

Semantic Discourse Analysis

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WHAT IS SEMANTIC DISCOURSE ANALYSIS?

Before we try to specify how to give a semantic analysis of discourse, we must define what semantic analysis is and what kinds of semantic analysis can be distinguished. Such a definition will be as complex as the number of semantic theories in the various disciplines involved in the study of language: linguistics and grammar, the philosophy of language, logic, cognitive psychology, and sociology, each with several competing semantic theories. These theories will be different according to their object of analysis, their aims, and their methods. Yet, they will also have some common properties that allow us to call them semantic theories. In this chapter I first enumerate more or less intuitively a number of these common properties, then select some of them for further theoretical analysis, and finally apply the theoretical notions in actual semantic analyses of some discourse fragments.

In the most general sense, semantics is a component theory within a larger semiotic theory about meaningful, symbolic, behavior. Hence we have not only a semantics of natural language utterances or acts, but also of nonverbal or paraverbal behavior, such as gestures, pictures and films, logical systems or computer languages, sign languages of the deaf, and perhaps social interaction in general. In this chapter we consider only the semantics of natural-language utterances, that is, discourses, and their component elements, such as words, phrases, clauses, sentences, paragraphs, and other identifiable discourse units. Other semiotic aspects of verbal and nonverbal communication are treated elsewhere in this *Handbook*.

Probably the most general concept used to denote the specific object

of a semantic theory is the concept of 'interpretation'. Interpretation may be of various kinds, depending on the discipline or theory involved. For the sake of clarity, we first distinguish between abstract and concrete types of interpretation. Thus, grammar (see Lyons, 1977) and logic (see Carnap, 1956; Cresswell, 1973; Lehrer & Lehrer, 1970; Linaky, 1952, 1967, 1971; Montague, 1974), have semantic theories that specify abstract interpretations, whereas a cognitive model in psychology (see Clark, 1976; Clark & Clark, 1977; Cotton & Klatzky, 1978; Kintsch, 1974, 1977; Lindsay & Norman, 1972; Norman & Rumelhart, 1975; Tulving & Donaldson, 1972) will be about concrete interpretations. The first are interpretations of discourse and discourse elements by systems and by rules of such systems, whereas the latter are interpretations by language users. The two kinds of interpretation are not unrelated: An abstract linguistic (grammatical) semantics usually has empirical claims that it intends to model at least some aspects of the concrete interpretations of language users as they are accounted for in psychological models.

Interpretations are processes or operations of assignment: to objects of kind X they assign objects of kind Y. The objects of kind X to which we assign something are usually called expressions. Thus words, or rather word forms (morphemes), and sentences, or rather sentence forms (syntactic structures), are objects of which interpretations are provided in semantic theories. What is assigned by operations of interpretations are typically semantic objects of various kinds. A first semantic object of this kind is meaning. Hence the interpretation of a discourse, as it is explicated in a semantic theory of discourse, is the assignment of meaning(s) to the expressions of a discourse. This is more or less the kind of semantics that is usual in linguistic theory. Roughly speaking, meanings are conceptual objects of various degrees of complexity, depending on the complexity of the corresponding expressions. Again depending on the kind of semantics, such meanings may be described in abstract or more concrete terms; the latter are the cognitive representations of language users associated with the expressions of natural language in general or with actual discourses in particular. The kind of interpretation whereby meanings are assigned to expressions is usually called 'intensional'. Besides such intensional interpretations we also have extensional interpretations, which depend on (are a function of) intensional interpretations: Expressions with a given meaning may refer to or denote some object or property in "the world." Hence, to provide an extensional interpretation of a discourse is to specify what such a discourse is about, that is, the individuals, properties, or states of affairs that constitute its various referents in some formal model of a possible world. This kind of referential semantics is the one traditionally explored, in rather formal terms, in philosophy

and especially logic. It is shown below that a discourse semantics should be both intensional and extensional, that is, about meanings and about reference. Also, it is seen that a discourse semantics is not only abstract but also involves the kind of semantic notions used in the cognitive models of psychology and artificial intelligence. For instance, in order to be able to interpret a discourse, that is, to assign it meaning and reference, we also need a substantial amount of world knowledge, and such knowledge can only be partly specified within linguistics or grammar, namely, in the lexicon.

A first principle of semantics is ‘functionality’, which says that the meaning of discourse expressions is a function of the meanings of their component expressions. Thus the meaning of a sentence must be calculated on the basis of the meanings of its component words. A second major principle is ‘structural’, which holds that the structures of expressions are interpreted as structures of meanings. We are not here concerned with the specific rules that specify how the meaning of sentences can be derived from the meanings of words and phrases. We merely assume (1) that discourse expressions can be analyzed as sequences of sentences and (2) that the meaning units assigned to sentences are propositions, which consist of a predicate and a number of arguments that may have various (case) roles. Hence a first aspect of semantic discourse analysis is to investigate how sequences of sentences of a discourse are related to sequences of underlying propositions and how the meaning of such sequences is a function of the meaning of the constituent sentences or propositions.

At the same time, though, semantic discourse analysis has an extensional or referential dimension. That is, we want to know what sequences of sentences in a discourse can refer to. Traditionally, philosophy and logic identified the object of reference for a sentence with a truth value, for example, “true” or “false.” Compound propositions were then also assigned a truth value on the basis of the specific meaning of the connectives linking propositions (e.g., logical and, or, if . . . then). In that tradition we could then demand that discourse semantics specify the rules that assign a truth value to the discourse as a whole on the basis of the truth values assigned to individual sentences. Although to a certain extent that would be a legitimate aim, there are several reasons not to follow that logical approach here, because, for instance, sentences and propositions in a discourse are not only linked by logical connectives. Also, a truth functional approach is too limited and would be relevant only for discourses used in affirmative contexts, that is, as speech acts of assertion, and would not be relevant for questions, orders, promises, congratulations, and accusations. Hence, we assume that the objects of reference for

meaningful sentences are facts, namely the facts that constitute some possible world. A pragmatic theory will specify whether such facts are part of a given possible world or not, whether such a fact will be or should be brought about, according to the speech act performed when uttering and using the discourse in some specific social context. Hence, whereas intensionally we link sequences of sentences with sequences of propositions, these are in turn linked, at the extensional level, with configurations of facts, such as states of affairs, events, actions, or complex episodes of these. Note, by the way, that facts, just like tables or properties like 'hot' and relations like 'to love', are ontologically real only with respect to social and cognitive norms and conventions, principles of identification and distinction, or other operations that may be culturally variable. Finally, it should be added that not only are the facts denoted by a discourse dependent on the meanings of the expressions of the discourse; conversely, the meaningfulness of a discourse depends on the actual or possible facts (or complexes of facts or episodes) denoted by the discourse, a dependence that may be assessed only on the basis of our knowledge or beliefs about the actual or possible facts in some world or situation. This is one reason why a purely abstract semantics of meaning and reference should be extended in a cognitive framework.

Although most semantic theories involve notions such as 'interpretation', 'meaning', 'reference', 'intension', 'extension', 'truth values', or 'facts', and have as their main aim to specify the rules whereby, for example, meaning units, such as propositions, are assigned to natural or formal-language expressions, we need not limit ourselves to these well-established notions of abstract linguistic, philosophical, or logical theories. We have emphasized above that real interpretation is a mental act, or rather a cognitive process, of language users. The result of this process is a conceptual representation of the discourse in memory. If such a representation satisfies a number of properties, we say that a language user has understood the discourse (see Beaugrande, 1980; Freedle, 1977, 1979; Just & Carpenter, 1977; Kintsch, 1974; Kintsch & van Dijk, 1978; van Dijk & Kintsch, 1983; and the references in Bower & Cirilo, Vol. 1, this Handbook; Kintsch, Vol. 2, this Handbook). Such representations, however, in general consist not only of the conventionalized meanings as they are specified in the lexicon for a given language. The language user, as we stressed before, brings to bear her knowledge of the world, and many relevant aspects of this very extensive world knowledge may therefore become part of the conceptual representation. Similarly, language users have had previous experiences, such as having read other discourses about the same kinds of facts, and traces of the representations of these experiences gradually build and update models of the situation in episodic

memory. These models provide the knowledge and referential basis for the interpretation process. And finally, individual language users may also generate opinions, that is, evaluative beliefs, about individual objects or facts, based on their attitudes and ideologies. That is, the representation of the discourse will not only be objective in the sense of being socially normalized or conventional, but will also have subjective dimensions. Such subjective interpretation will also depend on contextual factors such as personal motivations (wishes, desires, preferences, purposes, intentions), goals, interests, tasks, obligations, or social aspects of the communicative setting. These will determine which meanings receive special attention, which meanings will be disregarded, how knowledge, beliefs, and opinions are activated and used, which associations are activated, and how meanings may be transformed to more special, personal, or contextual meanings.

In the rest of this chapter we abstract from these cognitive and subjective aspects of discourse meaning and focus our attention on more general properties of semantic interpretation. We do not, however, respect the usual boundaries between linguistic or grammatical semantics and cognitive semantics. Thus if we speak about the meaning or reference of discourse elements, such as sentences, this is meant as a generalization and abstraction with respect to the cognitive properties of discourse understanding, which are dealt with in separate chapters of this *Handbook* (Bower & Cirilo, Vol. 1; Kintsch, this Volume).

SOME SPECIFIC PROPERTIES OF DISCOURSE SEMANTICS

Against the background of the more general notions of natural-language semantics mentioned in the previous section, we are now able to specify what additional notions are relevant in the semantic interpretation of discourse. That is, what aspects of meaning and reference of discourse cannot simply be described in terms of the meanings of words, phrases, or sentences (in isolation) alone?

Discourse Coherence

A first aspect that requires our attention is the fact that discourses usually consist of sequences of sentences that express sequences of propositions (see Beaugrande, 1980; Beaugrande & Dressler, 1981; Östman, 1978; Petöfi, 1979; Petöfi & Rieser, 1973, 1974; van Dijk, 1972, 1977). Just as we want to know how the meanings of words and phrases within

a sentence are related so as to form the meaning of the sentence as a whole, we want to know how the meanings of sentences are related so as to form the meaning of the sequence as a whole. In other words, how are the propositions of a discourse linked up in a sequence, and how do they add up to more complex meanings? And conversely, how does the meaning of one sentence depend on the meaning of a sequence as a whole? The same questions can be asked for the referential dimension of the discourse. One important aspect of this latter dimension is, for instance, the issue of the respective orderings or organization involved. Sentences follow each other, in both written and oral discourse, in a linear fashion. The underlying semantic structures, that is, the propositions, may-according to many theories-have an additional hierarchic organization. The facts denoted by the discourse, for example, states of affairs, actions, or events, however, have spatial, conditional (e.g., causal), or temporal organization. Hence it is an important cognitive task for a speaker or writer to represent these relations between the facts as relations within or among propositions and to express these again in the linear ordering of words, phrases, and sentences (Levelt, 1981; van Dijk, 1977), whereas the hearer or reader has the task of establishing these relations the other way around (with the additional knowledge about the usual ordering of facts). Hence a discourse is not just a set of sentences but an ordered sequence, with conventional constraints on the possible orderings if it is to be meaningful and if it is to represent certain fact structures, for example, episodes. But not only is the ordering of propositions in a discourse constrained by rules of meaningfulness; their content, that is, their conceptual meanings and reference, is also subject to certain principles or rules. In general, then, the proposition sequence underlying an acceptable discourse must satisfy various conditions of what is called 'coherence'.¹ Similarly, the surface structure expressions, that is, the morphological, syntactic, and lexical structures of the respective sentences, must appropriately signal this coherence, by, for instance, word order, sentence order, the use of connectives, sentential adverbs, verb tenses, or pronouns; these devices are often subsumed under the concept of (surface structure) 'cohesion'. These surface-structure expressions of semantic coherence are not dealt with here.

¹ Instead of 'coherence', other terms have been used to denote semantic relationship', defining the unity of discourse, for example, 'cohesion' and 'connectedness'. Following usage now being established in much of the literature, we here distinguish between semantic coherence, as a general principle, and surface-structural cohesion, taken as the system of coherence expressions. 'Connection' is used as a particular aspect of coherence, namely as the local, linear semantic relationship between subsequent propositions. See Beaugrande and Dressler (1981) for a discussion of these various terms.

Before we analyze some natural discourse examples, a simple constructed example may illustrate some of the conditions of what we call ‘local coherence’ in discourse:

- (1) a. *Next month we will be in Berkeley.*
 b. *We will be staying with friends.*

For this sample discourse we may first observe that the reverse order of the sentences would result in a much less meaningful discourse. That is, we apparently should first have the specification of some more global action or state of affairs, possibly with indication of time and place, and then we may have details of the action or state mentioned. There seems to be a principle requiring that the sentence or proposition ordering may reflect the general-particular ordering of facts. This means that (1b) will be interpreted relative to the interpretation of (1a): That is, “we will be staying in Berkeley” and “the friends we are staying with live in Berkeley.” These latter propositions may be inferred from (1b) given the previous sentence (1 a) in the same discourse. Similarly, spatial ordering between facts may require the same linear ordering in the expression of propositions:

- (2) a. *They have a big house on the hill.*
 b. *It has at least 10 rooms.*

Again, we find that objects must be introduced before properties, such as ‘contents’, can be properly specified. It would be rather funny to have: *They are living in ten rooms. These are in a big house on the hill*, so there are constraints on the representation of space or possession relations. Similar ordering principles exist for the representation of the perception or understanding of facts: In general, what is discovered first should be mentioned first. This is also why we should rather have *There was a table in the corner. On it was a large vase of flowers.* than *In the corner was a large vase of flowers. It was standing on a table.* Some of the principles involved are more or less conventionalized rules, whereas others are stylistic strategies that are often followed but may be ignored to obtain special effects.

The most conspicuous coherence constraints hold for the representation of temporal and conditional relations between events or actions. Possible, probable, or necessary conditions (e.g., causes) should in general be mentioned before their consequences:

- (3) a. *This morning I had a toothache.*
 b. *I went to the dentist.*
 (4) a. *We went to an expensive restaurant.*
 b. *John ordered trout with almonds.*

In (3) we first have the condition, namely, a reason, and then a consequent action, whereas in (4) we first have an action that allows another action as its consequence or as its specification. In the latter case we may not reverse the order of the sentences, because then it would not be clear when and where John performed that specific action. In (3) however, we may put the second sentence in first position, but then we obtain a different meaning: Having a toothache no longer is presented as a reason for an action; the sentence functions as an explanation rather than as a description of a sequence of events. That is, sentence ordering in discourse may indicate a conditional ordering between represented facts but also may indicate the use of the sentence as an explanation. Such uses would require further pragmatic analysis of sentence sequences (van Dijk, 1981). In general, therefore, it makes sense to distinguish between two large classes of semantic coherence conditions, conditional coherence and functional coherence.² A sequence of propositions is conditionally coherent if it denotes a sequence of conditionally related facts, such as causes and consequences, whereas a sequence of propositions is functionally coherent if the respective propositions have themselves a semantic function defined in terms of the relation with previous propositions. Thus a proposition may function as a specification, explanation, example, comparison, contrast or generalization with respect to a previous proposition. Whereas discourses (1), (3), and (4) are conditionally coherent, (2) is functionally coherent. Note that the two kinds of coherence may also overlap to a certain degree: In (1), going to some town may be a possible condition for the act of staying with friends (and not, say, going to the movies). At the same time there is a functional aspect: To be in some town, taken as the equivalent of staying in some town, can be specified by the information that we are staying with friends.

We have argued that coherence is provided not only by the ordering of sentences, but also by their meaning and reference. Thus, we do not in general have sequences like (5) in stereotypical situations:

- (5) a. *We went to an expensive restaurant.*
 b. *John ordered a big Chevrolet.*

Although (Sb) is a meaningful sentence in isolation, it does not meaningfully relate to the previous sentence if it is interpreted as an action performed at the restaurant. Our world knowledge about eating in restaurants

² For conditional coherence, see van Dijk (1977); for work on artificial intelligence and discourse see Schank and Abelson (1977). Functional coherence is studied in van Iliik (1977, 1981) after earlier work done by Grimes (1975) and B. Meyer (1976). who speak of 'rhetorical relations'. See also P. G. Meyer (1975) on functional links between sentences, and Reichman (1981) for such relations in dialogue.

organized in so-called scripts (Schank and Abelson, 1977)—tells us that ordering a car is not a normal thing to do in restaurants. Hence the meaningfulness of discourse also depends on what we assume to be the normalcy of the facts, episode, or situation described. In other words, understanding a discourse presupposes understanding the world. For a discourse like (5), understanding is restored as soon as we know that John is crazy or just trying to be funny. (5b) could also be interpreted as the first sentence of a sequence that, as a whole, specifies the restaurant event: John ordered a car (e.g., a taxi) to take us to the restaurant.

Coherence relations connect sentences or propositions as wholes, and not just elements of propositions. Thus in (1) through (3) we may note that in the sentence pairs we find referential expressions denoting identical referents: *we* in (1), *the house* and *it* in (2), and *1* in (3). It should be stressed that such forms of cohesive coreference are neither a sufficient nor a necessary condition for discourse coherence. (In many early studies this coreferential criterion is the major condition for coherence, as seen by the attention to phenomena such as pronouns.) In (4) there is no strict coreference, although it is understood that John is a member of the set denoted by *we*. But (4a) may be preceded by sentences like *It was a beautiful night* or *There was no food in the house*, and such sentences would be perfectly coherent with (4). This is because such sentences, as wholes, denote a condition, reason, or background for the actions mentioned later in the discourse. Mere coreferential identity would not be sufficient, as we can see if we substituted *John* for the pronoun *we* in (5a), or if *I was born in New York* were substituted for (3b). It follows that the basis for assessing discourse coherence is not the individual word meanings or referents but rather whole propositions as they relate to facts. Since identity of referents is often concomitant with the relatedness of facts, coreference is a frequent aspect of coherence: for at least some stretch of a discourse we are speaking about the same object or the same person, or introduce new objects or persons related to previously mentioned ones. Surface cohesion markers such as pronouns, pro-verbs, articles, demonstratives, names, or lexical identity signal this property of underlying semantic coherence (Halliday & Hasan, 1976).

The relations between propositions as wholes, denoting relations between facts, are expressed not only by sentence ordering as discussed above, but also by various kinds of connectives such as the conjunctions *and*, *but*, *although*, *if . . . then*, *for*, *because*, *or*, *unless*, and *despite*, the sentence adverbs *therefore*, *however*, *consequently*, and by adverbial compounds such as *on the contrary*, *as a consequence*, or *on the one hand and on the other hand*. They express both conditional and functional coherence types, although it seems that the conditional uses predominate.

In the examples given above we can easily imagine the use of the connectives in the conditional readings, whereas functional coherence is simply signaled by clause or sentence coordination and subordination. We assume that the semantics of connectives can at least partly be accounted for in terms of conditional relations of various strengths (possibility, probability, and necessity) between the facts denoted by connected clauses or sentences (van Dijk, 1977). Thus, *and* has a general function of connection, which allows it to be used instead of other conditional connectives, and also may function as the weakest conditional connective (A allows B), whereas *because*, *for*, and *so* express stronger conditional relations. *But*, *however*, and *yet* presuppose this conditional relation but indicate that an inference or expectation does not hold for a particular case: *Normally A conditions B, but not-B is the case*. This indicates that the meaning of connectives needs explanation in terms of language users' expectations (see Ducrot, 1980). The formal details and the specific meaning and reference conditions of the various connectives are not discussed in this chapter. It should be added, however, that connectives have pragmatic as well as semantic functions (van Dijk, 1981). In addition to expressing relations between propositions and thereby denoting relations between facts, they may also be used to express relations between the speech acts performed by the utterance of the respective sentences in some context. In that case, *and* may signal additional information, *but* a protest against a previous speech act, *or* a correction of previous speech acts or their appropriateness conditions, and *so* a conclusion. Pragmatic uses are often signaled by sentence-initial position in independent new sentences, whereas the semantic use of the connectives may also be interclausal.

Information Distribution

Above we have reviewed some of the conditions for discourse coherence at the level of sentence and proposition sequences. We have seen that there are rules and strategies for ordering sentences and expressing spatial, temporal, and conditional relations between propositions and facts. We have distinguished between conditional and functional coherence types and have emphasized that coherence always should be defined in terms of full propositions and the facts they denote and that coherence is relative to the world knowledge of speaker and hearer. Connectives may be used to express these connections between propositions, whereas other surface phenomena (e.g., definite articles, pronouns, verb tenses, or demonstratives) may be used to indicate that the same time, place, action, event, or individual participate in the subsequent facts. This latter we saw as a frequent but not necessary or sufficient condition for coherence.

There is a second aspect of the semantics of discourse involved in the definition of coherence. Discourse is not simply a representation of related facts; it also must respect various information processing constraints, from both a cognitive and an interactional or social point of view. Used in social contexts, discourses are performed as speech-act sequences (and as one global speech act-see below), and they therefore have as their first function to establish some semantic representation, and on that basis some pragmatic representation, in the memory of the hearer or reader. In this perspective a discourse should respect a number of very general communicative principles: It should be informative enough (not too little but not too much), it should be relevant with respect to the topic of discourse or conversation (see below) or with respect to the interactional context, it should be brief, and it should be sufficiently clear (Grice, 1967). For each sentence of the discourse, as well as for the discourse as a whole, it should be indicated to the hearer, at both the semantic and surface structural levels, how each sentence relates to previous and possibly following sentences, how the information of each sentence is tied in with the information of other sentences, and what information the hearer or reader is supposed (by the speaker or writer) to have about the context and about the world. This means, among other things, that at each point of the discourse there should be at least some new information (we may not repeat the same sentence over and over again), and that this new information should be appropriately linked with old information, which may be textual (introduced before in the same discourse) or contextual (derivable from the hearer's knowledge about the communicative context and about the world in general). At several levels this informational aspect of the discourse as a form of communicative interaction shows up. One prominent way of organizing the informational structure of discourse is the distinction, within the semantics of each sentence, between a topic function and a comment function.³ These are extremely intricate notions, which still have not been fully understood, but it is here assumed that they are textually dependent functions assigned to fragments of the semantic structure of the sentences in a discourse. The topic function may be assigned to the semantic information that is "old" in various senses, that is, already introduced by the text or already

³ For some references from the vast literature on topic-comment relations in sentences and on functional analyses in general, see Dik (1978), Givon (1979b), Li (1976), Sgall, Hajicova and Benesova (1973). See van Dijk (1972, 1977, 1981) for the textual dimensions of topic-comment structures. There is some terminological and theoretical confusion in this area; sometimes the term 'focus' is used instead of 'comment', although 'focus' is also used in different ways. For cognitive aspects, see Clark and Haviland (1977), Reichman (1981), and van Dijk and Kintsch (1983).

known to the hearer (also from context), and therefore somehow given or presupposed. The old information is selected and placed in the foreground as an anchorpoint for the new information of the sentence. We see from this intuitive characterization that the notion of topic requires grammatical, pragmatic, cognitive, and interactional explication. Within our restricted semantic point of view we can only define it in terms of semantic relations between propositions; for example, in terms of identity or other relations (implication, entailment) or in terms of proposition fragments (predicates, individuals). The most typical means of topic assignment derives from the identity of previously introduced individuals: The sentence provides further information (the comment) about an object or person that has been mentioned before. Such a topic function is signaled in various ways by the surface structure features of languages, such as word order, grammatical functions (e.g., subject), pronouns, definite articles, demonstratives, or hierarchical clause ordering. In English, for example, the topic function of an underlying semantic fragment can be expressed by an unstressed, initial-position definite noun phrase or pronoun with subject function and often semantic agent role. These different indications need not always coincide: Other positions are possible, and the topic may also be combined with other semantic roles. If some of these markers are not available as in the case of free word order or no special grammatical marking of subjects, languages may have an additional lexical or morphological expression for topic-expressing sentence segments. If the preferred ordering is not followed, then special arrangements might become necessary. Thus in English, initial noun phrases (definites or pronouns) that are not assigned topic function are assigned special stress or organized in cleft sentences (*It was John who . . .*). Depending on cognitive constraints (short-term memory capacity, focus of attention, etc.) topic function in surface structure may be marked by semantic identity at the referential level expressed by pronouns instead of full definite noun phrases (Marslen-Wilson, Levy, Komisarjevsky-Tyler, 1981).

The so-called topic-comment articulation of sentences is not restricted to elements of propositions but may also extend to whole propositions. In that case we usually make a distinction between the presupposition and assertion parts of a sentence (Kempson, 1975; Petöfi & Franck, 1973; Wilson, 1975). A presupposition, having topical function, is a proposition assumed to be known to the hearer from previous text or from the context. Formally speaking, such a proposition is entailed by both the presupposing sentence and by the negation of that sentence. Presupposed propositions are typically expressed by initial subordinate clauses but may also be signaled by a number of predicates or adverbs, such as

to know (of which the object proposition is assumed to be true by the speaker), *to pretend* (of which the object proposition is doubted by the speaker), or *even* (presupposing that the negation of the proposition would have been more likely, just as in the use of *but*), as in:

(6) *Even the professors participated in the student rally.*

Note that the assertion part of sentences exhibiting presuppositions is relevant only for affirmative sentences used as assertions; presuppositions also occur in questions, threats, promises, or other speech acts, although their presupposed nature then is outside the scope of such speech acts (we need not question what we already know to be the case, nor promise or command that information).

Global Coherence: Macrostructures

Until now we have discussed the semantic properties of discourse only for relations between sentences or between propositions, that is, for pairwise, linear connections between elements in a sequence. We have summarized these properties under the term ‘local coherence’. There is, however, a third major aspect of discourse semantics that needs our attention. The meaningfulness of discourse resides not only at this local (or microstructural) level of immediate clause and sentence connections but also at a global level. We should also explain the properties of the meaning of the larger fragments of a discourse, such as paragraphs, as wholes. Paragraphs may be connected even though their respective last and first sentences are not connected according to the conditions mentioned above. Similarly, we make statements about the meaning of larger discourse fragments or whole discourses that cannot simply be defined in terms of the local coherence conditions mentioned above. We talk about the topic, the theme, the subject, the upshot, the point, or the outline of a discourse, and such notions do not apply to individual sentences or propositions. We therefore assume that, besides the local semantic structure, a discourse also has a global semantic structure or macrostructure (Jones, 1977; van Dijk, 1972, 1977, 1980). Thus a macrostructure is a theoretical reconstruction of intuitive notions such as ‘topic’ or ‘theme’ of a discourse. It explains what is most relevant, important, or prominent in the semantic information of the discourse as a whole. At the same time, the macrostructure of a discourse defines its global coherence. Without such a global coherence, there would be no overall control upon the local connections and continuations. Sentences might be connected

appropriately according to the given local coherence criteria, but the sequence would simply go astray without some constraint on what it should be about globally:

- (7) *This morning I had a toothache. I went to the dentist.
The dentist has a big car.
The car was bought in New York.
New York has had serious financial troubles.*

The above facts may be related locally, but they are not related to one central issue or topic. The macrostructure is the semantic information that provides this overall unity to a discourse. Often such underlying macrostructures are expressed by the text itself, for example, in announcements, titles, summaries, thematic sentences, or the expression of plans for action. According to the fundamental principle of semantics, that of functionality, a macrostructure of a discourse should be a function of the respective meanings of its sentences. This function, however, is not given by an added connectivity at the local level of the sequence, that is, the sum of all pairwise coherence links between sentences. Rather it is a kind of semantic transformation, mapping sequences of propositions of the text on sequences of macropropositions at more abstract, general, or global levels of meaning. Intuitively, such mappings are operations that select, reduce, generalize, and (re-)construct propositions into fewer, more general, or more abstract propositions. These transformations or operations are called ‘macrorules’. They are second-order semantic interpretation rules: After the interpretation of sentences and sentence pairs, they allow a further interpretation of sequences as (global) propositions that characterize the meaning of a sequence or discourse as a whole. Thus a description of the sequence of actions performed by John going on a ski vacation to Switzerland may be reduced by macrorules to the macroproposition ‘John went skiing in Switzerland’. The macrorules delete all propositional information of only local relevance that is not necessary for understanding the rest of the discourse; they generalize and collect individuals in terms of groups and various characteristics of persons in terms of global personality traits, and they group conditions, components, or consequences of some action or event together as one overall action or event concept (‘Going to the station’, ‘Buying a ticket’, ‘Going to the platform’, would thus together result in the macroproposition ‘Taking the train to . . . ‘). Obviously, such macrorules can operate only on the basis of world knowledge: We must know or have assumptions about what is relevant and important in some communicative context, we must know how to group individuals and properties, and we must know what

stereotypical aspects are involved in global events and actions such as accidents or train trips, so that we can, as hearers, activate the relevant scripts and have a global representation of the communicative context and goals of the speaker.

Macrorules operate recursively. They may derive a sequence of macropropositions from the sequence of propositions expressed by the discourse (for instance, those of a page in a novel), which may again be the input for the rules so that higher-level topics or themes are derived. We thus arrive at a hierarchic structure, with the most global topic or theme at the top. In newspapers, for instance, such a highest topic is often expressed (at least partially) by the headlines, as in **TORNADO KILLS 500 PEOPLE, or PRESIDENT WILL MEET SOVIET LEADER**. More fully, a macrostructure is typically expressed by the summary of a discourse (Kintsch & van Dijk, 1978; Reder & Anderson, 1980; van Dijk & Kintsch, 1978). Operationally speaking, discourses that do not allow summarizing have no macrostructure or only a very fragmentary one (e.g., some modern poems).

What has been observed for the analysis of meaning in the beginning of this chapter also holds for macrostructures. As theoretically described here, macrostructures are only abstractions relative to more concrete cognitive operations and representations. That is, since the world knowledge, beliefs, opinions, attitudes, interests, and goals of speech participants may vary, they may also assign different global meanings (macrostructures) to the same discourse as they may have different evaluations about what is relevant or important information for the discourse (and the communicative context) as a whole. Despite these individual and subjective variations, there is often enough overlap to guarantee successful communication and interaction.

SEMANTIC STRATEGIES

The kinds of semantic properties that have been dealt with in the previous section are typically described, as we suggested earlier, in more or less abstract, structural semantics. That is, semantic interpretations and coherence are assigned *ex post facto* to the discourse or discourse fragment as a finished verbal utterance. We have emphasized that real interpretation, that is, understanding by a language user, does not proceed only by working systematically from one unit or from one level to another by systematic rules. Rather, language users apply effective strategies to arrive as soon as possible at the intended interpretation, making use of various kinds of textual, contextual, and cognitive information at the same time. These cognitive processes cannot be dealt with here (but see

Bower & Cirilo, Vol. 1, this *Handbook*; Kintsch, this Volume of the *Handbook*; and especially van Dijk & Kintsch, 1983).

Nevertheless, as we also have seen, there is no strict boundary between these different kinds of semantics, that is between the kind of abstract, structural semantics of a linguistic theory of discourse and the processual and strategic semantics of a cognitive model. In order to establish local and global coherence, we should at least take into account that missing link propositions should be derived from world knowledge (scripts).

There is also another reason why a more dynamic reformulation should be given of the semantic principles discussed above. We have seen that discourses do not simply “have” meanings, but that such meanings are assigned to them by language users (on the basis of the cognitive processes mentioned above) in some concrete interaction and context. This means, that the interpretation of discourse is also something people “do,” both cognitively and socially. In everyday conversation (of which the major principles are discussed in Vol. 3 of this *Handbook*) this implies that conversational partners are permanently busy interpreting ongoing talk, that is, a current turn or move of another speaker, with the goals of semantically linking this turn or move to their own previous contribution to the conversation and acquiring the information needed to make next moves in the conversation. In other words, local semantic coherence assignment may be both backwards and forwards. At the same time, though, an actual speaker in such a conversation must monitor his or her own contribution to the conversation for its semantic coherence with previous turns of previous speaker(s) and must probably also anticipate possible interpretations by the hearer (a strategy usually called ‘recipient design’). In other words, actual speakers and hearers not only follow general rules of local and global coherence but also use a number of efficient strategies in doing so. These cognitive and social strategies may involve, for instance, interpretative short cuts or the effective solution of interpretative puzzles when the other speaker apparently speaks “out of topic” or when some turn or move seems inconsistent with a previous one. These are examples of conversational interpretation strategies. The speaker also uses production strategies to remain coherent or to motivate apparent deviations from coherence principles. If some ongoing topic (macrostructure) is interrupted for a good personal, contextual, or interactional reason, this should be signaled in the surface structures of the turn (such as in *By the way . . .* or *Speaking about John . . .*). Similarly, there are a large number of anticipating semantic strategies. Thus, when some speaker A is expressing a proposition p , he or she may realize that maybe conversation partner B might draw the inference q from p . If that inference is not intended, A may use a strategy to block

such an inference, for example, by denying *y* with a subsequent sentence or clause beginning with *but* and a negation. In talk where participants are particularly interested in prohibiting wrong conclusions by speech partners, there are many such strategies, including hedgings, corrections, additions, and mitigations. That is, a move in a turn of a speaker may be given a special strategic semantic function with respect to previous moves (or their underlying propositions): The speaker may hedge when a previous move was too harsh or decisive, may add some detail explaining why some belief or opinion was expressed or use a correction move to take back what was asserted. Such semantic strategies are part of the overall communicative and interactional strategies used to maintain or establish certain goals, such as face keeping or self-presentation (for details and lists of strategies see Kreckel, 1981).

The hearer in a conversation must analyze and interpret such semantic strategies. He or she must determine not only what is propositionally meant by some expression but also why such a proposition is expressed at a particular point in the conversation.

Let us give some examples from data we have collected in the context of an investigation into the ethnic opinions of people in Amsterdam as these are expressed (or not) in nondirected interviews (van Dijk, 1983, 1984). It is obvious that in such interviews people take care to monitor rather attentively what they say or imply so as to establish or maintain the wanted self-representation of a kind, responsible, tolerant, and “nice” citizen and at the same time to provide information about beliefs, opinions, attitudes, or experiences. In the following (approximately translated) interview fragment, for instance, we find a typical correction move:

- (8) . . . *they do not work, well, don't work, they just mess around with cars and sell them*

We see that the meaning of the expression *they do not work* may imply a too far-reaching proposition (such as ‘they do not want to work’ or ‘they are lazy’), which could be interpreted as a negative opinion or even as a prejudice, so a semantic correction is necessary, signaled here by *well*, the reviewing repetition of the wrong statement, and then the correct statement. This is an example of a typically strategic semantic move (and therefore has conversational and interactional functions as well) in which the relation between the two propositions can be accounted for by the functional link of a correction. Similarly, we often find different forms of explanation. Thus, the same speaker tries to account for the fact that he has few contacts with ethnic minorities first by a series of arguments about his own actual condition and actions and then by attributing some cause or reason to the other group. He first says

(9) . . . *don't think that one of those people is trying to establish contact*

in which a direct cognitive blocking strategy in an appeal to the hearer is performed. The speaker wishes to prevent the conclusion that he is the only one responsible for lack of contact. In order to argumentatively sustain that general proposition the speaker then resorts to several explanatory moves:

(10) *because they, terribly need their own community.*

in which we find not only a strategic-rhetorical use of an exaggeration (terribly) but also, semantically, reference to a possible reason for their (lack of) actions, and such postponed references to reasons or causes usually function as explanations. That these semantic strategies and their communicative goals are often at the same time rhetorical, we see in the following fragment, in which a semantic contrast is expressed between subsequent propositions:

(11) *we couldn't sleep, and **my** husband works, and my neighbors don't, so **they** could have a party*

Here we have the semantic opposition between the unpleasant 'not being able to sleep' and the pleasant 'having a party', and between 'my husband works' and 'they don't'. The semantic contrast operates as a rhetorical antithesis so as to make more effective (and therefore more defensible) the negative opinion about the other group (black neighbors).

In the same way, people in their conversational turn establish a large number of strategic semantic connections between sentences or moves or between underlying propositions. They use apparent denials (*I don't hate them, but . . .*), displacement (*I don't care so much, but the others in the street do*), attribution (as in [9], which illustrates the well-known strategy of 'blaming the victim'), denial of presuppositions or implications (but that does not mean they are inferior), and so on. In other words, semantic relations between sentences or propositions may be used strategically in order to convey precise meanings or to prevent wrong inferences by the hearer, and these strategies are part of more general strategies of conversation and interaction. Hence they need further conversational, pragmatic, rhetorical, and interactional analysis; their semantic analysis is just one dimension (van Dijk, 1984).

SEMANTIC ANALYSIS: SOME EXAMPLES

We now have some of the theoretical notions that allow us to provide a semantic analysis, description, or interpretation of discourse. It should

be stressed, however, that theories do not immediately fit the empirical phenomena they try to account for. Instead of giving a lengthy methodological discussion of the sometimes very intricate problems involved, we simply summarize some of them in the following points as they apply to semantic discourse analysis:

1. Theories, and hence also their component statements (about rules, laws, principles, units, categories, levels, and so on), are general and relatively abstract. Hence the various properties of a general discourse semantics, for example, the conditions of local and global coherence, sometimes do not apply or only indirectly apply to the discourse data we obtain in some context of observation.

2. Our theoretical assumptions about the local and global coherence of discourse in principle should have a more or less universal nature. However, our data base allows only generalizations for some languages and cultures (e.g., English, Dutch, German, and other western cultures). Since knowledge and beliefs are so deeply involved in understanding, the assignment of local and global meanings is often dependent on cultural variation, and the various surface manifestations of coherence, as discussed above, may vary from one language to another.

3. We have not made a systematic distinction between written and oral discourse. Although our observations particularly hold for monological discourse, the various coherence constraints also hold for dialogical discourse. Additional semantic principles of connection, information distribution, and topics may be necessary for dialogues and particularly for everyday conversation, in which strategic moves are especially important.

4. We also abstracted from differences among discourse types, that is, genres. Although the most general principles hold for each discourse type, there may be differences in surface marking of coherence, additional constraints on local or global coherence, or specific meaning properties holding only for some discourse types (e.g., stories vs. poems vs. advertisements).

5. Although we have stressed the importance of personal differences in understanding due to different cognitive sets, memory capacity, and strategies, the principles we have formulated have abstracted from them. Both participants in textual communication and analysts root their semantic interpretation of concrete discourse in personal episodic models.

6. Meaning and reference are just one aspect of discourse, closely intertwined with surface structural, pragmatic, cognitive, and interactional features, so that also in this respect any semantic analysis exhibits the disadvantages of a partial description.

7. In addition to the cultural, personal, and interactional variation in the semantic principles discussed, there are a number of social constraints,

such as specific social setting, participant roles, conventions, age, sex, status, and power. Each may give specific or additional features to the conditions of meaningfulness of discourse.

8. Generalization and abstraction also involve presuppositions about normalcy. Specific uses and users may not satisfy this condition for reasons of pathological conditions (e.g., in aphasic or schizophrenic discourse), lack of control (e.g., in drugged or hypnotized language users), or intentional deviations having specific functions (esthetic, as in literary discourse; didactic, as in examples; or rhetorical and stylistic deviation or variation for special purposes).

9. Finally, the theory is simply far from complete. There are still many aspects of discourse meaning we simply do not know yet or know only imperfectly, so that general rules or conditions cannot yet be formulated.

With these problems in mind, we nevertheless try to show that many of the meaning properties of the example discourses that follow can be accounted for. It should finally be added that the aim and function of our analysis is didactic, that is, to show how the theory fragments do or do not fit the data. Each semantic analysis used in practice, for example, in the social sciences, will select the semantic aspects that may provide data for a more embracing aim of description or explanation (e.g.; in psychotherapy or mass communication research).

Example 1

WOMAN DROWNS IN RIVER PLUNGE-A young woman was drowned when a car plunged 15 feet down an embankment into the rain-swollen River Severn at Shewsbury yesterday. Her husband and the other occupants of the car, a married couple, managed to scramble to safety as the vehicle floated for a few seconds before disappearing under 10 feet of water. It had failed to negotiate a bend at a spot where the river bank is unfenced. (The Times, Nov. 23. 1981)

This rather stereotypical newspaper text about a car accident has a number of specific semantic properties that do not characterize everyday stories about such an accident (van Dijk, 1985). Newspaper stories respect what may be called a relevance structure: What is most important or interesting comes first and details, such as causes or other conditions and backgrounds, come later, so that the editor may eventually cut these to obtain the wanted size (which is an organizational constraint). The reader thus gets the most relevant information first before going (or not) to the details. This is a cognitive and communicative constraint on newspaper ordering of information. From this text we see that the temporal ordering of (presumed or reported) facts is not parallel with the ordering of clauses in the text that denote these facts: The cause of the accident

comes last, and the ultimate consequence (which makes the accident newsworthy), the death of a woman, comes first. The various propositions of this text together define, on the basis of our world knowledge about accidents and what happens with cars in rivers, the overall theme, that is, the macrostructure as it is partially expressed in the title.

The first sentence, composed of an initial main clause and a subordinate clause stating the cause of death and the place and time of the accident (which typically come last, unlike in other story types), can be taken as the fuller expression of this underlying macrostructure. Such a thematic sentence has a rather independent nature. It cannot simply be connected with connectives such as *and* and *so* to the following sentence. Rather, the following sentence (*The husband . . .*) is linked functionally with the first sentence because it is a specification of the car plunge into the river; it introduces further participants and their fate. Yet, at the same time, with respect to the proposition ‘a car plunged IS feet down an embankment into the river’, this second sentence expresses a possible consequence of the previous proposition. The local coherence between the sentences is further marked by the definite noun phrase *the car* and by the possessive pronoun *her* relating woman and husband (also by world knowledge about such a relation). That a car is ‘floating’ is a specific consequence of the special circumstance of a car being in the water, and the same holds for ‘disappearing under water’; the action of the participants, ‘to scramble to safety’, is also part of the specific car accident script. The final sentence, mentioning the cause of the accident, provides the stereotypical information about the causes of cars plunging in a river (bend in the road, no fence). Although the ordering of the expressed propositions is specific for the news text, they do respect the normal criteria for conditional connection. The respective propositions, according to the accident script, allow the derivation of a macrostructure, as it is expressed in title and lead sentence, so the text is also globally coherent. The relatedness of the facts is further indicated by the identity of individuals, namely, the woman and the car as expressed by pronouns (*her, it*), definite articles (*the car*), and synonyms (*the vehicle*). That the concepts of ‘husband’ and ‘occupants’ are expressed in definite noun phrases is due to presuppositions derived from world knowledge, namely, that a woman may have a husband and that cars may have other occupants. The use of *other* is also a cohesion marker implying that the woman and her husband were also occupants.

Note that the informational structure of the text follows the usual rules. The concept of ‘woman’ and of ‘car’ are introduced as topics in the first two clauses by indefinite articles (which means that the title is not to be considered as a previous sentence). The same holds for ‘husband’ and other ‘occupants’ in the next sentence. This means that the criteria

for the topic-comment articulation for sentences require a specific analysis for topic introduction. Indefinite noun phrases in initial position, especially those denoting human individuals as experiencers or agents, are interpreted as new topics, an interpretation strategy that may of course be falsified by further interpretation of the sentence and the text. Strictly speaking, the only entities known in the first sentence are the locations (Severn and Shewsbury), which formally speaking would make the rest of the sentence the new information, and hence comment.

Example 2

and the little kid came by, and he si . . . and he . . . hesitated, but then he stole, . . . one of the baskets of pears . . . and put it on his . . . bicycle and rode off. . . . And as he was . . . riding down the r . . . this . . . this uh . . . dirt road, . . . /it/ was full of rocks, . . . you could hear the . . . the rocks creak underneath, . . . u-m . . . this other little girl in pigtails, . . . black pigtails. . . . rode by, . . . and he tipped his hat to her, . . . and as he did that. . . . lost his hat, . . . and ran into a b-ig rock, and the . . . pears spilled all over. (Data and transcript from Tannen, 1980).

Again a story about a (more mundane) accident, this time given in the course of an oral retelling of an experimental movie. As we observed above, such a more natural everyday story (though it is a retelling of movie events rather than of real events), more or less follows the ordering of the denoted facts. The beginning of the embedded story of the accident is linked up with the end of a previous story about a kid on a bike who stole a basket of pears. The first story perfectly respects the conditional ordering of the propositions and facts: a boy comes by on a bike, hesitates, steals pears, puts them on his bike and rides off. Note, that coming by on a bike is the initial setting (which is a narrative category) of the first story, after which the subsequent sentences specify the complication (the theft). Hesitation is a normal condition for stealing (world knowledge), and ‘putting something stolen on your bike’ is a normal component of the stealing action, whereas ‘riding off’ is the normal final consequence.

In a wider narrative context this little story functions again as the background, and hence as the setting, of the next story about the bike accident: The main participant and the fact that he is riding a bike with a basket of pears have been introduced. This setting is expressed explicitly in *And he was riding down the . . . road*, which semantically speaking is a specification of ‘riding off’, and at the same time a condition for the following events. Interpolated we have a typical functionally coherent sentence, *(the road) was full of rocks, you could hear the rocks creak underneath*, which is not a consequence of the previous sentence, but rather a specification of the kind of road (a gravel road) and a specification

of the storyteller's observations. That is, in the linear account of events, a storyteller may interpolate specific perceptions, interpretations, or evaluations to explain what was going on. At the same time, though, this functional sentence serves as the introduction of the information that is the condition for the later event (ran into a big rock). The introduction of the other participant follows (with the narrative demonstrative for new participants, *this*), and the action in which she is involved (riding by), which enable the action of tipping one's hat, losing one's hat, running into a big rock, and spilling the pears, which is a possible conditional (causal) sequence. Note that the action of tipping one's hat is repeated in and as he did that, which perhaps should be interpreted causally, not temporally, with respect to the next sentences. The repetition may, among other conversational and narrative functions, be motivated by the production strategy of marking the special cause of some event. Another observation that is necessary for the semantic analysis is the fact that the causal sequence is not strictly complete (van Dijk, 1977). Although the states and actions reported are fairly detailed, the storyteller normally leaves out many intermediary components of events and actions, which are supposed to be derivable from world knowledge by the hearer. Thus it is not stated that the boy went to the basket of pears, nor that he got off his bike to do so, nor that he looked at the girl, nor that he was actually falling with his bike and basket. In other words, even crucial main actions may sometimes be omitted if the conditions and the consequences are given. Given our world knowledge, then, textual sequences need not be complete in order to be conditionally coherent: The coherence links may be formally or cognitively reconstructed from propositions in our memory.

So at the local level we obtain semantic coherence by (1) propositions denoting conditionally related facts, (2) functional specifications of objects, and (3) expressed or implied propositions that actualize general script knowledge about landscapes, roads, rocks, bikes, and the causes of falling off a bike, whereas the ordering of the sentences expressing these propositions is a rather direct linear rendering of the conditional links between the facts (there are no lookbacks, no backward explanations, no previews, which may occur in stories), with the exception of an interpolated perception statement (*you could hear . . .*). The topic-comment articulation of the respective sentences is also straightforward: *little kid, he . . . he* express the topical agent as subject and in initial positions, which is the canonical case. Halfway, a new topic is introduced in the usual way (see above), but the next sentence again puts *he* in initial position, in the agent role and as primary topic. Since *her* is a pronoun, the individual is known and hence formally also a topic function: It is

the pair (*he, her*) that expresses the complex topic. That *he* is nevertheless in initial position, and not *she* (which was last named), may be explained by the sequential and textual prominence of ‘the boy’: he is the sequential topic and agent of the macroproposition, hence part of the discourse topic. Main actors have topical precedence over minor actors in sentence structure, especially when involved as agents in an action (here the action cannot even be put in passive sentence form).

Note also that a number of noun phrases are in definite form although the individuals they refer to are not previously introduced. We already mentioned the indefinite use of narrative *this*. *Baskets* has been introduced in the story before, whereas *road* has a definite article because there is just one in the scene of the movie.

One of the specific features of this story is its relative semantic completeness. It has information that in normal everyday stories would perhaps not be mentioned, for example, the fact that the road was a dirt road, that the girl had pigtails, and that these were black. The special context, retelling a movie story, not only requires that the storyteller be relevant, but also that details in the movie be reproduced. In fact, most other stories in this experiment do not mention these details but pick out the most relevant events: riding on a bike with a basket of pears, a girl coming by, looking at the girl, hitting a rock, falling, spilling the pears.⁴

The overall coherence of this passage may be construed as two macropropositions, ‘The boy stole a basket of pears’ for the first story and ‘The boy looked at a girl, hit a rock with his bike, and fell’ for the second. Since stories have several major narrative categories such as setting, complication, and resolution each of these categories should be connected with a macroproposition (Chafe, 1980) so that a full macrostructure of a story, as well as an appropriate summary, should at least have as many macropropositions as narrative categories. On the basis of world knowledge about stealing and about bike accidents, we are able to delete irrelevant details (e.g., the color of the girl’s hair) and to construct conditions (hesitating) and components (losing his hat) into a more overall action proposition. In general then, the semantic analysis of a macrostructure in a story should be specified relative to the narrative functions of certain discourse units, such as paragraphs. That is, actions

⁴ For the role of world knowledge and its possible integration into the representation of the discourse in memory, see Schank and Abelson (1977), Kintsch and van Uijk (1978), Bower, Black, and Turner (1979), and den Uyl and van Oostendorp (1980). In this last study it is shown that the various proposals vary as to the amount of knowledge needed and the necessity of integrating it into the memory representation of discourse: Do we need fully coherent representations for understanding, or is a more sloppy understanding, with partial coherence, also a viable strategy (see van Dijk & Kintsch, (983).

may be more important than descriptive details, at least in everyday stories.

Example 3

A LITTLE PLUG FOR BRITISH TELECOM'S NEW SOCKET

At British Telecom, we're rather proud of ourselves.

Our new plug and socket is going to revolutionise the way you use the phone.

No longer will it be fixed in one place. Thanks to our little device, you'll be able to make and take calls wherever you want.

From now on, it'll be the standard fitting with all new extensions we install in the home.

While they're doing that job, our engineers will convert any existing instruments free.

And they'll be happy to put extra sockets in any other rooms you like for a small charge.

Apart from making it possible to move phones around, the new plug and socket makes it easier and cheaper to replace one phone with another.

Eventually, all new phones will use the system, which has been developed exclusively by British Telecom.

It's the beginning of our great plan for the 80's.

A semantic analysis of this advertisement (*Times*, Nov. 23, 1981) for British Telecom follows the principles explained and applied above. At the local coherence level, we have the following connections. A functional relation of explanation between the first sentence and the second sentence (and the rest of the text): A reason why BT is proud is given. Between the third and second sentence we also have a functional relation: The overall predicate 'to revolutionise the way you use your phone' is specified by the information that the new plug and socket is no longer fixed in one place so that mobile phoning in several places of the home is possible. The fourth sentence is a consequence of this third sentence. The next sentence gives a functional generalization for this particular use: It will be installed in all homes. There follows a general specification that conversion will be free and that extra sockets will be installed for a small charge. Another reason (repeating the previous one as a presupposition) is given in the next explanation (easier and cheaper to replace phones). The next generalization extends to all phone connections and adds the qualification for the plug: exclusive for BT. Finally we have another generalization, this time from the action of installing a new plug and socket to a more general *plan for the 80's*. At the global level the coherence is established by the headline for the ad: *a little plug for British Telecom's new socket*. The text of the ad gives details, such as reasons and consequences of the general action of installing a new device, and at the

same time explains that this is one of the revolutionary plans of BT. Rhetorically interesting is the (apparent?) contrast between ‘great plans’ and ‘revolutionary’ on the one hand and the size and simplicity of the new device (a plug). This contrast is also expressed in a picture, in which the tiny plug is contrasted with a much larger human hand.

The local coherence between the respective sentences is not signaled by connectives—most connections are functional—but by juxtaposition alone. It is marked by the various cohesion devices mentioned earlier, for example, *we-our* in sentences 1 and 2, *new plug and socket* and *it* in sentences 2 and 3, and *little device* as a paraphrase in sentence 4. Interesting is the *it* in the last sentence, *It’s the beginning . . .*, which does not strictly corefer with the new ‘plug and socket’, but rather with the macroproposition ‘we will install a new system for all phones’. Another coherence chain is the addressed you, the reader or the telephone subscriber, which makes the message more personal. The coherence should also be construed relative to our knowledge of the world, namely, our knowledge of telephones, telephone companies, and technology. This knowledge allows us to link such concepts as ‘phone’, ‘plug and socket’, ‘extension’, ‘in the home’, ‘little device’, ‘instruments’, and ‘engineers’. The general pragmatic function of advertisement discourse is to recommend or suggest the use of new articles or services (Dyer, 1982). This means that an advertisement should specify (1) what the (superior) qualities of the article or service are, (2) comparison with other or previous articles, and (3) reasons to use the article, and optionally or implicitly make a generalization about the quality of the products of a specific business. In the example, the positive evaluations of the product and the action for introducing it can be generalized (by a macrorule) from the predicates ‘proud’, ‘new’, ‘revolutionise’, ‘thanks to’, the respective predicates about the ‘ease of use’, and ‘great plan for the 80’s’. The comparison is expressed by *no longer will it be fixed in one place*, and the reason by *you’ll be able to . . . and makes it easier and cheaper- to replace one phone with another*. A possible counterargument (costs money) is met with the information that installment is free for existing instruments and only a small charge will cover additional extensions. We see that, apart from the semantic coherence at the local and global levels, there is a general argumentative structure, a kind of superstructure like the narrative structure of our earlier examples, implied by the text (see van Dijk, 1978, 1980; and Gulich and Quasthoff in Chapter 10 of this Volume). The general macroconclusions for the argument may be ‘use our new plug’. ‘Telecom is a good company’, and so ‘have a phone installed in your home’. The general premise (a fact) is that Telecom is planning a tech-

nological revolution: the mobile use of phones in the home. Several grounds are given for this general fact: a specific fact (a new plug) and reasons for using it (handy, cheap), an implicit general backing for the argument (if a plug is mobile then it is easier to use the phone), and the extended backing (mobile use is one additional reason to have a phone). We see, therefore, that the semantics of the ad is organized not only by the local and global coherence of related facts but also by the superordinate organization of an argumentative schema. It is also typical for this kind of discourse (see, e.g., Dyer, 1982, for details) that the propositions denote not only existing facts, such as 'we're proud of ourselves', but also future possibilities, such as possible actions of users (most of the sentences have future tenses).

Example 4

- 1 yes is a pleasant country:
- 2 if's wintry
- 3 (my lovely)
- 4 let's open the year
- 5 both is the very weather
- 6 (not either)
- 7 my treasure,
- 8 when violets appear
- 9 love is a deeper season
- 10 than reason:
- 11 my sweet one
- 12 (and april's where we're) (Cummings, 1963, p. 64)

The semantic structure of this modern poem is more complicated and does not follow the rules mentioned in this chapter, at least not in a straightforward manner (see van Dijk, 1972; and Gutwinski, 1976, for the semantic analysis of literary discourse). We do not have complete sentences with a recognizable syntactic structure, some of the phrases do not seem well-formed, and the propositions and fragments are not literally meaningful (yes is a pleasant country). Semantic analysis, therefore, requires some additional principles in this case. The surface structure, apart from being semigrammatical, is not necessarily a linear expression of propositions or facts. It may also express prosodic, metric, or spatial structures (rhymes, verse organization, strophic organization, etc.). As for the semantics, there are not straightforward full propositions nor a specific ordering, conditional or functional. That is, the local and global coherence may be reduced to mere conceptual coherence, that is, relations between individual concepts, for instance by the associative links mentioned

in the beginning of this chapter. This may mean that the referential basis (often fictional or at least not intentionally or retrievably realistic) is also fragmentary and limited to some associated individuals and some of their properties. According to our world knowledge (scripts), we can find links among 'country', 'wintry', 'year', 'weather', 'violets appear', 'season' and 'april'. This conceptual series, as we might call it, suggests a higher order concept contrast between 'winter' and 'spring'. Parallel to this is the "love" series composed of the concepts 'my lovely', 'my treasure', 'us', 'love' and 'my sweet one'. Both series are fundamentally stereotypic: There is a presupposed general knowledge about traditional love poems in which seasons or landscapes are compared to the moods of people in love (as in lines 9-10). Although it is possible to provide further interpretations of the phrases or clauses and the propositions they express, a superficial analysis does not yield more than this kind of conceptual coherence, at both the local and global levels.

CONCLUSIONS

Our analyses of four discourses, though very informal and incomplete, have illustrated that the major principles outlined in the theoretical section are followed in these discourses but that additional semantic properties for specific contexts and text genres must be worked out. Thus the newspaper text showed that semantic ordering is not primarily determined by a conditional structure of the facts but rather by the functional coherence based on relevance: Important information comes first and details, such as causes, components, or consequences, are mentioned later. The relations between the facts are construed on the basis of our world knowledge about accidents, whereas the cohesive surface structure is characterized by coreferential pronouns, paraphrases, or possessives. The natural story, on the other hand, is organized by conditional links denoting causing or enabling relations between the facts. Again, component actions are not mentioned but are left to the reader for inference from world knowledge, although specific tasks may induce the storyteller to be overcomplete, that is, to specify details that normally would be irrelevant for natural storytelling. The newspaper ad also has an overall structure, that of argumentation, and a local coherence structure that is predominantly functional: Specifications are given of new products brought on the market with explanations why the use of such products is beneficial. Typically the overall semantic meaning is in the global speech act of recommendation or advice, which is also marked by the continuous future tenses predicated of the reader (addressed as you). Finally, there is an overall positive

predicate being generated for the recommended product. The modern poem, finally, does not have a clear propositional coherence, either conditional or functional. Rather there is the establishment of what may simply be called “conceptual” coherence, manifesting itself by series of contrastive concepts from the same script or semantic range. These series may be organized by macrorules, providing the overall themes of the poem (seasonal change, love), although such a macrostructure is also fragmentary, consisting of isolated concepts, instead of propositional. Except for some lexical cohesion and some pronouns, there are no surface cues that exhibit propositional coherence.

A number of conclusions can be drawn about the nature of semantic discourse analysis:

1. Discourses are in principle characterized by an overall meaning or macrostructure that formalizes the theme or topic of the discourse as a whole. Such a macrostructure may often be expressed by titles or headlines, or by initial thematic or final summarizing sentences. The macrostructure propositions are derived by macrorules (such as deletion, generalization, and construction) from the propositions expressed by the text and from activated world knowledge. Without a semantic macrostructure, even a fragmentary one, there is no overall coherence and hence no point to the discourse. Macrostructures may be further organized by general ordering principles (a kind of specific discourse syntax), which also specify the schematic functions or categories of the sections (e.g., paragraphs) of the text, such as setting, complication and resolution in a story, or premises and conclusion in an argument (or advertisement or scholarly paper); newspaper discourse first gives the main facts, mostly conclusions or consequences, followed by causes, previous events, explanation, and background or context. In other words, the overall meaning of the discourse has a double function: It provides the semantic content for schematic categories that are typical for a specific discourse genre and at the same time provides the basis for the establishment of local coherence. That is, the macroproposition contains the concepts by which the associated world knowledge (scripts) is activated to interpret the sentences and words of the discourse.

2. The local coherence of discourse is to be formulated in terms of propositional relationships denoting relations between facts in some possible world. These relationships may be conditional (denoting conditional relations between the facts) or functional (showing relations between the information provided relative to previous information).

3. There are general ordering constraints on propositions and sentences expressing them. These constraints take into account the conditional,

spatial, or temporal ordering of the facts and perceptions, and the cognitive and pragmatic relevance of the facts.

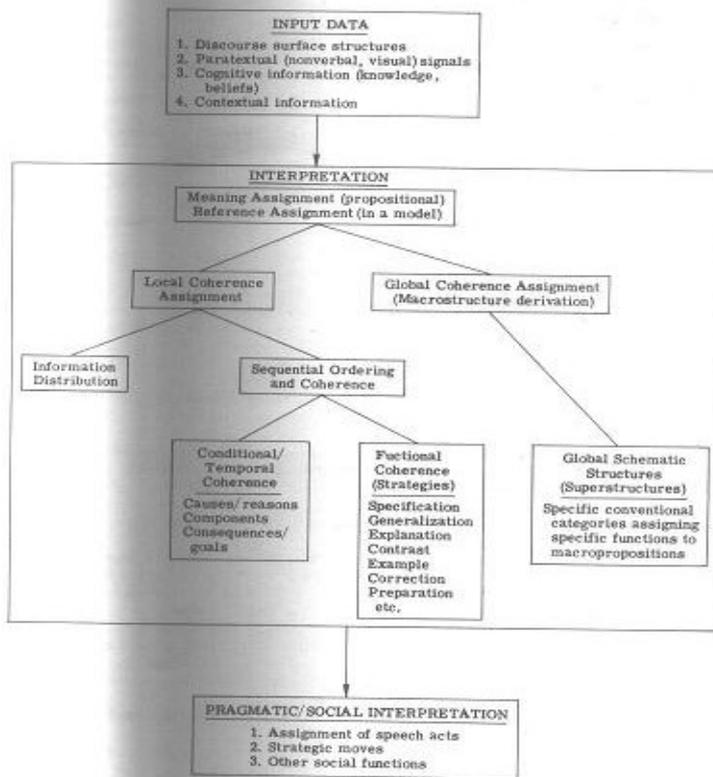
4. The global and local coherence of discourse is expressed by surface properties of discourse, such as clause organization, clause ordering, sentence ordering, connectives, pronouns, adverbs, verb tenses, lexical identity, paraphrases, and definite articles.

5. Local coherence may also serve various pragmatic, stylistic and rhetorical functions, such as linking speech acts, establishing functions for speech acts (such as concluding, exemplifying, contrasting), marking didactic functions of the discourse, marking esthetic functions (by the lack of propositional coherence in a modern poem), or emphasizing the rhetorical, persuasive function of an advertisement.

6. Each clause and each sentence is marked for its function within the communicative sequence of information distribution: Some semantic information is already known, or is inferrable, whereas other information is presented as new. Thus a topic-comment schema is imposed on the semantic representation of sentences and expressed, depending on language and context, by word order, morphological devices, stress, intonation, fixed syntactic phrases, left or right dislocation of phrases, and pronouns or other pro- elements at the syntactic level, and by participant roles (e.g., agent) at the semantic level. For each stage in the unfolding of the textual sequence, the reader is presented with the information that, cognitively, should be kept in short term memory or (re-)activated for predication. It was observed that although permanent topic change is possible, there is often a strategy for the maintenance of sentence-topic providing what may be called "topical coherence" through the discourse. Thus, maintenance of sentential topics may result in sequential topics, which may be candidates for a participant position, often agent, in the macro-proposition of the discourse.

7. This kind of semantic analysis is highly abstract, restricted, and general. It abstracts from actual cognitive processing, does not explicate the knowledge, beliefs, or other cognitive systems involved, and disregards personal or subjective information (memories, goals, interests, tasks); it studies meaning and reference in isolation from pragmatic speech acts, superstructural schemata, and rhetorical effectiveness, and thereby in isolation from the whole sociocultural context. It has been shown for some examples, though, that these multiple links exist between the meanings of the discourse and its actual uses in communication.

To summarize the various aspects of discourse meaning we could account for in this (linguistic) semantics, we provide the following schema of the major components of a semantic discourse analysis:



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