

The Notion of Intention in the Study of Language before the Emergence of Written Discourse Analysis

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Abstract

In this paper an attempt is made to review how mentalistic notions such as intention, mental representation and generic knowledge had been treated in the study of language before they started gaining the status they deserved in the early 1980s with the development of cognitive linguistics and computational technology. Such an attempt is necessary to locate the position of a type of mental representation which the present author has been trying to describe in the tradition of the study of written discourse.

Keywords: biconditional, discourse, frame, intention, mental, representation, schema

0. Introduction

In 1983 two influential works on written discourse were published: *On the Surface of Discourse* by Michael Hoey and *Strategies of Discourse Comprehension* by Teun A. van Dijk and Walter Kintsch. Their research independently developed but both dealt with the structure beyond the sentential boundary and are concerned with the reader's active interaction with the text in the comprehension process. In the tradition established by them, a lot of research has been done on comprehension, and various comprehension models have been presented. I have also been trying to devise a model which interprets the comprehension process as the reader's efforts to construct a coherent structure or frame comprising a set of propositions among which the logical relation of biconditional is established. The resultant frame is seen as representing the writer's communicative intention to share the view on the world with the reader. The notion of intention which is crucial to my theory, however, was not always accepted as a decent object of scientific study since it is an invisible mental entity. It was avoided or excluded from the study like other mentalistic notions such as mental representation, comprehension, purpose, goal and value. In this paper, several linguistic principles advocated by influential scholars such as Bartlett, Bloomfield, Skinner and Chomsky before the early 1980s are reviewed in terms of their positions in relation to mentalistic notions.

1. Mental representations as the writer's communicative intention

Before discussing the position of mentalistic notions in the literature up to the early 1980s, in this section I briefly introduce what kind of mental representation I have been trying to devise. The mentalistic notions discussed in the following sections are similar to the notion of the writer's communicative intention only in that they are all invisible entity but in

other aspects they are notions of very different kind. It is, therefore, important to know what kind of mental entity the mental representation of the writer's communicative intention is.

In some of my preceding papers¹ one aspect of text comprehension is explained as a process in which the reader of the text constructs a type of coherent mental representation that is assumed to represent the writer's intention of producing the text. A similar view on text comprehension was presented in the most comprehensive way by Van Dijk and Kintsch (1983) and has been shared and developed by a group of discourse psychologists such as, Graesser, Millis and Zwaan (1997), Van Dijk (2006), etc.

The recent development of cognitive science accompanied by the remarkable progress in information technology has prepared a relatively favorable situation for postulating mental entities in theory construction. Now it is possible to simulate assumed text comprehension processes by creating computer programs which can perform various activities such as responding to questions about the content of the text as human subjects do. Gallistel (2001) writes about the impact of computer science on the field as follows:

The cognitive revolution was closely tied to the emergence of computer science because computer science created indubitably physical machines that unequivocally computed. This dispelled the widespread belief that computing was an inherently mental activity in the dualistic sense—mental and therefore not physical.

Researchers have started believing that text comprehension, which could be interpreted as a kind of computation, is also something physical that can be measured and tested using computers.

The notion of mental representation, however, has not always been accepted unconditionally in the linguistic study. The situation is the same for other related mentalistic notions such as *mind*, *concept* and *idea*. There is a good reason for this: they are not directly observable in spite of the development of artificial intelligence. As for a distrust of mentalistic terms no other groups of scholars are better known than behaviorists, who attempted to give their theory a scientific status by accepting only empirical evidence. Admitting that there are various controversial features of behaviorism, their attitude to empirical data should be and has been respected by many linguists. That is why there is a persistent distrust of mentalistic terms and a cautious approach to the postulation of mental entities in theories.

The decision to incorporate the notion of mental representation into the theory, therefore, requires some explanation. It is now commonly accepted that text comprehension depends not only on the information explicit on the surface of text but also on the reader's generic knowledge, purposes of reading, and various types of contextual information. The reader is believed to integrate these different types of information to establish a coherent structure. I presume that one aspect of this integration process is interpreted as the reader's efforts to identify the information presupposed by the writer as an accepted norm and understand the function of surface clauses in terms of their relation to this presupposed norm. The norm is described as a propositional complex which comprises a group of propositions among which is established the logical relation of biconditional. This view on comprehension is based on the observation that biconditional is considered to be a logical property of norms that are typically represented as co-occurrence of two propositions. If one of the two propositions is affirmed, the other proposition is also affirmed: if one of the two propositions is not affirmed, nor is the other. The presupposed propositional relation based on biconditional is inferred from the text mainly by generalizing or conceptualizing some surface clauses. In this sense, the presupposed propositional relation is not independent of the text. It is established

¹ Ohashi (2009), (2010a), (2010b)

only when the reader reads the surface clauses of a particular text and make a judgment on which part of the information contained in them has been taken for granted as given or known up to that point in the text.

In psycholinguistics generic knowledge brought into comprehension is often explained in terms of the notion of schema, frame, script and other similar concepts. The common characteristic among these notions is that they are generic knowledge that functions as the basis for understanding new situations. The most-cited restaurant script, for example, consists of a sequence of expected events that one experiences at restaurants. It is considered to include part of the sequence such as *ordering dessert—having dessert served—eating dessert—paying for it*. Reading about situations associated with a restaurant, the reader activates the restaurant script. It supplies information necessary to make inferences to connect seemingly unrelated sentences. The particular event described in the current text is matched with the prototypical event of the script and this matching facilitates the construction of a coherent representation. Such a matching process is sometimes explained in terms of the notions of slots and fillers: the prototypical event of a script is seen as a slot while the event described in the current text is seen as its filler, which fills in the slot.

Practically speaking, however, seeing particular text information as a filler of a slot of the script is not so different from attaching labels such as *ordering dessert* and *paying for it* to the surface clauses corresponding to them. With respect to a certain text reporting dining at a restaurant, one may, on one hand, consider that the slot of the restaurant script, *ordering dessert*, is filled with a surface clause: for example, *Tom ordered ice-creams at Renwick*. Similarly, if it is in the same text followed by a clause such as *They were served in five minutes*, one may consider it to fill in the slot, *having dessert served*. On the other hand, the same comprehension process might be interpreted as a labeling process. One may consider that *ordering desserts* is a kind of label attached to the surface clause *Tom ordered ice-creams at Renwick* and *having order served* is another label for the clause *They were served in five minutes*. Attaching labels such as cause-effect to two parts of text to indicate the semantic relation between them is a long established technique for describing the structure of text without bothering to postulate any kind of conceptual entity. Labels are simply regarded as some notes retrospectively added to the surface clauses to elucidate the relationship between them. From this point of view it is not necessary to posit a mental entity that is constructed during text comprehension.

The relationship between the presupposed proposition and the surface clause is actually more than the simple relationship between a slot and a filler as described above as well as in other places in the literature. It is a specification process in which the surface clause typically affirms that the presupposed proposition is part of the world being described and thus assigns it a factual status. The abstract concept *ordering dessert*, which in itself has no referential function in relation to the real world, is now affirmed as a particular event in the world: *Tom ordered ice-creams at Renwick*, for instance.

Furthermore, the generic knowledge tentatively represented as a pair of concepts such as *ordering dessert—having dessert served* has a normative function which is based on the logical relation of biconditional: $(p \rightarrow q) \wedge (\neg p \rightarrow \neg q)$. One of the possible linguistic translations of biconditional in terms of the current example is: *if one orders dessert at a restaurant, then one has it served, and if one doesn't order it, one doesn't have it served*. It is this presupposed norm that the surface clauses specify. The important point of this propositional complex with a normative function is that affirming one of the propositions, that is, assigning a factual status to one of them, logically determines the statuses of all the other propositions. For instance, if the surface clause *Tom ordered ice-creams at Renwick* assigns the factual status to the proposition *one orders dessert at a restaurant*, the proposition *one has it served* is logically expected to be assigned a factual status as well. This expectation is

fulfilled by the surface clause *They were served in five minutes*. Accordingly, the other propositions included in the norm, *one doesn't order it* and *one doesn't have it served* are both assigned a counter-factual or hypothetical status. It is this mediatory function of surface clauses as a linkage between propositions as conceptual entities and events in the world as empirical entities that is not explicitly explained in the slot-filler and the label-attaching models.

The normative function of the presupposed propositional complex is also illustrated when the norm is deviated. For instance, if the surface sentence following *Tom ordered ice-creams at Renwick* is *They were not served even thirty minutes later*, the status assignment turns out to be illogical. Though *one has it served* is expected to be affirmed and assigned a factual status as in the previous case, the new surface clause assigns a factual status to its logical opposite *one doesn't have it served*. This unfulfilled expectation is the cause of frustration on the part of the reader.

The pattern of factual status assignment is also related to the specification of the complex at the interactive level. For example, the surface clause *They were served in five minutes* not only realizes the proposition *one has it served* but also in some context functions as a statement of approval. *They weren't served even 30 minutes later*, on the other hand, affirms *it is not served* and at the same time functions as a statement of disapproval. If *one has it served* is specified as a hypothetical clause such as *They will be served in five minutes*, this clause functions as a prediction or expectation. Thus the specification of the propositional complex includes the identification of illocutionary forces performed by the surface clauses.

The specification process of the presupposed propositional complex also includes the identification of value that is assigned to the proposition or the event the proposition is linked with. For example, regarding a statement as an approval or disapproval, as I did in the previous paragraph, is based on the value awarded the proposition or the event it is linked with: having one's dessert served in five minutes is positively valued while not having it served for thirty minutes is negatively valued.

Thus, the mental representation that I postulate is "mental" in the sense that it is assumed to be based on the generic propositional complex which is not explicit in the text and must be inferred from the surface clauses and context. The inference is not an arbitrary process though: the propositional complex establishes biconditional. Comprehension of the text is interpreted as the specification process of this logical construct. The resultant mental representation specifies at least the factual status to its elements, its illocutionary force, values awarded to its elements and its emotional effects. As a whole it represents the writer's communicative intention.

2. The notion of mental representation in the literature before the cognitive revolution

This section reviews how the notion of mental representation and related notions had been treated in the literature until the so-called cognitive revolution occurred in the 1950s.

The idea that generic knowledge plays an essential role in human cognition including the use of language is a commonplace. Indeed in psychology and other related fields of study, knowledge of the world and past experience of similar events are assumed to work as a basis for understanding the event that one newly experiences. Such knowledge is often referred to as schema, frame, script, etc., which all refer to a generic mental representation of a concept, event, or activity. According to Whitney (2001) the concept of schema dates as far back as to the eighteenth century when the philosopher Immanuel Kant contemplated the conception or schema of triangles. In so doing, Whitney explains, Kant captured the idea that "people need mental representations that are typical of a class of objects or events so

that we can respond to the core similarities across different stimuli of the same class.”

More recently, Bartlett (1932), one of the founders of modern psychology, noted the important role knowledge plays in reconstructing discourse. Unlike the preceding studies such as those on memorizing meaningless sequences of alphabets, his study on memory used meaningful texts. Studying his subjects' recalling of folktales from unfamiliar culture, he noticed that the reconstructed versions included various differences from the originals. For example, in the reconstructed versions, characteristic syntactic structures of the original story were not maintained; proper names were dropped; information the subjects found illogical was often not remembered or was changed into reasonable forms that fit the subjects' logic; unfamiliar terms were replaced with familiar ones as in the case of the replacement of *seal hunting* with *fishing*; new elements were added as in the case where a moral element, which is conventionally found in the folktales of the subjects' culture, was newly added. Such observations of the subjects' constructive recalling led to his view on schema as an 'active' type of knowledge, and he writes, "Remembering is not the re-excitation of innumerable fixed, lifeless, and fragmentary traces" (1932: 213). Brown and Yule (1983: 249) comment that the active aspect of Bartlett's notion of schema is unique and is in contrast to the ordinary view of it as fixed 'data structure'.

Bartlett's work was influential to the later generation of schema theorists in the 1970s and the 1980s such as Tannen (1978,1985) and Anderson (1977). Until those years, however, his work did not receive the appropriate attention it deserved. It is because of the wave of behaviorism which became a predominant scientific opinion in the 1930s. The notion of mental representation was virtually banned from scientific psychology. Behaviorism was in accordance with the strong current of empiricism which was the dominant principle upheld by the scientific communities in America and Britain early in the twentieth century. Its main tenet is that everything which is referred to as mental activity, including language use, can be explained in terms of habits, or patterns of stimulus and response, built up through conditioning (Malmkjær, 1991:53). According to this principle, mental representations are not acceptable because they are not directly observable; they are simply inferred from their observable behavioral consequences. In addition, they are not neurologically transparent: it is difficult to say how the entities and processes hypothesized for mental representations might be realized by currently understood neurobiological processes and structures (Gallistel, 2001).

In linguistics Bloomfield (1935) represents the behaviorist tradition and insists that a linguistic theory must reject all data that are not directly observable or physically measurable. The meaning of an abstract word is not an exception. Bloomfield finds the meaning of a word definable only if we have the "scientific knowledge" of the matter that it refers to:

In order to give a scientifically accurate definition of meaning for every form of a language, we should have to have a scientifically accurate knowledge of everything in the speaker's world. The actual extent of human knowledge is very small, compared to this. We can define the meaning of a speech-form accurately when this meaning has to do with some matter of which we possess scientific knowledge. We can define the meaning of minerals, for example, of the English word *salt* is 'sodium chloride (NaCl)'... but we have no precise way of defining words like love or hate, which concern situations that have not been accurately classified — and these latter are in great majority. (ibid. 139)

Rather than embarking on the study of meaning with the limited amount of "scientifically accurate knowledge" behaviorist linguists concentrated on the identification of the units of sound (phonemes) and the units of form (morphemes). The meaning of an utterance was

also defined in terms of observables: it was identified with the stimulus which provokes the utterance and the reaction that the utterance provokes. This definition, however, runs into a problem since the same utterance can be provoked by different stimuli and provokes an unexpected variety of responses (Lyons, 1977:129).

Stimulus-response is a type of causal relationship and in early behaviorism all behavioral patterns were regarded as its chain. This is related to one of the general features of behaviorism generally known as mechanism or determinism. In his evaluation of behaviorist semantics Lyons (1977:122) explains determinism as a claim “that everything that happens in the world is causally determined according to the same physical laws and that this holds true of human actions not less than it does of the movements and transformation of inanimate matter”. Responses in their view are not intentional actions to achieve some purposes but mechanical reflexes. In this respect the stimulus-response chain as a causal relation is very different from the logical relation established among propositions constituting the mental representation of the writer’s intention.

Skinner, who belongs to a later generation of behaviorists, had a different view on utterances from his predecessors. His theory is based on the three-term contingencies of reinforcement consisting of *stimulus*, *response* and *reinforcement*. In his theory utterances are regarded as activities which operate on the environment. He called them verbal operants. A type of verbal operant called mand, for example, can be explained in terms of such an utterance as *Give me some water*. The utterance is seen as a response to deprivation or an aversive situation, i.e. lack of water or thirstiness, which is regarded as the stimulus. The water the speaker acquired from the listener after uttering the sentence alleviates the deprivation and thereby reinforces the response. One important point to be noted is that in accordance with the behaviorist’s principle the notions of purposes and intentions, i.e. unobservable mental entities, are not allowed to be incorporated into the explanation. The principle also implies that the response is not evaluated as successful or unsuccessful since the notion of success presupposes intention.

Skinner regards various mentalistic terms such as will, purpose, abstraction and idea as “internal surrogates of the contingencies” or “cognitive surrogates of the real world”. This point is explained in the following passage on *intention*:

“Intention” is a rather similar term which once meant stretching. The cognitive version is a critical issue in current linguistics. Must the intention of the speaker be taken into account? In an operant analysis verbal behavior is determined by the consequences which follow in a given verbal environment, and consequences are what cognitive psychologists are really talking about when they speak of intentions. All operant behavior “stretches toward” a future even though the only consequences responsible for its strength have already occurred. I go to a drinking fountain “with the intention of getting a drink of water” in the sense that I go because in the past I have got a drink when I have done so. (Skinner, 1977)

Thus Skinner argues that for the explanation of operant behavior no mental entities such as intention are necessary.

One may wonder, however, if the intention of the speaker can really be reduced to the similar experience in the past. In the line of Skinner’s theory a man takes a pre-determined action in face of a particular situation since he is disposed to do so. It is just as chemical reactions are disposed to occur in a determined sequence in scientific experiments. Actually, though Skinner classifies it as one type of operant behavior, verbal behavior is very different from other types of operant behavior such as the action of going to a drinking fountain. To the situation where one is thirsty one could verbally respond in countless ways: “Let’s go to

a drinking fountain to get a drink of water”; “If we go to a drinking fountain, we can get a drink of water”; “When I went to a drinking fountain before, I could get a drink of water”; “Unless we go to a drinking fountain, we can’t get a drink of water”, and so on. Setting aside the variety of possible responses — though it is indeed one of the most prominent characteristics of verbal behavior — uttering such sentences is, unlike actually going to a drinking fountain, is not in itself an action that directly brings about the consequence: saying a thing is different from doing it. Typically, verbal behavior is about other types of operant: for instance, it recommends, prohibits or reports a non-verbal operant to achieve various communicative goals. It is impossible to explain this aspect of language without incorporating mental notions such as the speaker’s intention, knowledge, abstraction and proposition, all of which Skinner regards unobservable mental surrogates of experience. It may be true that some types of human behavior are accounted for as responses which have been reinforced by past experiences without resorting to unobservable concepts such as intention. Verbal behavior or the use of language, however, is not reducible to the contingencies of reinforcement.

3. Cognitive linguistics and mental representation in Chomsky’s theory

As a response to behaviorism which rejected mentalistic notions, the so-called cognitive revolution occurred in the 1950s with the development of artificial intelligence, computer science and neuroscience which contributed to making the mental process more tangible. The status of the mentalistic notions including mental representation has changed in the literature and they became commonly used terms in cognitive psychology and cognitive linguistics. The study of meaning, which had been postponed for some time, though there had been some behavioristic approaches as was mentioned in the previous section, finally started attracting many researchers’ attention.

When linguists embarked on the study of meaning, however, they believed that the principles and techniques successfully introduced in phonology could be reapplied to the analysis of meaning. They attempted to identify the system of the basic units of meaning and describe the semantic properties of various expressions in terms of those basic units. One of the approaches based on this principle is a type of semantic study of lexemes, which is commonly known as componential analysis. This approach is based on “the thesis that the sense of every lexeme can be analyzed in terms of a set of more general sense-components or semantic features, some or all of which will be common to several different lexemes in the vocabulary (Lyons, 1977: vol.1, 317). Some advocates of this approach further claim that at least some type of sense-components is considered to be language-neutral or universal atomic concepts.

Actually, the psychological reality and the universality of sense-components have often been called into doubt (Lyons, *ibid.* 333). One of the corollaries of componential analysis is the idea that comprehension is the process of decomposition of expressions into the basic set of semantic components. Comprehending *John is a bachelor* means representing it as *John is an unmarried man*. Some psychological experiments have, however, reported that this kind of decomposition is not always happening in comprehension. Another problem of sense-components is that though they are often assumed to be mental entities, they are regarded as elements of the system which is independent of the use of language in particular contexts. Since particular contexts are excluded from or only “ideal” contexts are taken into consideration in componential analysis, proposed sense-components for a lexeme often lack applicability and cannot be maintained in various contexts with unique features. They are one of the concepts related to the view of language as a system as opposed to language in use.

In linguistics the term cognitive revolution is most closely related to Noam Chomsky who attacked then predominant linguistic trends based on behaviorism represented by Skinner. In contrast to behaviorists who exclude mental phenomena Chomsky believes that the structure of language is determined by the structure of the human mind. He finds mental entities such as mental representations necessary to talk about the state of mind or brain at a certain level of abstraction (Chomsky: 1988). They are not related to metaphysical notions but related to brain mechanism which is a physical phenomenon like all the other targets of scientific studies though its property is yet to be discovered.

Chomsky denies, for example, Bloomfield's view of language as the totality of utterances that can be made in a speech community. He refers to the language thus defined as "E-Language", where "E" is intended to suggest "extensional" and "externalized". He characterizes the definition of this type as follows:

The definition is "extensional" in that it takes language to be a set of objects of some kind, and it is "externalized" in the sense that language, so defined, is external to the mind/brain. Thus a set, however chosen, is plainly external to the mind/brain. (Chomsky, 1988:558)

Chomsky claims that grammars constructed to explain E-languages necessarily have serious theoretical problems in that there can be no boundaries for the set chosen for the description and that it is impossible to have coherent criteria to exclude any sentences from the set. He also argues that if E-language is taken to be the object of description, choice of grammar for it can be a matter of convenience without any facts about the mind/brain to justify the choice. According to him E-language is an artifact and considering formal properties about it is quite confused and pointless.

As opposed to E-language Chomsky presents the notion of "I-language", which he regards as the correct target to be described by grammar. "I" is to suggest "intensional" and "internalized." I-language is explained as follows:

The I-language is what the grammar purports to describe: a system represented in the mind/brain, ultimately in physical mechanisms that are now largely unknown, and is in this sense *internalized*; a system that is *intensional* in that it may be regarded as a specific function considered in intension—that is, a specific characterization of a function—which assigns a status to a vast range of physical events, ... (Chomsky, 1988)

I-language was first explained as a rule system, which includes phrase structure rules, lexical rules, transformational rules, phonological rules, and rules of semantic interpretation. In spite of their names rules of semantic interpretation do not relate the language to the world but connect two syntactic entities; syntactic structures and LF-representations or logical forms. The kinds of rules and their interrelation are specified by the so-called universal grammar. It is a system of general principles which are commonly applicable to the structure of all the human languages and represents the initial state of the language faculty prior to the acquisition of a particular I-language. Later, it became clear that there are simply too many possible rule systems to represent I-language as consistent linguistic knowledge of universal quality. Chomsky decided to abandon the rule-system approach and shifted to what he calls a principles-and-parameters approach. Different I-languages are considered to result from the choice of different values for the parameters that are set by the general principles of universal grammar.

In the light of the present discussion on the notion of mental representations, I-language

itself can be regarded as the mental representation of linguistic knowledge of the ideal speaker-hearer. At a lower scale, sentences generated by the rules of I-language can also be seen as mental representations. It is important, however, to note that sentences belonging to I-language are not related to a particular situation of the world since they are not properties of language in use but language as a system. The contrast between the two notions, language as a system and language in use, reminds one of Chomsky's more established distinction between competence and performance. Indeed, the notion of competence roughly corresponds to that of I-language while the notion of performance corresponds to that of E-language.

Chomsky's trivialization of E-language or performance has naturally drawn strong criticism from many linguists. de Beaugrande (1999), for example, writes:

This renewed mentalism in effect set out to study cognition *instead of language*, aspiring to construct 'a theory of linguistic structure' without 'reference to particular languages' (Chomsky 1957:11). Eventually, real language—now called 'externalized language' (or 'e-language' for short)—was declared to be a mere 'epiphenomenon' (Chomsky 1986:25) In these 'radically different theories', 'there are no constructions; there are no rules' (Chomsky 1991:81) This version of cognitive linguistics is concerned solely with 'the structure of mental representation' and expressly excludes 'the relationship between' 'mental representations' 'and things in the world' (Chomsky 1991:93) The exclusion carries ironic (and probably unintentional) echoes of Bloomfield's much earlier exclusion <of mentalistic notions>

(original emphasis and quotation, < > is mine)

Relationship between mental representations and things in the world, exclusion of which de Beaugrande criticizes in this paragraph, must be distinguished from what Chomsky describes as *a specific characterization of a function—which assigns a status to a vast range of physical events*, which is found in Chomsky's definition of I-language quoted earlier. The linkage between I-language and physical events Chomsky explains in terms of characteristic functions is a concept related to language as a system whereas what de Beaugrande finds missing in Chomsky's theory is the relationship that is established between mental representations and things in the world in the real use of language in a particular situation.

Excluding performance or use of language from the theory Chomsky also seems to have excluded a type of mental entity that is assumed to motivate and control it: intention of the language users. Commenting on the production of language as opposed to the perception of language, Chomsky (1988:568) associates the production problem with "Descartes' problem" which is related to the existence of other minds. Chomsky writes, "This problem, one aspect of more general problems concerning will and choice, remains beyond the scope of serious human inquiry in fact, and may be so in principle, rather as Descartes suggested." Admitting that it is too speculative to claim anything about the speaker/writer's productive process only on the basis of linguistic data as products, intention or will seems to be concerned not only with the production process but also with the perception process. It seems to be quite natural to think that the listener/reader approaches the produced utterance with the intention to understand the speaker/hearer's intention. I believe that it is possible to identify some common elements of the intention shared between the language users as long as they are committed to the same act of communication.

To Chomsky, however, communication or interaction among language users is not the main characteristic of language. Chomsky (1988:566) writes that "the language faculty, part of the mind/brain, is in crucial part a system of digital computation of a highly restricted character, with simple principles that interact to yield very intricate and complex results,"

which accounts for the creative aspect of language use. The digital computation system is required to employ recursive rules and associated mental representations as the basis for thought. He goes on to write that “it is doubtful that any sense can be given to the idea that human language is a communication system, though it can be used for communication along with much else.”

This characteristic of Chomsky’s theory is pointed out by Lyons (1991: 196), who writes that Chomsky insists that languages are essentially (cognitively-based) systems of representation rather than systems of communication, which is the basis for his individualistic as opposed to social view of languages. In response to Chomsky’s view on languages Lyons writes as follows:

...it is hard to deny that the grammatical structure of natural languages would not be as it is if they had not been used, over the millennia during which each of them has acquired its own structure, primarily, if not exclusively, for communication (in the broadest sense) among social beings. This has two discernible consequences: (i) that a good deal of the structure of most, if not all, human languages is dialogic (and their dialogic structure is put to use even in monologue and internal, or unspoken, soliloquy); (ii) that in many languages the social roles and status-based interpersonal relations that are operative in the society in which the language functions are encoded inextricably in its grammatical categories and their interdependencies. (Lyons, 1991: 196)

Lyons also points out that in addition to the problem of neglecting the effects of use of language on its structure Chomsky is open to the criticism that by giving priority to propositional or cognitive meaning in contrast with non-propositional meaning he hasn’t paid enough attention to the expressions of will, desire, and emotions.

One can easily notice that little emphasis placed on these mentalistic expressions naturally results from the exclusion of use of language from Chomsky’s theory. Use of language is considered to be motivated by the language users’ will, desire, emotions, and so on. I claim that they might be regarded as important elements of the mental representation of the language users’ communicative intention. Once such a mental representation is postulated, one cannot help wondering what relationship it has with I-language as a type of mental representation. It is intention that determines how the system of linguistic knowledge should be used and what type of relation is established between mental representations and things or events in the world. Any use of language presupposes intention. By virtue of this fact it seems to be quite natural to think that intention also has some effects on the structure of language. Thus considered, it seems to be hardly justifiable to exclude use of language from the theory. At least the status of I-language does not seem to be as independent as it is supposed in Chomsky’s theory.

It should be noted here that Chomsky has been aware of the unique features of those mentalistic notions. Chomsky, however, seems to think that intention is characterized as an element of lexical structure incorporated into I-language. It is not explained in terms of the language users’ communicative motivation which controls the use of I-language. Under the principles-and-parameters approach lexicon gains its significance since unique features of various languages that are not universally explained in terms of the general principles and parameters are attributed to properties of lexical items. With respect to the acquisition of lexical items Chomsky maintains that the concepts of lexical items are innately available and the children have only to assign labels to these predetermined concepts. Below is quoted a passage to show Chomsky’s view of intention as a basic element of lexical structure:

... notions like actor, recipient of action, event, intention, and others are pervasive elements of lexical structure, with their specific properties and permitted interrelation. Consider, say, the words *chase* or *persuade*. Like their Spanish equivalents, they clearly involve a reference to human intention. To chase Jones is not only to follow him, but to follow him with the intent of staying on his path, perhaps to catch him. To persuade Smith to do something is to cause him to decide or intend to do it; if he never decides or intends to do it we have not succeeded in persuading him. Furthermore, he must decide or intend by his own volition, not under duress; if we say that the police persuaded Smith to confess by torture, we are using the term ironically. Since these facts are known essentially without evidence, it must be that the child approaches language with an intuitive understanding of concepts involving intending, causation, goal of action, event, and so on, and places the words that are heard in a nexus that is permitted by the principles of universal grammar, which provides the framework for thought and language, and are common to human languages as conceptual systems that enter into various aspects of human life. (Chomsky, 1988: 574)

While human intention is explained as an element related to lexical items such as *chase* and *persuade*, it is explained, like other mentalistic concepts such as causation, goal of action and event, as something that the child has intuitively understood when he approaches language. Thus characterized as a type of intuitive property which is not the internal part of the principles of universal grammar, of which description is Chomsky's main concern, intention seems to have been sidelined.

One remembers that whether it is linguistic behavior or other types of operant behavior Skinner denied the relevance of intention to it by reducing it to past experiences as was discussed earlier. It is ironical that intention was marginalized also in Chomsky's theory which is often regarded as a reaction against the behaviorism. Neither in Skinner's behaviorism nor in Chomsky's cognitive linguistics did the language user's communicative intention play any important role.

4. Discourse analysis as the study of language in use

Since the discovery of the morphemes of a language, the task of the linguist was for a long time to discover how morphemes may be combined to construct a sentence, which was regarded as the maximum structural unit of language. When one considers the language user's intention, however, it soon becomes apparent that it cannot be explained by simply observing the properties within the syntactic boundary. For instance, the act of chasing somebody, as Chomsky also wrote, usually means that the chaser not only follows the same route as the person being chased but also intends to catch him as a result, which might be expressed as an event in two or more different sentences. In such a case one cannot discuss the chaser's intention only in terms of one of the sentences: intention cannot be seen as something that is contained within a sentential boundary.

The syntactic boundary of the linguistic study was not broken until scholars known as discourse analysts embarked on the analysis of a unit larger than the sentence. One of the Post-Bloomfieldians, Zellig Harris (1952), attempted to develop discovery procedures for the structure above the sentence level based on distributional principles. Just as semanticists in those days applied the analytical techniques used in the field of phonology to the study of meaning and tried to identify semantic components as the basic set of concepts, Harris tried to apply the techniques developed in phonology to the analysis of discourse. His attempt, however, was not successful for various reasons. Unlike in the case of the identification of

phonemes, for example, with no aid of computational concordance techniques available in those days it was almost impossible to collect a sufficient amount of data for the identification of the same sequence of words as a unit. His interest in the larger unit of language, however, was shared by British discourse analysts though their approaches were totally different from his. Probably the most influential among them were the members of a research group at the University of Birmingham such as John Sinclair and Malcolm Coulthard. Sinclair (1994: 13) recalls the development in the field since the 1950s, when scholars started to devise a number of approaches to account for larger patterns of language. He writes that discourse study took off when speech acts (Austin 1962) were identified in philosophy and in the same place commented on Chomsky's linguistics as "cognitive, non-textual linguistics" (Sinclair, 1994:14).

Chomsky's search for linguistic universals is contradictory to the approach taken by the discourse analysts, who tried to analyze the very thing which Chomsky excluded from his study: language in use. One of the most famous and pioneer works was that on spoken discourse by Sinclair and Coulthard (1975). Their theory has later been developed and applied to various types of discourse by other scholars such as Tsui (1986), Dave Willis(1992), Francis and Hunston(1992) and Jane Wills(1992). Though I am mainly concerned with written discourse in this paper, Sinclair and Coulthard's work might as well be briefly discussed since their analysis of language in use as a physical entity is useful for comparatively illustrating what I mean by mental representations of the language users' intention.

Sinclair and Coulthard studied the teacher-pupil interaction in the classroom situation. They worked in the tradition of functional linguistics represented by scholars such as Halliday (1961). They used a rank-scale model of description based on the principle that a unit at a given rank is made up of one or more units of the rank below and combines with other units at the same rank to make one unit at rank above. At the level of discourse they proposed in descending order the ranks of *lesson*, *transaction*, *exchange*, *move* and *act*. The rank of exchange has two subtypes: *boundary* and *teaching exchanges*. The former consists of *frame* and *focus* while the latter consists of *initiation*, *response* and *feedback*. The rank of move has subtypes called *framing* and *focusing* which respectively correspond to frame and focus at the rank of exchange, and other subtypes called *opening*, *answering* and *follow-up*, which respectively correspond to *initiation*, *response* and *feedback* at the rank of exchange. At the lowest rank each part of discourse is coded as some type of act such as *elicitation*, *reply*, *accept* and *evaluate*. For instance, a typical exchange of teaching in the classroom has the sequence of three types: an initiation by the teacher, followed by a response from the pupil, followed by feedback to the pupil's response from the teacher. It is labeled at the rank of move as an opening, answering and follow-up sequence. These three subtypes of move are respectively analyzed as including *elicitation*, *reply* and *evaluation* as their head at the rank of act.

In order to maintain the consistency in the theory, similar terms such as *response*, *answering* and *reply* are used as labels for naming the same part of discourse at different ranks. Such a structure-oriented analysis has been criticized by some scholars like Levinson (1983:294) who claims that the domain of conversation is not a structural product and is not appropriately described in the same way that a sentence is. Sinclair (1994,16) himself also warns of projecting descriptive techniques used for one area upwards into other areas though using familiar tools is a reasonable tactic for getting started. In spite of some problems that have been pointed out, their studies are in the light of the present discussion very important in that language in use is the target of their description and that those labels attached to part of discourse show the types of speech acts which are considered to represent the intention of the language users.

It is important, however, to notice that Sinclair and Coulthard are not concerned with

any mental entities or mental representations of the language users. They are simply trying to describe observable physical characteristics of text within the theoretical framework of a scale and category model. Their approach is practical and realistic in that they do not have to posit any mental entities to support their theory and they objectively describe what exists there, text as a product. They do not claim that labeling part of discourse with some types of act represents what is happening in the language users' mind during the communication. Their emphasis on the physical and observable entity as the object of description is, for example, reflected in their analysis of "Teacher Direct". One of the teacher's utterances such as "I want you to take your pen and I want you to rub it as hard as you can on something woolen" is regarded as an opening move which is labeled as an act of directive. It is followed by an answering move, which is labeled as an act of reaction. The label of reaction, however, is attached to the real action of the pupils' rubbing their pens on something woolen. Sinclair and Coulthard do not postulate any mental entity such as a proposition which represents the pupils' action in some conceptual representation of this communicative event. Admitting the usefulness of Sinclair and Coulthard's approach based on concrete linguistic and situational evidence beyond the syntactic boundary, their analysis seems to be nothing more than labeling part of text and its accompanying extra-linguistic event. The labels are what are retrospectively attached to part of text by the analyst rather than what are attached to the elements of the mental representation of the communicative event constructed by the participants, i.e. the teacher or the student. Constructing such a mental representation requires more than simply attaching labels of speech act to part of the discourse and some situational facts.

Identification of the type of illocutionary force of an utterance is one of the most important aspects of the analysis proposed by Sinclair and Coulthard. It is, however, not straightforward as is evidenced by the presence of various inference theories of indirect speech act. Though this problem may not be so obvious in strongly conventionalized situations such as class-room teaching, there is always some possibility for subjectivity in the judgment. Levinson points out this problem as follows:

... there simply is no simple form-to-force correlation, and the attempts to bridge the gap (between what utterances 'literally' mean and 'actually' do in the way of actions) with theory of indirect speech acts have provided at best only partial solutions. For questions of context, both sequential (or discourse) context and extra-linguistic context, can play a crucial role in the assignment of utterance function. We can expect, therefore, no simple 'force convention' rules to supply a general solution here, but rather some immensely complex inferential process that utilizes information of many different kinds. (1983:291)

Levinson (1983: 290) also points out that some single-sentence utterances perform more than one speech act at a time. Sinclair and Coulthard of course have been aware of the difficulties and have incorporated the notions of situation and tactics. In situation, information about the non-linguistic environment is used to reclassify items that were first classified by grammatical properties into statement, question and command. In addition, the discourse value of an item is determined by taking into account its tactics or sequential properties: linguistic items that have preceded it, linguistic items that are expected to follow or that has followed in the text. Subjectivity included in determining the type of illocutionary force is not the problem of the theory but simply reflects the difficulty of the task. In their theory, however, the difficulty is what the analyst feels in his analysis of the text rather than what the conversationalists experience in real communication.

5. Conclusion

In Section 1 I have briefly introduced the mental representation of comprehension which represents the writer's communicative intention. Some of its main characteristics illustrated there can now be better understood in comparison with various mentalistic notions that had been accepted or rejected by prominent scholars advocating different principles before the early 1980s.

The importance of generic knowledge and its active use in comprehension by the language user are well demonstrated by Bartlett's observation of his subjects who "constructively" recalled culturally unfamiliar folktales. Undoubtedly, such background knowledge or what is called schema by later theorists is crucial for inferring implicit information to construct a coherent mental representation of text. However, the cultural and situational qualities of schemata are not the intrinsic qualities of the mental representation with which I am concerned. It consists of propositions which can be specified by more general concepts such as *response* and *consequence* than particular situational concepts such as *ordering a dessert* and *paying for it*. Its elements are characterized at a more abstract level and neutral with respect to those situational concepts. Schemata as generic knowledge are usually explained as a chain of actions or events with no logical relation postulated among them. It should be emphasized that the writer's communicative intention is characterized by the logical relation of biconditional.

It is obvious that behaviorists would never have accepted such a mentalistic notion as the writer's communicative intention. It is interesting, however, to compare the simple temporal relation holding between stimulus and response and biconditional holding among the propositions representing the writer's communicative intention. The stimulus-response sequence is a one-way relation: stimulus always precedes response and never the other way round. Stimulus is automatically followed by response like a reflex. On the other hand, biconditional, which is often symbolically represented as $p \equiv q$, is a two-way relation. Due to this logical quality the reader expects the truth of p based on the truth of q just as he expects the truth of q based on the truth of p . Besides, biconditional is a two-dimensional relation: it offers not only the positive but also the negative sequence. The reader can expect the falsity of q based on the falsity of p , and the falsity of p based on the falsity of q . The stimulus-response sequence, on the other hand, is one-dimensional: it is not concerned with the situation where stimulus or response does not materialize. Reversing the temporal sequence and the truth value of propositions seem to be essential operations relevant to the construction of intention.

Chomsky's I-language and universal grammar are a language internalized as a system: language in use was discarded as 'epiphenomenon'. The internalized language, however, does not incorporate the notion of intention, which was set aside as something intuitively understood by the child when he approaches the language. If intention is as in my model accounted for as biconditional established among a set of propositions rather than as a property of one individual proposition, it is natural that intention was excluded from Chomsky's syntactic study as something beyond the syntactic boundary.

Discourse analysts, Sinclair and Coulthard, identified the structure beyond the syntactic boundary. However, they decided to stay on the surface of discourse: their analysis is basically understood as attaching some speech-act labels to part of the text. Besides, labeling is regarded as the analyst's act and does not reflect the language user's intention. On the other hand, the mental representation of the writer's communicative intention presupposes the underlying logical relation of biconditional, which is symbolically represented as $(p \rightarrow q) \wedge (\neg p \rightarrow \neg q)$. It is to the elements of this formula that labels such as *response* and *consequence* are attached. The labeled formula functions as a type of frame: the elements such as

p (response), q (desirable consequence), $\neg p$ (alternative response) and $\neg q$ (undesirable consequence) function as slots to be filled with fillers - i.e. specific propositions retrieved from the text. This specification process is the act of the reader comprehending the text.

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