CURRENT DEVELOPMENTS IN WRITTEN DISCOURSE ANALYSIS

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The primary purpose of this paper is to provide a current overview of trends in written discourse analysis. While this field of research is large and expanding rapidly, there are a number of recent approaches which are particularly useful in terms of their feasible methodology, replicability, and potential application to applied linguistic issues. In particular, approaches which stress linguistic analyses of the surface text structure are emphasized. A second major theme addressed in this paper is the need to delimit the study of written discourse as a coherent discipline. One of the critical problems facing written discourse analysis has been its inability to define itself as a discipline rather than as a set of techniques. One possible organizing framework is discussed which might be used to define the essential characteristics of such a discipline and to situate and integrate various research approaches to written discourse.

1. INTRODUCTION

The analysis of written text is in many respects a relatively new research area (cf. Beaugrande in press). Over the last twenty years, text analysis has grown rapidly in quantity and variety with contributions from sociolinguistics, psycholinguistics, applied linguistics, cognitive psychology, and artificial intelligence. At the same time, a number of older traditions continue to provide contributions to text analysis; e.g., hermeneutics (the interpretation of text), rhetoric (the effective organization of text), and literary criticism (the literary evaluation of text). These traditions have played a shaping role in written discourse analysis and continue to do so (e.g., Britton and Black 1985, Crowley 1989, Eagleton 1983, Fowler 1981, Kinneavy 1971, Neel 1988, Rabin 1986). While these latter three disciplines seldom generate specific methodologies for modern discourse analysis, they each raise fundamental questions about the nature of texts, questions which must be revisited regularly.

These three traditions, combined with recent developments in linguistics and psychology, form the historical base for the rise of text analysis as a field of study. (Beaugrande 1990, Beaugrande in press, and Beaugrande and Dressler 1981 provide good summaries of these developments.) This historical base has provided a solid foundation for text linguistics in Europe, but the same cannot be said for North America. The evolution of mainstream linguistic theory in the United States over the last 30 years has, for the most part, hindered the development of text analysis. While generative models of grammar, whether for English or other languages, have greatly

advanced linguistic theory, they have also reinforced the bias that the sentence constitutes the upper limit of "interesting" research.

Recently, however, a number of linguists have become disenchanted with such limitations, as well as with the fact that linguistic data were often not taken from actual use, but created by linguistic introspection. These functional linguists, working with sociolinguists, have focused considerable attention on discourse analysis, both spoken and written (cf. Brown and Yule 1983, Grabe 1985, Stubbs 1983). Work by Chafe (1980, 1982), van Dijk (1985), Givon (1983), Halliday (1978, 1985, 1989), Halliday and Hasan (1976, 1989), Labov and Fanshel (1977), Longacre (1983), Mann and Thompson (1986, 1988), and others have explored aspects of discourse structure and its relation to syntactic structures (cf. Celce-Murcia in press). From this research has come both a better understanding of text and a set of techniques for examining the nature of text.

In the review which follows, important recent contributions by researchers in the various fields noted above will be explored. This review of research will also be framed by more general questions concerning the nature of written discourse and the type of theoretical foundation necessary for the study of written discourse analysis. An emphasis has been placed on research approaches which appear to be both productive and replicable.

2. TEXT AS MULTIDIMENSIONAL CONSTRUCT

The range of research now influencing text analysis requires that text be seen as a multidimensional construct; that is, no unidimensional analyses of text can offer an adequate interpretation. As Hudson notes,

> The most obvious fact about discourse structure is that many different kinds of structure run through discourse, and any attempt to reduce them to a single type is bound to fail. (1980:131)

Biber (1988) has demonstrated this assertion convincingly in his research on textual variation in spoken and written genres. As Biber states,

> Linguistic variation in any language is too complex to be analysed in terms of any single dimension. The simple fact that such a large number of distinctions have been proposed by researchers indicates that no single dimension is adequate in itself. In addition to the distinctions... such as restricted versus elaborated and formal versus informal, linguistic features vary across age, sex, social class, occupation, social role, politeness, purpose, topic, etc. From a theoretical point of view, we thus have every expectation that the description of linguistic variation in a given language will be multi-dimensional. (1988:22)

Many previous efforts have assumed, however, that textual variation could be discussed along single overarching continua which would capture the essence of the variation. It is, at least in part, for this reason that the study of text, and the impact of that study on writing instruction, has been so limited. Only recently have researchers been willing to entertain the notion of multidimensional constructs and what such constructs might mean (Biber 1988, Chafe 1982).

Once it is recognized that text is a multi-dimensional construct, it becomes clear that no simple definition will suffice; thus the need arises for a description of fundamental

components of text and how they might interact. One way to begin to define text is to see it as language in real use which conveys meaning in the sense of Hymes' theory of communicative competence and which suggests a topic of discourse (however minimal). As Halliday (1978) argues, a text should not be defined as having opening or closure, as text is seamless, with predictable structure. Where texts begin and end is more likely to be determined socially and semantically from the context, rather than from a set of formal structural patterns of organization. For this reason, written discourse analysis needs a contextual foundation for the study of text. A classification of text analytic methods without the larger framework in which to situate results leaves the study of written discourse without a theoretical base. Such a foundation is, perhaps, most likely to emerge from the theoretical research on oral discourse in sociolinguistics.

The creation of text, it is assumed, is primarily for communication, as it is broadly defined (cf. Widdowson 1980). For this reason, writing may be said to represent an attempt to communicate with the reader. The writer has certain intentions and purposes, as well as informational content to convey. The written text, then, communicates information within certain accepted linguistic, psychological, and sociolinguistic principles:

1. Gricean Maxims —the need to be informative, factually correct, relevant, and clear; and their systematically interpretable violations.
2. Conventions for conveying status, power, situation, intent, and attitude.
3. Expectations of audience, as well as topic and genre contextual constraints.
4. Mechanisms for indicating newness of information, rate of information flow, and probability of information.
5. Predictability of cognitive structures which anticipate and implicate larger patterns of organization: schemata, scripts, frames, goals, etc.

These various principles suggest that a general framework is needed to sort out the many factors influencing the structure of written discourse. A useful way to reconsider the various components contributing to written discourse is to adopt an approach parallel to a sociolinguistic ethnography of speaking. Given the range of insights which such an approach has provided for the study of oral discourse, it is somewhat surprising that a similar ethnography of writing has not already become a well-established foundation for the analysis of written discourse (cf. Basso 1974).

3. AN ETHNOGRAPHY OF WRITING

The simplest mechanism for setting up an ethnography of writing is to ask the question,

Who writes what to whom, for what purposes, when, where, how, and why?

This question can then be used to examine written discourse from a variety of perspectives. It is illustrative to examine this question word by word to understand the full set of implications involved. From the perspective of the writer (*who*), it is important to consider who is writing since the written text is likely to vary considerably along this parameter. A text produced by a student will not be the same as a text produced by an academic or professional writer. Similarly, the writing of a lawyer, physician, or businessman will vary in complex ways, as the writer incorporates aspects of the

professional genres with which the writer identifies. In addition, individual *persona*, or voice, will create variation in texts which is attributable to the writer: whether such individual writer variation is open to systematic study is an open question at present.

The term *writes* refers to the many ways language is structured in written texts and is the focus of the latter part of this article. Under the notion of *writes* would be included research involving syntax, lexicon, cohesion, coherence, patterns of logical organization, etc. These topics represent the units of structure and the organizational preference which define texts.

What is written can be categorized under two general headings representing possible variation in text due to genre and topic differences. Genre is a well-established constraint on the form of text structure (cf. Atkinson in press, Swales in press). Whether a text is a story, a letter, an essay, a memo, a list, an editorial, a sermon, a manual, a flyer, etc. has a profound influence on the text structure. Topic, though less obvious, does appear to have an important influence on the written text. Writing about vacations and travel will be different from writing about economics, anthropology, physics, medicine, or law. Recent research by Biber (1988) and Grabe (1987) suggests that topic is a significant distinguisher of text structure variation.

Who is expected to read the text (*to whom*) has a major influence over the discourse structure. Within the general concept of the reader, or audience, are a number of factors which constrain the form of the text. It is perhaps even preferable to consider 'parameters of audience influence' rather than specific features in order to provide a more thorough account; at least five such parameters would appear to play important roles in textual variation.

One parameter of reader influence on the text is the number of persons who are expected to read the text. A text intended for a single person, a small group of people, a large group of people, or a general audience will influence the text structure. A second parameter of audience variation is whether or not the reader(s) is(are) known or unknown. Writing to a known person, a less familiar colleague, or a stranger is likely to alter the text. In particular, it is likely to determine the extent of interaction, or involvement features in the text (Biber 1988, Tannen 1987, 1989). Along a third parameter, that of status, the written text will vary according to whether the reader has a higher status, an equal status, or a lower status. In oral language contexts, Wolfson (1989) has demonstrated that much less interactional negotiating occurs with persons whose status is clearly above or below the speaker. As a fourth parameter, the extent of shared background knowledge will influence the text to a considerable degree. This parameter refers to the fact that readers with a high degree of shared background knowledge with the writer are likely to influence the text structure. Writing for readers who are familiar with current events in certain cultural contexts will allow the writer to anticipate general knowledge on the part of the reader. On a discourse level it may lead to elliptical references or organizational structure which demands greater inferences on the readers' parts (Hinds 1987, 1990). Finally, the extent of specific topical knowledge shared by the reader and the writer will vary the text. The extent and choice of detail, the need for defining ideas and assumptions, the use of common versus specialist terms, etc. all alter text structure.

The purpose for writing (*for what purpose*) may be addressed on at least two levels. This analysis will treat the *purpose* as a functional categorization. The overt purposes

may be related to the concept of genre, yet it also addresses functional purposes which are independent of recognized written genres. For example, people write in order to apologize, invite, inform, praise, threaten, complain, request, order, explain, reject, etc. This functional parameter is a necessary independent dimension of texts, apart from genre and audience, since a person could write two texts to the same audience and in the same genre but have each text serve different functional purposes (e.g., apology, reprimand, invitation). It would seem that this functional category accounts for speech act theory in written contexts. The purpose will influence the text structure in the sense that audience factors must be balanced against the particular functional intentions of the writer, creating distinct texts.

The concept of *why* people write refers to underlying intentions that may or may not be revealed by the functional purpose. The extent to which this category influences texts depends on the extent to which a writer wants the reader to recognize a hidden message —the more hidden the underlying intention, the more likely it is that the reader will only recognize the functional purpose of the text. Writers, for example, sometimes write congratulations to others not only to congratulate but to prepare the reader for a later request on the writer's part. There are clearly underlying emotional responses in writing which are also not functional but which influence writing. Thus, an angry writer will fulfill the same function in writing that a more neutral writer uses (e.g., apology), but the text is likely to be different. Other underlying motivations include a need to maintain contact, a desire to be helpful, a need to make a later request, an effort to develop a friendship, an attempt to gain privy information, a need to explore personal feelings, etc.

The cognitive mechanisms for producing text, the *how*, has had very little impact on written discourse analysis except in contexts involving the study of writing acquisition. In these contexts, many instructional approaches emphasize the process involved in writing over the text product itself. Most research in this area is attributable to educational psychologists such as Flower and Hayes (1980, 1981a, 1981b), Flower (1988), Flower et al. (1990), Hayes et al. (1987), and Bereiter and Scardamalia (1987). At present, it is not readily apparent how varying the writing process has a significant impact on the written text except to recognize that a text written rapidly, or under time constraints, is likely to be different from a text with no time constraints, as many students' essays demonstrate. It is also possible to consider how variation in the writing process, either consciously or subconsciously, influences the created text. For example, students who are unskilled writers may improve their writing significantly by assistance in specific writing processes (Bereiter and Scardamalia 1987).

The final two questions, *where* and *when*, are components of an ethnography of writing which do not seem to contribute independently to understanding text variation. (However, deictic references in letters, for example, require a recognition of when and where a text is written.) These categories suggest a major distinction between an ethnography of speaking and an ethnography of writing. Where and when people interact in oral language is a major factor in conversational analysis. It is not clear that these two categories play a significant role in shaping written discourse independently of the other categories discussed above. (Whether I write this article at home or at school will not significantly alter the text in any predictable or consistent way.)

This attempt to develop an ethnography of writing is tentative and open to change. Regardless of how the final form of such an ethnography evolves, it should be clear that such an ethnography is useful for situating results from any one component within a larger interpretive framework. For example, a major concern of text linguistics and written discourse analysis is to understand and define the notion of coherence. The ethnography of writing framework above would suggest that no amount of research on text structure, without considering the total set of influences shaping text construction, will lead to a productive notion of coherence. Nor will research results with linguistic features or cohesion be fully interpretable without an ethnography of writing framework. Sociolinguists studying oral interaction would not interpret their results outside some ethnography of speaking framework, yet research on written discourse seldom seems to be similarly compelled to frame their research in larger contexts (cf. van Dijk 1988, Kress 1989, Kress in press, Wodak 1989, 1990). This is, in part, due to the extensive research on written discourse by cognitive psychologists, many of whom do not see a need to situate texts socially as part of their explanations, and often do not even see a need to recognize different types of writing. However, if written discourse analysis is to become more than a simple set of techniques, and develop as a field of inquiry, a theoretical frame for written discourse analysis is necessary. While the above sketch may not be an equally suitable interpretation of the "writing event" for all researchers, some framing context for text analysis is needed (cf. Bazerman in press, Beaugrande in press, Kress in press, Swales in press).

4. ANALYSING LINGUISTIC ASPECTS OF TEXT STRUCTURE

Written text analysis has centered around a small number of issues in the last 15 years. Prominent among these are the contributions of lexicosyntactic features to textual variation, the role of intersentential connections in the text (e.g., cohesion research), and the study of textual coherence. While these three issues have received considerable attention, there are still more questions than answers in the current research. These issues represent a good starting point for discussion, though the ongoing research over the next ten years is likely to show that these issues are not as distinct a set of objectives as they are currently conceived. The purpose of the remainder of this paper will be to outline current developments in these areas which appear to be important for future research in written discourse analysis.

4.1. *Lexico-syntactic analyses*

One of the earliest syntactic measures of text is the well-known T-unit, originally developed as a syntactic feature which would indicate writing development (e.g., Hunt 1983, Loban 1976). In this view, discourse was seen as a series of structured T-units (defined as a main clause and all modifying units). Hunt's (1965) well-known study, "Grammatical structures at three grade levels," demonstrated a consistent increase in the syntactic complexity of student writing at grades 4, 8, and 12. From the basic T-unit, Hunt created a number of measures claimed to demonstrate writing development. Most popular among these are:

Number of words per T-unit

Number of T-units per sentence
Number of clauses per T-unit
Number of words per clause.

Despite numerous criticisms of the T-unit approach to writing research, and its extensions in written discourse analysis more generally, Hunt's findings have since been replicated sufficiently to warrant some reliability of his measures (e.g., Hillocks 1986; cf. Beaugrande 1984 for criticisms). It should be noted that the best results using this methodology have been with measuring writing differences across clearly distinct age/grade groups. Its effectiveness is more debatable when compared groups are less obviously distinct or when the purpose is to determine text variation across genres of edited prose (though stylistic analyses comparing literary authors find these measures useful; cf. Leech and Short 1981).

Apart from the use of T-units as measures of syntactic complexity and writing development, a number of other lexico-syntactic measures, primarily from developmental psychology and composition research, has proven to be useful markers of gross developmental changes (e.g., Hillocks 1986, Perera 1984, Witte and Cherry 1986):

Increased use of adjectives
Increased use of free modifiers
Increased use of sentence adverbials
Increased use of relative clauses
Increased use of finite adverbial clauses
Increased use of stylistic word order variation
Increased use of passives
Increased use of complex NP subjects
Increased nominal complexity
Increased range of tense and modal usage
Decreased use of unmodified NPs.

A question less well researched with respect to these measures is the extent to which they distinguish not only developmental stages in writing but also genre and topic variation in mature writing. On a genral level, such issues are considered in the work of Chafe (1982, 1985, 1986) and Tannen (1982, 1985) who examine variation among written and oral discourse genres.

Chafe (1982, 1986) discusses a variety of linguistic features which appear to distinguish the typical written genre (academic writing) from the typical oral genre (face-to-face conversation). His findings, indicating author detachment and informational integration for writing, as opposed to involvement and informational fragmentation for speaking, indicate the following:

1) Writing has more complex clause structure:

more conjoined phrases,
more THAT complement clauses,
more infinitive clauses,
more adverbial clauses,
more third person pronouns,

more passives,
more relative clauses,
more latinate words,
more nominalizations,
more prepositions,
more attributive adjectives,
more different words (type-token ratio).

2) Speaking has more involvement-creating features:

more contractions,
more hedges,
more amplifiers,
more universal quantifiers,
more first and second person pronouns,
more time and place referents.

Tannen (1982, 1985) has argued that variations in lexico-syntactic features may not be primarily the result of an oral-literate continuum but, rather, may be the result of genre variation which cuts across oral-literate use. For example, a formal lecture has many features in common with an academic article, and a personal letter has many features in common with a conversation.

This research by both Chafe and Tannen involved the analysis of a corpus of texts to examine the influence of these syntactic measures on textual variation. They both have come to the conclusion that text features define multiple textual dimensions and that a major goal for research would be to define these textual parameters distinguishing genres. A major breakthrough in their analyses, in comparison to many previous studies of linguistic features in texts, is that both researchers defined variation along distinct textual parameters (e.g., detachment vs. involvement, and integration vs. fragmentation).

In a recent series of studies, building upon this initial work, Biber (1986, 1988) has clarified the truly complex set of relationships which hold among various types of oral and written texts. By examining 67 linguistic features in 23 genres (approximately 1 million word corpus), Biber has identified at least 6 important parameters of textual variation. Among the linguistic features examined were:

nouns	word length	prepositions	contractions
past tense	present tense	perfect aspect	relative clauses
passives	modals	coordination	indefinite pronouns
WH clauses	THAT clauses	amplifiers	general hedges
adverbs	pronoun IT	time adverbials	place adverbials
infinitives	demonstratives	negation	discourse particles
conjuncts	adjectives	verb classes	participles
WH questions	nominalizations	downtoners	general emphatics

Explanations and finer distinctions among the linguistic features analysed require a careful reading of Biber (1988).

The many linguistic features were counted by an automated counting program. The resulting frequencies were then used in a factor analysis to determine the co-occurrence patterns among the linguistic features. His factor analysis identified 6 interpretable dimensions; that is, the linguistic features combined into six different factors, each of which could be interpreted as a communicative/functional dimension of textual variation. Among the textual dimensions interpreted by Biber are two dimensions similar to those hypothesized by Chafe. In Biber's terminology, they are 'Involved versus Informational Production,' (involved vs. detached) and 'Explicit versus Situation Specific Reference' (integrated vs. fragmented). Other important dimensions included 'Narrative versus Non-narrative,' 'Overt Expression of Persuasion,' and 'Abstract versus Non-abstract Information.'

It is important to point out that these interpretations were possible because Biber first determined the discourse and genre functions typically served by each of the linguistic features in the research; that is to say, each feature used in the research was included because it had been discussed in the linguistic literature as having certain functional characteristics in discourse. This last point is crucial; since Biber could refer to functional interpretations for each feature, he could establish plausible overall interpretations for clusters of features as they co-occurred in the factor analysis. Often, corpora research derives a set of dimensions with no theoretical guide for interpreting the results (e.g., Carlson 1988, Young 1985).

The way in which linguistic features define these textual dimensions is determined by the way they co-correlate. A critical assumption is that surface structure reflects discourse variation and, by inference, discourse structure as well. However, the way in which surface structure does this is not simply by means of individual linguistic features defining specific genres. As an illustration, Biber's (1988) fourth dimension, 'Overt Expression of Persuasion,' is comprised of *necessity modals* (e.g., must, should), *predictional modals* (e.g., will, shall), *suasive verbs* (e.g., agree, arrange, ask, beg, pledge, propose, etc.), *conditional subordination* (e.g., if, unless), and *infinitives* (e.g., to go, to change the rules). Individually, these features may do little to define a textual pattern. Taken as an aggregate, however, these features appear to coalesce into a textual dimension which distinguishes text genres. The various textual dimensions can then be used as gauges to see which text genres appear high on certain dimensional scales, and which texts appear low on certain dimensional scales. Thus, surface lexico-syntactic features contribute to the definition of textual genres according to specific, if indirect, patterns of organization. This line of research is readily applicable to the exploration of many types of written texts (Biber 1987, 1989, Biber in press, Biber and Finegan 1989, Grabe 1987, Dantas-Whitney and Grabe 1989).

As a result of recent linguistic feature analyses of texts, it is fair to state that all texts constitute multidimensional or reticulated structures. It is also a reasonable conclusion to draw from recent research that, while linguistic feature analyses of texts are a productive line of text analysis, such research is not likely to be productive simply by means of unmotivated linguistic feature counts. One implication of this research is that claims made in writing research about distinctions between oral and written language as well as about oral features (e.g., contractions, first and second person pronouns) in student compositions may be over-simplified, calling into question many of the assertions based on these premises. The results of current research on oral and written

textual variation also indicate that there are, in fact, extensive patterns of variation among the many different types of written texts. Even among academic texts, patterns of textual variations according to linguistic features vary considerably (Grabe 1987).

4.2. *Research on cohesion*

As much as research on linguistic features has contributed to our understanding of larger textual structure and variation, so also have recent developments in cohesion theory. This has been due in large part to the development of a theory of cohesive harmony, and also to a significant reanalysis of the various components of cohesion theory (Halliday and Hasan 1989, Hasan 1984). In the fifteen years since a theory of cohesion was published by Halliday and Hasan (1976), considerable discussion has been given to the status of cohesion as the surface manifestation of coherence in text. In the most recent descriptions of cohesion, it is clear that earlier criticisms of cohesion are being addressed explicitly by the recent changes in cohesion theory.

If one accepts that the surface form of texts reflects the functional attempt to communicate, as Halliday and Hasan do in their functional approach to language theory, then the notion that cohesion should reflect the writer's efforts to be coherent is a relatively straightforward assumption. Thus, linguistic features which provide connections across sentence boundaries are meant to guide readers and provide a sense of coherence in writing. In a sense, then, cohesion is a road map for creating coherence. While many pieces of information may be left out, a consistent outline is, nevertheless, provided.

It is also clear from recent work by Halliday and Hasan (1989) that cohesion, as described in earlier work, is not sufficient in itself to explain coherence in text. In a recent revision of cohesion theory, they have restructured and added to the basic components of the theory. There are now three sub-components of the theory: componential, organic, and structural cohesion. With componential cohesion, the uses of pronouns, deictics, definite articles, comparatives, ellipsis, and substitution remain the same. Lexical cohesion, however, has been changed. It has now been limited to clearly definable specific categories which are more easily replicable. Recognizing that lexical collocation, though critical to the structure of a text, could not be verified reliably among researchers, Halliday and Hasan now employ the lexical categories of repetition, synonymy, antonymy, meronymy (part-whole), equivalence, naming, and semblance as types of co-reference and co-extension (lexical cohesion) in texts. The objective is to include as much of the notion of lexical collocation without losing the ability to replicate research results.

Organic cohesion refers to the earlier category of transition markers connecting sentences. They provide the reader with semantic information for interpreting the relations between clauses. These relations are still classified as additive, contrastive, concessive. In addition, organic cohesion incorporates the use of adjacency pairs for oral discourse analysis.

Structural cohesion is a new component bringing together insights about syntactic and focusing devices which aid in the interpretation of the text. For the first time, the role of syntactic parallelism is included as a cohesive device. In addition, the structuring of sentence relations according to given and new information is now part of the

structural component. These two devices are combined with theme-rheme relations to provide a set of measures for cohesion which operate at a different level from co-reference, co-extension, and transition marking between clauses.

This expanded theory, by becoming more inclusive, is more capable of reflecting the various ways that a text promotes coherence. At the same time, the theory itself becomes more difficult to work with, being a better reflection of the complexity of relations and structuring in texts. It now is less clear how to use all the components together to explain text structure, or how to quantify an analysis of cohesion. Halliday and Hasan have argued that simple counting of cohesion features is *not* a useful way to understand the role of cohesion in text construction. After a decade of such attempts, they are convinced that numerical accounts, by themselves, do not explain the role of cohesion in forming coherent text.

Hasan (1984) and Halliday and Hasan(1989) have argued, instead, for a theory of cohesive harmony. Recognizing that cohesion quantification, in and of itself, did not distinguish coherent from non-coherent texts, she has proposed an analytic approach which creates chains of co-reference or co-extension cohesion ties (termed identity chains and similarity chains). These chains tend to reflect the main topics and their relations to each other. Further, the manner in which chain elements interlink across chains represent the central elements producing the coherence of a text. Thus, the cohesive elements which form chains, and which interlink with other chains are the quantifiable features of cohesion which indicate differential coherence in texts. At present, little research has been performed using cohesive harmony beyond Hasan's studies (cf. Cox et al. 1990, Speigel and Fitzgerald 1990). How the analysis of cohesive harmony fits in with syntactic cohesion is unclear, and it is fair to say that the expanded version of cohesion theory is still in developmental stages. However, the inclusion of their syntactic component makes their assertion that cohesion reflects coherence, if more difficult to demonstrate, more appealing from a theoretical standpoint. Given Halliday and Hasan's functional perspective on the constructive use of language, the surface structure should make a considerable contribution to the perception of underlying coherence.

4.3. *A theory of involvement*

One approach which makes use of many of these categories of cohesion analysis, though not intended specifically to do this, is Tannen's (1989) recent theory of *involvement* in discourse. In this theory, Tannen argues that a notion of involvement makes use of many linguistic and cohesion features in texts to create a perception of interaction and sharing. The use of many component features to create a sense of involvement is, for Tannen, also an important means for creating coherence in texts, whether spoken or written. She has argued that there are at least 8 major components of the notion of involvement:

1. Rhythm
2. Repetition
3. Figures of speech
4. Indirection and ellipsis
5. Tropes

6. Detail and imagery
7. Dialogue, reported speech
8. Narratives.

This theory, while employing many of the notions of cohesion, also contributes uniquely to a sense of textual coherence by including aesthetic, or performing, functions as influences on how we understand and respond to discourse.

A brief discussion of the major components of her theory will best explain the aesthetic or performing aspects of this approach. *Rhythm*, for example, refers to tempos, beats, harmonies, intensities; these rhythms create perceptible variations and repetitions of sounds, morphemes, words, and phrases. *Repetition* refers not only to lexical repetition, but to all types of repetitions: sounds, syllables, words, alliterations, parallel structures, adjacency pair structures, collocations, synonyms, etc. This theory provides a sense of the text coming alive with endless patterns of repetition which invite and intrigue the reader (or listener). *Figures of speech* plays with a similar theme of variation and repetition, though in yet other ways. Figures of speech can match similar beginnings of clauses, juxtapose opposites in balanced clauses, create repetition at ends of clauses, use sequences of clauses with matching numbers of syllables, reverse ordering of two parts, repeat a phrase at the end of one clause and the beginning of the next, etc. These figures of speech tend to involve the reader or listener and allow them to feel the interaction. The use of *tropes* in texts (e.g., metaphor, metonymy, irony, proverbs, enigma, etc.) provide a way for readers to make associations, relations, and substitutions on a non-literal level; readers are asked to infer and interpret, and thus are drawn into an interaction with the text. Such a drawing-in, according to Tannen, is a major means for generating the coherence of a text.

Indirectness and ellipsis add other features to the development of involvement. In all three instances, the reader or listener is asked to infer, to commit to an interpretation of the text, to construct the coherence. As the readers fill in the inferences, they become involved in constructing the interaction and, in some sense, they participate in the text. *Constructed dialogue* and *narratives* are two other ways for the readers to become involved by "participating" in the coherence of the text. The constructed dialogues tend to give a sense of vividness, a "you are there" feeling. This device allows the reader to become more emotionally involved and to share the textual moment. Narratives similarly lead the reader to share the moment and develop an emotional attachment with the text; readers are led to invest in the text, and this investment helps readers to create a coherent interpretation of the text. Finally, the use of *detail and imagery* creates involvement by making the information concrete for the reader; the reader can visualize a scene and evoke their own parallel images. Details convey the importance of an event and give a feeling of truthfulness. Appropriate use of these devices invites readers to construct personal, emotional overtones to the information.

The eight features, together, suggest an interesting and potentially very productive approach to the analysis of texts. Many of these involvement features bear some relation to cohesion theory, though it should be clear that the definitions of the features as components of involvement give them unique applications. Another interesting aspect of Tannen's approach is her effort to analyse texts primarily in terms of surface structuring. In this respect, her approach resembles not only cohesion theory, but also

recent discourse approaches involving linguistic feature analysis, and information structuring (below). It is fair to say that many of the recent innovations in written discourse analysis argue for a return to specific detailed analyses of surface structuring in the text.

4.4. *Information structuring relations in text*

The revision in cohesion theory which incorporates *given* and *new* information structuring, along with its more traditional *theme-rheme* analysis, suggests that information structuring in texts is now recognized as an essential aspect of textual cohesion (and coherence as well). These types of analyses, along with *topic-comment* and *focus-presupposition* parameters, make up the general framework of information structuring devices in texts (cf. Bardovi-Harlig 1990, Kaplan and Grabe forthcoming). The textual side of this research "concentrates on how a text got to various points, on where the text has been, on what information has set the stage for other information, and on how the text hangs together" (Vande Kopple 1986:76). Often these parameters are conflated into more general analyses. Despite all of the potential terminological confusions, there is much important research on information structuring and, for the most part, the blurring of distinctions does not seem to invalidate the findings.

Research on theme-rheme or topic-comment relations has been undertaken by a number of linguists working on various languages (e.g., Givon 1983, 1984, Halliday 1985, Hopper 1982, Hopper and Thompson 1980, Thompson 1985). Lautamatti (1987) represents one line of research using topic-comment analysis to examine written texts and simplified texts. Her theory of topical development in discourse examines the relations between the topic of discourse, the topical subject of the sentence, the syntactic subject, and the initial sentence element. Noting that the latter three notions do not always overlap, she explores the various possible patterns in written texts. Her goal is to isolate the topical subject of a sentence and then to examine the patterns of progression which the topical subjects form in a text.

Lautamatti's approach is important for a number of reasons. First, she provides a functionally based taxonomy of topical and non-topical linguistic material in a sentence; the categories explain what each segment is intending to do in a sentence. Second, the specification of topical subject is presented in a way which indicates that topic for Lautamatti is not simply *given*, as opposed to *new*, information. Third, she applies her analyses to written discourse to show that certain patterns of topical progression may be more readable than others: those texts which have fewer competing sub-topics, fewer complex sequential progressions (A-B, B-C, C-D), and more series of parallel topic progression (A-B, A-C, A-D) are more readable. This suggestion appears to be well-supported by the research of Vande Kopple (1986). Fourth, her approach should be applicable to the analysis of student writing and may provide specific teaching suggestions for students who appear to be writing texts with deviant, and probably less readable, topical organization (see Cerniglia et al. 1990, Connor 1987, 1990, Connor in press, Connor and Farmer 1990).

Based on work by Lautamatti, Witte (1983a, 1983b) developed a topical structure analysis to study differences in high and low quality writing and differences in revision strategies. Looking for topical and sequential chaining patterns in student essays, Witte

(1983b) found that low-rated essays did not provide enough appropriate given information and forced the reader to make too many inferences. The texts were not reader-friendly. Witte also found that low-rated essays used fewer sequential chaining patterns, making it harder for the reader to perceive main topics in the essay. Overall, differing patterns of topical structure analysis was a good predictor of student writing quality. In applying topical analysis to essay revisions, Witte (1983a) found that higher-rated revisions provided more information of fewer topics while poor revisers did not seem to recognize the need for topical development. The poor reviser did not seem to have a clear idea of what his discourse topic was.

A second line of research focusing on the function of topic development in discourse is the work of Givon (1983, 1984) on topic continuity. In his work, Givon treats *topics* as NPs which receive continuous mention in the ongoing discourse. In this sense, he differs from Lautamatti and Vande Kopple; that is, he does not distinguish topic-comment from given-new information. His work is more in line with the work on given-new chaining in discourse in that it requires specific prior mention to count as a topic under analysis.

Beginning from a functional perspective that proposes topic structuring as essential to the continuity of discourse, Givon argues that noun phrases (NPs) which become topics are restated in the ongoing discourse in different ways depending on how far back in the text the last previous mention occurred, the number of potential competing NP referents in the immediate discourse, and the strength of its persistence in the oncoming discourse. These quantifiable measures provide a means by which to account for the different ways topics are encoded in the structure of the grammar, and suggest the writer's decisions in regulating/signalling the flow of information. In a sense, this approach amounts to a type of co-referential cohesion. The difference is that his measures also relate to the degree of difficulty in mantaining or recovering the topic of discourse with increasingly more marked grammatical forms. Specifically, Givon (1983:17) suggests that the following scale of topic realization is generally applicable:

Most continuous/accessible topic

1. Zero anaphora
2. Unstressed/bound pronouns or grammatical agreement
3. Stressed/independent pronouns
4. Right dislocated definite NPs
5. Neutrally ordered definite NPs
6. Left dislocated definite NPs
7. Y-moved NPs (Topicalization)
8. Cleft/focus constructions
9. Referential indefinite NPs

Most discontinuous/inaccessible topic

Illustrations of each of these categories for English appear as follows:

1. I went to the store and ____ bought some cheese.
2. [Does not apply to English]
3. *He* went to the store by himself.

4. *It's* on the desk, *the book you want.*
5. *The man* came back again.
6. *The book you found*, we left *it* on the bus.
7. *The dictionary*, I found yesterday.
8. It's *the dictionary* that I found yesterday.
9. *A dictionary* was found yesterday.

The importance of this line of research is that it provides a specific research agenda for examining how information continues and how topics are maintained. We can explore the difficulty that readers should have in reading a particular text depending on the deviation of topic marking from the expected continuum. For writers, the continuum stresses the importance of knowing when it is not necessary to stress the topic and when it is important to mark it strongly for easy recovery.

A third research approach to informational structuring is the specific examination of *given* and *new* information in texts. This approach differentiates given information from topic in that given information has appeared in the prior discourse (whereas a topic of discourse does not have to appear in prior discourse), and given information does not have to be limited only to the discourse topic. Important research by Vande Kopple (1982, 1983, 1986) using a variety of patterns of information structure has shown that, generally speaking, the organization of given information before new information does in fact make texts more readable and memorable (see also Weissberg 1984). His research on information structures and their cognitive correlates suggests that additional complex patterns of informational progression probably exist, that students can be taught to identify these patterns of organization in their texts, and that researchers may be able to examine differences among text genres, authors, or writing purposes on the basis of information structuring.

Vande Kopple (1986) also discusses other recent advances in the theory of given-new relations. In particular, the work of Prince (1981) suggests that given and new relations may not be a two-part division. Instead, she proposes seven categories of new, inferred, and given information for a more refined analysis of information structuring in texts (see also Brown and Yule 1983). Under 'new,' Prince distinguishes information which is *unused* (readily recognized by the reader when introduced), and *brand-new*; the brand-new entities may be either *anchored* or *unanchored* depending on whether they contribute to the ongoing discourse or are never repeated. An intermediate category is comprised of two types of 'inferences': *inferables*, and *containing inferables*. Inferable entities contain information that can be presumed from the information presented in prior discourse (e.g., "a camera... the lens"). Containing inferables refer to entities which are recoverable as parts of a collective reference (e.g., "one of the eggs"). The 'given' entities can be *evoked* in two ways; either explicitly by the prior text, or by reference to the situation (e.g., "*you* should understand what this means"; what Halliday would term 'exophoric reference'). While this taxonomy of relations in texts is new, it could be used to examine variations among many different types of texts.

In fact, a close examination of Prince's theory of given-new relations shows that it is closely reflected in Hasan's more recent theory of cohesion. First of all, Hasan now explicitly includes some theory of given-new relations in her model of cohesion under

syntactic cohesion. Second, to apply Prince's theory, one must provide a relation for every NP in the text. This tagging tends to make extensive use of the cohesion notions of co-reference and co-extension, especially using the various lexical cohesion categories specified in Hasan's recent revisions of cohesion. The critical innovation to this system of analysis is the introduction of an intermediate notion of inferred information. Making the three-way distinction among given, inferred, and new information creates a much richer analytic approach which is, at the same time, reliable in terms of replicability. Using this simplified three-way division among given, inferred, and new relations in a variety of smaller exercise activities on text variation, I have found that this system suggests strong, intuitively appealing, distinctions among text genres.

4.5. Written discourse analysis and the search for coherence

In the last 5 years, the study of written discourse by means of co-occurring linguistic structures, cohesion, and information structures and orderings have been the most productive areas of research. The emphasis on analysing the written product rather than the writing process may account for the usefulness of these approaches; our understanding of the writing process is not nearly as well developed. Moreover, these surface oriented approaches indicate a shift away from seeking an all-inclusive definition of coherence in texts, and toward specific studies of certain aspects of texts which would appear to contribute some part to the set of features invoking coherence. While to some extent coherence represents a semantic interpretation of a text in terms of macrostructure, logical relations among clauses, and information structuring (cf. Grabe 1985), it is also reasonable to suggest that cohesion relations and co-occurring lexico-syntactic features also must play a role. The fact that linguistic features, cohesion features, and information structuring often appear to overlap in interesting ways only reinforces this larger view of the factors involved in perceived textual coherence.

Other approaches which have been more explicit in their attempts to specify the nature of coherence on a general (processing) level have tended to generate more interesting speculation but less concrete evidence (e.g., Beaugrande 1980, van Dijk and Kintsch 1983, Hoey 1983, Mann and Thompson 1988, van den Broek and Trabasso 1986; cf. Beaugrande 1991, Rayner and Pollatsek 1989). A number of these semantic approaches to text meaning may be intuitively appealing, such as schema theory (Kintsch and van Dijk 1978), story grammars (Mandler 1985, Thorndyke 1977), propositional analyses (van Dijk and Kintsch 1983, Meyer 1985), mental models (Johnson-Laird 1983), causal inferencing (van den Broek and Trabasso 1986, Trabasso, van den Broek and Suh 1989) local logical coherence relations among clauses (Mann and Thompson 1986, 1988), etc. However, many of these theories do not currently provide sufficient specific detail to allow reliable replication, or they do not specify their theory in sufficient detail to explain how notions of coherence are naturally generated from the specific model proposed.

In a review of semantic models of discourse structure, Rayner and Pollatsek (1989) note that van Dijk and Kintsch's (1983) model of propositional analysis, microstructure relations (defined by a coherence graph), and macrostructure includes a strong intuitive analysis of the hierarchical structure of any given text. In effect, the higher

level of coherent relations among major propositions is little different from creating a summary of the text. Exactly how the macrostructural relations are derived from the propositional analysis and the coherence graph of local microstructures is not easily explained. Rayner and Pollatsek note similar problems with story grammar analyses, mental model analyses, and causal coherence analyses. Such questions can also be posed for clause relational analyses proposed by Hoey (1983) and Jordan (1984), as well as for Rhetorical Structure Theory of Mann and Thompson (1986, 1988).

However, at the same time that overall semantic approaches to coherence analysis are open to criticism for their lack of specificity, they also represent important ways to approach such larger questions as what makes a text coherent, and how underlying relations in a text can be examined. It may well be that such broader approaches will eventually incorporate aspects of the more specific structural analyses described above and provide an important synthesis of research results in written discourse analysis.

5. CONCLUSION

This review of current research in written discourse is necessarily selective. There is a considerable amount of other research which could be discussed, and which deserves discussion. A large area of research in text analysis, termed *critical discourse analysis*, has been omitted. In part the omission is because this line of research is more interpretive and less empirical; in part because a proper treatment of this approach would require more than a few pages. Combining work from stylistics, linguistics, sociology, and education, the current direction of critical discourse analysis research is to examine the role of text in socialization and the establishment of power. Interested readers should read Fowler et al. (1979), Kress (1989), Kress (in press), Kress and Hodge (1979). Similar perspectives on language, power, and social structure is a recent focus of work by van Dijk (1988, 1990), and Wodak (1989, 1990).

A second line of research only examined peripherally in this review is the work on *contrastive rhetoric*. In the last five years, a large number of studies has appeared which provide strong support for the view that textual conventions in writing are culturally shaped, though these rhetorical preferences in no way constrain the learning of new rhetorical conventions for the structuring of text (Connor and Kaplan 1987, Clyne 1987, Clyne et al. 1988, Grabe and Kaplan 1988, Hinds 1987, 1990, Purves 1988).

Before closing, I would like to consider briefly the relation between the various specific topics and analyses discussed and the 'ethnography of writing' framework presented earlier. One of the critical problems facing written discourse analysis has been its inability to define itself as a discipline rather than a set of techniques. An ethnography of writing approach would allow researchers to situate their research programs in relation to other types of research in discourse analysis. For example, one might ask how critical discourse analysis might relate to contrastive rhetoric, or how both might relate to cohesion research, a theory of involvement, genre analysis, propositional analysis, or information structure research. An ethnography of writing would also allow written discourse research to be situated with respect to sociolinguistics, rhetoric, educational psychology, and literary criticism. It would seem that if written discourse analysis is to someday take on the status of a discipline, it will require an integrative foundation, an organizing scheme to situate the various research

approaches and research results which, at present, seldom receive interpretation or comparison across a range of parameters of written discourse. The proposal for an ethnography of writing framework presented here is only a suggestive sketch. There may well be better alternatives for situating research on written discourse; it should be clear, however, that some such framing of written discourse analysis is necessary for its evolution.

If this attempt to organize and report research in written discourse analysis raises more questions than it answers, that is, perhaps, to be expected. There are no neat and simple answers to report but there are many exciting options for the exploration of texts. Rather than lament the current lack of agreed upon and codified results of research in written discourse analysis, we should realize the extraordinary possibilities for exploration, for discovering new insights about the structuring of texts, and for integrating the research results into useful models which will help us understand the structure and uses of written texts (cf. Beaugrande 1991, Brown and Yule 1983, Connor and Johns 1990, Cooper and Greenbaum 1986). While the range of research tools is wide, and the research results reported are often confusing, there are many promising approaches to use and many important questions to explore. The study of written discourse is still an emerging field; as various researchers from different disciplines come together and discuss their methods and results, written discourse analysis will evolve into a domain of research and knowledge which will influence even more strongly fields such as cognitive psychology, educational psychology, composition research, applied linguistics, sociolinguistics, and artificial intelligence. It is an exciting time to be exploring written discourse.

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