Whereas the latter provide the cognitive base for the semantics of the text, the former control its pragmatic, stylistic, and other properties that vary as a function of the communicative situation.

In order to focus our theoretical discussion, we use (the processing of) *news discourse* in the press as the specific genre for which more specific observations may be made. We use news discourse as an example because, besides everyday conversation and professional discourse, it is the kind of discourse most of us are confronted with most frequently. Also it is undoubtedly the kind of discourse from which we learn most about the world. Moreover, it is the discourse genre I have worked on most extensively, both theoretically and empirically, so that **I** have some insights into its contextual constraints (van Dijk, 1988a, 1988b, 1991).

It should be stressed that it cannot be the aim of this chapter to examine in detail all the context categories or properties that have been discussed (or ignored) in the literature, nor to propose an exhaustive list or a foundational theory of the discursive relevance of these categories. Rather, our much more modest objective is to stress that contexts are discursively relevant for language users only through their mental modeling, and to examine how such context models influence discourse processing. Also, our contribution is theoretical. Furthermore, empirical (experimental and other) research needs to be carried out to test and elaborate the various assumptions of the theoretical framework.

EVENT MODELS

Earlier work on mental models in episodic memory was limited to mental representations of what events, episodes, or situations discourses are *about* (Garnham, 1987; Johnson-Laird, 1982; Oakhill & Garnham, 1996; van Dijk & Kintsch, 1983). Such situation models (which **I** now prefer to call *event models* to avoid confusion with the communicative situation represented by context models) account for reference, co-reference, coherence, inferences, and other semantic aspects of discourse processing. Event models represent the subjective interpretation of discourse, the mental starting point of production, and what people later (correctly or falsely) remember of a discourse. Through generalization and abstraction, the information represented in event models provides the basis of socially shared knowledge. And conversely, during understanding, these models are constructed

from information derived from discourse and from such instantiated sociocultural knowledge. Much experimental work has confirmed and extended the basic tenets of this mental model theory (Morrow, 1990, 1994; Morrow, Bower, & Greenspan, 1989; see also Britton & Graesser, 1996; Lorch & O'Brien, 1995; van Oostendorp & Zwaan, 1994).

Instead of further detailing this theory of situation or event models, it may be pointed out that most current approaches disregard such models' embodiment of evaluative beliefs about events, that is, opinions (but see, e.g., Graesser, Singer, & Trabasso, 1994). The subjectivity of mental models is most typically represented not only by how people selectively interpret and represent events about which they communicate, but also by what opinions they have about the events.

The same is true for emotion. Thus, while reading a news report about genocide in Bosnia, we combine (a) new factual beliefs about historical events with (b) applied general information about genocide, (c) opinions about (failing) international intervention, as well as (d) emotions of sympathy with the victims. Each of these types of information may later act as a search and retrieval cue in recall of such complex event models.

For obvious contextual reasons that we spell out later, event models are typically richer in information than the discourses that express them: Most known information about an event may be uninteresting, irrelevant, inappropriate, or already known to the recipients and should therefore remain implicit. This means that we need categories in a context model that can handle such criteria of interestingness, relevance, and mutual knowledge and that can act as the communicative interface between event models and discourse structures. That is, pragmatic context models not only monitor how discourses are structured to make them appropriate to the context, but also regulate the relations between semantic event models and discourse (Robinson & Swanson, 1990).

EXPERIENCE MODELS

Context models are a special case of a more general type of model, which I call experience models. Experience models ongoingly represent, and make sense of the many episodes of our everyday life. Communicative events are not only functionally embedded in such episodes, they are themselves such daily episodes. The context models language users build to understand and manage communicative situations may therefore be expected to have the overall structure of such general experience models.

Before we list some properties of experience models (EMs), it should be emphasized that they should not be confused with event models construed for discourse processing, which may be about any event (e.g., the

news events we read about in the press). EMs and event models only are the same for autobiographical discourse, such as personal stories about past experiences. However, because of the primacy of personal experiences and daily routines of building EMs, the structure of event models may well be built in analogy with EMs. Also, it is plausible that event models that are similar to EMs are more accessible (Larsen & Plunkett, 1987). Where no comparable EMs are available to help understand discourse, instantiations of more generally socially shared knowledge, such as scripts (e.g., about wars, catastrophes, etc.) will be used to construct event models.

Let us now summarize some of the properties of experience models:

1. Experience models are subjective, unique interpretations of the specific episodes in which particular people participate daily.

2. EMs are stored in episodic memory (Tulving, 1983; but see McKoon, Ratcliff, & Dell, 1986). Together they define people's personal, autobiographical memory (Robinson & Swanson, 1990; Rubin, 1986; Thompson, Skowronski, Larsen, & Betz, 1996; Trafimow & Wyer, 1993).

- 3! EMs are the experiential basis of, but are distinct from, more general, context-free personal knowledge stored in episodic memory (Nelson, 1993). Such personal knowledge may be relevant for the construction of many different EMs at various moments of one's life, and may, for example, include personal scripts. Thus, "My shopping of this morning" represents an EM, whereas "My shopping" (or "My neighbor") would represent personal knowledge. Thus, personal scripts are typically derived from personal routines, that is, repeated mundane EMs.

4. As long as people are awake and conscious, they continuously are engaged in the construction of EMs. However, EMs themselves are *discrete*, and segment the activities of everyday life in a sequence of separate, meaningful episodes of different levels and sizes (Newtson, 1973). This process may be compared to the meaningful segmentation and interpretation of ongoing discourse as different units at various levels.

5. EMs consist of various kinds of propositional and analogical information organized by a limited number of categories defining an efficient model schema (Barclay & Subramaniam, 1987). Typical categories are Setting (Time, Location, Circumstances), Participants in various roles, Goals, and various types of Activities, as well as their properties.

6. Although EMs are different from scripts (which represent general, socially shared knowledge and not unique personal experiences) their schematic structure may be similar to the structure of scripts for routine activities (Graesser & Nakamura, 1982; Schank & Abelson, 1977). As episodic structures, therefore, EMs are closer to so-called MOPS (Schank, 1982; see also the earlier work of Schank on the representation of episodes, e.g., Schank, 1975).

7. Social scripts may be acquired through processes of generalization, abstraction, decontextualization, and social normalization of EMs. Conversely, once acquired, scripts will typically be applied and instantiated in order to construct routine EMs. It is still a matter of debate when, how, and how much social knowledge (and inferences derived from it) are integrated into EMs and other episodic models (Graesser & Bower, 1990; Trafimow & Wyer, 1993). Instead of integrating applied social knowledge in the models themselves, one might assume that the models merely feature pointers to such general knowledge. I assume, however, that EMs feature specific, situation-bound, that is, adapted instantiations of social knowledge—those and only those that are relevant for the current interpretation of ongoing episodes.

8. EMs are ongoingly construed in an effective *strategic* way, for example, online, tentatively, and hence possibly erroneously, using different information of various levels at the same time (van Dijk & Kintsch, 1983).

9. EM construction strategically uses and combines the following kinds of information: (a) interpreted sense data, (b) personal knowledge and scripts, including Self, (c) old EMs (personal memories of previous episodes), and (d) instantiated and adapted social knowledge and attitudes.

10. *Segmentation* of EM sequences is based on changes in the information stored under one of the category nodes (e.g., a change of place, time period, participants, or (overall) activity type).

11. EMs are typically segmented, understood, and recalled at (or above) some *prototypical middle-range* level, such as "my taking a shower" or "my having breakfast" rather than "my opening the door" or "my starting the car." Lower-level and basic actions are only attended to, separately stored, remembered, and talked about later in situations of trouble or when they otherwise become interesting or salient.

12. Model schema categories, together with higher-level *macrorepresentations* of activities, may also be used in the overall *organization* of EMs in episodic memory (e.g., "My time as a student," "My vacation in Spain," or "My life with Claudia," etc.; Anderson & Conway, 1993; Seifert, Abelson, McKoon, & Ratcliff, 1986). That is, EMs may be further organized at various levels into compound, complex, and higher-level EMs (Hanson & Hirst, 1989; Neisser, 1986).

13. Self is a central category in EMs. However, the unique *hic et nunc* nature of EMs requires that the actually constructed Self in an EM is also a unique construct. That is, it is a specific instantiation of a more general, abstract, and more permanent Self represented in episodic memory (Barclay & Subramaniam, 1987; Kihlström, 1993; Markus, 1977; Srull & Wyer, 1993). Again, this distinction shows the difference between EMs and more permanent episodic knowledge. The Self category organizes many of the

other categories of the EM schema, such as relations between participants, perspective, and so on.

14. As is the case for all models, EMs feature *opinions* and *emotions*, especially because of the personal relevance or involvement of the Self in these experiences (Neisser & Fivush, 1994). In the same way that scripts may be derived from abstracted, generalized, and socially normalized EMs, socially shared *attitudes* may be derived from EMs that feature personal opinions. And vice versa, attitudes may be instantiated in the construction of opinions in EMs (e.g., "My opinion now about this abortion" from "My group's opinion about abortion"). Obviously, as is the case for all personal instantiations of socially shared cognitions, EMs will always be unique and adapted to the current circumstances. Hence the individual variation of EMs.

15. EMs not only define the details of our personal past and present, they also represent overall designs of future actions, such as *plan*, *tasks*, and *goals*, which may also be used to retrieve EMs (Anderson & Conway, 1993; Wyer & Bodenhausen, 1985).

16. As forms of concurrent thought, EMs may represent unfinished business that gives rise to our everyday, involuntary *ruminations* (worries, regrets, anxiety, anticipation, etc.), especially when their goals have not yet been realized (Martin & Tesser, 1996; Singer, 1993; Wyer, 1996).

17. When being recalled, EMs may become the typical stuff of everyday *storytelling*, especially if they are relatively exceptional or otherwise interesting for recipient. However, stories are not only shaped by EMs but also by relevant *context models* that define the specific communicative goals and circumstances of storytelling. That is, for contextual reasons, storytellers may transform their EMs in many ways (Brewer, 1982; Bruner, 1987, 1994; Edwards & Middleton, 1986; Kerby, 1991; Labov & Waletzky, 1967; Lieblich & Josselson, 1994; Loftus, 1979; Means & Loftus, 1991; Nelson, 1989; Polanyi, 1985).

18. Changes of episodes in EMs may be represented in discourse by a change of underlying semantic episodes, each governed by a topic or macroproposition. Such a change, for example, of participants, setting, overall action, or perspective, is typically expressed by beginning a new paragraph in written texts (van Dijk, 1982).

These summarizing features of experience models each need to be developed in detailed theories. However, the idea of experience models is persuasive and nicely occupies a theoretical niche left open between such earlier notions as *situation model*, *script*, *autobiographical memory*, *personal knowledge*, *Self*, and the like. Indeed, experience models explain some of the relationships between these notions, while providing the basis for a more explicit theory of episodic and personal memory.

CONTEXT MODELS

As suggested, context models are special kinds of experience models. They represent communicative episodes in which we participate, often as part of other everyday episodes (conversation at breakfast, meeting at work, etc.). Because, among other elements of the situation, context models represent ongoing action, they are of course dynamic: They will be continuously *updated* during the processing of text or talk.

Different participants in a communicative event each have their own, personal context model, defining their personal interpretation of the current situation. However, discursive interaction and communication is possible only when such models are at least partly *shared*, synchronized, or negotiated. Indeed, participants may jointly produce and ongoingly update each other's models. Speakers may have partial models of the context models of recipients and vice versa, especially about the knowledge they share. Such mutual beliefs about each other's models are theoretically infinite, but in practice are constrained by contextual relevance (for details about mutual knowledge in language users, see Clark, 1996).

Context models have the same overall *schematic structure* as other experience models, but with specific categories tuned to communicative events. So far, these categories have only partly been made explicit in discourse analysis (e.g., age, gender, ethnicity, class, roles, power, goals, or beliefs of participants, as well as setting characteristics, such as time, location, and circumstances).

To distinguish explicitly between contexts and the full complexity of social situations (Argyle et al., 1981; Furnham & Argyle, 1981), we define contexts as the structure of all properties of the social situation that are *systematically relevant* for the production, comprehension, or functions of discourse and its structures.

Relevance may be both personal and social in this case, and is defined by the current context model (Sperber & Wilson, 1986). That is, it is not objective age, ethnicity, sex, or similar social features that constitute the context, but their socially based and mentally represented constructions as they are made or taken to be relevant by social members in interaction. This does not mean that anything goes. Despite personal and contextual variation, the relevance criterion is socially based while grounded in social rules and strategies. Precisely in order to distinguish between the theoretically infinite complexity of the social situation and the context constructed out of this situation, language users have learned to focus on those properties of the social situation that *aresystematically* relevant for discourse in a given culture. For instance, they know that speakers may vary formal discourse properties (such as pronouns) as a function of their (represented) age or gender rather than as a function of hair color or height. Moreover, efficiency

and strategic processing demands also require that the number of systematically relevant situation properties be relatively small.

The Structure of Context Models

Against the background of earlier work on context in discourse studies and psychology (see references given previously), I provisionally assume that context models are organized at least by the following schematic categories (definition and illustration of these categories are given later for news processing):

- I. DOMAIN
- II. SITUATION
 - A. Setting
 - A.1. Time
 - A.2. Location
 - A.2.1. Props
 - A.3. Circumstances
 - B. Events
 - B.1. Participants
 - B.1.1. Roles
 - B.1.1.1. Social roles
 - B.1.1.2. Interactional roles
 - B.1.1.3. Communicative roles
 - B.2. Action/Discourse
 - B.2.1. Action types, Genres
 - B.3. Cognition
 - B.3.1. Aims, goals, or purposes
 - B.3.2. Knowledge
 - B.3.3. Opinions
 - B.3.4. Emotions

The point of this model schema is to organize and reduce the complexity of the social situation in such a way that language users have an efficient device to contextualize discourse production and comprehension. As suggested before, the criterion of inclusion of each category is defined in terms of systematic relevance for a given language or culture: Properties of discourse have to be able to vary according to the information stored under each category of the schema.

The schema should be read as follows: A social situation is part of a social domain (such as politics, education, or law) and consists of a number of events in a spatiotemporal setting. These events themselves consist of participants with different roles and with different mental properties (e.g.,

goals and knowledge) engaging in various kinds of actions, of which the verbal action is the crucial one for the definition of a social situation as a context (for details, see following sections).

The seeming simplicity of this schema might hide the fact that each category may itself cover fairly complex representations. Because context models are a special type of experience models, they might for instance feature possibly complex person models of participants. Such participant models might be constructed from the extensive general (lay) knowledge people have about themselves and other persons (Markus, 1977). However, it is here assumed that for the construction of efficient context models for language use, it is sufficient that the participants know the relevant (a) identities (roles), (b) ongoing actions, (c) current beliefs of themselves and other participants in the situation, and (d) various properties of the setting.

Note that given the richness of the social situation in which people discursively interact, many other categories may be proposed for inclusion in the schema. For instance, participants may be aware of, and orient to, one or more objects in the situation, and such (possibly joint) awareness may be signaled by deictic expressions (Clark, 1996). However, for several theoretical reasons, we prefer to represent the world or situation talked *about* separately, as in the event model discussed previously. One of these reasons is that we do not want to make a fundamental theoretical distinction between the representation of the referents (objects, people, etc.) that are part of the communicative situation itself and those that are not. However, this example does suggest that event models and context models may overlap. This is obviously necessary in order to account for all other expressions that refer to elements of the context.

Context Models in Text Processing

One of the first interesting implications of the context model schema just presented is that the mental representation of the ongoing discourse itself should be part of the context model. This is true because context models were assumed to represent ongoing action, and discourse is merely one specific type of such action and an inherent part of the whole communicative event and situation. The traditional distinction between text and context is therefore only an analytical one, based on a notion of a (completed) discourse being abstracted from its context. Thus, especially in spoken discourse, the (representation of the) previous part of a dialogue becomes automatically part of the context model that influences what is currently being said and done. In other words, we here encounter a first link between the notion of Text Representation in earlier theories of text processing, and the notion of context model proposed here: Both are

continuously and jointly constructed and strategically updated as representations in episodic memory.

The fact that text representations are part of context models does not mean, however, that event models and context models collapse: People distinguish between the information they get from a discourse, on the one hand, and the contextualized occurrence of the discourse itself, on the other hand. That is, we should also theoretically distinguish between personal *knowledge* as represented in event models, and autobiographical *memories* of past communicative events as represented in context models. After all, knowledge may also be acquired through means other than discourse. Moreover, source forgetting and other forms of decontextualization are common phenomena: Of most things we know, we later do not remember when and how we heard or read about them (Thompson et al., 1996).

Contextual Constraints on Semantic Representations

To understand how context models monitor discourse production and comprehension, we first need to know how they regulate the relations between event models and semantic representations. Under what contextual constraints should particular information in event models be included in the meaning of the text, or be presupposed, left implicit, or simply kept from expression? What explicit information should be marked as more or less important or relevant? And conversely, in comprehension processes, what does the semantic representation of a text tell us about the event and context models of the writer/speaker, and how does it influence the construction of a context model of the reader/hearer? For instance, presuppositions tell us something about the knowledge of the speaker, and implicit meanings tell us something about what a speaker may not want to say explicitly for some contextual reason (e.g., appropriateness, politeness, impression management, or face keeping).

With the various parameters of the context and experience models discussed here, we now examine some of the contextual constraints on the relations between event models and meanings of discourse. By way of example, we pay special attention to the production and comprehension of news discourse in the press (for details on news discourse, see Fairclough, 1995; Fowler, 1991; van Dijk, 1988a, 1988b, 1991).

Unfortunately, there are as yet very little experimental or other empirical data on the role of specific context models in news processing. The vast bulk of the literature on news production deals with the social and practical aspects of newsmaking (Gans, 1979; Tuchman, 1978). Of course, such evidence may be used as a basis for the theory of journalistic context models of newsmaking and how they influence news discourse. Psychological work on news largely focuses on comprehension and reproduction.

Although some of this work refers to mental models, it hardly shows how these are controlled by context models, apart from the influence of the usual independent variables (gender, age, etc.) on memory for news (Findahil & Hóijer, 1985; Graber, 1984a; Gunter, 1987; Harris, 1989; Larsen, 1988). There is, however, recent work on story understanding that deals more explicitly with some of the conditions (e.g., those of genre knowledge) of event model construction (Zwaan, 1994).

Note that when we refer to the ways context models regulate or monitor the transformation of event model information into discourse meanings, this should be understood as a process that affects both production and comprehension. In production, it tells the journalist what information of an event model to select for inclusion in the news report. In comprehension, the context model of the reader specifies the relevant information to derive from the text and hence what to include in the event model. The context model also explains what information or opinion is made explicit and which information is presupposed, and what inferences can thus be made about the knowledge and opinions or other social characteristics of the journalist.

Let us now examine each of the categories of the context model schema and briefly indicate how they constrain the semantic representations of news discourse in news production, or the construction of event models given the meaning of a text in processes of comprehension.

The first overall category controlling all other category information involved in news production and comprehension (*viz.*, Social Domain) features information such as *Media or Mass communication*. It regulates knowledge about typical settings (e.g., newspaper reading, watching TV), typical participants (journalists, readers), typical genres (news reports, talk shows, etc.), and so on. Both in production and comprehension, it tells the participants that the event model expressed in a news report is intended to be shared as public knowledge. This implies, among other things, that most socioculturally known information may be left implicit. Also, in production by reporters, such domain knowledge (e.g., about the social functions of news) regulates which information about an event is newsworthy, publicly relevant or interesting, and what information is not (Bridges, 1991).

More specifically, contextual knowledge about the *type of communicative* event or genre, such as news report, talk show, sitcom, or editorial, tells the participants what specific communicative functions these genres have and what event model information is or should be most relevant to accomplish that function. For instance, for expression in editorials, it is the editor's opinions about an event that should be selected, and not the details of the event itself. More generally, genre information regulates the choice of specific topics and their hierarchical importance (Tenney, 1989;

see also Zwaan, 1994). For news understanding, the *medium* is relevant. Depending on their social roles and knowledge, recipients may find newspaper news to be more credible or reliable than TV news (or vice versa).

The contextual Time category is of course crucial for the processing of news. It defines recency as an essential feature of news, regulates the expression and comprehension of datelines, and forms the basis of the semantic content of news structure categories such as Recent Events, Previous Events, and Historical Background (van Dijk, 1988a). Similarly, time of reading may affect recall (Furnham & Gunter, 1987). Finally, the Time category regulates specific media and presentation forms of news, such as the Morning Paper or the Late Night Show.

, Similar observations hold for the contextual category of Location (of journalists or readers). This category defines the content of broad news categories, such as local, national, and international news. Geographical closeness of events has always been an important news value: We may expect more news and especially more details (i.e., more of the event model expressed in the news report) about events that are close to and hence more relevant to the reader (Galtung & Ruge, 1965).

The Location category also defines spatial perspective of descriptions (for the representation of spatial information in mental models, see, e.g., Morrow, 1986, 1990, 1994). Thus, there are many ways reporters may semantically represent events known to them, also depending on the news genre. They may describe them explicitly from their own (spatial) viewpoint, or that of witnesses or other news participants. They may thus also display bias when they spatially side with (take the point of view of) one group of news actors (e.g., the police) rather than another (e.g., demonstrators; Glasgow University Media Group, 1976, 1980; van Dijk, 1988b).

The Circumstances category requires that news meanings and their event models be relevant to ongoing social and political events (or for the readers, the social circumstances of their lives). Trivially, during a general strike for instance, both journalists and readers will want respectively to write or read details about that strike. This means that the Circumstances category regulates the urgency and priority of the inclusion of specific event model information in actual news discourse meanings, the macrostructural hierarchy (topicality) of semantic representations, as well as the prominence with which such meanings are expressed in the paper, in the program, on the page or screen.

When writing about what they know about an event, people are more or less aware of their various roles—the communicative role of writer or anchor person, their professional role as journalist, or their social roles as men or women. In many cases such social identities are taken for granted, that is, contextually not very relevant. Depending on such roles and the associated structures of interest, experience, or ideologies, some informa-

tion of the model may be focused on and selected for expression in news reports, what is newsworthy and what is found interesting for the readers. Thus, White journalists may self-servingly focus only on specific events of a racial conflict, or present the conflict from a White perspective (Balon et al., 1978; Dines & Humez, 1995; Mazingo, 1988; van Dijk, 1991; van Zoonen, 1994; Wilson, 1991; Wodak, 1987b).

Conversely, in their context models about journalists, readers may infer from news meanings possible judgments about credibility or political orientation, and hence about whether the event model journalists express is biased or not (Austin & Dong, 1994). Thus, it has been found that Black readers tend to focus more on civil rights issues than do Whites, and their contextual self-representation influences the ways news meanings are interpreted as relevant models (Burgoon, Burgoon, & Shatzer, 1987; Iyengar & Kinder, 1987; see also Johnson, 1987). Finally, it is well known that differences of class, education, and knowledge also play a role in news selection and understanding (Graber, 1984a; Wodak, 1987a).

Recall that it is not social group membership itself, but social construction and personal modeling that is relevant for the process of understanding news. Thus, in many contexts, men and women, Whites and Blacks, or young and old, will show more personal variation than group variation in the processing of news (Graber, 1984a). More generally, current research on media reception emphasizes the rather autonomous interpretive role of audiences and their construction of personal, social, and cultural interests, relevancies and goals (Liebes & Katz, 1990; Neumann, Just, & Crigler, 1992). This again shows the vital role of context models (and in particular of readers' self-models) in the interpretation of news. In other words, we cannot substitute personal context models simply by more general and abstract mental representations shared by a group.

Social relations are obviously relevant in news production and mass media communication. Journalistic or editorial power based on position and on resources such as expertise and information influences what event knowledge will or will not be included in the news, what opinions or critique (e.g., of politicians) will be expressed or not, and what news meanings will be found credible in the construction of event models by the readers. Context models show how journalists actually interpret such power relations, and how they manage (defy or comply with) them in the actual production of news discourse meanings. Besides their beliefs about reader knowledge and interests, and about newsworthiness of events, these represented forms of journalistic or political power and dominance may be the most influential contextual criterion that regulates what and how information of journalistic event models is actually included in the semantic representation of the news discourse they write (Altschull, 1984; Lee & Solomon, 1990).

The contextual representation of newsmaking as *interaction* (e.g., in interviews, press conferences, or editorial meetings) in many ways shapes the meaning of the news (Clayman, 1990; Tuchman, 1978; van Dijk, 1988a). Thus, information from earlier interaction may be included as relevant quotes in the text, other information may be presented as "off the record," and specific topics may be expressed or suppressed as a function of such interaction characteristics (editorial preferences, legal and political constraints, politeness, etc.). This will also affect the *aims* and *goals* of newsmaking, which may ideologically vary between informing the public and criticizing the powerful and thus serving as a "watchdog of society." The very function of revelations implements this relation between what is known (models) and what is actually meant and said in the news.

Perhaps most crucial for the transformation of event models into discourse meaning is the role of *knowledge* of journalists and readers. As suggested before, sociocultural knowledge and opinions that journalists presuppose to be shared by the readers will not generally be fully expressed, but merely signaled. New knowledge and opinions, as is typical for news reports and editorials, however, need to be made explicit or argued for. Relevant for the construction of models of the production context are also the beliefs of journalists about their readers, beliefs that have generally been found to be rather erroneous (Gans, 1979; Gunter, 1987; Neuman et al., 1992). That is, more generally, the specific situational knowledge represented in the context models of participants is part of the more general common ground that is necessary for discursive interaction (Clark, 1996).

Conversely, readers need to call on vast amounts of social and political knowledge in order to derive their event models from the meanings of news discourse (Graber, 1984a; Perry, 1990). Relevant expertise in this case may simply be identified with sociopolitical knowledge (Hsu & Price, 1993; Lau & Sears, 1986). Experts may thus interpret and learn differently, depending on whether they already know the information and can use their own knowledge to better organize new information. Similarly, we should examine what exactly happens when previous knowledge of readers is inconsistent with that expressed in the text (Hacker, Coste, Kamm, & Bybee, 1991; Zanna, Klosson, & Darley, 1976). Indeed, in our terms, what kind of event model will be formed when readers construct the source as wrong or biased? To solve such problems, given the variety and complexity of knowledge, one should analytically distinguish between personal memories of participating in communicative events (experience models), personal knowledge, knowledge about events (event models), socially shared historical knowledge, and general, abstract knowledge, which may have very different influences on understanding news (Kintsch & Franzke, 1994).

Readers' *opinions*, *emotions*, *attitudes*, and *ideologies* will be brought to bear in specific judgments both about the events and about the newspaper and

the journalists, and hence about the credibility or reliability of event models being conveyed (Perry & McNelly, 1988; Schoenbach & Baran, 1990). One major factor frequently found to facilitate news comprehension and retention is that of personal *interest*, an attribute that we define as motivation to acquire knowledge about a specific topic. We may locate this attribute in the self-schema of readers (Graber, 1988). Together with self-modeling of social group membership, thus, the personal and social cognitions of readers (and even a collection of features defining lifestyle) that define their context models are a major factor in news comprehension, that is—in our terms—how mental event models are derived from news meanings (Graber, 1988). Opinions and emotions are especially relevant in the appreciation of *literature*, and thus may contribute to specific forms of comprehension and context model construction (see, e.g., Kreuz & MacNealy, 1996; van Oostendorp & Zwaan, 1994).

Conversely, it needs little further argument that the instantiation of group attitudes and ideologies in context models of journalists fundamentally regulates what and how information of event models will be included in news meanings. The general strategy here is that positive information about the ingroup and negative information about the outgroup will be included or highlighted, whereas negative information about the ingroup and positive information about the outgroup will tend to be suppressed or downgraded (e.g., from topical macroposition to lower-level detail of the semantic microstructure; van Dijk, 1995).

After this brief analysis of the context models involved in news processing, we now have some elementary insight into the transformation of event models into text meaning, and vice versa. The overall strategy is that no model information should be expressed that is *inappropriate* in the present context. The conditions that define such appropriateness may be varied and are formulated in terms of the information stored in the respective categories of the context model. Thus, information may be excluded, presupposed, or downgraded because it is already known, because it may be inferred from what is known, because it is irrelevant, uninteresting, unprofessional, disrespectful, illegal, too specific or too general, and so on, given the overall goals and functions of news reporting in the domain of the mass media.

Contextual Control of Surface Structures

If event models provide the information that will be partly or implicitly included in semantic representations, and context models monitor how this happens, we may expect such context models to be especially relevant in the control of discursive surface structures. Indeed, given the semantic representation of a discourse as described previously, we now need to know exactly how this is being *formulated* (for the other processes involved in

formulation, see Levelt, 1989). We need to have a controlling mechanism for selection of speech acts and genre, for schematic discourse organization (such as news schemata), as well as for lexicalization, word order, sentence structure, and the properties of sounds or graphics. We might summarize these variations under the general label of style—the contextually variable expression of more or less the same meaning of a text.

Some of these contextual constraints are autonomous, that is, when they control discourse structure immediately. For instance, the news report genre requires conventional categories of a news report schema (e.g., a headline) independently of content or meaning. In other cases, the input to surface structure variation is *dependent* on both meaning and context features, as is the case for lexicalization. Let us briefly summarize a few typical cases of contextual constraints on the forms or style of news reports. In other words, when are the formulations of news (found to be) more or less appropriate in the specific communicative events of the mass media, as distinct from expression of the same meaning in, for instance, everyday conversation or a scholarly article.

Instead of taking context model categories as our starting point, as we have done until now, we now reason backward. That is, like a reader in news comprehension, we interpret surface structures in terms of possible contextual constraints (for general discussion of these news structures and their contextual explanations, see, e.g., Fairclough, 1995; Fowler, 1991; Fowler, Hodge, Kress, & Trew, 1979; van Dijk, 1988a, 1988b, 1991; Glasgow University Media Group, 1976, 1980, 1982).

Given the selection and conceptualization of event model information in semantic representations, *lexicalization* is intuitively the most obvious way such meaning is expressed in the surface structure of discourses in a specific language. In news production (and interpretation), choice of words is a function of contextual features such as domain (media jargon), genre categories (e.g., the use of a short word like "bid" instead of "attempt" in headlines), expert knowledge, and especially journalistic opinions, attitudes, and ideologies (e.g., "freedom fighter" vs. "terrorist"; Davis & Walton, 1983; Herman, 1992). Similarly, *nominalizations* instead of full clauses may be used to obscure responsible agency, for example, as a function of the opinion of the journalist (e.g., "pollution" and "discrimination" instead of information about who does the polluting or the discriminating; Fowler, 1991; van Dijk, 1991). Verb tenses are obviously a function of the contextual Time category, and verb aspect also of the opinions of journalists. More generally, the formality of lexicalization in news is a function of both genre and domain, participant roles and knowledge.

Deictic expressions ("today," "now," "here," "abroad," etc.) signal several context parameters such as time of news production and location of reporters. At the same time, they may express social roles, social relations,

group membership, and attitudes, as in the well-known "Us" versus "Them" pair denoting ingroups and outgroups.

Semantic representations may be expressed by different *word order* or *clause structure*, depending on journalistic beliefs about agency, involvement, or responsibility of agents or other participants in the news. Thus, passive clauses may downplay responsible agency of ingroup members (we, middle class, White, western, male, etc.), and conversely, negative outgroup agency (e.g., of minorities) may be emphasized by active clauses and syntactic fronting of words designating such groups. Similarly, special headline syntax (omission of anides and auxiliaries) may be typical of contextual genre constraints (Fowler et al., 1979; Jucker, 1992).

Rhetorical devices such as hyperboles, similes, metaphors, or euphemisms, among many others, especially have a persuasive function in the expression of meaning, and thus especially signal journalistic opinions (Roeh, 1982). Outgroups may thus be conceptualized by negative metaphors and by hyperboles of negative properties, whereas the opposite will be true for ingroup members (van Dijk, 1991). As elsewhere in the expression of opinion in news reports, such opinions will in turn be a function of social group membership, that is, with what social groups journalists identify.

News reports are globally organized by a characteristic genre *schema* or superstructure, featuring such categories as Summary (Headline + Lead), Recent Events, Previous Events, Context, Historical Background, Verbal Reactions, and Commentary (Duszak, 1995; van Dijk, 1988a). Obviously, the schema itself is a function of genre, whereas some of its categories specifically relate to other contextual features (Recent Events presupposes Time; Commentary the Opinion of the journalist, etc.). Changes of the schema may indicate special importance or relevance accorded to specific information, viz., as a function of the opinions or perspective of the journalist or the reader (Fredin & Tabaczynski, 1993). Specific categories, such as Headlines that express a summary and that define the situation, or quotes (as Verbal Reactions), may also differentially affect perception of social and political issues (Gibson & Zillmann, 1993; Perfetti et al., 1987).

Finally, graphical structures, such as size and type of headlines, the use of pictures and photos, position in the newspaper or on the page or page layout, signal genre and especially the opinions of journalists about the importance, relevance, or interest of events. As is the case for the other surface structures mentioned, the use of such features may also influence (and bias) the formation of event and context models of the readers.

The Context Models of News Processing

Surface structures of discourse are primarily a function of semantic representations, which in turn realize parts of event models. However, we have seen that many properties of discourse are also a *direct* function of

the various categories of context models we have discussed, such as setting, knowledge, opinion, and emotions of speakers, group membership, social position and status, as well as current aims, such as those of persuasion. Generalizing over much variation, we may conclude that all information that is contextually relevant, important, or in our best interests will be included in the text and/or structurally highlighted, and vice versa.

That is, during news comprehension, readers do much more than construct models about political and social events. They also construct a model of the communicative event, with themselves as readers, and journalists as writers and in other roles. For the readers, this context model defines their regional location and hence the interestingness of close or distant events; time and recency; their knowledge and the informativeness of the news; opinions and the relevance and persuasiveness of the news; the credibility of journalists and newspapers; the truthfulness of reports; the groups or peoples in the news with whom they identify, and so on.

Indeed, context models define the very social situations of newsmaking and newsreading. They explain why people read the paper in the first place. They regulate what information will be focused on, be believed and accepted, or what reports will be selected for reading.

In news production, context models and their relevant categories organize the vastly complex communicative process of newsmaking, the organization of beats, interaction with colleagues, editorial conferences, interviews, press conferences, reading of other media, and a host of other daily routines geared toward the production of news reports (Tuchman, 1978).

Our brief description of context models in news processing has only begun to scratch the surface of how journalists manage the complex daily episodes that define newsmaking, and how these context models and their structures control the structures of news reports themselves as well as their comprehension and uses by the readers.

Theory and Practice of Context Modeling

The relations described between context models and the ways they monitor the specific structures of discourse (or how discourse structures may be used to help construct context models in comprehension) have been formulated in general, and relatively abstract terms. Actual production and comprehension is of course more complicated and messy, and more strategic and goal directed. People make errors, have incomplete information to construct or derive context models, or given their context models they make errors in discourse production and comprehension. In news processing, journalists may have insufficient knowledge about the events they cover, little or misguided information about the knowledge, opinions, or

interests of the readers, or they may confuse the constraints of several professional or social roles.

Similarly, readers may have insufficient knowledge to understand the news. They almost always will do so from their own perspective and in their own interests, thus producing relevant, but possibly incomplete or biased event models. Mostly they also lack detailed knowledge about the production context of news (e.g., who control and have access to news-making) so that they may be easily manipulated into accepting suggested event models or the positive self-presentation strategies and credibility tactics of both journalists and their sources.

CONCLUSIONS

Despite its success in the psychology of text processing, the theory of mental models is still in its infancy. We know very little about the internal organization of such models, and how exactly they are formed, updated, and used in comprehension and knowledge acquisition. We need to know how they are related to other personal episodic information, such as personal experiences, opinions, emotions, knowledge about the Self, and socially shared knowledge and opinions.

This chapter has argued that within the general framework of a theory of episodic models, situation or event models need to be coupled with context models in order to explain how discourse is understood and produced. Such context models are the mental representations of the subjective interpretations language users construct of the relevant features of the communicative situation. Among many other things, they explain what information of situation or event models are to be included in the meaning of a discourse, and how, conversely, event models are derived from discourse. Moreover, they specify the many pragmatic, stylistic, and other context-sensitive properties of text and talk that are still too often ignored in much psychology of discourse processing.

Because communicative situations are part of our everyday experiences, context models were theoretically formulated as a special case of the models people build for the interpretation of their daily activities—so-called experience models. These models of everyday experience at the same time function as the episodic basis of personal storytelling, that is, as personal event models.

These various types of episodic models suggest that we need an integrated theory of the episodic representation of personal events, activities, experiences, and their relations to socially shared beliefs. A full-fledged theory of discourse processing presupposes such a more sophisticated theoretical framework.

Relevant to this suggestion is the final observation that various directions of research in cognitive and social psychology as well as in discourse studies might fruitfully cooperate. Unfortunately, current practice shows a deplorable division of labor (and even worse: mutual ignorance) between researchers in the various fields of research referred to here (text processing, autobiographical memory, event understanding, self-schemata, specific genre theories, and so on). Despite differences of object and method, a general theory of understanding, representation, and memory for events, actions, and discourse should then be a more feasible task.

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