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DISCOURSE ADJUSTMENTS TO NON-NATIVE SPEAKERS
IN THE UNIVERSITY CLASSROOM

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A dissertation submitted in partial fulfilment of the
requirements for the degree of Master of Arts in Linguistics
(Linguistics Applied to Second Language Teaching)

UNIVERSITY OF OTTAWA

Ottawa, Canada



Swathi Vanniarajan, Ottawa, Canada, 1987.

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M. Swathi Vanniarajan

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For my wife and children

ABSTRACT

The focus of this research is to identify and study the linguistic and extralinguistic adjustments made for nonnative speakers at the discourse level in a university subject matter classroom by a native speaker professor. Such adjustments may facilitate perception and conceptual understanding of the input language.

The thesis is divided into five chapters. The first chapter is a brief theoretical overview of discourse analysis, principles of conversation and input modifications in a language acquisition perspective. The second chapter is a description of the experiment under study, generally known as the University of Ottawa Subject Matter Language Teaching Psychology Project. The third chapter is a description of the data collection, transcription and codification procedures. The fourth chapter attempts to identify and characterise the input modifications made at the discourse level in the data under study. All findings have been presented in tabular form for easy reference and appropriate interpretations follow these tables. As well, statistical tests have been carried out to verify the significance level of any apparent differences. In the fifth chapter, arguments are provided to show that the modifications indeed make the input language comparatively less complex for processing by nonnative speakers in terms of perception, conceptualization and cognition.



Each one of us is a prisoner in a solitary tower
and he communicates with the other prisoners.....
by conventional signs that have not quite the same
meaning for them as for himself.

Somerset Maugham (1951 : 349)

CHAPTER I

A THEORETICAL ORIENTATION

Introduction

Many research studies have attempted to characterize the perceptual and conceptual mechanisms that are involved in the initial stages of language production. By contrast, there are only a few studies that discuss the special nature of "input language" that language learners are provided with in the target language.

In fact, the research interest in input related to second language acquisition is very recent. Hatch (1975) was one of the first to call our attention to the fact that if we wanted to say anything interesting about learner output, we would have to look at the target language input to the learner. Since that time, valuable work on the nature of such input has been done.

I shall, in this case study, attempt to determine what, if any, adjustments are made at the discourse level in the input language to second language speakers in a university subject matter classroom, and shall attempt to relate these factors to a framework of input comprehensibility.

In short, I will deal with two factors: discourse analysis, and input characteristics, as they are relatable to each other as well as to a framework of communication

conceptualised in terms of the cognitive involvement required. My purpose is to determine whether the target language data under study are perceptually, conceptually, and cognitively simpler compared to those produced in native speaker-native speaker (NS-NS) communication in a parallel situation.

Focus and Methodology

The focus of this research, then, will be to identify and study the linguistic and extralinguistic adjustments made for nonnative speakers at the discourse level in a university subject matter classroom which may facilitate perception and conceptual understanding of the input language.

The thesis is divided into five chapters. The first chapter is a brief theoretical overview of discourse analysis, principles of conversation and input modifications in a language acquisition perspective. The second chapter is a critical description of the experiment popularly known as the University of Ottawa Subject Matter Language Teaching Psychology Project (Sheltered Program) (Edwards, et al. 1985). It has two sections: the first is a descriptive study of the experiment while the second is a summary of the prior claims made with regard to the experiment on the basis of certain measures and tests. One of the two major claims made was that the students in the sheltered program mastered the subject matter and in the process significantly improved their second language proficiency and their self confidence level when using the second language. The other claim made was that this

could not have been possible but for the characteristics of the input data since there was no formal grammar study. The third chapter, a very short one, has two sections. The first section is a description of the data collection, transcription and codification procedures. The second is a summary of the relevant findings by the previous researchers (Wesche and Ready 1985). The fourth chapter attempts to identify and characterise the input modifications made at the discourse level in the data under study. For this, what is called a "top-down procedure", an analysis starting at the level of discourse topic as the outermost analytic frame, has been adopted. As well, statistical tests have been carried out to verify the significance level of any apparent differences. All findings have been presented in tabular form for the sake of easy reference and interpretations follow these tables. In the fifth chapter, arguments are provided to show that the modifications indeed make the input language comparatively less complex for processing purposes in terms of perception, conceptualization and cognition.

Coming to Term with Terms

For the purposes of this research study, the terms "input", "intake", and "acquisition" are defined as follows:

"Input" as a technical term shall refer only to the actual language used by native speakers when speaking to learners of their language.

"Intake"₂ as a technical term shall refer only to a complex phenomenon of information processing that involves several stages by which learners fully integrate and incorporate some of the linguistic information in input into their developing but ever-changing rule-governed system, or what is called "interlanguage"₃.

"Acquisition" as a technical term shall refer only to the process of creating an increasingly complex rule-governed system from the input available to the learner₄. The epithet "increasingly complex" is particularly important since current research opinion₅ is that the language acquisition process involves progress along a continuum from a less complex to a more complex symbolic thought system.

The above terminological clarification is necessary at the outset of the thesis since these terms are very loosely used in the current literature. Unless otherwise stated, these terms are used in this research only in the way they have been defined. Note also that I have not distinguished between the terms "learning" and "acquisition" since the difference, if any, carries no significance for the scope of this research₆.

Discourse Analysis : A Psycholinguistic Perspective

"Discourse analysis", for Brown and Yule (1983:X), "on the one hand, is a study of linguistic forms and the regularities of their distribution₇ and on the other hand, involves a

consideration of the general principles of interpretation by which people generally make sense of what they hear and read". For them, an analysis of discourse is, in essence, a study of how humans exploit the regularities in language use for communication purposes; in particular, how speakers construct linguistic messages for addressees_g and how addressees, in turn, work on these linguistic messages in order to understand them.

Brown and Yule's definition of discourse analysis views discourse not only as product but also as process. The definition claims that there are regularities in language communication, regularities in grammatical and lexical units which are pertinent to both production and comprehension, and regularities in extratextual/linguistic units which are pertinent to sociolinguistic variables. Ethnographers of speech_g call the former (the regularities in linguistic units) "context of language" and the latter (the regularities in extratextual/linguistic units) "context of the world".

From a psycholinguistic point of view, to say that a knowledge of both the language and the world is mandatory for production and comprehension in a meaningful communication is to say that the addressee's difficulty, if any, in recovering the communicative intent of the discourse is an index of the addresser's unfamiliarity with the addressee's knowledge of the context of the language and the world, or, in linguistic terminology, with the addressee's linguistic and pragmatic competence. In other words, it implies that in order to be

meaningful, the addresser must always reach the grammatical, semantic and the pragmatic competence of the addressee by means of a process of reasoning through verbal and nonverbal units known to and shared by them. The merit of this approach lies in the fact that it tries to see discourse in terms of cognition rather than in terms of a total product; as an insider would see it, rather than from the point of view of an observer analyst.

What is crucial for a meaningful understanding of a discourse is then the use of sufficient verbal and nonverbal units which are shared by both the addresser and the addressee¹⁰. In a native speaker - nonnative speaker context, (ie. if the addresser happens to be a native speaker and the addressees happen to be nonnative speakers), if the native speaker seeks to make his communication comprehensible, then he must largely limit his discourse to those units which are also known to and shared by his addressees. The fact that the native speaker must exploit shared knowledge for a meaningful communication with the nonnative speakers is not anything new in the literature. It is the very basic concept of conversation theory.

Theory of Conversation

Conversation theory is based on three well-recognised principles : (a) the Principle of Co-operation (Grice, 1975), (b) the Principle of Convergence (Thakerer, et al., 1982), and (c) the Principle of Accommodation (Thakerer et.al, 1982).

Principle of Co-operation

Grice's "Principle of Co-operation" defines conversation as "a process in which each contribution is to be treated as part of the negotiation of what is being talked about" (1975:45). The principle further states that "there is a general agreement of co-operation between the participants in conversation that each participant can expect the other to conform to certain conventions in speaking" (1975:46)₁₁.

Principle of Convergence

"Convergence" has been defined by Thakerer, et al. (1982 : 207) as "a linguistic strategy whereby individuals adapt to each other's speech by means of a wide range of linguistic features, including speech rates, pause and utterance lengths, pronunciation, etc." In a way, it is a strategy of reducing linguistic dissimilarities in order to achieve communicational efficiency.

According to this principle, participants in verbal interaction will tend to converge in many aspects of their speech behavior if they like or value each other, and will tend to diverge if they wish to distance or dissociate themselves from each other.

Principle of Accommodation

The principle of "Accommodation" as defined by Thakerer et al. (1983:207) states that "it is part of the competence of

all adult native speakers of a language that, they can accommodate their ways of using the language, that is, their rhetoric (and where conventionally appropriate their grammatical code) to their interlocutors in a socially sanctioned manner".

Principles of Conversation and Input Language

As part of these principles, it can be said that if native speakers value the addressees who happen to be learners of their language and opt to conform to certain conventions in speaking, then, they will have an implicit agreement as to how the information is to be encoded in the linguistic units. In brief, they will tend to converge and accommodate their language to the language level of the learners.

Converging with and accommodating to the language level of the learners means that the native speakers will not use certain linguistic and extralinguistic units not shared by the learners and will attempt to use those regularities in the textual and the extratextual units known to and shared by them for an effective transfer of communicative intent. Note that the preference on the part of the native speaker not to use certain linguistic and extralinguistic units and to use units which are known to and shared by the learners of their language is a modification made in the interest of making the communication comprehensible. In brief, it is an attempt to bridge any gap that exists between his and the less proficient addressee's grammatical and (sometimes) pragmatic competence. The language

that arises as a result of these modifications is what I will here call "Input Language"₁₂. Such modifications appear to reduce the complexity of the discourse and therefore (apparently) facilitate comprehension. If a given listener cannot process this language, then it does not qualify to be called "input language" for that learner, rather, for him, it is "noise".

Input Language and Language Acquisition

A systematic study of the short literature₁₃ which we have on input language suggests that acquisition of both the first and the second/foreign language can take place effectively and efficiently when the input language falls within the linguistic and the cognitive level of the learners.

~~The~~ early Nativists' Hypothesis (Chomsky, 1957, 1965; McNeill, 1966) that mere exposure to data is all that the infant needs in order to acquire language (because it is the listener's innate predisposition to learn language that guides and shapes the acquisition process) seems to be not totally acceptable. Snow (1972) was among the first to seriously question this hypothesis: her main concern was whether the language of adults in adult-adult conversation really matched that of adult-child communication. Her research was soon followed by a number of studies on what was first called "baby talk" and later "motherese". It soon became clear that language used in communicating with young children is modified in specific ways ("quantitatively and qualitatively different from speech

addressed.to linguistically competent adults" (Long 1983 : 7) and is a near universal phenomenon. Research⁴ in brief, suggests that input language may be necessary to language acquisition and that absence or scarcity of such modified input may lead to delayed or retarded language acquisition. This is supported by the research report of Sachs and Johnson (1976) of a hearing child of deaf parents who was exposed primarily to television as the major input, though he did play with other children on occasion. At the end of four years, the child had a very small vocabulary and his language development was severely affected presumably due to the nonavailability of input language. Subsequently, when a one-to-one tutor was provided, the child gradually caught up in his language level.

Research further shows that like child first language learners, the second/foreign language learners in their initial stages of language learning also lack the necessary competence to segment and decode the rapid and frequently slurred speech that is common in adult to adult conversations⁵. In fact, the research so far has indicated that native speakers use strategies of communication with nonnative speakers which are very similar to those employed with regard to children acquiring the first language⁶. Furthermore, the organisation and presentation of input language to second/foreign language learners is also not unlike the primary linguistic input which child first language learners receive (See Gales, 1977 : 211)¹⁷.

Input Language and the Faculty of Simplification

The discourse modifications which adult native speakers make in their speech (apparently triggered by verbal and nonverbal non-comprehension signals from the learners of their language) are subconscious and automatic (Varonis and Gass 1982). They are thought to simplify the propositional complexity of their communicative intent to be roughly "in tune" with the particular linguistic and cognitive level of their learners, so that in the process, the native speakers unconsciously produce more comprehensible utterances.

For Varonis and Gass (1982), the native speakers' adaptation to nonnative discourse takes place depending on their judgement of the learner's proficiency level as a whole. The native speakers do not pay "much attention to intonation or even phonemic value" (p.131) in the learner's language system. The researchers further state that native speakers "are not capable of separating one aspect of nonnative discourse from another when they are asked to specifically evaluate just one" (p.131).

The fact that adults have subconscious notions about how to talk to language learners has indeed been empirically confirmed by numerous experiments. One particular experiment, worth mentioning in this context because of its research design, was by Snow (1972). She asked adult subjects to talk on the telephone to two-year-olds who were not actually present on the other side of the line. Nonetheless, the speech of these adults contained the same set of features typically found in home samples of mothers

talking to their children. There is even evidence to show that four-year-old children also modify their speech when they talk to two year olds if they feel that the younger ones do not understand them (Gelman and Shatz, 1975).

For Corder (1981 : 151) and Smith (1973 : 3),⁴ the ability to simplify language is in fact a retrieval of the faculty which one has as a child. For them, the child's ability to produce propositionally simple utterances is not lost even when hē/she has grown up. It is retrieved under certain social conditions, such as speaking to a child acquiring a first language, to a learner acquiring his/her second/foreign language, or when communicating in a pidginogenic social context where the function of the language is restricted to communication of denotative referential information. For Corder, "it is not the target language system which is being simplified but that of the mother tongue, ie. that which is already known and the simplification is toward some basic universal language - neutral natural semantax" (1981 :151). In this framework, simplification is not seen as a deficiency, but a cognitive strategy which a native speaker unconsciously resorts to under certain interactional situations.

Input Language : Types

Input language is referred to in the literature as "caretaker speech" with regard to first language acquisition and as "simple codes"₂₀ with regard to second language acquisition. Krashen (1981:121) identifies three sorts of simple codes : (a)

Teacher talk, (b) Interlanguage talk and (c) Foreigner talk. He defines these different types of input language₂₁ as follows :

"Caretaker speech is the language addressed to young children acquiring their first language".

"Teacher talk is the classroom language that accompanies exercises, the language of explanation in second language and in some foreign language classrooms and the language of classroom management".

"Interlanguage talk is simply the speech of other second language learners".

"Foreigner talk is the simplified²² input native speakers may give to less than fully competent speakers of their language in communicative situations. It may range from the sort of foreigner talk described by Ferguson (1972) aimed at very low level speakers and characterized by pidginization type grammatical changes to very mild alterations in speech".

For Henzl (1975) and Arthur et.al (1980), foreigner talk can further be divided into two types, foreigner talk and foreigner register₂₃. To cite Ferguson's (1972) definition, foreigner talk "seems to be optimally characterized by an additional set of rules added to the grammar of the language being simplified" (p.1). Foreigner register on the other hand "is characterized by modification in the frequency or frequency range

of the various phonological, syntactic, semantic and discourse options present in the standard language" (Arthur et al, 1980:112)²⁴.

Input Language and NS-NS Speech

Input language, in general, differs from the NS-NS speech mainly in the following respects: (a) communication devices, (b) syntax, (c) phonology, (d) lexicon, and (e) propositional complexity. However, note that all these differences will not occur in all types of input language. For instance, wide syntactic differences may be found in baby talk but not in teacher talk; likewise, modifications to interactional aspects of communication may be found in foreigner talk but not in foreigner register. In short, differences between one type of input language and another are a matter of degree. The following are some of the empirically validated claims with regard to these differences:

Communication Devices

Experiments by Kelkar (1964), Ferguson (1971), Snow (1972) Henzl (1973), Hatch (1978), Freed (1980), and Long (1980) indicated that input language to both first and second language learners was in general well-formed and contained the following modifications : (i) fewer false starts, (ii) less repair, (iii) repetition of words or phrases, (iv) a comparatively greater number of comprehension and confirmation checks, (v) a

comparatively greater number of expansions and rephrasings and (vi) a large number of clarifications.

Syntax

Much research has been done in the area of input language syntax. Some of the prominent studies are those of Ferguson (1971), Snow (1972), Hatch (1978), Wiley (1978), Ellis (1980), Long (1980), and Wesche and Ready (1984). All these researchers claimed on the basis of their respective data that the input language addressed to first or second/foreign language learners had the following characteristics : (a) perceptually and cognitively simple sentences, (b) fewer subordinate or embedded clauses, (c) more imperatives, (d) more tag questions, (e) shorter MLU or words per unit, (f) shorter preverb length, (g) fewer verbs and more content words and (h) few compound verbs.

Phonology

Henzl (1974), Trager (1978), and Brunac and Scarcella (1979) worked on teacher talk and found that the input language provided to language learners in second/foreign language classrooms was slower than NS-NS speech. Ferguson (1972), dePaulo and Bonvillian (1978), and Hatch et al. (1978) working on foreigner talk, claimed that input language was louder in volume, contained fewer reduced vowels with very few phonological onrunnings (ie. contraction) and was characterised by an additional set of phonological features such as gemination, reduplication and consonant cluster reduction. Clark and Clark (1977) discovered in

their experiment on caretaker speech that input language, pitched high, carried in it clear voice onset timings to indicate the differences between the voiced and the voiceless sounds.

Lexicon

One of the well accepted ways of measuring the difference in the lexicon between two varieties of a language is what is called the "type/token ratio". The type/token ratio is obtained by dividing the total number of words by the total number of different words used in the communication. Henzl (1973) and Robertson (1978) found in their experiments that caretaker speech as well as foreigner talk had comparatively lower type/token ratios than the NS-NS speech. Henzl further claimed that the input language contained a greater number of high frequency vocabulary items and a lesser number of pronouns, presumably to make references as unambiguous as possible.

Propositional Complexity

Propositional complexity refers to the number of 'S-nodes' per utterance. Trager (1978) used this measure in analysing teacher talk to ESL students and found that it was less complex than NS-NS speech and also that the beginners received somewhat less complex input than the intermediate and the advanced students.

Other scholars have used other measures. Both Gaies (1977) and Wiley (1978) used T-unit based measures such as words per T-unit and clause per T-unit. Briefly, both studies conclude that teacher talk is simpler than native speaker-native speaker speech. Gaies, however, found evidence for tuning by level, his beginning ESL students receiving simpler input than his intermediates, and his intermediates receiving simpler input than his advanced students. Wiley, with a slightly smaller sample, did not find evidence for tuning by level.

Function of Input Modification

The empirically validated general characteristics of input language studied in the light of Brown and Yule's definition of discourse analysis and the three principles of conversation reveal that input language is the result of an overriding necessity or desire to communicate successfully with the interlocutors who are in the process of learning/acquiring the language. In other words, the function of discourse adjustments is to aid discourse comprehension.

Discourse adjustments should help comprehension in the sense that native speakers make linguistic choices in accordance with their judgement of what is easy, simple and clear for the listeners to hear, perceive and comprehend. Otherwise, the learners will simply ignore that which does not match with what they are not ready to process. They will simply filter out what

they cannot understand and what they are not ready to integrate into their interlanguage₂₆.

There is, however, one precaution which must be borne in mind in the analysis of input language. Any attempt to simplify a discourse will entail modifications. However, modifying a discourse does not necessarily mean that it becomes simplified. As Ellis has written, "It is one thing to establish that adjustments occur and entirely a different thing to establish why they take place" (1980a : 73)₂₇.

Comprehension and the Language Acquisition Process

First language learners have always been observed to understand language before being able to speak. There is also some rather extreme evidence from medical annals showing that some learners may acquire comprehension abilities, but no productive abilities at all, attesting to the relatively independent and ordered development of these two types of skills. For instance, Lenneberg (1962) studied a case of "understanding language without ability to speak". The subject was an eight year old boy, who, because of congenital anarthria (a peripheral speech defect) had never spoken. Lenneberg reported that "from the patient's first visit to the clinic, it had been obvious that he had a normal and adequate understanding of spoken language... At one time, a short series of instructions were tape-recorded and transmitted to the patient through earphones. He followed the instructions without being able to see the examiner" (p.421).

Thus, despite the lack of speaking ability, the child had acquired language well enough to understand it perfectly.

Research²⁸ further indicates that not only first language learners but also second/foreign language learners begin their language acquisition process by relying on one-way communication. Note that this claim is in conformity with the well-trusted cognitive hypothesis that "understanding precedes" production. In other words, comprehension appears to be a kind of causative variable which language learners seem to require in order for the acquisition process to unfold naturally. Krashen (1985 : vii) has gone so far as to claim that "comprehensible input" in the target language is the causative variable in (second) language acquisition.

Complexity and Language Acquisition Process

Researchers, particularly Rutherford (1982) and Zobl (1983) view the process of language acquisition, { in terms of psycholinguistic concepts, as a continuum from the acquisition of largely unmarked forms to marked forms. According to this interpretation, the progress from nonnative competence to native(like) competence is a continuum, from a simple or a less complex to a more complex thought system.

For Clark and Clark (1978), the relationship between complexity of thought and language can be translated into a principle called "the Complexity Principle": "Complexity in

thought tends to be reflected in complexity of expression" (p.230).

Complexity of expression can in turn be stated directly in markedness terms (Greenberg, 1966) : "more complex is equated with more marked" (Clark and Clark, 1978 :231) where "more complex" is reflected in the addition of features or the addition of rules resulting in a requirement of more processing time. Zobl (1983) empirically verifying these two propositions claimed that markedness "is a function of the degree of compatability between the preferred operating mode (of the acquisition faculty) and language data" (p.294). George (1972 :17) had earlier claimed as a concluding remark on his experiment on the acquisition of the semantics of certain structures that the degree of compatability between the preferred operating mode and language data can be characterised in terms of redundancy in communication terms, processing difficulty in psychological terms and marking in linguistic terms. According to this interpretation, "the earlier acquired of the two related items turns out to be the less marked" (Rutherford, 1982 : 95) and the less marked has more redundancy in communication terms, causes less processing difficulty in psychological terms and can be characterised by the presence or absence of certain linguistic features and rules.

Input Language and Language Acquisition Process

In this section, by summarising the characteristics of input language and the language acquisition process discussed earlier,

I shall attempt to show how they are related to each other and also how they interact with each other.

Previous research shows that the input language provided to language learners is generally characterized by a number of discourse modifications. The primary function of these modifications seems to be to make the input language comprehensible for the efficient processing of the data by making it comparatively simpler and less marked. The degree of simplicity and markedness however depends on the native speakers' perception of the proficiency level of the language learners.

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Language acquisition is a process of gradual assimilation of the complexities of the target language system. It is a continuum from a simple/less complex to a complex system, with various states of interlanguage in between and seems to begin in one way communication. During this period, learners understand but are not in a position to speak.

By relating the above aspects of the input language system with those of the language acquisition process, it is possible to make sets of generalizations. They are :

(a) Understanding precedes production and this understanding is probably a crucial factor in the language acquisition process. The input language provided to the nonnative-addressees is made more comprehensible by virtue of

discourse modifications; hence, more effective and efficient language acquisition may result. ✓

(b) The acquisition process is a continuum, in a psycholinguistic perspective, from internalization of a less complex to a more complex system: Input language is in some way an indirect reflection of the learner's language system as perceived by the nonnative speakers. The native speaker automatically adjusts the complexity level of his/her language to the linguistic proficiency and the cognitive level of the learners in response to noncomprehension signals in order that the communication can be sustained.

Input Language as an Unconscious Teaching Mode

Krashen (1981) and Hatch (1983 : 153) claim that input language is an explicit or an implicit teaching mode. For Krashen (1985:101), comprehensible input is "the essential ingredient in language acquisition". Krashen's view of how input language functions as a teaching mode is given in the following sections.

The research findings by Newport et al. (1977) and Cross (1977) reveal that the linguistic complexity of input language does not exactly match the learners' linguistic competence. It is generally just beyond his/her level of competence. In other words, input language aims a little beyond the learners' level of competence and at the same time it is comprehensible too.

The basic assumption confirmed by research on elicited imitation tasks by Naiman (1973) and others is that human beings can understand language that is just beyond their level of competence. According to Krashen, a child at a stage 'i' ('i' denoting current interlanguage grammar) can progress to 'i+1' (where i and i+1 can be a block of structures, more accurately, the child who has just acquired the members of 'i' can then acquire a member of 'i+1') by understanding language containing i+1. The native speakers, in attempting to communicate with native and non-native learners of their language provide the necessary input that covers i+1 as well as some units that the learners have already acquired (i, i-n) and some that they have not yet acquired (i+n). In other words, to quote Krashen (1981a:127), "the caretaker's speech provides a 'net' of structures that generally includes (i+1) but contains a bit more".

A very interesting prediction of Krashen's hypothesis is that the net cast by input language is of optimal size in its attempt to ensure communication. A wider linguistic system containing too many redundancies and too many simple forms below the level of the learners' competence would mean too much noise and would serve no purpose for language acquisition. A narrower linguistic system containing less redundancy and more complex features and structures would again serve no purpose since it would go uncomprehended. In other words, the input language should neither be so narrow in range that the learners would have

difficulties in understanding it nor should it be so wide that it would have no effect at all. It should rather be a system with built-in anticipation and should have scope for review for the benefit of the learners. In short, the "comprehensible input hypothesis" predicts that "simplified speech will be helpful when it provides the acquirer with $i+1$ in a context that makes the message comprehensible" (Krashen, 1985 :vii). It is possible that native speakers unconsciously effect this task with ease and versatility, and in this way, in the process of communicating their message, also teach the grammar of their language unconsciously₃₂. To quote Brown and Hanlon (1970 : 50) "Acquisition occurs because of the occasional mismatch between his (learner's) theory of the structure of the language and the data he receives".

Summary of Chapter I

What follows is a brief summary of Chapter I :

(a) In a psycholinguistic perspective, discourse analysis is a study of comprehension as well as production.

(b) Cognitive theory of discourse understanding and principles of conversation claim that native speakers make discourse adjustments in order to bridge any gap that exists between their and the learners' grammatical and the pragmatic competence.

(c) The modifications which native speakers make are subconscious and automatic.

(d) The faculty of simplification which the native speakers possess may be a retrieval of the faculty which he/she had as a child.

(e) Input language seems to be a necessary condition for language acquisition to take place, for it is the language that the learner can (and does) process and (then) use for constructing his "interlanguage"

(f) For Krashen particularly, comprehensible input (which is a part of input language) is "the essential ingredient in language acquisition".

CHAPTER II

EXPERIMENT AND PRIOR CLAIMS

Introduction

This case study is the third³³ in a series of observational and analytical studies concerning the same experiment "Teaching a Second Language to University Students via Subject-Matter Courses", also known as "Sheltered Psychology Classes at the University of Ottawa".

Sheltered Classes

A sheltered class is a protected subject matter class - in this case, a regular university course in a non-language discipline, protected in that enrollment is limited to second language speakers, and certain pedagogical adjustments are made for them. It is not "ESL Math", or selections from subject matter classes introduced as part of the language class. In a sheltered class, the target language is the vehicle of communication rather than the object of study; the focus and the evaluation of student progress are based on the subject matter and not on the language. The adult subject-matter and particularly the use of written materials which are intended for native speakers of the target language assure the use of complex and diverse linguistic forms.

In a sheltered class, abundant "input language" in the target language will be available to the learners in a classroom

register₃₄. It is expected that learners' attention will be on the message and not on the medium. The exclusion of native speaker students is another important feature of this context, which may help to guarantee that the native speaker teacher will tailor the language input to the proficiency level of the students in order to render the content more comprehensible. This in turn should create a less stressful situation for the students.

Input Language and Optimal Language Acquisition

Learners' exposure to abundant input language, together with rich and varied interaction in the target language with a native speaker in a "non-threatening situation" can, according to Krashen (1983) result in "optimal language acquisition"₃₅. The sheltered courses were set up to provide these elements through a naturalistic language learning situation. The purpose was to deal with what is called the "transition problem" according to which the learner may do quite well in second language classes but may not be able to utilize the second language in the "real world" or in regular subject matter classes offered to the native speakers of the second language₃₆.

Input Language and Affective Filter

For Dulay, Burt and Krashen (1982), the success of second language acquisition may be limited by what they call the learner's "affective filter", a synthesis of psychological factors such as attitude, motivation, anxiety and self esteem.

The affective filter, Dulay, Burt and Krashen say, is directly related to the way input language is received and processed and by virtue of it, to the development of second language competence. If the input is comprehensible, it is conducive to the lowering of the affective filter and consequently results in an experience of heightened self confidence. On the other hand, if the input is not comprehensible, then, the affective filter is strengthened and consequently, there results a lowering of self confidence.

If this claim has any empirical validity, then, in the present sheltered experiment, comprehensible input should lead to a lowering of the affective filter, and consequently an experience of heightened self confidence as well as absolute gains in second language proficiency for the students learning the subject matter in their second language.

On the basis of this argument, if we are going to characterise the language as found in this experiment as "input language", then it must be shown at the outset that (a) there has been an increase in the self confidence level of the learners and that (b) they have mastered the subject matter without undue difficulty (i.e. that the content was comprehensible).

Experiment

The experimental program in subject matter language teaching was begun at the University of Ottawa in 1982 and continues in

somewhat altered form to-day. In the original program reported in Edwards et al. (1984) and Burger et al. (1984), students took one or two semesters of Introduction to Psychology in sheltered sections of the regular course in which enrolment was limited to second language speakers. The experiment was carried out simultaneously in both French and English as target languages with anglophone and francophone students in the respective sheltered sections. This study refers only to the part of the experiment in which English was the target language. Taught by a regular psychology professor, for whom the language of instruction, English, is the primary language, the group covered the same material as the regular class for English native speakers which was also offered by the same professor and took the same final exam (presented bilingually).

The selection of the students for the experiment was based on two factors: (a) their high intermediate level of second language proficiency and (b) their voluntary enrolment in the course, subject to their agreement to attend a minimum of 80 percent of class sessions, do all readings in their second language, take a weekly series of objective subject matter tests in lieu of writing a term paper and mid-semester essay exam required of the regular sections, and complete all research tests and questionnaires.

Students who expressed an interest in participating were required to take the University's December 1982 English

Proficiency Test. Only those who secured between 50 percent and 80 percent were considered to possess the appropriate intermediate level of second language competence and were invited to enter the sheltered classes in the second semester, subject to conditions stipulated in a contract. A high intermediate level of second language proficiency is of primary importance since according to Widdowson (1978), and Krashen (1983), students at this level can make the transition from the second language classroom to regular subject matter classes.

The students who enrolled were guaranteed that they could go back to the regular classes if they wished at any time during the course, but if they stayed till the end of the course, and passed the psychology weekly tests and the final exam, they would receive credit for the University's second language requirement. In a way, this offer served as a motivating factor for their continued participation in the experiment.

Since the researchers connected with the project were concerned that the students might not be able to make the transition suddenly from medium oriented language teaching to subject matter oriented (implicit) language teaching, a second language teacher provided approximately 15 minutes of instruction in each 1 1/2 hour (bi-weekly) class period. This instruction was geared toward (a) helping students to read and take lecture notes effectively, (ie. advice on study skills) (b) clarifying points made in the lectures (particularly, explanation of unfamiliar

vocabulary) and (c) providing an opportunity for them to express their ideas in a relaxed atmosphere (including teaching them of specific expressions useful for interactions in the classroom). There was no explicit teaching of grammar⁵⁷.

In addition, all students were required to purchase a course textbook in their second language and were expected to do all assigned readings in their second language. They were also encouraged but not required to listen to a series of audio cassettes prepared for the regular sections of the course which were available in English at a centrally located audiovisual laboratory. In view of the emphasis on providing comprehensible input, one element of the regular course was not provided, that of regular contact with a psychology graduate student assistant who would normally show films, do demonstration experiments and engage in small group discussions. The language teacher fulfilled some of the roles of the graduate assistant.

Comparison Groups

The students in three ESL second semester classes given by the University's Centre for Second Language Learning and the regular English speaking students in the "Introduction to Psychology" course served as comparison groups for the experimental subjects in the sheltered programs.

The ESL classes consisted of students who, like the experimental students had scored between 50 per cent and 80 per

cent on the English Proficiency Test. They received four hours per week of second language instruction which included one hour per week of group instruction in the language laboratory. Altogether they received a total of 45 hours of ESL instruction in the semester, compared with 39 hours of class time for the students in the sheltered psychology class.

The groups were compared in the following ways:

(a) : Sheltered group with the ESL groups with regard to self evaluation and objective measures of English proficiency gains, and of language related attitudes

(b) : Sheltered group with the regular groups in the "Introduction to Psychology" course with regard to mastery of the subject matter.

Testing Measures

What follows is a short description of the measures by which the comparison groups were tested at the beginning and end of the semester.

(a). Instruments : Second Language Proficiency Measures

The second language proficiency tests consisted of (i) an open cloze test, (ii) a written translation test (L2 into L1) and (iii) a listening comprehension exercise with an L1 open answer format.

All these three tests had been developed by the University's Centre for Second Language Learning and had been extensively field tested and found to have demonstrable reliability.

(b). Instruments : Self Report Measures

The second language comparison groups (sheltered group and ESL group) were asked to complete questionnaires concerning their anxiety levels when using English, self-assessment of their English skills and other attitude and language use data at the beginning and end of the semester (Appendix A).

(c). Instruments : Psychology Achievement Tests

Edwards et al. (1984) inform us that "the psychology achievement tests used in this study were the end-of-semester final examinations given to all students of "Introduction to Psychology". The final examination at the end of each semester consisted of 100 multiple choice items, assembled from an item bank, and new material by the professor who coordinates all sections of the course. All students receive both the English and French version of each item" (p.273).

They further add that "for the purpose of this study, the first semester (December 1982) results were used as the pre-test scores and the second semester (April 1983) scores were the post test scores" (p.274).

Results

What follows is a concise report of the results (Edwards et al. 1984) at the end of the experiment as found through the measures described above.

(a). Results : Language Proficiency

The sheltered class group showed clear and statistically significant gains on all second language proficiency measures. On the other hand, the ESL group did not show any statistically significant second language gains.

(b). Results : Self Evaluation

There was a significant drop in the L2 use anxiety of the sheltered group, and significant gains in their self assessment of their English proficiency, as well as a reported "strengthening of their intention to use English in the future". The statistical contrasts of the sheltered and the ESL groups, however, did not reach significance.

(c). Results : Psychology Subject Matter

The results indicated that the sheltered classes learnt the subject matter as well as students in the regular class taught by the same professor.

Claims

It was concluded on the basis of these research findings by Edwards, et al. that "adult students can indeed gain in second

language proficiency in the absence of formal language instruction when the second language is used as the medium of instruction and the input is made comprehensible" (p.280).

The researchers' conclusion was that the students were exposed to this comprehensible input in a "non-threatening context" and this "enabled them to focus on meaning rather than on form" (p.280). The researchers further stated that "the reports by the sheltered class subjects of lowered anxiety, increased L2 proficiency and greater determination to use the L2 in other situations provide preliminary but encouraging evidence that sheltered courses yield increased self confidence in using the L2" (p.280).

What do the results indicate?

The finding that the students in the sheltered classes mastered the regular subject matter, and at the same time significantly improved their second language proficiency and their self confidence when using the language indicated that this could be achieved without formal grammar study. Also, all other variables remaining the same, this could not have been achieved but for the input data (in this case "input language" in the lectures and the course readings) they had been exposed to.

It is important to remember that (a) the students in the sheltered groups had only an intermediate proficiency level in their second language and that (b) the semantic options remained essentially the same, both the native and the non-native

speakers being offered the same subject matter, without any addition or deletion to the course content.

In the remaining chapters, I shall analyse how the input data provided to these learners differed from the language data provided to the native speakers, and whether these differences make the input language comparatively simpler to process, and if so, how?

CHAPTER III

DATA, PROCEDURES AND PREVIOUS FINDINGS

This chapter is divided into two sections. The first section is a description of the general procedures followed for the codification of the data. The second section gives a very short summary of the relevant findings on the data by the researchers Wesche and Ready (1985).

I

DATA AND PROCEDURES

Data : Source

Data for the present study consist of taped lectures of the Sheltered and the Regular Psychology course sections described in the previous chapter. The same English speaking professor taught both the sections.

Data for the Present Study : Codification

For the purposes of this study, the audiotapes of two parallel lectures given to the native speakers and the non-native speakers at the beginning of the winter 1983 semester were transcribed. Housekeeping details at the beginning and end of the lecture period and any prolonged student-professor dialogues were eliminated from the recording.

For the purposes of this research, the lecture to the native speakers hereafter will be referred to as LNS and the lecture to non-native speakers will be referred to as LNNS.

After editing, the total length of the recordings came to 65 minutes for the native speakers and 55 minutes for the non-native speakers. These were lexically transcribed, totalling 9452 words for the LNS and 4406 words for the LNNS. The data consisting of the entire scripts will be referred to as Data set I.

Since it was expected of the professor to offer the same material in the same order with the same minimum details, i.e. strictly following the standard course outline (Appendix B), it was possible to capture approximately the same subject matter in both the lectures to some extent. Out of the eleven topics covered in the LNS and five in the LNNS on the days of recording, there were four common topics. The data consisting of these four common topics will be referred to in this research as Data set II. The following were the common themes : (i) "drive", (ii) "shaping", (iii) "extinction and spontaneous recovery", and (iv) "response differentiation (discrimination and generalization)".

The bifurcation of the data into two sets is particularly necessary so far as this research is concerned because the data sets are used in three different ways. These are : (a) Data set

I is used for capturing certain overall general phenomena which characterize the input language; (b) Data set II is used for capturing certain specific phenomena which can be obtained only by data with comparable content and (c) Certain analyses are carried with both the data sets in order to see whether the phenomena of interest occur uniformly throughout both sets or whether they vary according to subject matter content.

Field Notes

In addition to audio tapes, video tapes were also secured, and field notes were made while observing them. These observations were particularly helpful in identifying and determining the role of extralinguistic (including the non-verbal) support in the input language.

II

PREVIOUS FINDINGS

Introduction

It was stated earlier that this case study is part of a series of observational and analytical studies concerning the same experiment. What follows is a brief selection of relevant previous findings by the researchers who carried out the second study, comparing certain characteristics of the psychology lectures to native speakers and nonnative speakers.

Previous Findings (Selections) : Wesche and Ready (1985)

The researchers found "a significant slowing of speech rate" in the LNNS compared to the LNS. With regard to vocabulary, most of their analyses showed no significant differences between the two lectures, with the following exceptions : there was a significantly greater use of "so" and "will" in the LNNS and more "would" in the LNS. The latter reflected his tendency to avoid using conditionals when speaking to the nonnative speakers, instead using either present or future tense forms.

With regard to syntax, the researchers found significant differences on the following measures; T-units (significantly more in the LNNS), the number of words per T-unit (significantly less in the LNNS), the number of clauses (more for the L2 students), the number of words per clause (less for the L2 students) and the length of a clause (shorter principal and subordinate clauses in the LNNS). However, they found no significant differences in the number of clauses per T-unit, the number of subordinate clauses, or in the proportion of subordinate clause types in the LNS versus LNNS. Further, they found that principal versus subordinate clauses occurred in the same proportion in both the presentations.

With regard to discourse level phenomena, the researchers state that boundary markers between propositions (while prominent) were not significantly different in number or percentage of total words in the LNS versus LNNS. Nonetheless,

the use of particular markers varied. Of greatest interest in terms of adjustments made for the L2 speakers were the measures of content redundancy: exact repetition and equivalence of meaning expressed through rephrasing of the same idea. Also, they reported that the professor used more words to put across the same theme and that there was an increased use of imperatives and questions in the LNNS. With regard to discourse structure, the researchers found both the presentations very similar, consisting of an explanation of the concept with respect to other known concepts, and an initial illustrative example. The lecturing style, however, differed to some extent : the LNNS was far more interactive in structure.

The Purpose of the Present Research

The purpose of the present research is neither to replicate the past findings nor to negate these findings by analysing the data in a different way. The purpose is very simple : to capture exclusively the discourse level modifications present in the language data provided to the nonnative speakers within the constraints of the theoretical background provided in Chapter 1.

CHAPTER IV

ANALYSES

Introduction

Research on the processes of discourse comprehension in both first language and second language is in its infancy. Still, a considerable body of related research into the cognitive processes underlying comprehension has led to a greater understanding of the nature of discourse comprehension (eg. Rumelhart 1977, Clark and Clark 1977, Van Dijk 1977, Van Dijk and Kintsch 1978, Richards 1983).

Research has identified two basic processes with regard to discourse comprehension, referred to as bottom-up processing and top-down processing. Bottom-up processing refers to the analysis, categorization and interpretation of incoming data on the basis of grammatical information in the data itself. With respect to the comprehension of discourse, bottom-up processes would be, for example, those which assign grammatical status to words on the basis of syntactic and morphological cues and which assign meanings on the basis of syntax and word order and the meanings of lexical items used in the message. Top-down processing makes use of prior world knowledge as part of the process of discourse comprehension. This may include expectations about the topic and structure of a piece of discourse, based on real world knowledge and reference to various types of frames, schemas and macrostructures (See Van Dijk 1977, Rumelhart 1977, Van Dijk and

Kintsch 1983, and L2 research on schema theory by Carrell, 1984). In brief, top-down processing enables an interlocutor to infer the communicative content of the discourse by bypassing many of the aspects of bottom-up processing. The following analysis is a modest attempt in this line of research to show that top-down processing is a reality and that it can account for at least part of the comprehension of meaning in language input. The fact that even as complex a subject-matter as psychology can be communicated and be understood by less proficient interlocutors without sacrificing the inherent complexity of the discourse content is a testimony to it.

This chapter is divided into seven subsections. They are (i) topic, (ii) speech acts, (iii) cohesion, (iv) pragmatic connectors, (v) communication strategies, (vi) syntax and (vii) vocabulary.

(1) : TOPIC

Introduction

The notion of "topic" can be considered as a frequently used yet an inadequately explained concept in the analysis of discourse. Brown and Yule (1983:71) define topic as "what is being talked about". Perfetti and Goldman (1974 :71) consider it as "the discourse process by which a referent comes to be developed as the central subject of the discourse". For Grimes (1975), "topic is a point of departure around which every clause,

sentence, paragraph, episode and discourse is organised". Van Dijk (1977:6) looks at it as "a complex proposition which is entailed by the joint set of propositions expressed by the sequence of sentences in the text". And finally, for Venneman (1975), like Brown and Yule, "topic or topic of a discourse refers to a discourse subject on which the attention of the participants of the discourse is concentrated". Unfortunately, although there are multiple definitions of what a topic is, there exists in literature no general framework by which a practical analysis of topic can be carried out.

In my view, an attempt to analyse discourse in terms of topic is part of the process of making explicit the basis for our intuitive ability to recognise why, and how, what is said is appropriate in a particular discourse context. In fact, it is my belief that if the elements of a topic and their interrelationships can be identified, analysts will have a basis for making systematic judgements as to why a particular communicational contribution is relevant in a particular context.

Framework

The framework which I have developed for topic analysis is based on certain ideas borrowed from Halliday and Hasan (1976), Lantamatti (1978), Brown and Yule (1983), and Weissberg (1984). In this framework, there are three important aspects : (a) topic initiation, (b) topic maintenance and (c) topic conclusion. Topic initiation and topic conclusion are boundaries by which one chunk

of discourse, a sequence of utterances making up a particular discourse theme and what is called "speech paragraph" or "speech paratone" is set off from the rest. Topic maintenance is whatever it is that preserves a topic.

Also for the practical purposes of this research, I shall define "topic" as a sequence of sentences dominated by what is called a macroproposition, which by definition is "a proposition that is derived from the sententially expressed propositions of a discourse" (Van Dijk and Kintsch, 1983:190).

Analyses

For the sake of clarity, I shall initially report upon the analysis of topic initiation and topic conclusion followed by topic maintenance.

Topic Initiations.

A study of topic initiations in a discourse is very important, for they have a double role to play. On the one hand, they are the input for knowledge use strategies, and on the other hand, they provide expressions that may constitute macropropositions. In brief, topic initiations activate domains of knowledge or frames necessary to understand the subsequent sentences.

Procedures

As the name "initiation" makes clear, in the analysis of "topic initiations" we are looking ahead, not at what actually follows, but at what the initiation does to whatever follows.

One obvious way to initiate a topic, for Van Dijk and Kintsch (1983:202) "is to explicitly tell in the discourse itself what the main topics are, that is, by conspicuously expressing what the macropropositions are". Such expressions, which we will call "topical expressions", can be accompanied by the following topic initiation strategies: they can either be long or short, with or without pauses, may occur at the beginning or end of a speech paragraph, and finally may or may not use intonation and stress to underline the macropropositions.

In short, to identify topic initiation strategies in any data, one will have to consider the following questions : (a) how long are the topical expressions? (b) Are they accompanied by well marked pauses? (c) What are the other accompanying strategies to highlight these expressions? (d) Syntactically, what type of constructions do they consist of? and finally (e) Where do they occur? - within how many sentences from the beginning of a topic?

Among all the measures, the place of occurrence of the topical expressions is particularly important from the viewpoint of their semantic functions. At the beginning, they help the

addressee to form a hypothesis about the topic of the discourse so that the following sentences can be interpreted top down relative to that macroproposition. In the final position, on the other hand, they serve to check, remind or correct the already established macropropositions as well as to repeat what is already known, so that the addressee has not only hierarchically dominant information but also recent information to search for when the topic is needed in subsequent tasks.

Analyses and Findings

Topical expressions and topic initiation strategies in both the LNS and the LNNS are found to be remarkably similar. When a discourse topic is introduced for the first time, it is by definition difficult to process since, (metaphorically) a new "file" in the working memory system has to be opened for it. Since topic familiarity is neutral for both the student groups, the similarity of topical expressions and topic initiation strategies between the LNS and the LNNS is not surprising.

The topical expressions in both the LNS and LNNS data occur at the beginning of the discourse themes and consist of unambiguous declarative sentences only. Highlighted by intonation and stress, they are very short, running to not more than two co-ordinated sentences, and are always preceded by a long pause. Since no attempt has been made to measure the pauses accurately, it cannot be said here how long the pauses are in each of the

discourses. However, well marked pauses exist in both discourses₄₃.

What follows are some of the examples of topical expressions in the data:

• Topical Expressions

Examples from LNS

1. "The next two terms in your outline are very simple ones. They are extinction and uh, spontaneous recovery"
2. "I will go on to the next term and the next term is quite a ... refers to quite an interesting idea and uh, that is ... ah ... brain stimulation as reinforcement".
3. "O.K. - Now, let's talk a little bit about the last topic of this unit and uh, that is the question of theories of learning".

Examples from LNNS

4. "And uh, the next term that is introduced on page 28 is the term drive".
5. "We are now ready to consider the effects of amount of reinforcement"
6. "In that case, let's go to the next term, ahm, response differentiation and hm, in fact, what we really want to talk about there is two issues, discrimination and generalization".

Interpretation

In my view, the occurrence of these topical expressions at the beginning of a discourse topic in both the lectures is very crucial in that they not only can serve as effective cues for macropropositions but also can prevent the listeners from attempting a global interpretation of the macropropositions (by which is meant the realization of an overall relationship between and within the discourse themes) on the one hand, and on the other hand, they can help them link the succeeding sentences "top down" relative to these expressions.

The shorter topical expressions consisting of unambiguous declarative sentences with well marked pauses preceding and following them may be yet another strategy to dispel any ambiguity as to what the actual topic is. In other words, introduction of new discourse topics is made transparent in both the lectures.

Topic Conclusion

Topic conclusion is the unit of discourse wherein the addresser concludes a topic. It is essentially a strategy for "going out". It is also the part of the discourse which usually contains the summary statements.

Topic Conclusion Statements

Topic conclusion can be signalled by certain statements, which we shall call "topic conclusion statements". As regards

their identification, they are generally marked by expressions such as "that's the idea", "We finish with this", followed by a long pause. The semantic purpose of the topic conclusion statements seems to be to check the already established macropropositions of the hearer.

Findings

Topic Conclusion Statements

Examples from LNS

7. "So that's the idea of the term drive. Is that clear?"
8. "That's the idea of spontaneous recovery".
9. "So this is the idea of feedback"

Examples from LNNS

10. "So that's the simple message for amount and delay of reinforcement. For amount, the more the better. For delay, the sooner the better. O.K?"
11. "So that's all we wanted to say about drive here. Is that clear?"
12. "Do you see the basic idea of extinction, and a, . . . of spontaneous recovery? O.K?"

My analysis indicates that topic conclusion statements in LNS and LNNS do not differ from each other very much. Semantically and syntactically, they are very similar as the above given examples indicate.

Topic Conclusion Strategies

Yet another way of studying topic conclusion is by studying the strategies by which a topic is concluded. A study of topic conclusion strategies is important since they tell us how an addresser mentally prepares his addressees for a topic conclusion or how a particular topic is prepared for its conclusion. Note that topic conclusion statements generally do not tell us anything about topic conclusion strategies.

Following Hurtig (1977)⁴⁵ I shall suggest the following measures for the identification of topic conclusion strategies. A topic is commonly concluded either by shading or fading: for the purposes of this research, shading can be defined as an expansion of the domain of the topic towards the end of the topic by an additional set of examples and ideas, and fading as a gradual movement away from the ongoing discourse topic in the preparation for a new discourse topic.

Apart from shading and fading strategies, Gardner (1985), has identified two other topic conclusion strategies called "topic recycling" and "topic reintroduction". For him, topic recycling occurs when the topic has come to an end, and the addresser picks up a point from earlier in the development of the same topic, and thereby revives the topic. Topic reintroduction, on the other hand, revives an altogether different topic that has already been dropped once in the discourse.

Procedures

In order to identify topic conclusion strategies, topic shading/fading, and topic recycling/reintroduction, I examined the units of discourse which form the border between topic maintenance and topic conclusion units, i.e., the units which precede the topic conclusion statements.

Findings

As regards topic conclusion strategies, there are remarkable dissimilarities. For example, shading occurs only in the LNS and not even once in the LNNS. The professor, as if by afterthought, gives more and more examples towards the end of the discourse topics in the LNS. This is true in nine of eleven topics in data set I and three of four topics in data set II. Fading, on the other hand, doesn't occur in the LNS at all. It occurs, on the other hand, in all the topics in the LNNS. In short, the topic conclusion strategy in the LNS is either shading or a full blown change while it is that of fading alone in the LNNS.

With regard to topic recycling and topic reintroduction strategies, topic recycling, which is a sort of paraphrasing of what has been previously stated in the current topic, occurs in all topics in the LNNS and not even once in the LNS. The professor never attempts to paraphrase in the LNS. On the other hand, topic reintroductions occur only in the LNS. For example, in the LNS while discussing "response differentiation", the professor reintroduces the concept of "classical conditioning"

which he has taught in one of the earlier sessions (not even on the same day or in the same week). For another example, he calls up the concept of "spontaneous recovery" while discussing "associative theories of learning" towards the end of the class:

13. "I made the statement at the end of a class that it is not as strong as, ah, the original acquisition. What I was thinking about primarily is this..." (LNS)

Such "reintroductions" are not at all present in the LNNS.

Interpretation

A study of the differences in the topic conclusion strategies in the two lectures reveal that the professor's intention is not to tax the cognitive ability of the nonnative addressees very much. With them, his intentions seem to be to have very straight-forward dealings. Further, he attempts to help them reinforce the content matter of the discourse topic in their long-term semantic memory (working memory) by the use of topic recycling strategies. Note that topic recycling strategies are totally absent in the LNS. The professor seems to have virtually taken for granted the cognitive capacity of the native speakers for long term memory, ⁴⁶ judging that they don't require linguistic strategies to activate it. No plausible reason can otherwise be found for the absence of topic recycling and the presence of topic reintroduction strategies in the LNS.

Topic Maintenance

Topic maintenance characterizes the part of the discourse that contains the addresser's communicative intent. This portion of the discourse holds the central argument and importantly, deals with knowledge which the addresser assumes must be available to the addressees.

Topic maintenance is different from topic initiation in the sense that all "warm ups" are over and the addressee must concentrate on the message in order to understand the communicative intent of the addresser. It is different from topic conclusion in the sense that the addressee is not given any hint at this point of discourse as to when the topic is going to be concluded. In short, one way to identify topic maintenance is to look for the area where the topic boundary markers and topic conclusion strategies are conspicuously absent⁴⁷.

✓ Topic maintenance can be analysed in two interrelatable ways. It can either be analysed in terms of its argument structure, called topic structure, or in terms of its progress, called topic progression, the latter a very well defined but underdeveloped concept in terms of analysis.

Topic Structure

Macrostructures and Schematic Structures

While local (discourse) coherence can be identified in terms of relations between propositions expressed by succeeding

sentences, global (discourse) coherence is of a more general nature, and characterizes a discourse as a whole or larger fragments of discourse.

Van Dijk (1972,77,80) introduces the notion of "macrostructure" in order to provide an abstract semantic description of the global content, and hence of the global coherence of discourse. For him, the macrostructure of a discourse is the conceptual global strategy assigned to work out the global meanings at various levels, at the levels of words, phrases, clauses, sentences and speech paragraphs⁴⁸.

Macrostructures are not the only global structures of discourse. For at least certain types of discourse, it is useful to speak about the schematic structure. Schematic structures are described as "higher level complex knowledge structures" (van Dijk, 1981:141) which function as "ideational scaffolding" (Anderson,1977) in the organization and interpretation of experience. In the strong view, schemata are considered to be deterministic, to predispose the experiencer to interpret his experience in a fixed way. They are the background knowledge structures which lead us to make predictions in our interpretation of discourse. In fact, Tannen (1979:138) uses the description "structures of expectation" to characterize the influence of schemata on our thinking. Thus, stories can be characterised by a narrative schema, and argumentations can be analysed in terms of an argumentative schemata, for example, by

the syllogism of Aristotelian logic. Such schema structures provide the overall form of a discourse and can be characterized in terms of the macrostructures defining a discourse type.

Macrostructures and schematic structures differ from each other in terms of the level they work on : the domain of macrostructures is up to the level of speech paragraphs while the domain of the schematic structures is beyond the paragraph level.

Importance of Macrostructures and Schematic Structures in a Study of Discourse

A study of macro and the schematic structures of a discourse topic is important because such structures :

(a) provide a common semantic basis to connect (sometimes seemingly incoherent) sequences;

(b) can serve as a device for the hierarchical organisation of the macropropositions in the semantic memory - in a way, they are the device for working out a relatively simple semantic structure;

(c) provide powerful retrieval cues for the sometimes necessary reactivation of semantic details by the addressees and

(d) characterize an explicit reconstruction strategy by defining the essential, the most important or relevant semantic properties of discourse. This information is particularly needed by the addressees for later cognitive tasks like "recall", as

well as for monitoring and controlling further discourse processing.

Procedures

Schematic and Macro Structures

In the given data, the schematic structure of both the LNS and the LNNS can be characterised by an "expository schema" and this expository schemata, in turn, can be characterized by means of the macrostructures which provide an abstract semantic description of the global content. Recall that the macrostructure of a discourse has been defined as the global conceptual strategy assigned to work out the global meanings at various levels, at the levels of words, phrases, clauses, sentences and speech paragraphs. In this analysis, I attempt to determine the nature of the macrostructure in each of the data sets in terms of the argument structure which governs the propositions. (The term "proposition" is used in the following discussion in a more general way. It just means "semantic representation" and nothing more).

The two sets of propositions which form the components of the macropropositions in the expository schemata of the data are : (a) Thematic definitions and (b) Illustrations which explain the how and why of the given definitions (or examples followed by explanations). A study of the sequence in which the definitions and the explanations/illustrations occur in a macroproposition may give us an idea of the argument structure

governing the macropropositions and consequently of the discourse as a whole.

In this analysis, I attempt to identify the macrostructure of the semantic content by analysing the relationships among the propositions in each macroproposition of the discourse. To do this, I initially identified the macropropositions (discourse topics) that occur in each of the lectures. The eleven topics in the LNS are : (1) drive, (2) shaping, (3) extinction and spontaneous recovery, (4) response differentiation (generalization and discrimination), (5) bio-feedback, (6) ANS conditioning, (7) brain stimulation as reinforcement, (8) positive and negative reinforcement, (9) associative theories of learning, (10) cognitive theories of learning and (11) Kohler and gestalt psychology. The five topics in the LNNS are : (1) the amount and delay of reinforcement, (2) drive, (3) shaping, (4) extinction and spontaneous recovery, and (5) response differentiation (generalization and discrimination). Out of these, the common topics in the data sets are : (1) drive, (2) shaping, (3) extinction and spontaneous recovery and (4) response differentiation (generalization and discrimination).

After identifying the macropropositions, I determined the location of definitions, specifically where they occurred in the argument structure, before or after the illustrations.

Findings

The following is the sequence (Table 1) in which the definitions and the illustrations (examples followed by certain explanations) occur in the data set II:

Table 1 : Sequence in which definitions and illustrations occur in the data set II.

Macroproposition	LNS Sequence	LNNS Sequence
1. Drive	Definitions Illustrations	Illustrations Definitions
2. Shaping	Illustrations Definitions	Illustrations Definitions
3a. Extinction	Illustrations Definitions	Illustrations Definitions
3b. Spon. Recovery	Definitions Illustrations	Illustrations Definitions
4a. Generalization	Illustrations	Illustrations Definitions
4b. Discrimination	Illustrations	Illustrations Definitions

With regard to the way the professor sequenced the components of the macropropositions, there are remarkable differences. In the LNS, the themes are not precisely defined or in some cases, are not at all defined. The definitions are just illustrated with examples and the students have to infer the

definitions themselves. Moreover, in the LNS, if there are precise definitions, there is no regular pattern as to their location. Sometimes, the examples precede the definitions and at other times, the definitions precede the examples. And in some other cases, there are only examples and illustrations. On the other hand, in the LNNS, he gives precise definitions to all the themes. And all these definitions are very straightforward. Furthermore, in every case, the examples precede the definitions.

The following are examples from the texts with regard to definitions:

Examples from LNS

14. "Now you would become stringent and you would require that before you reintroduced and as you can see, you would be in effect shaping the behavior of the animal to perform a behavioral sequence which was not part of its repertoire initially, by breaking it up into little elements and adding one element at a time. That's the idea of shaping".
15. "What about spontaneous recovery? Well, again as we said in the case of classical conditioning, spontaneous recovery refers to the idea that after a period of time away from the situation, if you bring the animal back into it and still not reinforce, the behavior will reappear for a while. So what you find is that in the morning, you conditioned the rat. In the afternoon, you allow that behavior to extinguish, so that it's no longer doing it for you, and then you take the rat away overnight. You come back the next day and you find that again the rat begins to perform for you and has to extinguish all over again except the behavior is not as strong as it was initially. That's the idea of spontaneous recovery".

Examples from LNNS

16. "A behavior that is followed by a reinforcement tends to repeat, but the practice is you take the behavior one little bit at a time, and you build up a sequence of behaviors, so that eventually you demand the entire sequence in order to reinforce. And that is shaping".
17. "Spontaneous recovery refers to the idea that the conditioned response, having been extinguished, will return after a time interval, even with no further reinforcement. O.K. That's spontaneous recovery".

It can be seen from the above examples that the macropropositions (in these cases, "shaping" and "spontaneous recovery") are precisely defined in the case of LNNS. Such precise definitions are not found in the LNS. Further, at the time of uttering the definitions in the LNNS, the professor was slower than the normal speed of delivery so that the students could take down the definitions on their notebooks.

Interpretation

The occurrence in the LNS of definitions sometimes following and sometimes preceding the examples, and at times their total absence reveals that the professor has intended the macrostructure of this discourse to have global interpretation. In every case in the LNS, the professor provides a lot of examples but seldom cares to define the terms. In the LNNS, on the other hand, the examples always precede the definitions. The pattern does not change at all, not even once. In brief, if the macrorule governing the macrostructure of the discourse themes in

the LNS can be said to be "analytical" requiring the working out of a global meaning of the definition (through an interpretation of the illustrations), the macrorule governing the macrostructure of the discourse themes in the LNNS can be said to be "relational" (providing a relational structure between the definitions and the illustrations).

The irregular pattern provided to the native speakers can be interpreted as to the professor's reliance on the native speakers' capability to infer the definitions out of the examples. In the same way, the strict adherence to the regular pattern of the examples following the thematic definitions can be interpreted as to the professor's unconscious decision to provide the nonnative speakers a regular patterned experience, which Ausubel (1967) calls "subsumption theory" and Brown (1972) defines as "cognitive pruning". According to both, meaningful learning takes place most easily when new concepts are directly related to and subsumed by previous and regular experience that is somewhat "permanent" (i.e. more stable). No wonder, the professor provided a more consistent argument structure to the nonnative speakers. In this way, he helped make the learning more meaningful.

Topic Progression

A coherent piece of discourse must have properties that make possible "a dynamic process of meaning creation" (Widdowson, 1983). This section is an attempt to identify such properties in the data.

The progression of a topic within an extensive piece of discourse can be thought of in terms of a succession of hierarchically ordered sentential topics each of which contributes to the discourse topic (Figure 1).

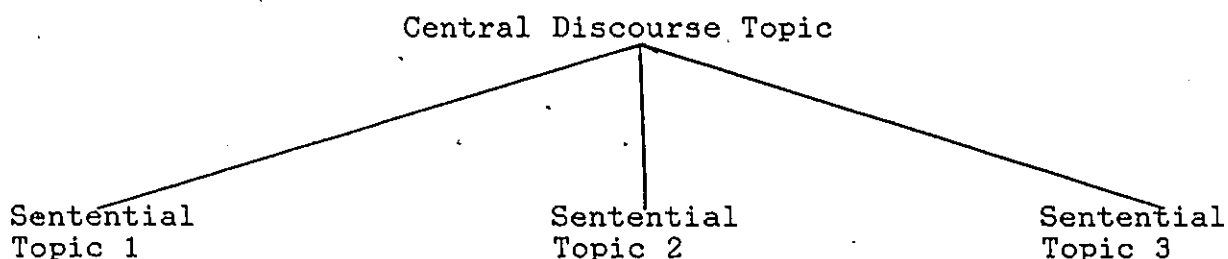


Figure 1.

Sentential Topics and Topic Progression

In English, sentences in discourse usually function in approximately the following way. The subject of a sentence is generally the element representing "what the sentence is about" (cf. Chafe 1976), "announcing the subtopic rather than offering new information about the chosen subject matter" (Turner 1973

:315), while the predicate "comments", or offers new information. Thus sentences in discourse can be thought of as contributing to the development of the discourse topic by means of sequences that first develop one subtopic, adding new information about it in the predicate of each sentence, and then proceed to develop another. "Topic progression" in short refers to the way the discourse topic is developed via the interrelationships among sentence topics.

Topic progression can be defined in another way also. Topic has already been defined as a sequence of utterances which are directly or indirectly related to the central subject of the discourse. Any sequence of utterances, in order to be meaningful, has to be communicatively coherent. The way each utterance contributes to an experience of communicative coherence in brief, then, is what is called "topic progression".

Given and New Contract and Topic Progression

It has been suggested in the literature that there are two general types of topic progression : parallel progression and sequential progression. ⁴⁹ These are identifiable in terms of what is called the given/new contract, a strategy - the addresser's moment-to-moment assessment of the relationship between what he wants to say and his addressee's informational requirements.

Communication is a cooperative process between an addresser and an addressee. The addresser has a set of concepts he wants to communicate. The addresser's goal is to formulate a sequence of sentences that will allow the addressee to properly relate new ideas in the message to the relevant concepts already known to the addressee. Thus, as Clark (1973) has pointed out, sentences can be broken up into two parts. One part, the given part, is a reference to ideas that the addresser believes are already in the addressee's mind. The other part, the new part, is the new information that the addresser is trying to add to the listener's knowledge base.

To illustrate the distinction between given and new information, consider the following examples:

I saw the man
Given : There was a man
New : I saw him

Notice that the speaker/writer assumes that the addressee already knew that there was a man (perhaps they had just discussed him), and he was informing him that he saw him.

In contrast, consider the following examples:

It was I who saw Peter
Given : Someone saw Peter
New : 'I' was the one

It was George whom I saw
Given : I saw someone
New : He was George

The sentences are all correct descriptions of the same event. However, they differ with regard to what information the addresser is trying to communicate and what prior information the addresser assumes that the addressees know⁵⁰.

Given and new contract as reflected in topic progression is important since research⁵¹ has indicated that recall is faster and more accurate when an order that Halliday calls "unmarked sequence" (1967:211) of information distribution is used, that is, when the given/new contract is not violated. In other words, comprehensibility of a discourse is to some degree a function of the way in which information is distributed in the sentences and topic progression is exactly a study of this factor.

Parallel Progression

The type of progression in which the subtopic in a number of successive sentences remains the same is called "parallel progression" (Figure 2).

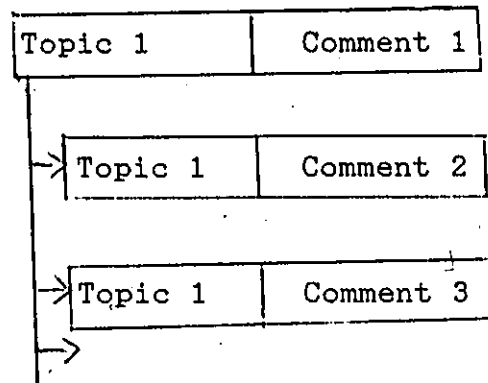


Figure 2

Parallel progression

Example

18. "In that situation, the rat presses the lever. If the light is on, it gets food. If the light is off, it doesn't get food. Its behavior is reintroduced only in the presence of light". (LNNS)

A sequence of sentences, a lexical subject in the first sentence and an anaphoric reference substituting for the lexical item in the following sentences gives an appearance like the above. These sentences represent the parallel type of topic progression since the lexical subject has the same referent.

Sequential Progression

In sequential progression, the predicate or the rhematic part of one sentence provides the topic for the next as shown in Figure 3.

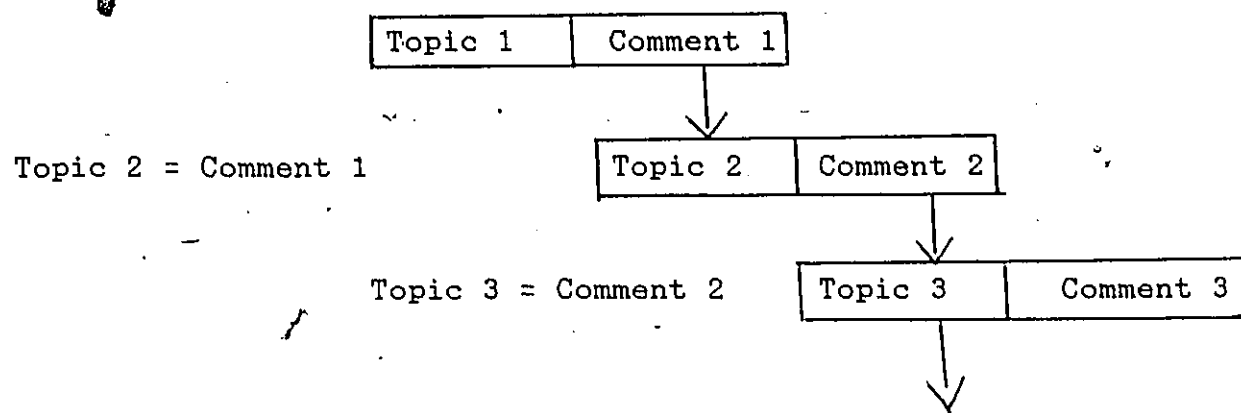


Figure 3.
Sequential Progression.

Example

19. "You'll probably have a similar curve like that for extinction. Extinction, in other words, is the process whereby a conditioned behavior eventually disappears in the absence of reinforcement". (LNS)

Here the term "extinction" which is first introduced in the predicate of the first sentence serves as the topical subject in the second sentence. This type of topic progression is what is called "sequential progression".

Hypertheme Progression

There is yet another type of progression suggested by Danes (1974 : 118-119), based on the given/new principle, called "hypertheme progression". In the hypertheme progression, the

topics of the sentences are individually different but can still be considered given, since they are all derived from the same overriding topic. This, in turn, creates hierarchical or whole and parts structure for a paragraph, with a patterning effect as diagrammed in Figure 4.

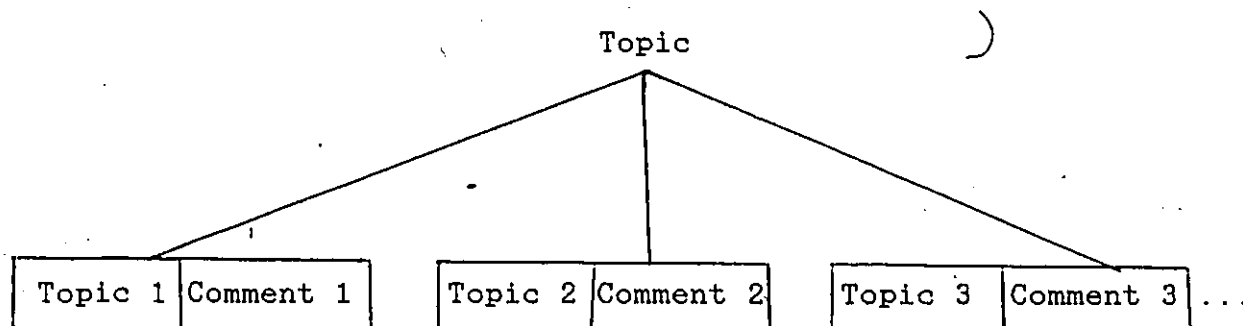


Figure 4
Hypertheme Progression

Example

20. "So after about ten trials, that rat was very efficient at running that maze. Now the second group of rats was run from the beginning without any food and"
(LNS)

In the above sentences, the subjects, "that rat" and "the second group of rats" are two different sentential topics and they have two different comments. however, the sentences in toto contribute to the progression of the discourse topic (in this

case "cognitive theories of learning"). It is this type of progression which is called "hypertheme progression".

Three Patterns of Progression and Given New Contract

Note that all these three patterns conform to the given/new contract since in each case, while given information is fronted in the topic, new information occurs toward the end of the sentence in the comment. The progressions differ from each other only with respect to the particular unit of given information which is selected for topicalization, resulting in different linkage arrangements.

Subject NPs and Topic Progression

Starting with these concepts, i.e., that in English the subject of a sentence is usually an element representing its topic, and that the development of a discourse topic takes place in terms of successive sentential topics relating to it, I shall first examine how the concept of subject can be related to discourse topic as it is presented in these three patterns.

Examples used as evidence in discussions on the relationship of subject and topic are usually of the type:

21. "My next psychology lecture will be next Wednesday". (LNNS)

In this sentence, the subject combines two properties which are differentiated in the present analysis: it is structurally in the position of the subject in a thematically unmarked affirmative

clause and it is a lexical subject as opposed to a mere structural dummy. It is also the psychological subject of the clause in the sense that it represents what the clause is about.

In this thesis, I shall deal only with subjects which are first in the structurally unmarked positions (ie. subject NPs in the matrix sentences). Further, I shall make the distinction between structural dummies, such as there in an existential clause, and lexical subjects for the purposes of an analysis of topic progression. If a lexical subject is synonymous or near synonymous with the discourse topic, I shall call it the "topical subject" and if it is thematically related to the discourse topic, as already defined, I shall call it a "hypertheme". Topical subjects and hyperthemes are similar in the sense that both are lexical subjects which function as sentential topics; however, they are different from each other in the sense that hyperthemes are subtopics and are derived from the same overriding topic in the discourse under analysis, while topical subjects, as the term itself indicates, are the main topics of study. Further, note that hyperthemes can be developed as separate discourse topics on their own. And finally, subjects which are not at all related to the discourse topic are called "nontopical subjects". Nontopical subjects are either structural dummies or noun phrases denoting either the speaker's attitude or the organisation of the propositions. The following examples will illustrate the distinction among the three types of topical sentences:

22. "Shaping has been used successfully with really all kinds of animals". (Shaping = Topical Subject) (LNS)
23. "Well, Tollman questioned that". (Tollman = Hypertheme) (LNNS)
24. "But, here the important point is that brain stimulation can be used as a reinforcement either as a positive reinforcement or as a negative reinforcement. (important point = non-topical subject) (LNS)

In example (22), it is evident that "shaping" is a topical subject since the discourse topic is about shaping. In example (23), Tollman is a name that has been thematically related to the topic of the discourse; hence it is classified under the category 'hypertheme'. Also note the fact that "Tollman" can be developed as a separate discourse topic on its own. In example (24), the subject of the main clause 'the important point' can in no way be thematically related to the topic of the discourse: hence it is classified under non-topical subject.

In spoken discourse, matters are even more complicated. First, the discourse may consist of complex sentences of many types with different subjects in different parts of the sentences. For this reason, I shall deal only with the subjects of the matrix sentences since subordinate sentences generally add extra details and are responsible for foregrounding. Secondly, there are matrix sentences which might contain linguistic

material which is used to organise the subject matter for the purposes of the particular presentation, as in the following example :

25. "We are now ready to consider the effects of amount of reinforcement" (LNNS)

I prefer to call such matrix sentences "discourse adjuncts" since they help the addressee to organise the content of the discourse and also help him/her study the topical, non-topical and the hyperthemes in a particular organizational perspective. In short, discourse adjuncts are explicit cohesive devices whose sole function is to create linkages between units of given information and their antecedents. Further, the use of discourse adjuncts can make a discourse relatively straightforward and comprehensible, even to a nonproficient addressee. However, when discourse adjuncts are used only minimally, addressees are called upon to provide their own linkages by inferring the intermediary propositions from the ongoing discourse through their own knowledge and experience. Clark and Haviland refer to this strategy as "inferential bridging"₅₂ (1977:7).

There is much more in a spoken discourse. However, I shall limit my analysis to the framework I have thus far suggested, ie., (a) analysing only the subject NPS in the matrix sentences and (b) distinguishing between the four different types of discourse material, (i) topical subject, (ii) non-topical subject, (iii) hypertheme and (iv) discourse adjuncts.

Findings

What follows is a table of findings with respect to the discourse adjuncts and different types of sentential topics which occur in the LNS and the LNNS.

Table 2 : Overall percentages of occurrence of discourse adjuncts and different types of sentential topics in the LNS and the LNNS

Topical Sentence Type	LNS	%	LNNS	%
Topical subjects	7	5.6	24	11.65
Hypertheme	22	17.6	44	21.36
Non-topical subjects	58	46.4	50	24.28
Discourse Adjuncts	38	30.4	88	42.71
Total	125	100.00	206	100.00
X ² = 18.76 (df 3) p > .001				

Now we shall attempt to see how the topical sentences contribute to topic progression in terms of topical subjects, hyperthemes and non-topical subjects. After subtracting the discourse adjunct sentences, there are 87 topical sentences in the LNS, and 118 topical sentences in the LNNS. Their progression is as follows :

Table 3a : Percentage of occurrence of topical subjects, hyperthemes and non-topical subjects in the topical sentences of the LNS

Discourse Topics	Topical sentences	Topical subjects	%	Hyper themes	%	Nontopical subjects	%
Drive	21	2	9.5	6	28.6	13	62.0
Shaping	32	2	6.3	7	21.9	23	71.9
Extinction	11	1	9.1	2	18.2	8	72.7
Response	23	2	8.7	7	30.4	14	60.9
Total	87	7	8.0	22	25.3	58	66.7

Table 3b : Percentage of occurrence of topical subjects, hyperthemes and non-topical subjects occur in the topical sentences of the LNNS

Discourse Topics	Topical sentences	Topical subjects	%	Hyper themes	%	Nontopical subjects	%
Drive	26	7	27.0	8	30.8	11	42.3
Shaping	27	4	14.8	11	40.7	12	44.4
Extinction	29	7	24.1	10	34.5	12	41.4
Response	36	6	16.7	15	41.7	15	41.7
Total	118	24	20.3	44	37.3	50	42.4

X² (for Tables 3a and 3b together) = 13.201 (df 5) p < .05

Summary of the Findings

(a) The professor used a significantly greater proportion of discourse adjuncts, topical subjects, and hyperthemes in the LNNS.

(b) On the contrary, in the LNS, he used a significantly greater proportion of non-topical subjects including dummy subjects.

Parallel and Sequential Progression

Having established a kind of topical skeleton of the text in terms of discourse adjunct and topical sentences, topical and nontopical subjects and hyperthemes, I will now examine the way these subjects and adjuncts form different types of sequences. I shall apply the notion of parallel progression where the topical subjects of successive sentences have the same referent and that of sequential progression where the predicate part of one sentence gives rise to the topical subject/hypertheme in the following.

In order to identify these sequences, all the subjects of the matrix clauses of the topical sentences were arranged in the order of their appearance in the sentences of the text and then an attempt was made to study the number of occurrences of each type.

Findings

In the LNNS, there were twelve occurrences of a subject either followed by the same subject or an anaphor. In other words, there were twelve cases of parallel progression in the LNNS. There was no such case in the LNS.

Interpretation

The greater use of topical subjects and hyperthemes with a greater number of occurrences of parallel progression in the LNNS is an indication that the LNNS is more characterized by parallel progression type than is the LNS. No naturalistic spoken discourse is completely either parallel or sequential.

The greater use of nontopical subjects in the LNS reflects the fact that the topic of the succeeding sentences is often in the rhematic part of these sentences. The total absence of parallel progression confirms this fact. Hence, it can safely be said that the LNS was more characterized by sequential progression than parallel progression. Note that the nontopical subjects accounted for 66.7% of the topical sentences in the LNS while the topical subjects and hyperthemes together accounted for only 33.3%. On the other hand, in the LNNS, nontopical subjects accounted for only 42.4% and the topical subjects and hyperthemes accounted for 57.6%. Note that between the topical subjects and the hyperthemes, it is the hyperthemes which are greatly used both in the LNS and the LNNS. Hence, I would prefer to call the

topical progression in the LNS "hypertheme sequential progression" and in the LNNS "hypertheme parallel progression".

In a discourse format, discourse adjunct sentences express a relation between propositions. The greater use of discourse adjunct sentences is an indication of the explicit organisational information the speaker gives to indicate his communicative intent and guide the listeners with regard to the semantic relationship between sentences. A comparatively higher percentage of discourse adjunct sentences in the LNNS is then an indication that a comparatively greater amount of explicit information has been given to the nonnative speakers with regard to the organization of the sentences and consequently to the semantic content in them. It requires, in the terminology of Weissberg (1984:491), only "minimal bridging". Also the comparatively lesser use of discourse adjuncts in the LNS reflects the greater implicitness reflected in the discourse as to how much "extensive bridging"⁵³ (Weissberg 1984 : 491) is required of the listener. Needless to say, extensive bridging requires more effort on the part of the listeners. And a nonnative speaker may find it more difficult to do.

It is evident that the sentence structure becomes comparatively more complex with the relatively more frequent use of nontopical subjects in the LNS and that this may necessitate a separate identification process by the listener unlike the

syntactically prominent position of the topical subjects and the hyperthemes which are used in greater proportion in the LNNS.

Conclusion

The findings clearly indicate that there are modifications at the handling of the topic level in the LNNS. If the modifications indeed lead to increased comprehensibility⁵⁴, the present findings suggest that not all problems in comprehension are relatable to unfamiliar vocabulary or syntactic forms. Students may also need help in following the line of argument and in relating different types of discourse to each other. Students who have problems at the discourse level rather than at the word or sentence level might benefit from certain modifications in the topic progression which help them perceive how the topic is developed in discourse and to learn to take advantage of predicability relating to topic development. Similarly, differentiation between the various types of discourse material, and familiarity with their functions might help a foreign/second language learner to relate more explicitly the topical and non-topical discourse material, and in this way to use the non-topical material as the kind of supporting framework that it is meant to be, not as one more linguistic obstacle.

Topic Density

Modification of a discourse is a process which affects a number of interrelated textual features. One of the crucial textual features that seems to be very much affected is what I prefer to call "topic density". Topic density can be defined as the semantic depth which the interlocutor experiences in his interaction with a particular discourse theme.

Topic density is rarely discussed in linguistics and there exists no (accepted) model for its analysis. In developing a framework for an analysis of topic density, I have used the concept of propositional complexity.

The study of propositional complexity, though rare, is not new. In the early 60's, Katz and Fodor (1963) accounted for the semantic complexity of sentences in terms of meanings of lexical items plus projection rules based on syntactic structures. In the early 80's, it was Long (1983) who revived the concept of propositional complexity in terms of T-units and S-nodes.

By complementing Katz and Fodor's notion of semantic complexity with Long's approach, it is possible to arrive at rough interpretation as to the semantic depth of a particular discourse theme.

In this analysis, following Van Dijk and Kintsch, (1983), I consider each proposition as an "intentional unit"

corresponding to the meaning of a sentence. This meaning has a composite nature: it is a construction of the meanings of the component expressions, the words or phrases of the sentence, and is also the output of the semantic interpretation rules. This interpretation accords well with the well-known Fregean principle of functionality : "the interpretation of a composite expression is a function of the interpretation of its component expressions" (Frege, 1962 cited in Van Dijk and Kintsch 1983 :11).

The macroproposition, however, works at another level. It not only contains propositions as such, but also contains macrorules which decide the argument structure and the cognitive mode, which we have seen as "analytical" in the case of LNS and "relational" in the case of LNNS. Keeping these views in mind, I shall discuss topic density in terms of the following factors:

- (a): Discourse T-units
- (b): S-nodes and
- (c): Content words.

In my view, an analysis of discourse T-units and S-nodes defined and measures in terms of clauses reflects surface level complexity and an analysis of content words, in particular, noun phrases and verbs reflects semantic complexity. Together, they roughly indicate how dense the discourse themes are.

Discourse T-Units

For Hunt (1965), a T-unit (minimal terminal unit) is a single independent clause with all its modifying subordinate clauses. For the purposes of this research, based on his model, I prefer to propose what shall be called "Discourse T-unit". A discourse T-unit can be defined as an independent clause plus all independent and subordinate clauses and nonclausal structures attached to or embedded in it. In brief, a discourse T-unit is a single independent clause together with all its (semantically) modifying subordinate and co-ordinate clauses. Since my rationale for differing from Hunt's model (1965) is discussed at length in the section on "syntax" (pp.162-167), I shall not repeat it here.

According to the discourse T-unit (hereafter DT-unit) criterion, as the learner matures, his/her ability to comprehend larger and more complex DT-units (especially if embedding and co-ordination are used) increases. (Likewise, a significant difference, if any, between the DT-units found in the LNS and the LNNS will be an indication that the professor has made certain modifications in the topic density of his input data to the nonnative speakers.

In the present analysis, DT-units are measured in terms of S-nodes, clauses and words.

S-nodes

An S-node is a syntactic node with a tensed verb. If discourse topic is considered as a complex macroproposition entailed by the set of propositions expressed by a sequence of DT-units, then the average number of S-nodes per DT-unit will be a rough indication of the propositional richness of the DT-units. For example, a DT-unit with three S-nodes must be richer in propositions than a DT-unit with only one S-node.

A study of S-nodes is important for another reason also. It is claimed in theoretical linguistics that action continuity receives its expression strongly and universally via the tense system attached to the verbals (Lyons 1969).

Content Words

The propositional structure of an utterance essentially depends upon the content words which compose it. Content words can be studied in two ways: either in semantic terms or in syntactic terms of word class distribution. In this thesis, for lack of an accepted model, I shall study the content words only in terms of their class distribution insofar as the interpretation of the findings can be related to a study of DT-units and S-nodes, and through them to a study of propositional density.

Further, since the syntactic arguments of any proposition can be represented in terms of noun phrases and verb phrases, I shall limit my quantitative study to these two word classes.

Findings

The findings are given in the following tables:

Table 4a : Words, Clauses and DT-units in LNS

Discourse themes	DT-units	Clauses	Words	DT-units # clauses	DT-units # words	Clauses # words
Drive	27	91	564	3.37	20.88	6.20
Shaping	50	228	1469	4.56	29.38	6.44
Extinction	14	54	326	3.86	23.28	6.03
Response	38	164	1104	4.32	29.05	6.73
Total	129	537	3463	4.16	26.84	6.45

Table 4b : Words, clauses and DT-units in LNNS

Discourse Theme	DT-units	Clauses	Words	DT-units # clauses	DT-units # words	Clauses # words
Drive	32	85	444	2.65	13.87	5.22
Shaping	59	186	1016	3.15	17.22	5.46
Extinction	44	93	579	2.11	13.15	6.22
Response	72	239	1394	3.32	19.36	5.83
Total	207	603	3433	2.91	16.58	5.69

S-Nodes

Table 5a : Length of S-nodes in LNS

Discourse Themes	Total # S-nodes	Total # of words	Length of a S-node in words
Drive	74	564	7.62
Shaping	154	1469	9.53
Extinction	33	326	9.88
Response	136	1104	8.12
Total	397	3463	8.72

Table 5b : Length of S-nodes in LNNS

Discourse Themes	Total # S-Nodes	Total # of Words	Length of a S-Node in Words
Drive	66	444	6.72
Shaping	137	1016	7.41
Extinction	83	579	6.98
Response	201	1394	6.93
Total	487	3433	7.04

DT-Units and S-Nodes

Table 6a : Length of DT-units in S-nodes in LNS

Discourse Themes	DT-units	S-nodes	Length of a DT-Unit in S-nodes
Drive	27	74	2.74
Shaping	50	154	3.08
Extinction	14	33	2.35
Response	38	136	3.57
Total	129	397	3.07

Table 6b : Length of DT-units in S-nodes in LNNS

Discourse Themes	DT-Units	S-Nodes	Length of a DT-Unit in S-nodes
Drive	32	66	2.06
Shaping	59	137	2.32
Extinction	44	83	1.88
Response	72	201	2.79
Total	207	487	2.35

Main Clauses and Subordinate Clauses

Table 7a : Main clauses and Subordinate Clauses in LNS

Discourse Themes	Total # Clauses	Main Clauses	%	Subordinate Clauses	%
Drive	91	27	29.67	64	70.33
Shaping	228	50	21.93	178	78.07
Extinction	54	14	25.93	40	74.07
Response	164	38	23.17	126	76.83
Total	537	129	24.02	408	75.98

Table 7b : Main Clauses and Subordinate Clauses in LNNS

Discourse Themes	Total # Clauses	Main Clauses	%	Subordinate Clauses	%
Drive	85	32	37.65	53	62.35
Shaping	186	59	31.72	127	68.28
Extinction	93	44	47.31	49	52.69
Response	239	72	30.13	167	69.87
Total	603	207	34.33	396	65.67

Tensed and Non-tensed Clauses

Table 8a : Tensed and Non-tensed Clauses in LNS

Discourse Themes	Total Clauses	Tensed Clauses	%	Non-tensed Clauses	%
Drive	91	74	81.31	17	18.69
Shaping	228	154	67.54	74	32.46
Extinction	54	33	61.11	21	38.89
Response	164	136	82.92	28	17.08
Total	537	397	73.93	140	26.07

Table 8b : Tensed and Non-tensed Clauses in LNNS

Discourse Themes	Total Clauses	Tensed Clauses	%	Non-tensed Clauses	%
Drive	85	66	77.65	19	22.35
Shaping	186	137	73.66	49	26.34
Extinction	93	83	89.24	10	10.76
Response	239	201	84.10	38	15.90
Total	603	487	80.76	116	19.24

Table 9 : No. of Different Noun Phrases and Verbs as Used in Each Discourse Theme

Discourse Type	Word Class	Drive	Shaping	Extinctn. S.Recov.	Genrlzn. Discrmn.	Total
LNS	N.Phr.	49	112	32	79	272
	Verbs	41	67	33	55	196
LNNS	N.Phr.	31	58	46	98	233
	Verbs	32	54	35	65	186

Findings and Interpretation

DT-units and S-nodes are significantly lesser in proportion in the LNS. This may give the initial impression that its communicative content is less rich. It is not true as can be seen from the following discussion.

Observe the findings that in the LNS, there occurs :

- (a) a lesser number of main clauses and a greater number of subordinate clauses (Tables 7a and 7b)
- (b) a greater number of clauses per DT-unit (an average of 4.16 clauses per DT-unit in the LNS and an average of 2.91 clauses per DT-unit in the LNNS) (Tables 4a and 4b)
- (c) longer clause length (an average of 6.45 words per clause in the LNS and an average of 5.69 words per clause in the LNNS) (Tables 4a and 4b)

- (d) a greater number of different noun phrases and verbs in toto (Table 9)
- (e) a greater proportion of non-tensed clauses (26.07% in the LNS and 19.24% in the LNNS) (Tables 8a and 8b) and
- (f) a greater total number of words (Tables 4a and 4b)

One of the uses of subordinate clauses is to express the opposition between foregrounded and backgrounded information. The greater use of subordinate clauses in the LNS, then, reveals that much of the information in this discourse has been foregrounded, backgrounded and semantically extended. Also, the occurrence of a greater number of clauses and S-nodes per DT-unit in the LNS confirms the presence of comparatively complex intentional units in it.

On the other hand, in the LNNS, there occurs a lesser number of subordinate clauses, shorter clause length and shorter DT-units (measured in terms of clauses and S-nodes). Also 42.7% of its main clauses have been used as discourse adjuncts (Tables 2). This demonstrates that the communicative content in the LNNS is propositionally less dense in spite of the fact that it has a greater number of DT-units and S-nodes.

The finding that the professor used a lesser number of different noun phrases and verbs in the LNNS confirms the above

finding that the communicative content in the LNNS (in toto) is propositionally less dense and less complex.

Action continuity receives its linguistic expression in a language via the tense system attached to the verbals. The lesser occurrence of non-tensed clauses in the LNNS can then be interpreted as indicating that the presentation of the discourse theme is comparatively straightforward.

The finding that the professor has used a greater number of noun phrases and verbs for certain topics and a lesser number of noun phrases and verbs for other topics in the LNNS suggests that the professor preferred to use a comparatively more detailed approach for certain topics with the nonnative speakers and a less detailed approach for others.

It should however be emphasized here that lesser propositional complexity and lesser propositional density do not necessarily mean that the communicative content in the LNNS contains less information. It may or may not be so. It just means that the presentation is less complex and more straightforward and that the "intentional units" are presented with comparatively less background information.

II

SPEECH ACTS : FUNCTIONAL APPROACH

SPEECH ACTS

Celce-Murcia (1980) says that discourse analysis "begins with a (linguistic) form or forms and seeks to describe the meaning function and restrictions on the forms as used in the context".

An accepted way of looking at the meaning function in discourse is through an analysis of what are called "speech events". A speech event is "a communicative happening -- a piece of linguistic interaction consisting of one or more utterances" (Allen and Corder 1974). And "it may be such that one speaker more or less monopolizes the speaking role, as in sermons and politicians' speeches" (ibid).

In the present data, each lecture - which is a kind of simulated interaction between the professor and the students - is "a speech event". The professor takes nonverbal and verbal cues from the students and adapts various strategies, both verbal and nonverbal, in interacting with them.

Speech events are made up of speech acts: "Speech acts are the minimal terms of the set : speech event" (Schmidt and Richards, 1980 : 130). A speech act can be loosely defined "as the social action that is performed by a speaker when producing an

utterance in some "specific context" (Van Dijk and Kintsch 1983 :84). In other words, speech acts specify the conditions whereby a certain linguistic form counts as a certain type of utterance. The utterance may range from one word or a semisentence to a well-formed complex sentence.

Procedures

For my analysis of speech acts, I have adopted Searle's (1965) conceptualisation. For Searle, the basis for classification is the "illocutionary point", or purpose of the act, from the speaker's perspective. According to him, speech acts can be grouped into a small number of basic types based on the speaker's intentions. He identifies five: directive, declaration, representative, expressive and commissive. Directives require the addressees to do or not to do something; declarations are acts expressed in statement forms to bring about a new state when they are uttered; representatives are the addresser's declaration of a belief in the truth or falsity of something; expressives express the addresser's feelings about something; commissives are commitments by the addresser to act in a certain way at some future time.

Though the system seems to be very simple and straightforward, in reality, there exists no one-to-one relationship between an utterance and a speech act, for we seldom organize our thoughts into single sentence utterances. In other words, since an utterance may range from a single word to a

complex sentence with multiple embeddings, it is possible that an utterance may contain more than one type of speech act in it⁵⁵.

In this analysis, I have identified two types of speech acts in the utterances in order to bring out the illocutionary complexity reflected in them: "simplex speech acts" and "complex speech acts". By definition, a simplex speech act is a verbal utterance which executes only one basic type of speech act, while a complex speech act is a verbal utterance which executes more than one basic type of speech act. What this actually means is that even if there happens to be more than one speech act in an utterance, if they all happen to be of the same type, ie. say, all of them are declarations, then the utterance will be labelled as per this definition, as a "simplex speech act". A complex speech act, then, is an utterance which contains more than one basic type of speech act.

This way of categorising the utterances into simplex speech acts and complex speech acts is essentially based on the criteria of (a) how many different types of speech acts are in an utterance and (b) whether a speech act enjoys continuity in a multiclausal utterance. The criteria are particularly important for the following reasons: First, multi-clause/sentential utterances consisting of multiple speech acts of different types must be cognitively more demanding to process because of the multiple propositions and varied textual and contextual

information they contain. Second, if a speech act enjoys continuity of functions in a multi-clause utterance, then, it is posited here that such an utterance (of the type X-X-X: hence "X") may not demand an extra processing effort on the part of the listener. On the other hand, an utterance which contains multiple and varied speech acts (type X-Y-Z) may demand an extra effort on the part of the listener to recognise their multiple functions because of the discontinuity factor.

The psycholinguistic arguments for characterising multiple speech acts of the same type in an utterance as a simplex speech act are as follows : (a) Meaningful understanding of speech acts involves several kinds of textual as well as contextual information (called "interactional strategies", Van Dijk and Kintsch 1983 : 83)⁵⁶ (b) It does not, however, mean that a language user will always and for each clause first apply all interactional, pragmatic, etc., strategies to establish which speech act is now being performed in every clause. In an ongoing utterance, unless conflicting information is encountered from the available textual or contextual information, the listener will tend to hypothesize that the current speech act will continue.

This sort of categorisation serves two purposes. First, it brings out the the illocutionary complexity of utterances in everyday language use. Second and more importantly, it distinguishes less complex utterances from more complex utterances in terms of the processing of speech acts.

The following examples clarify this distinction:

26. "My next psychology lecture will be next Wednesday". (LNNS)

Example (26) is a simplex speech act since it contains only one speech act, that of "declaration".

27. "At a more theoretical level, the interest in biofeedback is that it really has shown us that we have a lot more control over functions of our body than was originally thought". (LNS)

Example (27) is made up of four sentential clauses. However, all the four sentences in the utterance execute only one basic kind of speech act, that of "declaration". The whole utterance, hence, has been defined as a simplex speech act.

28. "I won't go into that because your book, on page 207 covers that". (LNS)

Example (28), on the other hand, is a complex speech act since the first sentence of the utterance is a "commissive" while the following co-ordinate sentence is a "declaration"; therefore labelled "commissive-declaration".

29. "Instead, I will go on to the next term and the next term is quite a..... refers to quite an interesting an idea and - uh - that is ... ah ... brain stimulation as reinforcement". (LNS)

In example (29), there are three sentential clauses. The first clause is a "commissive" while the rest of the utterance

(the following two clauses) is a "declaration". Like (28), it is a complex speech act labelled "commissive-declaration".

30. "Now, ah - the- uh - question of generalization and -uh - discrimination is again a very similar idea which I will illustrate for you probably most - uh - clearly in - uh - the - uh - typical Skinner box but which applies to really all kinds of situations". (LNS)

Example (30) has two types of speech acts, "declaration" and "commissive". However, the speech act "declaration" which begins the utterance does not enjoy continuity. It is interrupted in the second clause and is realized again in the third clause of the sentence after a discontinuity. This complex utterance, therefore, is given all the three labels in order - "declaration-commissive-declaration".

The procedures further include a quantitative study of both initial speech acts and of all speech acts in the utterances. The total number of initial speech acts is obtained by adding the total number of simplex acts and the total number of speech acts at the initial position in the complex speech acts. The total number of speech acts per se is obtained by adding the total number of simplex speech acts and the total number of speech acts in the complex speech acts.

A quantitative study of the initial speech acts and the total speech acts per se, it is hoped, may give an idea of what is called a "global speech act". The notion of global speech act

has been defined by Van Dijk and Kintsch (1983 : 87)⁵⁷ as the predominant speech act which determines the schemata of a particular discourse (the notion of schemata has a very general meaning in this context). For example, in an election manifesto, the dominant speech act will be that of "commissive"; in an examination question paper, it will be that of "directive"; in a classroom lecture teaching an arts subject it will be that of "declaration", and so on.

Findings

Table 10 : Simplex and Complex Speech Acts : Data Set I

Discourse Type	Total # Speech Acts	Simplex Speech Acts	%	Complex Speech Acts	%
LNS	413	363	87.9	50	12.1
LNNS	279	260	94.9	19	5.1

X² = 5.202 (df 1) p > .025

Table 11 : Simplex and Complex Speech Acts : Data Set II

Discourse Type	Total # Speech Acts	Simplex Speech Acts	%	Complex Speech Acts	%
LNS	143	122	85.31	21	14.61
LNNS	220	206	93.63	14	6.37

X² = 6.719 (df 1) p > .01

Table 12 : Simplex Speech Acts : Types (Data Set I)

Total no. of simplex speech acts in the LNS = 363

Total no. of simplex speech acts in the LNNS = 260

	LNS	%	LNNS	%
1. Declarations	241	66.39	193	74.23
2. Directives	76	20.94	52	20.00
3. Expressives	21	5.78	06	2.31
4. Representatives	09	2.48	07	2.69
5. Commissives	16	4.41	02	0.77
Total	363	100.00	260	100.00

$\chi^2 = 12.76$ (df 4) $p > .025$

Table 13 : Simplex Speech Acts : Types (Data Set II)

Total no. of simplex speech acts in the LNS = 122

Total no. of simplex speech acts in the LNNS = 206

	LNS	%	LNNS	%
1. Declarations	60	49.18	154	74.76
2. Directives	35	28.68	39	18.93
3. Expressives	14	11.48	6	2.91
4. Representatives	9	7.38	6	2.91
5. Commissives	4	3.28	1	0.49
Total	122	100.00	206	100.00

$\chi^2 = 27.30$ (df 4) $p > .001$

Table 14 : Complex Speech Acts : Types (Data Set I)

Total no. of complex speech acts in the LNS = 50

Total no. of complex speech acts in the LNNS = 19

Combinations		LNS	%	LNNS	%
1.	Declaration - Directive	10	20.00	13	68.42
2.	Declaration - Commissive	2	4.00	1	5.26
3.	Declaration - Representative	0		1	5.26
4.	Declaration - Expressive	5	10.00	0	
5.	Decln - Directive - Decln	1	2.00	0	
6.	Decln - Commissive - Decln.	1	2.00	0	
7.	Directive - Expressive	0		1	5.26
8.	Directive - Commissive	0		1	5.26
9.	Directive - Declaration	7	14.00	0	
10.	Dirctve-Decln-Dirctve-Decln	1	2.00	0	
11.	Expressive - Declaration	14	28.00	0	
12.	Expressive - Directive	1	2.00	0	
13.	Exprsve - Dirctve - Decln	1	2.00	0	
14.	Representative - Declaration	2	4.00	0	
15.	Representative - Directive	1	2.00	0	
16.	Commissive - Declaration	3	6.00	1	5.26
17.	Commissive - Directive	1	2.00	1	5.26
Total no. of complex speech acts		50		19	
X ² = 33.72 (df 16) p > .01					

Table 15 : Complex Speech Acts : Types (Data Set II)

Total no. of complex speech acts in the LNS = 20

Total no. of complex speech acts in the LNNS = 15

Combinations	LNS	%	LNNS	%
1. Declaration - Directive	4	20.00	9	60.00
2. Declaration - Commissive	1	5.00	1	6.67
3. Declaration - Representative	0		1	6.67
4. Declaration - Expressive	2	10.00	0	
5. Decln - Directive - Decln	1	5.00	0	
6. Decln - Commissive - Decln.	1	5.00	0	
7. Directive - Commissive	0		1	6.67
8. Directive - Declaration	4	20.00	0	
9. Expressive - Declaration	4	20.00	1	6.67
10. Exprsve - Directive - Decln	1	5.00	0	
11. Representative - Directive	1	5.00	0	
12. Commissive - Declaration	1	5.00	1	6.67
13. Commissive - Directive	0		1	6.67
Total no. of complex speech acts	20		15	

Table 16 : Initial Speech Acts : (Data Set I)

Total no. of initial speech acts in the LNS = 413

Total no. of initial speech acts in the LNNS = 279

	LNS	%	LNNS	%
Speech Acts beginning with				
Declarations	260	62.95	208	74.55
Directives	84	20.34	54	19.35
Expressives	37	8.96	6	2.15
Representatives	12	2.91	7	2.51
Commissives	20	4.84	4	1.44
Total	413		279	

$X^2 = 21.49$ (df 4) $p > .001$

Table 17 : Initial Speech Acts : (Data Set II)

Total no. of initial speech acts in the LNS = 143

Total no. of initial speech acts in the LNNS = 220

	LNS	%	LNNS	%
Speech Acts beginning with				
Declarations	69	48.25	165	75.00
Directives	40	27.97	43	19.55
Expressives	20	13.99	4	1.82
Representatives	10	6.99	5	2.27
Commissives	4	2.80	3	1.36
Total	143		220	

$X^2 = 44.45$ (df 4) $p > .001$

Table 18 : Total No. of Speech Acts : Data Set I

Speech Acts	LNS	%	LNNS	%
Declarations	284	61.47	206	69.83
Directives	100	21.64	68	23.05
Expressives	43	9.31	7	2.37
Representatives	12	2.60	8	2.71
Commissives	23	4.98	6	2.04
Total	462		295	

$X^2 = 19.299$ (df 4) $p > .001$

Table 19 : Total No. of Speech Acts : Data Set II.

Speech Acts	LNS	%	LNNS	%
Declarations	82	48.28	166	70.34
Directives	47	27.65	51	21.61
Expressives	21	12.35	7	2.97
Representatives	13	7.65	7	2.97
Commissives	7	4.11	5	2.11
Total	170		236	

$X^2 = 28.446$ (df 4) $p > .001$

Major Findings and Interpretation

It is interesting to note the proportion in which the simplex and the complex speech acts are used in both the discourses. While the use of complex speech acts comes to 12.1% in the LNS, it comes to only 5.1% in the LNNS with regard to Data

set I (Table 10). With regard to Data set II, it amounts to 14.61% in the LNS and 6.37% in the LNNS (Table 11).

Also note that the professor has not used triple-function complex speech acts at all in the LNNS. These complex speech acts occur only in the LNS (Tables 14 and 15).

The results reveal an interesting fact. In the LNS, although the professor has used a lesser number of speech acts (170) to communicate roughly the same communicative content, he has used as many as ten different types of complex speech acts apart from the use of basic types of speech acts (Tables 19 and 15). In the LNNS, on the other hand, though there is a greater number of speech acts (236), only seven different types of complex speech acts are realised (Tables 19 and 15).

The findings further indicate that the professor has used mostly declarations and directives in both the lectures. With regard to Data set I, the total percentage of these speech acts comes to 83.11% in the LNS, and 92.88% in the LNNS (Table 18); With regard to Data set II, it amounts to 75.93% in the LNS and 91.95% in the LNNS (Table 19). Note the fact that declarations and directives are completely objective in nature. On the other hand, expressives, commissives and representatives, the speaker-oriented messages occur in a comparatively lower percentage in both lectures. The total percentage of these three kinds of speech acts comes to 16.89% in the LNS and 7.12% in the LNNS with

regard to Data set I (Table 18) and 24.11% in the LNS and 8.05% in the LNNS with regard to Data set II.

The global (predominant) speech act proves to be "declaration" both in the LNS and the LNNS as the Tables 16, 17, 18 and 19 indicate. This is very much to be expected in an expository schemata. However, in the initial speech act sequences which indicate the global speech act, declaration proves to be much more strongly represented in the LNNS than in the LNS. Tables 16 and 17 indicate that as an initial speech act, the proportion in which "declarations" occur in the LNS is far less than the proportion in which they occur in the LNNS. These tables further indicate that there is an uneven distribution of the speech acts in the LNS. This is indicated by the different figures obtained for data sets I and II. Since Tables 17 and 19 are in a way a duplication of the findings at a restricted level for tables 16 and 18, the difference between these tables (16 and 17) and (18 and 19) must be interpreted as to indicating that the distribution of the items under analysis is in uneven proportion in the text. The figures on the other hand remain almost the same with regard to LNNS.

Conclusion

The findings, in short, reveal that although the professor has not completely disregarded any of the five (basic) speech acts in the LNNS discourse, in contrast to the LNS, he has scarcely used those which are subjective in nature. The findings

can be interpreted as indicating that the speaker tends to be comparatively more objective in the LNNS.

The lesser occurrence of complex speech acts in the LNNS, particularly the total absence of three-function speech acts, may be an indication that the professor has adjusted the cognitive processing load for these learners. The lesser number of complex speech acts in an indirect way reflects a lesser syntactic complexity present in the utterances and a greater transparency of the argument.

The uneven distribution of speech acts in the LNS suggests that certain speech acts occur in a greater number either for certain topics or at certain parts of the lecture for the native speakers. This finding is later confirmed by the findings in the section on "Pragmatic connectors".

Summary

In the LNNS, the professor unconsciously makes the following noteworthy modifications :

- (a) A relatively greater use of declarations and directives
- (b) A relatively low frequency of complex speech acts
- (c) Absence of utterances wherein the speaker realizes triple speech acts
- (d) Preference for the use of a greater number of speech acts to realize the same semantic content.

III

COHESION

Introduction

The notion "cohesion" was popularized by Halliday and Hasan (1976) who define cohesion as "One specific kind of meaning relation that is critical for the creation of texture (ie. the property of being a text): that in which one element is interpreted by reference to another" (p.11). Their claim is that there is cohesion wherever the interpretation of any item in the discourse requires making reference to some other item in the discourse. Accordingly, the one presupposes the other and cannot be virtually identified without recourse to the other (usually preceding) item in the discourse. When this happens, the cohesive relation between the presupposing and the presupposed elements provides "texture", and "text"₅₈ is defined as such by the cohesive ties within it.

Halliday and Hasan (1976), however, prefer to use the term "cohesion" as to refer to specifically to certain text forming (non-structural) semantic relations which cannot be accounted for in terms of constituent structure. These are properties of text as such, and not of any structural unit such as a clause or sentence. Through them, sentences which are structurally independent of one another may be linked together through particular features of their interpretation.

In this thesis, I shall restrict my study of cohesion mostly to the Halliday and Hasanian intersentential framework for three reasons. First, the cohesion within a sentence which is taken care of by the grammatical conditions of "being a sentence" is not essentially a distinct phenomenon. Second, this thesis is a study of discourse modifications: hence a study of intrasentential cohesive relationships is comparatively unimportant. Third and more important is the fact that in a description of a text, it is the intersentence cohesion which is significant because it is this that represents the variable aspect of cohesion, distinguishing one text from another.

Scope of the Study

Language can be explained as a multiple coding system comprising three levels of coding, the semantic, the lexicogrammatical and the phonological or orthographic. Meanings are realized as coded forms, and forms are realized in turn, or recoded phonologically or orthographically. To put this in everyday terminology, meaning is put into wording, and wording into sound or writing. Within this stratum, according to Halliday and Hasan, the more general meanings are expressed through grammar and the more specific meanings through vocabulary. Cohesion consequently is expressed partly through grammar and partly through vocabulary.

Halliday and Hasan identify a variety of grammatical and lexical devices for cohesion in English, which include pronouns,

demonstratives, nominal, verbal, and clausal substitution, various types of ellipsis, conjunctions, and lexical reiteration and collocation. For the practical purposes of analysis, they systematize these devices into five major mechanisms: (1) reference, (2) substitution, (3) ellipsis, (4) conjunction and (5) lexical cohesion. The first four mechanisms realize what is called "grammatical cohesion" and the last mechanism realizes what is called "lexical cohesion". The figure given below shows how they are systematized:

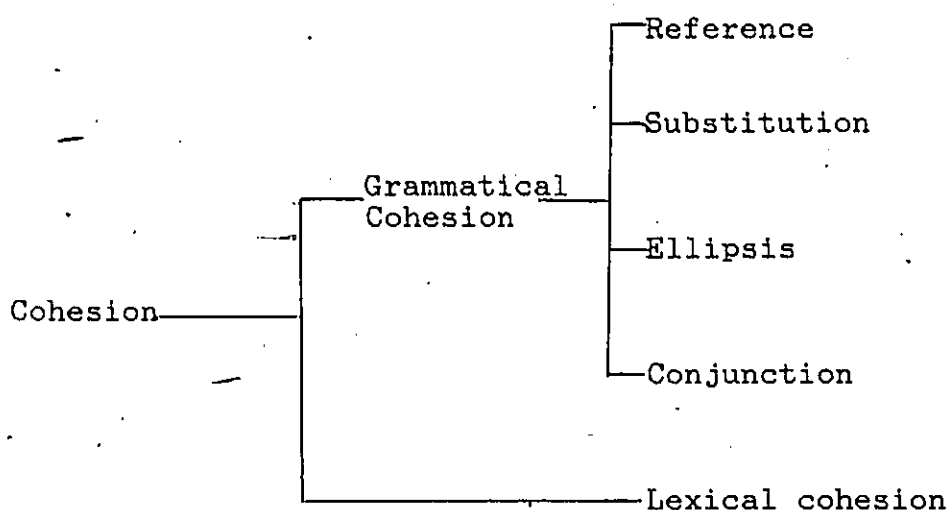


Figure 5

Halliday and Hasan's Approach to Cohesion

In this analysis, I shall deal only with grammatical cohesion. The greatest attention will be given to the study of reference; however, substitution, ellipsis and conjunction will also be briefly treated.

Reference

Reference is a semantic relation of identification or comparison between a reference item and its referent. It is of two types: exophoric and endophoric. If the item that is referred to is in the situational context in which the text is embedded, then it is called exophoric reference. On the other hand, if it is in the text itself, then it is called endophoric reference.

Endophoric references can be either anaphoric or cataphoric. If the referring item points back to some previous item, it is called anaphoric reference and if the presupposition goes the other way, it is called cataphoric reference.

The following diagram from Halliday & Hasan (1976 : 33) will illustrate this distinction.

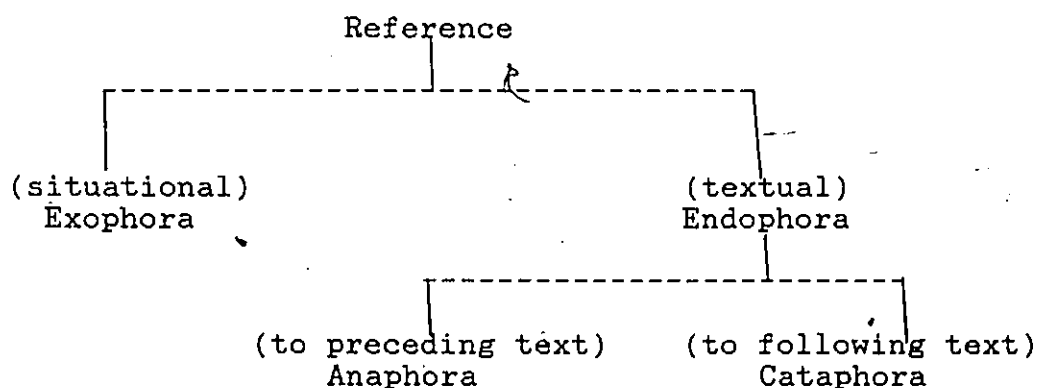


Figure 6

Reference System and Context

Types of Reference

The significance of "person system" in a study of reference is that it is the means of referring to relevant persons and objects with the use of a small set of options centering around the particular nature of their relevance to the speech situation.

On the basis of their linguistic category, reference items can be classified into three types. They are : personal, demonstrative and comparative. Halliday & Hasan (1976:37) define them as follows :-

"Personal reference is reference by means of function in the speech situation, through the category of PERSON"

"Demonstrative reference is reference by means of location on a scale of PROXIMITY"

"Comparative reference is indirect reference by means of IDENTITY or SIMILARITY".

Of these three, I shall describe in detail only "personal reference" as used in these data due to the narrow scope and limitations of this research..

Speech Roles

Halliday & Hasan (1976) make a principal distinction between the persons defined by their roles in the communication process on the one hand, and all other entities on the other.

They call the former "speech roles", "the roles of speaker and addressee" - "the two roles which are assigned by the speaker" (p.45). The latter, which they call simply "other roles", include all other relevant entities other than speaker or addressee. In terms of the traditional categories of person, the distinction is that between first and second person on the one hand (I/you/we), and third person on the other (he/she/it/they/one).

Person System and Exophoric and Endophoric Reference

First and second person forms do not normally refer to the text at all; their referents are defined by the speech roles of speaker and hearer, and hence they are normally interpreted exophorically, by reference to the situation. On the other hand, a third person form (normally) implies the presence of a referent somewhere in the text and must normally be interpreted anaphorically. Further, the presence of such a referent is obligatory for the completion of the text; the text will appear incomplete without it.

There are certain instances wherein the third person forms may also refer exophorically to some person or thing that is present in the situational context. An example such as the following can occur as a complete text. "Oh, he's already been? - Yes, he went by about five minutes ago". For yet another example, in a classroom discourse, obvious references to figures and diagrams on the blackboard may also refer exophorically as in the following example:

31. "If I taught the rat something here (the teacher's finger is on the blackboard), and then placed the rat in the next Skinner box (the finger pointing towards the adjacent picture), would the rat perform? Sure, why not?.... After all, it is similar, it still has a similar lever and so on" (pointing towards the "next Skinner box" on the blackboard). (LNS)

In this example, note that the phoric function of the underlined "it" is a generalised exophoric reference.

Summary of the Person System

To sum up, in the first place, the reference may be exophoric, interpretable by recourse to the context of situation either in the generalized exophoric sense or in the special exophoric sense of the speech roles expressed by "you" and "I". Exophoric reference does not constitute a cohesive tie.

In the second place, it may be cataphoric. Cataphoric reference is also not cohesive since personals are normally cataphoric only within a structural framework, and therefore do not contribute to the cohesion of the text.

All other instances of personal references are anaphoric with the exception of occasional third person pronoun references which can be exophoric also.

In brief, personals referring to the speech roles (speaker and addressee) are typically exophoric and personals referring

to other roles are typically anaphoric with a few exceptions. Only the anaphoric references are considered to be cohesive ties.

Findings

All findings in this section on cohesion are with regard to Data set I only.

I shall initially start the analysis with a quantitative study of the occurrence of personal pronouns in the data. The findings are given below :

Table 20 : Occurrence of Personal Pronouns

Person	LNS	%	LNNS	%
I Person	182	23.45	108	27.41
II Person	277	35.70	124	31.47
III Person	317	40.85	162	41.12
Total	776		394	

$\chi^2 = 2.86$ (df 2) n.s.

It has been shown in our discussion that first and second person pronouns constitute exophoric references. It has also been shown that exophoric references can sometimes occur in third person pronouns. What follows is a Table (21) showing the total distribution of exophors and their breakdown in terms of the person system :

Table 21 : Occurrence of Exophors in Person System

Person	# occurrences in LNS	%	# occurrences in LNNS	%
I	182	37.76	108	43.90
II	277	57.47	124	50.41
III	23	4.77	14	5.69
Total	482		246	

$X^2 = 3.3$ (df 2) n.s.

In Table 22, the overall distribution of exophors and endophors in the data is shown:

Table 22 : Exophors, Endophors and Total no. of Phors*

Discourse Type	Total # Phors	Exophors	%	Endophors	%
LNS	915	482	52.68	433	47.32
LNNS	440	246	55.90	194	44.10

$X^2 = 1.25$ (df 1) n.s.

* including all other forms of reference

A study of the tables (20-22) indicates that exophors and endophors occur almost in same proportion. (statistically insignificant differences) in both the lectures.

Note that endophors can be divided into anaphors and cataphors. The proportion in which anaphors and cataphors occur in endophors are shown in Table (23).

Table 23 : Proportion of Cataphors and Anaphors in Endophors

Discourse Type	Total # Endophors	Cataphors	%	Anaphors	%
LNS	433	31	7.16	402	92.84
LNNS	194	11	5.67	183	94.33
X2 = .373 (df 1) n.s.					

Table (24) shows the overall proportion of anaphors, cataphors and exophors in the data.

Table 24 : Exophors, Cataphors and Anaphors : their Proportion

Discourse Type	# Phors	Exophors	%	Cataphors	%	Anaphors	%
LNS	915	482	52.68	31	3.39	402	43.93
LNNS	440	246	55.91	11	2.50	183	41.59
X2 = 1.973 (df 2) n.s.							

A study of Tables (23-24) indicates that few cataphors occur in either LNNS or LNS and that the difference between the occurrences of different types of phors in both the discourse samples is very minimal (statistically insignificant). Hence, no claim of these as a characteristic of input language can be made so far as these data sets are concerned.

— Text-forming References

Cohesion in the Halliday and the Hasanian sense, it has already been stated, is a text forming relationship and not a structural relationship. For them, if the antecedent and the

anaphor occur in the same sentence, then the sort of cohesive relationship that exists between the two is syntactic and not semantic. Such anaphors are governed by sentence grammar and do not contribute to the formation of a text. For the purposes of this research, I shall call such anaphors "structure-governed anaphors". Semantic cohesion, on the other hand, cuts across sentence boundaries and is a relationship between two independent sentences. Consequently, anaphors which contribute to text formation cannot be governed by any structural relationship. I shall call such anaphors "text-forming anaphors". In summary, structure-governed anaphors are those anaphors whose structural relationship with their antecedents are governed by syntax and text-forming anaphors are those anaphors whose relationship with their antecedents cut across sentence boundaries and are not governed by any syntactic phenomena.

Table (25) shows the proportion in which the structure-governed anaphors and the text-forming anaphors occur in the third person anaphoric references of the given data :

Table 25 : Structure-governed Anaphors and Text-forming Anaphors

Discourse Type	Total # Anaphors	Structure-governed Anaphors		Text-forming Anaphors	
			%		%
LNS	402	198	49.25	204	50.75
LNNS	183	65	35.52	118	64.48

X ² = 8.09 (df 1) p > .01					

The above table indicates that 50.75% and 64.48% respectively of the anaphoric references in the LNS and the LNNS contribute to text-forming cohesion in their respective discourse.

The occurrence of a comparatively greater number of text-forming anaphors is an indication either that the sentences are mostly simplex sentences or that the discourse has comparatively greater cohesion. We know from our earlier findings that there is a comparatively lesser number of subordinate clauses in the LNNS. In that case, the occurrence of a greater number of text-forming anaphors must be due to the occurrence of a greater number of simplex sentences. Our later findings in syntax confirm that this interpretation is correct.

The occurrence of a greater number of text forming anaphors may also be an indirect confirmation of our earlier finding that the topic progression in the LNNS is more parallel than sequential.

Extended Reference

Extended reference can be defined as a "reference to a process or sequence of processes" (Halliday & Hasan 1986 : 52). It is realized mostly in the third person reference form "it". The third person form "it" then differs from all other personals in that it may refer not only to a particular person or object but also to any identifiable portion of text.

Extended reference actually comprises two rather distinct phenomena, both of which are illustrated in the following examples:

32. "The question now is, suppose, instead of giving the rat one bit of food, I were to give the rat two bits of food or three bits of food everytime it pressed the lever. In other words, if I vary how much reinforcement I will give, a little bit or a lot, does it make a difference?"
(LNNS)

In the first instance, it refers to the rat which presses the lever: an obvious reference to an animal. In the second instance, in "does it make a difference?", it refers to a whole process or complex phenomenon which is in question. In other words, the reference is extended, the referent being more than just a person or object. Used in this way, "it" represents a process or sequence of processes (grammatically, a clause or string of clauses, not just a single nominal).

The study of extended reference is important for this research because the ability of hearers to identify the relevant portion of text as referent, when they are faced with it will differ, it is assumed, depending on their linguistic and cognitive capacity.

The following are the findings with regard to extended reference in the anaphors :

Table 26 : Extended Reference in Anaphors

Discourse	Total # Anaphors	Extended Reference	%
LNS	402	121	30.10
LNNS	183	26	14.20

Extended reference is a common phenomenon in cataphors also. The following are the findings with reference to cataphors :

Table 27 : Extended Reference in Cataphors

Discourse	Total no. of Cataphors	Extended Reference	%
LNS	31	18	58.06
LNNS	11	8	72.73

The occurrence of a comparatively lesser number of anaphors which carry "extended reference" in the LNNS (Table 26) is not surprising since in the interpretation of extended reference what is involved is more than a one-to-one relationship. Rather, in interpreting an extended reference the meaning of a whole clause or a sentence is presupposed. Since the addressees will have to make an extra effort to recover the full intended meaning, the professor may have preferred to use a lesser number of them in his discourse to nonnatives.

The above explanation however cannot be used with regard to the finding of a comparatively higher proportion of extended

reference in cataphors in the LNNS (Table 27). The reason is syntactic. The very basic principle of the use of cataphors as extended reference is to draw the attention of the addressees to a particular meaning aspect of the sentence. It is in a way a universal strategy of what is called "topicalization" (Enkvist et al. 1976). For example, consider the following sentence :

33. "And I think that the idea is this : If I teach something in situation one, and I then place the animal in situation two, the more similar that these two are, the more likely that the responding here will be carried on there, will generalize to there" (LNNS)

Note that this in the above sentence refers to what is meant by the rest of the utterance. In other words, the meaning of the sentences to follow is presupposed in that cataphoric form.

In my opinion, extended reference in anaphors is a marked variation - a variation from a one-to-one relationship. Extended reference in cataphors on the other hand is an unmarked behavior - a universal strategy to highlight the topic/semantic content of the utterance. No wonder, the findings are exactly in reverse for cataphors in comparison with the findings for anaphors.

Double Reference

Double reference refers to the way in which possessive pronouns differ from other personal reference items as regards their anaphoric function. Whereas the other personals require only one referent for their interpretation, possessive pronouns

demand two, a possessor and a possessed. The difference can be seen in the following examples:

- (a) John's is nice.
- (b) This house is nice.
- (c) His is nice.

Given (a), we need the answer to 'John's what?'; given (b), we need the answer to 'whose house'; but given (c) we need the answer to 'whose what?' - So any occurrence of a possessive pronoun involves two ties, only one of which is a form of reference; the other is present with any possessive nominal, such as "John's" or "my father's", whenever it is functioning as Head. This is in fact an instance of ellipsis. Possessive pronouns, in other words, are doubly anaphoric because they are both referential and elliptical: they are anaphoric (i) by reference to the possessor, and (ii) by ellipsis to the thing possessed.

Like the interpretation of extended reference, double reference must also demand a greater cognitive capacity for correct interpretation due to the two processes involved in their interpretation. The findings are given below:

Findings

Table 28 : Doubly Anaphoric References

Discourse	Total # Anaphors	Doubly Anaphoric References	%
LNS	402	113	28.11
LNNS	183	26	14.20

The table indicates that doubly anaphoric references occur much less frequently in the LNNS. They occur only half as often as in the LNS.

Interpretation

The findings indicate that the native speaker prefers to use a lesser number of double anaphoric references in the input language to the non-native speakers compared to the input to the native speakers.

The occurrence of comparatively lesser number of anaphors which are doubly cohesive in the LNNS is not surprising since doubly anaphoric references require an extra effort on the part of the interlocutors for their interpretation.

Cohesive Ties

The concept of cohesion is realized in "reference" when there is a referring item as well as the item that it refers to, when there is presupposition as well as the satisfaction of it, and more importantly when there is semantic identity between the two.

Halliday and Hasan call the relation between an anaphor and its antecedent "tie". The concept of "tie" by definition refers to an occurrence of a pair of cohesively related items.

Consider the following examples :

34. "Well, in that situation, what you will find is that the rat will press the uh, lever when the light is on, it will get food; it'll keep pressing the lever. When the light is off, it won't get food. Gradually, because one response, lever pressing in the presence of the light, it's not reinforced, it will discriminate between the light-on condition, light-off condition, and the response will take place only when the light is on, not when the light is off". (LNS)

In the above example (34), the antecedent "rat" realizes four third person anaphoric references of "it", one in the same S-node and the others across the sentence boundary. In other words, the number of cohesive ties for the antecedent "rat" in the above sentences are four (three text-forming references and one structure-governed reference).

Concept of Cohesive Ties and Input Language

The concept of cohesive ties is important for this kind of research for it can serve as a criterion for the construction of a (1) comprehensibility index and (2) for the recognition of texture.

Cohesive Ties and Comprehensibility Index

A speaker uses cohesive ties as one of the techniques to signal cohesion, and the listener reacts to it in his interpretation of meaning. Hence, it is reasonable to make use of cohesive ties as an index of comprehensibility.

What is important for this research is the fact that there is no linguistic constraint on the number of cohesive ties which an antecedent can realize in a discourse. In the present context, the ability of the (native) speaker remaining constant in both the situations, the number of ties which an antecedent can realize will be limited by only one factor : the native speaker's judgement of the ability of the addressees to recognize the semantic identity that exists between the antecedent and its anaphors. In short, it is hypothesized here that between two discourses, the one with the lesser average number of anaphors per antecedent will be easier to comprehend than the one with a greater number of anaphors per antecedent.

Cohesive Ties and Textuality

Textuality is not a matter of all or nothing, of dense clusters of cohesive ties or else none at all. It is a matter of more or less. Characteristically, we find variation in texture; In some instances, there are dense clusters of cohesive ties and a greater number of anaphors than the antecedents, giving a very close texture which serves to signal that the meaning of the parts are strongly dependent upon each other and that the whole forms a unity. In other instances, the texture is much looser, there being fewer cohesive ties, with a nearly equal number of anaphors and antecedents. The following are the findings with regard to cohesive ties in the data:

Table 29 indicates the number of occurrences for each type of antecedent-anaphor cohesive relationship. The total number of occurrences gives the total number of antecedents present in the data.

Table 29 : Cohesive Ties

Total no. of cohesive ties in the LNS : 402

Total no. of cohesive ties in the LNNS : 183

TYPE	No of occurrences in LNS	No of occurrences in LNNS
1. One antecedent - one anaphor	227	122
2. One antecedent - two anaphors	44	14
3. One antecedent - three anaphors	10	4
4. One antecedent - four anaphors	5	4
5. One antecedent - five anaphors	2	1
6. One antecedent - eight anaphors	1	0
7. One antecedent - nine anaphors	1	0
8. One antecedent - ten anaphors	1	0
Total Number of Antecedents	291	145

Table 30 shows the average number of anaphors per antecedent in the data.

Table 30 : Antecedents and Anaphors

Discourse	Total # Antecedents	Total # Anaphors	# Anaphors per Antecedent
LNS	291	402	1.38
LNNS	145	183	1.26

Table 31 indicates the pattern in which the text-forming references occur in the data, ie. how many structure-governed anaphors and how many text forming anaphors occur in each type of cohesive tie.

Table 31 : Cohesive Ties and Text Forming References

TYPE	LNS	LNNS
1. <u>One antecedent</u> - <u>One anaphor</u>		
(a). within the same sentence	118	37
(b). beyond the sentence boundary	109	85
2. <u>One antecedent</u> - <u>Two anaphors</u>		
(a). within the same sentence	54	11
(b). beyond the sentence boundary	34	17
3. <u>One antecedent</u> - <u>Three anaphors</u>		
(a). within the same sentence	15	4
(b). beyond the sentence boundary	15	8
4. <u>One antecedent</u> - <u>Four anaphors</u>		
(a). within the same sentence	6	10
(b). beyond the sentence boundary	14	6
5. <u>One antecedent</u> - <u>five anaphors</u>		
(a). within the same sentence	3	3
(b). beyond the sentence boundary	7	2
6. <u>One antecedent</u> - <u>eight anaphors</u>		
(a). within the same sentence	0	0
(b). beyond the sentence boundary	8	0
7. <u>One antecedent</u> - <u>nine anaphors</u>		
(a). within the same sentence	0	0
(b). beyond the sentence boundary	9	0
8. <u>One antecedent</u> - <u>ten anaphors</u>		
(a). within the same sentence	0	0
(b). beyond the sentence boundary	10	0

Interpretation

The significant differences in the types of cohesive ties between the LNS and the LNNS indicate that the communicative content of the discourse provided to the nonnative speakers (while it probably requires just as much effort for them) has been made more easily perceptible. They also show that the texture of the discourse is not as tightly knit as the LNS.

Further, the LNNS doesn't contain anything like one antecedent-ten anaphors. The average number of anaphors per antecedent is also significantly less. Most importantly, most of the antecedents and anaphors have a one-to-one relationship. Furthermore, work sheets indicate that there are text-forming anaphors in the LNS which are even six S-nodes away from their antecedents. On the other hand, in the LNNS, the distribution of text forming anaphors are closer to their antecedents; in no case are they even more than two S-nodes away from their antecedents. In summary, the interpretation of text-forming anaphors in the LNNS should be easily accessible to perception, and not make too great demands on the nonnative speakers' understanding of the text processes.

Conclusion

It has been shown in this research that the difficulty in recognising an anaphoric personal form depends upon such factors as extended reference, double reference, multiple cohesive ties

and text forming anaphors. They may all be taken together as a test of how the LNS differs from the LNNS cohesively.

Substitution

Substitution is yet another type of cohesive relation which can be defined as the replacement of one item by another. In the words of Halliday and Hasan (1976 : 89) "A substitute is a sort of counter which is used in place of the repetition of a particular item". The distinction between substitution and reference is that substitution is a relation in the wording rather than in the meaning. In other words, reference is a relation between meanings, while substitution is a relation between linguistic items such as words or phrases. In terms of the linguistic system, it can be said that reference is a relation on the semantic level whereas substitution is a relation on the lexicogrammatical level, the level of grammar and vocabulary.

Since substitution is a grammatical relation, a relation in the wording rather than in the meaning, the different types of substitution are defined grammatically rather than semantically. The criterion is the grammatical function of the substitute item. In English, the substitute may function as a noun, as a verb, or as a clause. To these correspond the three types of substitution: nominal, verbal and clausal.

Nominal Substitution

The most frequent nominal substitutes are "one (ones)", "the same", "some" and "any". They always function as Head of a nominal group and substitute only for an item which is itself Head of a nominal group. Furthermore, the use of a substitute always involves some new modifying element that is defining, as in: "this one", "another one", and so on. Note that the new modifying element brings with it an effect that is differential and a point of contrast with the presupposed item. It must however be stated here that precaution had been taken not to count the generic "one" which is considered as a pronoun, and also the cardinal numeral "one".

What follows is a set of examples from the data. The undelined words are the nominal substitutes in the examples:

Examples from LNS

35. "This is the way, in other words, of controlling functions that are usually involuntary by getting a feedback which then becomes a reinforcing consequence if you like for such behaviors. The same could have been done with your brain waves".
36. "Which behavior increases? Well, this one".

Example from LNNS

37. "Ahm,...to go back to the previous example, suppose that I reinforced your asking a lot of questions, but suppose that two professors taught this course, I and someone else, and suppose the other one never reinforced your asking questions, o.k? what would happen? Well, what would happen is that you'd begin to ask a lot of questions with me. You would never ask questions with the other one because you would discriminate between ~~one~~ reinforcing, the other not reinforcing".

Note that the same in the LNS data (example 35) substitutes for "the way of controlling function that are usually a reinforcing consequence" and one in the LNNS data (example 37) substitutes for "professor".

Findings

With regard to Data Set I, in the LNS, there are seventeen instances of nominal substitution in a total of 384 sentences. On the other hand, there are only four instances of nominal substitution in the LNNS in a total of 261 sentences.

Verbal Substitution

The verbal substitute in English is "do". Like the nominal substitute which operates as Head of a nominal group, "do" the verbal substitute operates as the Head of a verbal group. Further, its position is always final in the group. The major difference between the nominal and the verbal substitution is in the extent of the items that they can presuppose. Whereas nominal substitutes always substitute for a noun, the verbal

substitute "do" may substitute either for a verb or for a verb plus certain other elements in the clause.

Findings

There is no instance of verbal substitution in the LNS data. On the other hand, in the LNNS, there are three instances. Two of the instances are given below :

38. "Does it make a difference if you say, "Good boy", or if you say, "Oh, that's a terrific boy" and you give a hug and you kiss the child and say "That's great". Would it make a difference? Yes, it does". (LNNS)
39. "Then, once you have done that, you might notice that occasionally as the lion gets up there, it loses its balance a little bit to the right. Other times, it doesn't". (LNNS)

Does in the example (38) and doesn't in the example (39) are substitutes for the verbal phrases "does make a difference" and "doesn't lose its balance"

Clausal Substitution

In clausal substitution, what is presupposed is not an element within a clause but an entire clause. The words used as substitutes are so and not. Since clausal substitution didn't occur in either of the discourse samples, I shall not deal with this aspect of substitution any further.

Table 32 : Summary of the Findings

Discourse Type	Total # Sentences	Nominal Substn.	Verbal Substn.	Clausal Substn.
LNS	384	17	0	0
LNNS	261	4	3	0

Interpretation

For this research, I have taken into account only the substitutes which are not governed by any structural relationship since substitutes occurring in the same sentence cannot be text-forming cohesive ties. This may be one of the reasons why we have very few occurrences of substitution in the whole of the data.

That there are no occurrences of clausal substitution either in the LNS or the LNNS is not at all surprising since clausal substitution demands the presupposition of the whole of a clause unlike the nominal and the verbal substitution. It may be too difficult in oral discourse even for the native speakers. It is in fact quite infrequent in speech as opposed to writing.

Between the nominal and the verbal substitution, in my opinion it is the nominal substitution which must make heavier cognitive demands on the hearer since what is involved in nominal substitution is a sort of redefinition and a point of contrast. On the other hand, in the verbal substitution, what is involved is meaning preserving substitution. However, no plausible reason can be given for the total absence of verbal

substitutes in the LNS. May be, the reason is not semantic but syntactic, since what we are looking for are intersentential substitutes. The occurrence of a greater number of complex sentences may have largely prevented the occurrence of verbal substitution in the LNS.

Ellipsis

Ellipsis is defined as a kind of substitution, namely substitution by zero. It occurs when something that is structurally necessary is left unsaid. In other words, the something which is present in the selection of underlying (systemic) options is left unsaid in the surface options. There is no implication here that what is unsaid is not understood; on the contrary, 'unsaid' implies, "but understood nevertheless" (Halliday and Hasan 1976 : 142). Ellipsis reminds us of the fact that there is always more evidence available to the addressee for interpreting a sentence than is contained in the sentence itself. As in substitution, there are three types of ellipsis. These are : nominal ellipsis, verbal ellipsis and clausal ellipsis.

As in previous mechanisms, we shall not be concerned with ellipsis within the sentence since it can be explained in terms of sentence structure and does not constitute an independent agency of cohesion in the text. What we are interested in is ellipsis as a form of relation between sentences where it is an aspect of textuality - a text-forming relationship.

Nominal Ellipsis

Nominal ellipsis refers to ellipsis within a nominal group. Consider the following examples from the data for illustrations:

Example from LNS

40. "Uhm, there is a particular type of brain wave at 8 to 12 cycles per second called the alpha wave which is indicative usually of relaxation. Some people produce a lot, some people produce very little. Uh - but generally speaking as you relax, you produce more of it".

Example from LNNS

41. "So that is the simple message for amount and delay of reinforcement. For amount, the more the better. For delay, the sooner the better, o.k?"

In the LNS example, "a lot" and "very little" in the second sentence are elliptical phrases for "a lot of alpha brain waves" and "very little brain waves" respectively. Likewise, "amount" and "delay" in the second sentence of the example (41) from the LNNS are elliptical phrases for "amount of reinforcement" and "delay of reinforcement" respectively.

Findings

There are 19 occurrences of nominal ellipsis in the LNNS in a total of 381 sentences and 12 occurrences of it in the LNS in a total of 261 sentences.

Verbal Ellipsis

Verbal ellipsis refers to ellipsis within the verbal group. There are two types of verbal ellipsis: lexical ellipsis and operator ellipsis. Lexical ellipsis is the type of ellipsis in which the lexical verb (including the lexical "do") will be missing from the verbal group. Operator ellipsis, on the other hand, involves only the omission of operators: the lexical verb will always remain intact. In operator ellipsis, the subject also is always omitted from the clause; it must therefore be presupposed.

In the data, neither lexical nor operator ellipsis occur in the LNS or in the LNNS.

Clausal Ellipsis

There are many types of clausal ellipsis. Among these I shall deal here only with "zeugma" the most frequent one in spoken discourse. Wh and yes/no questions afford excellent opportunities for zeugmatic answers. These involve a transfer from one element of clause structure to another. With a wh-question, this can be achieved by a direct response (ie. an answer) as in the following examples from the data:

Examples from LNS

42. "Now, if I told you that it would be nice now if you slowed down your heart by - let's say 20 per cent - would you be able to do it? Well - not directly".

43. "Now what happens is that your heart rate is, what about, how much, how many beats per minute? Seventy?"

In the above examples, "not directly" in (42) is an elliptical phrase for "You would not be able to do it directly" and "seventy?" in (43) is an elliptical phrase for "seventy beats per minute?".

Examples from LNNS

44. "Would you tend to ask questions? Yes, sure".
45. "In its natural habitat, in other words, in terms of its natural behavior, how often will the lion dance or lift a flag? No, never".

In the above examples, "yes, sure" in the example (44) is an elliptical phrase for "yes, sure, you would tend to ask questions" and "no never" in the example (45) is an elliptical phrase for "no, the lion will never dance or lift a flag".

Summary of the findings

Table 33 : Types of Ellipsis

Type of Ellipsis	LNS	LNNS
Nominal	19	12
Verbal	0	0
Clausal (zeugma)	16	12
Total	35	24

Table 34 : Total Number of Cases of Ellipsis

Discourse	# Sentences	# Ellipses	%
LNS	384	35	9.11
LNNS	261	24	9.19

Interpretation

The occurrence of equal proportion of ellipsis in the LNS and the LNNS is an indication that the professor has not modified his speech in this form of cohesion.

Conclusion

In summary, all the findings in cohesion demonstrate —that the nature of texture of a discourse depends on many factors other than syntax. The basic principle is that a discourse is internally (intersententially) structured and this internal (intersentential) structure is the structural counterpart of cohesion. The differences in the internal (intersentential) structure of LNS and LNNS are then an indication that simplification can be achieved without affecting cohesivity of a text.

Also, it must be noted here that cohesion, by definition, is propositional development through overtly signalled linguistic devices. It does not concern what a text means. Hence, it is not an evaluation of a discourse; rather, it is an explanation of how and why a discourse is valued as it is, an effective or

ineffective one in the context. In this perspective, I have suggested means for distinguishing the cohesive patterns of the two sets of data under study. The intention was to provide a reasonably comprehensive picture of this aspect of texture; and in this way to offer an insight into what it is that characterizes a foreigner register.

In all, the findings on cohesion indicate that the intelligibility of a discourse depends on its continuity and that the structural continuity which it has is a semantic continuity. The significance of this semantic continuity lies in the fact that it recognizes the addressee as an active agent and the comprehension process as a constructive process - as (more than) a linguistic interaction - a study of how the addressee assigns meanings and interprets what is said to him (with the available resources at his command). To the extent that the interpretation demands deeper cognitive involvement, it can be said that the text has more or less textuality. And obviously, as per this criterion, the findings indicate that the foreigner register under study has less textuality in comparison with the NS-NS discourse. In fact, this finding is an indirect confirmation of our earlier finding on "topic density".

IV

PRAGMATIC CONNECTORS

Introduction

Communicative coherence in any spoken discourse is achieved through "pragmatic connectors" which are otherwise called "discourse adjuncts". They are called pragmatic connectors (Stubbs, 1983) because they situate the speech event in its proper social and cognitive context. They are called discourse adjuncts (Halliday and Hasan, 1976) because they express certain meanings which presuppose the presence of other components in the discourse. In other words, they systematically connect what has gone before with what is to follow.

When we are considering pragmatic connectors from the point of view of communicative coherence, we are focusing our attention on one particular characteristic, namely the function of relating the speech acts, and not the syntactic units. In other words, pragmatic connectors are the means used for conversational connectivity, but not syntactic connectivity since they do not contribute to any grammatical fulfillment. Their function, as Edmondson (1981) aptly puts it, is merely "linking the lower level units for the realization of higher level units".

Major Types of Pragmatic Connectors

Text linguistics has recognised four major types of pragmatic connectors (Huddleston, 1971). They are : (a) discourse

connectives, (b) illocution markers, (c) modality and attitude markers and (d) metatextual markers.

Discourse connectives are the linguistic items which achieve thematic arrangement and intersentential order through the use of linguistic items such as "consequently", "however", by indicating logical connection.

Illocution markers are the linguistic items which are used to make explicit the illocutionary force of the statement concerned, i.e., whether it is a description, a claim, a hypothetical statement, etc. Examples of this category are, "for example", "to illustrate the point", etc.

Modality and attitude markers are expressions such as "it seems probable", "obviously", which either indicate the truth value of the information or make explicit the addresser's attitude to what he is discussing. These pragmatic connectors include references to authorities as well as to the addresser's own commitment.

Metatextual markers refer to the organisational properties of the text itself, eg., "next", "later on", "I will attempt to", etc.

Among the pragmatic connectors, discourse connectives and metatextual markers serve the internal organisation of discourse.

while the illocution and modality and attitude markers help the addressees to relate the content matter to a larger framework of knowledge including the addresser's point of view.

Procedures

The identification of pragmatic connectors is difficult since we do not know much about their location within sentences. They can appear in any part of the sentence, either within the main clause or within the subordinate clause. However, they are syntactically identifiable in the sense that they are all verbless adjuncts. For the purposes of my analysis, I have quantified these adjuncts wherever they have appeared so long as they appear to realize a semantic relationship among the ongoing propositions of the discourse topic.

Findings

Table 35 : Distribution of Discourse Connectives, Metatextual Markers, Illocution Markers and Modality and Attitude Markers in Data set I

Total no. of Discourse Adjuncts in the LNS : 130

Total no. of Discourse Adjuncts in the LNNS : 66

Type of Discourse	DC	%	MM	%	IM	%	MAM	%	Tot
LNS	32	24.61	28	21.54	16	12.31	54	41.54	130
LNNS	18	27.27	27	40.90	9	13.64	12	18.18	66

DC : Discourse connectives
MM : Metatextual markers
IM : Illocution markers
MAM : Modality and Attitude markers
Tot : Total

X² : 13.12 (df 3) p > .01

Table 35 indicates that there are significant quantitative differences in the way metatextual markers and modality markers are distributed in the LNS and the LNNS. Note that discourse connectives and illocution markers are used almost in the same proportion both in the LNS and the LNNS.

Summary of the Findings

The professor has made the following modifications in his discourse to the nonnative speakers :

- (a) Comparatively greater use of metatextual markers
- (b) Comparatively lesser use of modality and attitude markers

Interpretation

Metatextual Markers

Metatextual markers are the properties of organisation. They mainly indicate temporal and conjunctive relationships that exist between the sentences.

The lesser use of metatextual markers in the LNS is an indication that the communicative content in the LNS does not require the support of the discourse adjuncts for the realization of its temporal sequence, conjunctive relationship or communicative coherence. The sentences, by virtue of their specific meanings themselves are implicitly inter-relatable and the communicative content is evident by itself.

The greater use of metatextual markers in the LNNS, on the other hand, is an indication that the interlocutors are to be explicitly informed about how they must organise the ongoing propositions. Hence, the professor has taken extra care to present unfamiliar information with the support of sufficient linguistic context. This finding is in tune with the findings of Bransford and Johnson (1973) that material presented in (linguistic) context is more comprehensible and therefore more easily remembered.

Modality and Attitude Markers

While metatextual markers are comments on the structure of what the addresser is saying, modality and attitude markers are comments on how what the addresser is saying is to be taken. In a way, they refer to the truth value and the attitude of the text in the view of the addresser.

By a frequent use of modality and attitude markers, the addresser indirectly invites the addressees either to assent to or dissent from the proposition which is being enunciated. The greater use of modality and attitude markers, then, is an indication of an element of subjective nature in the discourse since most of them are the addresser's comments on the reliability of what is being asserted.

The greater use of modality and attitude markers in the LNS, if it indeed reflects the subjective nature of the proposition,

may be due to the speaker's unconscious identification with the addressees' as members of the same speech community. The comparatively lesser use of modality and the attitude markers in the LNNS may then be an indication of the professor's consciousness that the addressees belong to a different speech community. It appears that, for whatever reason, the primary concern of the professor was to get the facts across to the nonnative speakers rather than to assert the truth value of his statements.

Manner of Distribution

It is observed from the work sheets that in the LNS, the professor used the greater part of the pragmatic connectors either to introduce or to conclude the topic. Once the topic has been established and is familiar, its development and maintenance is almost implied. The development of an argument in such a way can be called "analytical" since the the different parts of the discourse merge with the general background implicitly. On the other hand, the use of pragmatic connectors in the LNNS is very even. The development of an argument in such a way can be called "relational", a style which identifies, organizes and imposes structure on the (different) parts of the discourse₆₁.

Conclusion

Studies of listening problems for nonnative speakers have confirmed that they do indeed have difficulties recognising the organisation of information within lectures. In a study of lecture comprehension problems encountered by Chinese students at

UCLA, Yuan (1982) observes : "In general, the subjects were rather weak at paying attention to the sequence of the lecture because of their neglect of the logical connectors of sequence and their lack of recognition of transition from one main idea to another" (p.48).

The fact that there is a significant difference in the use of pragmatic connectors between the LNS and the LNNS (Table 35) indirectly testifies to the fact that the nonnative speakers do have perceptual difficulties in recognizing the discourse adjuncts (including discourse conjuncts and disjuncts); otherwise, they probably would not have been provided with a significantly greater number of them. This finding is in agreement with the findings of Chaudron and Richards (1983) that a lecture which uses more discourse markers is likely to be easier to follow. (However, these pragmatic connectors must not be overused since their overuse could distract the listeners from the overall coherence of the lecture).

Furthermore, the finding that there is a difference between the occurrences of individual sets of pragmatic connectors may be of utmost importance since it may be a recognition of their inherent semantic complexity leading to perceptual difficulties. If this is the case, further research is necessary to replicate the present findings, and to determine which sets of pragmatic connectors bring about a higher level of comprehension and with which sets the learners do have processing difficulties.

COMMUNICATION STRATEGIES

Introduction

A communication strategy can be defined as a global device by which a speaker, wherever it is appropriate, attempts to check comprehension and/or clarify propositional content for the sake of effective understanding. In this section, I shall attempt to find out whether there exist any quantitative differences in the way communication strategies are used in the data sets under study.

The following are some of the communication strategies which I have analysed. These are : (i) Comprehension checks, (ii) Repetitions, (iii) Elaborations, and (iv) Simplification. The last three strategies have been studied only in relation to data set II.

Comprehension Checks

Long defines a "Comprehension check" as "any expression by the native speaker immediately following an utterance to establish whether the speaker's preceding utterance(s) had been understood by the interlocutor" (1980 : 82).

In the given data, comprehension checks are typically formed by expressions such as, "O.K?", "alright?", "right?", or by

asking direct questions such as "is that clear?", "is that general idea clear?". Work sheets indicate that all these comprehension checks are uttered with rising (question) intonation. Further, they all occur at the end of the sentences, hence they are easily identifiable.

Examples from the data

From LNS

46. "Extinction, in other words, is the process whereby a conditioned behavior essentially disappears in the absence of reinforcement, right?"

From LNNS

47. "And not only that, but these stimuli we have already defined in a previous section as primary reinforcements. They are, not acquired. They don't have to be learned. They are naturally reinforcing, o.k?"
48. "So that's all that we wanted to say about drive here. Is that clear?"

Findings

The findings indicate that there are no differences worth mentioning so far as the forms of the comprehension check strategies are concerned in these data. The expressions used are remarkably similar. Only their relative frequency appears to differ.

The professor has checked the addressees' comprehension 33 times in the LNS and 54 times in the LNNS. In relation to the

number of sentences used in the LNS and the LNNS, 384 and 261 respectively, it can be said that the professor has attempted to check the interlocutors' comprehension of the ongoing discourse, on an average, once in 11.63 sentences in the LNS, and once in 4.83 sentences in the LNNS.

Summary

Comprehension checks in the LNS : 33 times ; on an average of one in every 11.63 sentences

Comprehension checks in the LNNS : 54 times ; on an average of one in every 4.83 sentences

Self Repetitions

A self repetition, in this study, can be defined as any repetition by the professor, either partial or complete, of any of his utterance(s) which occurred within the preceding five sentences. The repetition can be in the same words or can be a paraphrase of the previous version i.e. a "semantic repetition" (without shortening the semantic content of the utterance). The purpose of the self repetitions seems to be twofold : (a) effective and efficient comprehension and (b) an indication that the utterance under repetition is seminal for an understanding of the ongoing discourse topic.

Findings

In the whole of data set II, with regard to the LNS, there is only one instance of self repetition. It is an instance of partial self-repetition. The self-repetition is given below:

Example

Preceding Utterance

49. "So shaping is therefore essentially the conditioning which takes place when you want to teach an organism a complex behavior sequence and when you find it most efficient to do that by breaking it up into a variety of simple components and then teaching it, one component at a time".

(Two sentences later)

Repetitive Utterance

50. "Shaping is a conditioning technique which is really a variation of instrumental conditioning whereby you break up a complex behavior into a sequence of simple components and then condition the total sequence, one component at a time, using the principles of instrumental conditioning".

Note that the utterance (49) which is repeated is a simple paraphrase of the preceding utterance. The repetition is not exactly in the same words, however, there is neither any addition nor deletion of the details of the preceding utterance. The phrase "instrumental conditioning" which occurs in the utterance which is repeated seems to be additional information but is not actually additional information. It refers to the process of breaking up a complex behavior into smaller units and teaching them one unit at a time. This in fact is the semantic content of the initial utterance. Further, this concept has already been taught to the interlocutors.

In the LNNS, there are fourteen instances of self repetition, evenly spread, on an average of one in each fifteen

utterances. Seven of them have been repeated two times. And all these repetitions are complete repetitions opposed to what the literature calls "partial repetitions".

Examples

From LNNS

Example 1

51. "Anything which satisfies a drive is reinforcing for the organism".

(one sentence later)

52. "Whatever satisfies a drive is reinforcing".

(one sentence after (52))

53. "So the idea of drive here is that stimuli that satisfy drives are reinforcing".

Example 2

54. "In fact, the reinforcement, to be really effective, has to be immediate".

(one sentence later)

55. "So the effect of delay of reinforcement is that immediate reinforcement is best".

(one sentence after (55))

56. "So reinforcement to be effective has to be as immediate as possible".

Interpretation

Comparing the relative frequency of self-repetitions in the LNS and the LNNS, it is evident that repetitions are one of the important features of the input language provided to the

nonnative speakers in this university subject matter classroom. It has occurred only once in the whole of the data in the LNS but fourteen times in the LNNS, on an average of one in fifteen sentences. Other research shows that in the early stages of language study, the nonnative student-listeners may not have the ability to distinguish between the essential and the non-essential : all utterances take on equal importance. The comparatively frequent occurrences of self-repetitions in the LNNS may have been intended to make sure that these non-fluent speakers understood with ease certain important propositions. Moreover, all repetitions are complete repetitions.

Summary

Self repetitions : LNS : Only one ; repeated only once

LNNS : Fourteen ; Seven of which are repeated
twice

Elaborations

Elaborations are a form of repetition in the sense that here the semantic content mentioned in the preceding utterances is repeated. However, they differ from self repetitions in the sense that here more details are added in order to provide a broader view of the proposition one has been communicating. The added details are generally in the form of examples.

C

Most of the elaborations in both data sets start with appropriate connectors such as "In other words...." or "Generally speaking", "In general.." Hence, it is not at all difficult to identify them.

"Elaboration" has been used comparatively more frequently in the LNNS. It occurs at nine places in the LNNS and only at three places in the LNS.

Examples

From LNS

57. "Generally speaking, stimuli which satisfy a basic drive such as food or water or touch or just a variety of stimulation, because they satisfy a need for the organism, tend to be reinforcing and can usually be employed as reinforcements".

This utterance has been elaborated in the following way:

58. "As a result, as a reinforcement, we can use things like food, we can use things like water, we can use, uhm, touch, as a matter of fact. Uhm, you can take an albino rat and uh, stroke it or you can take a child and hug it or things like that. So you can use things like touch, or you can use, uhm, a variety of what I would call stimulation so that, uh, for example, if you allow a young child to go into a room full of toys provided the child has done something. The child has this kind of exploratory, uh, drive and this need to come into contact with changing environments and with changing stimulation, so you can use that as a reinforcement".

From LNNS

59. "In general, the greater the amount of reinforcement, the stronger the conditioning".

This utterance has been elaborated as follows:

60. "In other words, you will find that the conditioned response is acquired more quickly and is performed more frequently, more often, if you have lots of reinforcement than if you have a little bit".

Summary

Elaborations : at three places in the LNS

at nine places in the LNNS

Simplification

Simplification is a communication strategy by which the native speaker paraphrases the preceding two or more utterances with a very simple utterance. The purpose of simplification strategies seem to be to give the gist of the utterance. The gist of the utterance(s) shall either immediately follow or may come a little later. A simplification strategy is different from self-repetitions in the sense that here what is attempted is a precise summary rather than a restatement of the preceding utterances. Simplification strategies are easily identifiable since they always contain expressions such as, "In short", "In brief...", etc.

In the given data, simplification strategies occur only in the LNNS; further they are evenly spread. Simplification strategies do not occur even once in the LNS.

Examples

From LNS

Preceding Utterance

61. "So the drive is the inner state which is experienced in response to a need and which energizes the organism to go and find something that will answer the need".

Simplified Utterance

62. "So, uhm, to put it in a simple way (writing on board as well), a need - water, the corresponding drive is thirst".

For yet another example :

Preceding Utterance

63. "If we continue to give the conditioned stimulus alone, the animal will eventually lose the response, the response will disappear and we said that disappearance is extinction".

Simplified Utterance

64. "So extinction, very briefly then, is the disappearance of a conditioned response in the absence of reinforcement, o.k.?"

It can be noted from the first example (61) and (62) that simplification strategies also involve extralinguistic features

such as blackboard use, apart from being comparatively frequent in the LNNS.

Summary

Simplification Strategies : LNNS : thirteen; On an average of one in every twenty sentences
LNS : NIL

Summary of the Findings

The overall findings on communication strategies are given in the following table (36) :

Table 36 : Communication Strategies in the LNS and the LNNS

Total no. of sentences in the LNS : 384
Total no. of sentences in the LNNS : 261

Communication Strategies	LNS	LNNS
Comprehension Checks	33	54
Self-repetitions	1	14
Elaborations	3	19
Simplifications	0	13
Total	37	90

$\chi^2 = 12.38$ (df 3) $p > .01$

Conclusion

In the present study, communication strategies can be said to be a result of the native speaker's active involvement in

getting the content matter of the prescribed lessons across his addressees. It can be observed from Table (36) that communication strategies are significantly less frequent in the LNS. Their more frequent occurrence in the foreigner register is an indication that the native speaker was giving the linguistically less proficient students more than one chance to figure out what has been said. This he does mainly because : (a) the amount of oral language the less proficient nonnative speakers and the native speakers can deal with in a given length of time differs; (b) the less proficient nonnative speakers may not have the ability to distinguish the essential from the inessential and (c) the less proficient nonnative speakers may lack the skills to reconstruct the whole of a message due to their inexperience with long stretches of discourse.

VI

SYNTAX

Introduction

Syntax has been the focus of research studies in first and second language acquisition for at least three decades. In spite of the vast amount of research carried out in the field, it still is not clear whether growth in language learners' syntactic system reflects development of a truly 'independent language system or whether it is tied to (and thus perhaps reflective of) their general cognitive growth/cognitive ability. Without involving myself in any of these research problems, what I have attempted to determine here is whether the LNS discourse is syntactically more complex. In my analysis, I have used three measures : (a) transformational complexity, (b) mean length of utterances and (c) semantic complexity.

Transformational Complexity and Comprehension

For many theoretical linguists, the formal operation on which the linguistic grammar assigns a structural description to a sentence corresponds step by step to the psychological processes by which an individual assigns a structural description to a sentence. Hayes (1970) has labelled this hypothesis, "the correspondence hypothesis".

Brown and Hanlon (1970) while trying to find empirical validity for "the correspondence hypothesis" suggested that it is

"the cumulative derivational complexity" of the form that has psychological validity. They provided the following definition :

"Y has a greater cumulative derivational complexity than X ($X < Y$), when the derivation of a sentence Y applies all the rules applied in the derivation of a sentence X, plus at least one rule not applied in X".

In this research, I shall not attempt to study the relationships between the various sentence types which occur in the data, or the degree of complexity in their cognitive processing. Rather, interpreting the criterion of complexity in a broader perspective, I shall merely attempt to see whether the syntax of LNNS is less complex than that of the LNS.

Simplex and Complex T-units

For Hunt (1970:4), a T-unit is a main clause plus all subordinate clauses and nonclausal structures attached to or embedded in it. T-unit analysis is particularly objective and easy to compute, and in the last ten years, it has gained increasing recognition as a more valid index of syntactic complexity than other measures, including sentence length. However, it should be noted that the T-unit analysis proposed by Hunt is a measure of the increasing productive ability of the learners rather than a comprehension model, and it is not entirely suitable for the latter purposes. The following observations will make my point of view clear.

Methodological Difficulties in Using Hunt's T-unit Model (1965; 1970) as a Measure of Sentence Comprehensibility

(a). Neglect of co-ordinated sentences

As per the T-unit analysis proposed by Hunt , co-ordinate sentences like the following contain two T-units.

- (i) The fence is painted and the house needs repair
- (ii) The fence was painted after the house was painted
- (iii) The fence was painted before the house was painted
- (iv) The fence was painted while the house was repaired
- (v) The fence will be painted or the house will be repaired

Co-ordinated sentences are not included in the T-unit analysis proposed by Hunt basically because his is a production model. Since conjunctive relations are encoded not in the form of grammatical structures but in the looser, more pliable form of linkages between the components of a text, as a production model analyst Hunt is not interested in measuring them. For him, it is the syntactic maturity of the learner, specifically how he acquires the subordinate clauses, which is of interest. As such, he does not give much importance to the acquisition of the co-ordination transformation in the maturity process since co-ordinated sentences are generated (according to the early Aspects models) by inserting a conjunction.

(b). Inherent semantic complexity of conjunctions

There is no a priori reason that co-ordination should be neglected in a measure of comprehension, particularly when the co-ordinating lexical devices such as "before", "after", or "while" are used, since these conjunctions have a greater semantic role to play than some others in realizing the potential meaning of the sentences they co-ordinate. For instance, for understanding the complete meaning of the example sentences, the listener will have to refer to the initial sentences as per the experimental findings by Kaplan (1974) and Wanner and Maratsos (1974). These researchers have suggested that difficulty in processing co-ordination and relativization arises not so much from the number of clauses attempted, but because of the need to use valuable memory resources in holding information. Various results supporting this view have been reported by them. The immediate implication of this hypothesis is that certain sentence types are more difficult overall than others and that processing load will vary from moment to moment during the processing of a sentence. In brief, according to this view, co-ordinated sentences may be comparatively easier to process than relative sentences, but there is no reason to believe that co-ordinated sentences should be broken down to its constituent sentences while the relative sentences should not be.

(c). Rule regularity

Following the production model, if one is going to argue that subordinate sentences are composed of only one T-unit and

that co-ordinated sentences are composed of more than one T-unit, then there must be a general rule by which it must be shown that the comprehension processes involved in the co-ordinated sentences (given the value of 1+) are greater than for the complex sentences (given the value of 1 only) since the value of 1+ is greater than 1. However, it is a well known fact that the research findings are in the opposite direction. It is the complex sentences which are semantically more complex than the co-ordinated sentences in terms of cognitive involvement (Kaplan 1974; Wanner and Maratsos 1974).

(d). Co-ordinated sentences are not all that simple

Research reveals that transformations like "gapping" which are prevalent in the co-ordinated structures also require encoding and decoding skill.

(e). Methodological difficulties

Certain methodological difficulties also will arise if we use Hunt's model as a comprehensibility index. For example, the following sentences, "the fence was painted after the house was" and "the fence was painted and repaired" will have only one T-unit as per the analysis whereas sentences such as "the fence was painted after the house was painted" and "the fence was painted and then it was repaired" will have two T-units. This sort of analysis, obviously, is a methodological error since the gapping transformation occurring in all these sentences differs from each other only in terms of the syntactic categories deleted.

In order to modify the analysis to suit a comprehension model, what I prefer to call a discourse T-unit (DT-unit), as already defined in section on 'Topic Density' shall contain a single independent clause together with all its independent/subordinate and non clausal structures. According to this measure, as the learner matures, his/her ability to comprehend syntactically complex T-units increases. Note that in the model I wish to propose, I intend to measure not the syntactic maturity of the speaker but the relative comprehensibility of certain sentence types for the listeners.

In order to characterize the complexity involved in the processing of DT-units, I shall divide DT-units into two types : Simplex DT-units and Complex DT-units.

A simplex DT-unit, by definition, consists of only one independent clause and nothing more or less. A complex DT-unit, on the other hand, by definition consists of an independent clause plus at least one more dependent/independent clause.

According to the theory of cumulative derivational complexity, note that all complex DT-units must be comparatively more complex to process than the simplex ones for they contain an independent clause plus something more, whereas simplex DT-units contain only one (independent) clause and nothing more.

Findings with regard to the distribution of simplex and complex DT-units are given in the following table (37):

Table 37 : Distribution of complex and simplex discourse T-units

Discourse	Total # DT-units	Complex DT-units		Simplex DT-units	
		#	%	#	%
LNS	384	293	76.30	91	23.70
LNNS	261	177	67.82	84	32.18)

X ² = 5.4 (df 1) p > .025					

The above table indicates that complex DT-units occur significantly less frequently in the LNNS than in the LNS.

Complex DT-Units : SDT and CDT-units

Complex DT-units can further be divided into two sets, those complex DT-units which are made up of co-ordinated sentences and those which are not. The former I shall call co-ordinated discourse T-units (CDT-units) and the latter, I shall call subordinated discourse T-units (SDT-units). A major reason for dividing the complex DT-units into CDT-units and SDT-units is that co-ordinate clauses enjoy equal ranking with the principal clause in terms of surface structure in a CDT-unit whereas subordinate sentences do not enjoy such equal ranking with the principal clause in a SDT-unit. Furthermore, the only major transformation that normally takes place in the CDT-units is gapping, a transformation which research indicates tends to appear very early in the process of language acquisition (Clark

and Clark, 1977), whereas in a SDT-unit, multiple complex transformations can take place resulting in far more semantic complexity.

The following are the findings with regard to CDT and SDT-units :

Table 38 : Complex discourse T-units : CDT and SDT-units

Discourse Type	Complex DT-units	CDT-units	%	SDT-units	%
LNS	293	96	32.76	197	67.74
LNNS	177	82	46.32	95	53.68

X² = 8.7 (df 1) p > .01

The above table indicates that CDT-units occur (significantly) more frequently in the LNNS than in the LNS.

Absence of certain sentence types in the LNNS data

In this section, I shall give examples of the various types of utterances which we find only in the LNS and not at all in the LNNS data. These will be discussed after all the examples have been presented:

A: Emphatic Constructions with "do" insertion

65. "The rat really did seem to be enjoying this thoroughly or the monkeys did seem to be enjoying this thoroughly".
66. "It did appear that brain stimulation could act as a reinforcement".

There are nine such emphatic constructions in the LNS.

B: Sentences with auxiliary "have" and lexical "have" combinations:

67. "On the eleventh trial, he put food here for both the rats that had had food before and those that had not".
68. "Well, the ones that had had food ran it right away".

There are eight such sentences in the LNS.

C: Sentences with two and more negations

69. "The ones that had not, not surprisingly still didn't do very much except eventually they found the food".
70. "But the rat if placed again in the maze many times will not have a tendency to go to the goal box, not so much because it doesn't know where it is, but rather because it hasn't had any particular reason for going there".

There are fifteen sentences with two or more negations in the LNS data.

The total absence of the use of emphatic constructions with lexical "do" insertions (Type A), auxiliary "have" and lexical "have" combinations (Type B) and double negations (Type C) in the

LNNS data is an indication that the professor unconsciously avoided certain sentence types which require extra transformations which bring with them certain semantic niceties. In fact, I prefer to call such extra transformations "syntactic redundancies" since these are all transformations which are very much different from what Chomsky (1957) calls "basic transformations". Basic transformations are obligatory for the grammaticality of sentences. Syntactic redundancies, on the other hand are transformations that do not contribute to the grammaticality of sentences since a sentence is grammatical or not. And They simply apply on already grammatical sentences to bring in certain finer meanings. For example, note that in all the examples, transformations involving "do insertion", "auxiliary have insertion" and one or two negations can be done away with without affecting the general meaning of the sentences.

This insight into certain sentence types which occur in the LNS but not in the LNNS data may be one of the characteristics of foreigner speech. However, only further research must confirm this hypothesis of syntactic redundancy.

Mean length of units

Psycholinguists working in second language acquisition use the mean length of a T-unit as a syntactic index against which stages in language development can be measured. A number of studies of input language indicate that as the learner matures, T-units in the input language also tend to become longer. Apart

from this, results from a large number of studies of recall accuracy and storage space utilization clearly indicate that the greater the length of a syntactic unit, the greater is the memory space used and longer the time required to recognise it (Clark and Clark 1968; Craik 1970). In other words, the longer the average length of a syntactic unit, the greater is its complexity.

For the purposes of this research, I shall measure only the DT-units. If the professor is providing comprehensible language input at the highest level the nonnative speakers can process, the mean length of a DT-unit in the LNNS will be a rough indication of the comprehensible syntactic index of the nonnative speakers under study. The mean length of DT-units can be calculated by dividing the total number of words, clauses or S-nodes by the total number of DT-units. The average length of a clause and a S-node can also be measured by using the same procedure.

Findings :

Table 39 : Length of a DT-unit in words

Discourse	DT-units	Words	Length of a DT-unit
LNS	384	9542	25.11 words
LNNS	261	4406	16.88 words

Table 40 : Length of a DT-unit in clauses

Discourse	DT-units	clauses	Length of a DT-unit
LNS	384	1323	3.45 clauses
LNNS	261	716	2.74 clauses

Table 41 : Length of a DT-unit in S-nodes

Discourse	DT-units	S-nodes	Length of a DT-unit
LNS	384	1094	2.85 S-nodes
LNNS	261	605	2.32 S-nodes

Table 42 : Length of a S-node in words

Discourse	S-nodes	Words	Length of a S-node
LNS	1094	9542	8.72 words
LNNS	605	4406	7.28 words

Table 43 : Length of a clause in words

Discourse	Clauses	Words	Length of a Clause
LNS	1323	9542	7.21 words
LNNS	716	4406	6.15 words

The tables (39-43) indicate that the syntactic units of the LNNS are shorter in length than those of the LNS.

In general, the findings in this section indicate that CDT-units are relatively more frequent than the SDT-units in the

LNNS and that the syntactic units of LNNS are shorter in length than those of the LNS.

Longest Sentences and their Representation in Tree Diagrams

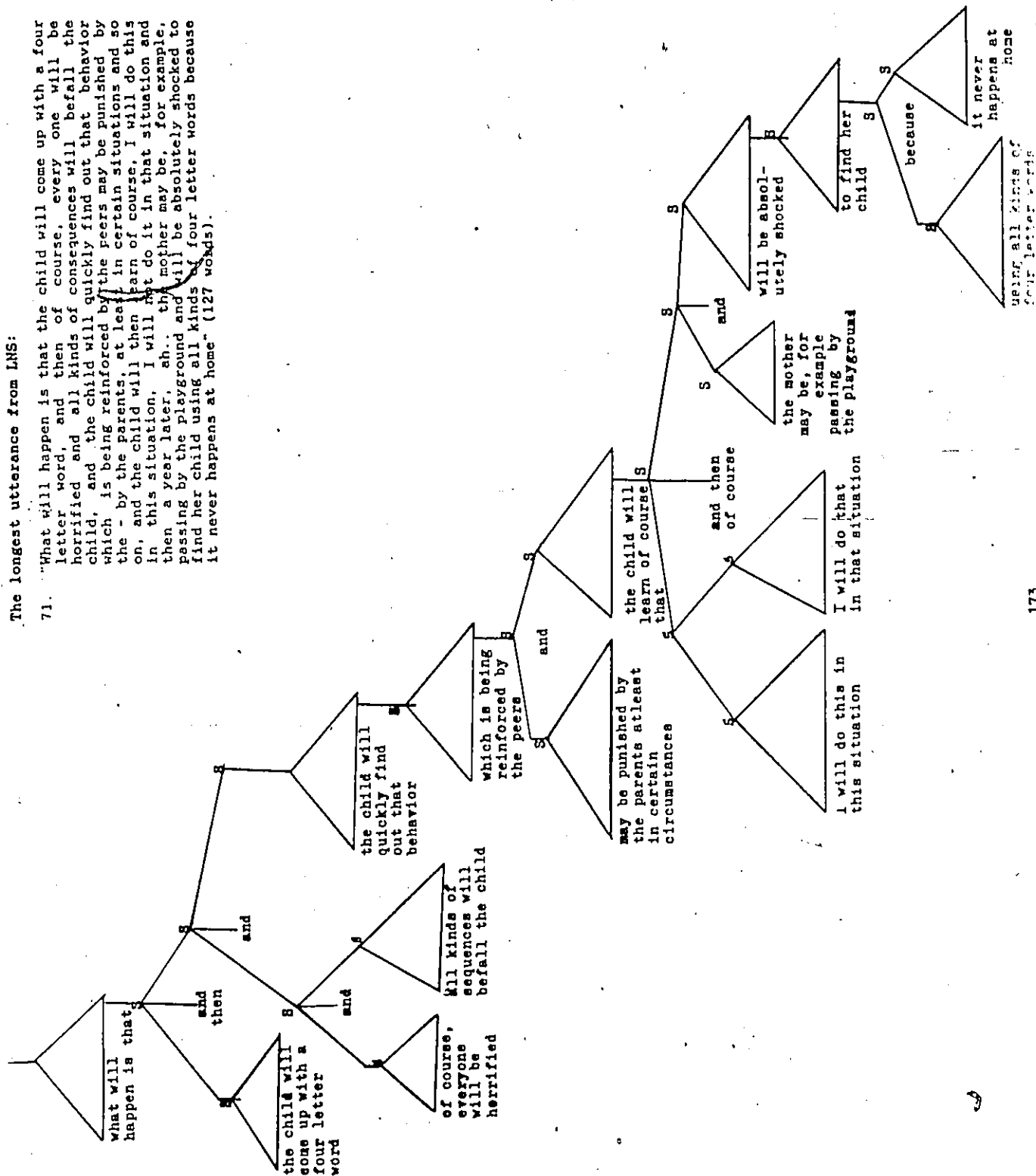
In order to illustrate the differences indicated by the above findings, I give below the respective longest utterance from each of the discourse samples. Each utterance is followed by its tree diagram (Surface structure : Aspects model)

The longest utterance from LNS:

71. "What will happen is that the child will come up with a four letter word; and then of course, every one will be horrified and all kinds of consequences will befall the child, and the child will quickly find out that behavior which is being reinforced by the peers may be punished by the - by the parents, at least in certain situations and so on, and the child will then learn of course, I will do this in this situation, I will not do it in that situation and then a year later, ah.. the mother may be, for example, passing by the playground and will be absolutely shocked to find her child using all kinds of four letter words because it never happens at home" (127 words).

The longest utterance from LMS:

71. "What will happen is that the child will come up with a four letter word, and then of course, every one will be horrified and all kinds of consequences will befall the child, and the child will quickly find out that behavior which is being reinforced by the peers may be punished by the - by the parents, at least in certain situations and so on, and the child will then learn of course, I will do this in this situation. I will not do it in that situation and then a year later, sh.. the mother may be, for example, passing by the playground and will be absolutely shocked to find her child using all kinds of four letter words because it never happens at home" (127 words).



72. "Ahm, have you noticed that children, for example, young children, ah, sometimes, you have a child who is an angel in the presence of the mother and devil in the presence of the father or an angel at home, a devil at school, or vice versa, and absolute terror at home and, ah, a model child at school" (58 words)



The tree diagrams reveal that co-ordination is the only transformation that has been profusely used in the LNNS. On the other hand, in the LNS, not only co-ordination but also multiple subordination have been profusely used.

Syntactico-semantic complexity

In this section, I shall discuss some of the interesting findings which can be explained only in terms of syntactico-semantic complexity.

Modal Verbs

English is one of the very few languages in which tense, mood and aspect merge into one another. This is partly because certain notions can be classified equally well as modal, aspectual, or temporal, and partly because more distinctions have been recognised than are overtly distinguished by the systematic morphological and syntactic contrasts which we label as 'tense', 'mood' or 'aspect'. The chief means of expressing 'tense', 'mood' and 'aspect' in English is by the use of modal verbs (Lyons, 1968). In brief, modal verbs of English can cause considerable difficulty to any nonnative speaker, owing to the multiple functions they carry out in the language system.

What follows are the findings with regard to the distribution of modal verbs in the data :

Table 44 : Distribution of Modal verbs in the data:

Discourse Type	Total # S-nodes	S-nodes with Modal verbs	%
LNS	1094	273	24.95
LNNS	605	107	17.68

Table 45 : Distribution of different types of modal verbs in the data:

Modal Verb	LNS	%	LNNS	%
will	72	26.37	67	62.61
would	130	47.61	14	13.08
can	27	9.8	15	14.01
could	21	7.69	2	1.86
may	11	4.02	7	6.54
might	5	1.8		
should	3	1.09	1	0.93
must	4	1.46	1	0.93
Total	273		107	

X² : 64.18 (df 7) p > .001

Table 46 : Modal verbs and their tense forms

Discourse Type	Total # Modal verbs	Modal verbs in present tense form	%	Modal verbs in past tense form	%
LNS	273	114	41.76	159	58.24
LNNS	107	90	84.11	17	15.89

x² = 55.46 (df 1) p > .001

The tables (45-46) indicate two things, one that modal verbs are used significantly less frequently in the LNNS and two that 84.11% of the modal verbs in the LNNS occur in their present tense form as against 58.24% in the LNS.

The professor's preference for the use of present tense forms in the LNNS data is, however, not specific to modal verbs alone. In fact, preference for the use of present tense forms seems to be one of the regular features of the input language. The findings from the overall study of the tense forms of the (lexical) verbs confirm this prediction. The findings are given below:

Table 47 : Verbs and their tense forms

Discourse Type	Total S-nodes	Verbs in present tense form	%	Verbs in past tense form	%
LNS	1094	749	68.46	295	31.54
LNNS	605	577	95.37	38	4.63

X ² : 16.19	(df 1)	p > .001			

Apart from the above findings that the professor had a preference for the use of present tense with regard to the nonnative speakers, an analysis was carried out to determine which proportion of the present tense forms referred to past time in both data sets. The findings are given below:

Table 48 : Tense forms and Time reference

Discourse Type	Verbs in present tense form	Present tense with past time reference	%
LNS	749	205	27.36
LNNS	577	42	7.28

The above table indicates that there is almost one to one relationship between the tense form of the verb and the time reference in the LNNS data. This is not so with regard to LNS. In it, present tense forms have frequently been used to refer to the past, leading to a greater asymmetrical relationship between the form and the function.

That the professor did not want to confuse the nonnative speakers with the varied use of tense forms is further confirmed by the almost total absence in the LNNS data of hypothetical "if-clause" constructions which take past tense verb forms. The findings with regard to hypothetical "ifclause" constructions are given below:

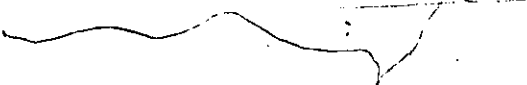
Table 49 : Distribution of hypothetical ifclause constructions in the ifclause sentences in the data:

Discourse Type	Ifclause constns.	Hypothetical ifclause constns.	%	regular ifclause constns.	%
LNS	52	21	40.39	31	59.61
LNNS	37	2	5.41	35	94.59
X ² = 13.79 (df 1) p > .001					

In short, the study of the modal verbs and the tense-time relationship in the given data reveals that the professor presented the nonnative speakers with a simpler and a more straightforward language system, which in my view would be easier to process for comprehension purposes. This conclusion is supported by the total absence of certain sentence types which we saw in the preceding sections.

Conclusion

The study began with a query of whether comparatively more complex sentences characterize the LNS data. The conclusion is that not only syntactically more complex sentences but also what I call "syntactic redundancies" exist only in the NS-NS speech. These findings, in brief, suggest that more complex sentence types are unconsciously excluded by the native speaker from direct presentation in the LNNS and that there is a relationship between semantic complexity and comprehensibility.



VII

VOCABULARY

Introduction

In discourse analysis, the usual way of analysing vocabulary is by quantitative studies. This study is different in one respect; what is attempted here is not only a quantitative study of word class distributions but also a study of propositional complexity and word grammar as they relate to certain word classes, in particular, nouns and adjectives.

Scope

The four major lexical classes in English are nouns, verbs, adjectives and adverbs. Of these four, the class of "adverbs" is a mixed one in terms of the semantic, morphological/inflectional and syntactic criteria used to characterize them. Further, the cross-language generalization which one finds in the treatment of adverbs is normally absent in nouns, verbs and adjectives. These three distribute systematically along one coherent semantic dimension. Givon (1984:51) calls this the "Time-Stability Scale".

In this thesis, I shall deal only with nouns, verbs and adjectives, which behave systematically on a time stability scale.

Organization

This section on vocabulary has four sub-sections : the first is a general quantitative study of the data; the second deals with an analysis of noun phrases in terms of their propositional complexity; the third is an analysis of adjectives in terms of their morphology and the fourth consists of an interpretation of the findings.

Quantitative Studies

Quantitative vocabulary studies are a particularly valuable research tool in discourse analysis, especially when there are two samples of discourse under comparison. The studies generally seek to get at differences in formal characteristics of the lexicon used and at differences in the particular content expressed in the two samples. In the present study, quantitative studies of vocabulary are carried out in order to compare (a) word class distributions, and (b) content versus function word ratios, to determine whether the presentations differ at either of these levels or at both.

Along with the above quantitative studies, the "type-token ratio" (TTR) obtained by dividing the total number of words by the total number of different words - has also been calculated. The type-token ratio measure has been used in this research in a slightly different way than it has normally been used. Instead of calculating the type-token ratio for the general vocabulary, I have calculated it for each of the three major classes of

lexicon: nouns, verbs and adjectives. This I do in order to find out about how the particular word class has been used. The method works as follows. Say that we have two texts A and B for comparison. Suppose that there are twenty noun phrases in each of these two texts. Further, if there are sixteen different noun phrases in text A and twelve different noun phrases in text B, the TTR for the NPs in the text A is $20/16 = 1.25$ and the TTR for the NPs in the text B is $20/12 = 1.66$. Properly interpreted, (TTRs of verbs and adjectives also remaining the same in both the texts) the lower TTR in text A is an indication that a comparatively smaller number of noun phrases are repeated and that propositionally this text is comparatively richer than the other, each lexical noun phrase representing a particular proposition. A higher TTR is an indication that a comparatively greater number of noun phrases are repeated and that the text is propositionally less rich than the other.

Findings

Table 50 shows the overall vocabulary distribution in data set I:

Table 50 : Overall vocabulary distribution in data set I

Total number of words in the LNS = 9452

Total number of words in the LNNS = 4406

No.	Word class	Occurrences LNS	%	Occurrences LNNS	%
1.	Nouns	1323	14.00	721	16.36
2.	Lexical verbs	1173	12.41	539	12.23
3.	Adjectives	137	1.45	44	1.00
4.	Pronouns	1365	14.44	679	15.42
5.	Prepositions	818	8.65	306	6.95
6.	Indef.article	255	2.70	123	2.79
7.	Def.article	555	5.87	261	5.92
8.	Adverbs	469	4.96	220	4.99
9.	Others*	3357	35.52	1513	34.34
Total		9452	100.00	4406	100.00

*including non-lexical verbs

Table (50) shows that there are no significant differences in the overall use of vocabulary between the two lectures.

Table (51-53) is a study of TTR within the content vocabulary of data set I for each word-class.

Table 51 : Type - token ratio for nouns

Discourse Type	Total no. of nouns	Total no. of different nouns	Type-token ratio
LNS	508	190	2.67
LNNS	590	185	3.19

Table 52 : Type - token ratio for (lexical) verbs

Discourse Type	Total no. of verbs	Total no. of different verbs	Type-token ratio
LNS	275	136	2.02
LNNS	459	120	3.83

Table 53 : Type - token ratio for adjectives

Discourse Type	Total no. adjectives	Total no. of different adjective	Type-token ratio
LNS	87	66	1.31
LNNS	40	36	1.11

Tables (51 and 52) show that the type-token ratio for nouns and verbs is comparatively higher in the case of LNNS than the LNS; the type-token ratio for adjectives is however lesser in the case of LNNS than the LNS (Table 53).

Propositional Complexity of Noun Phrases

Noun phrases are different from other word classes in the sense that the propositional complexity of noun phrases can be increased by any of three processes : compounding, co-ordination or modification. The noun phrases resulting out of these processes are called compound, co-ordinate and complex noun phrases respectively.

For the purposes of this research, compound, co-ordinate and complex noun phrases can be defined as follows:

A compound noun phrase, by definition, consists of a noun on the right and a noun on the left as in the following examples: "response differentiation", "Skinner box", "insight learning", etc.

A co-ordinate noun phrase, by definition, consists of two or more nouns or noun phrases co-ordinated by co-ordinates such as and, or, etc., as in the following examples : "motivation and emotion", "either rats or monkeys or whatever", "food or water or touch or just a variety of stimulation", etc.

A complex noun phrase, by definition, consists of a head noun (phrase) modified by the use of at least one or more prepositional phrases as in the examples such as "functions of the body", "the sources of energy of the organism in a state of need", "a sort of clear signal", etc.

An analysis of these three types of noun phrases is particularly important for determining the propositional content of a discourse. For example, say a particular discourse has 20 DT-units and 36 S-nodes and that the occurring noun phrases are all simplex noun phrases. On the other hand, another comparable discourse may contain 15 DT-units and 26 S-nodes. Yet if the second discourse contains mostly complex noun phrases, then the second discourse may prove to be richer than the first one in terms of propositional content.

Now consider the following findings for data set II

Table 54 : Distribution of compound, complex, co-ordinate and simplex noun phrases in the data :

Dis- course Type	Total no. nouns	Compd. noun phr.	%	Co-ord. noun phr.	%	Complx. noun phr.	%	Simplex. noun phr.	%
LNS	508	39	7.68	165	32.49	22	4.33	282	55.51
LNNS	590	18	3.05	63	10.68	8	1.36	501	84.92

$\chi^2 = 116.33$ (df 7) $p > .001$

The table indicates that only simplex noun phrases occur in a comparatively greater number in the LNNS data. Compound, complex and co-ordinate noun phrases are comparatively less frequent.

Types of Complex Noun Phrases

Complex noun phrases in the data can be categorized into four types in terms of the number of modifications they undergo in their generation. What follows is a study of their types:

Type A : A head noun and one modifying prepositional phrase, as in the example "a lion in a circus act".

Type B : A head noun (phrase) and two modifying prepositional phrases, as in the example : "A quite specific meaning in the context of instrumental conditioning".

Type C : A head noun (phrase) and three modifying prepositional phrases as in the example : "a good knowledge of principles of learning from psychology".

Type D : A head noun (phrase) and four modifying prepositional phrases as in the example: "some investigators in Montreal at McGill university by the name of Olds and Milner".

Table 55 : Types of complex noun phrases

Disc. Type	Total complex noun phr.	Type A	%	Type B	%	Type C	%	Type D	%
LNS	165	129	78.18	23	13.94	10	6.06	3	1.82
LNNS	63	55	87.30	6	9.52	2	3.17	0	

Table 55 indicates that among the complex noun phrases, Type A the least complex of the four, occurs comparatively more often in the LNNS. The most complex of the four, Type D doesn't occur in it at all.

Adjectives

For the purposes of bringing out the complexity involved in the use of adjectives, I have analysed them in terms of class changing derivative morphology.

Class Changing Derivative Morphemes

Certain sets of adjectives in English can be formed either from nouns or verbs by affixing what are called "class changing derivative morphemes". For example, the class changing derivative morpheme "-al" is added to the noun "instrument" to form the adjective "instrumental" ; likewise, the class changing derivative morpheme "-ive" is added to the verb "associate" to form the adjective "associative".

It is hypothesized here that a text containing a greater variety of class changing derivative morphemes in their adjective formation may be comparatively more difficult to process than one with a more limited set.

Findings

Table 56 : Class changing derivative morphemes used in the formation of adjectives from nouns in the data:

Discourse	Class changing derivative morphemes
LNS	-an, -ic, -ous, -al, -ive, -ed, -ly, -ful, -able
LNNS	-al, -ic, -ful

Table 57 : Class changing derivative morphemes used in the formation of adjectives from verbs in the data:

Discourse Type	Class changing derivative morphemes-suffixes	class changing derivative morphemes-prefixes
LNS	-ed, -ing, -able, -ive, -al, -atory, -en	im-
LNNS	-ed, -ing, -ive, -en	

Findings

It can be seen from the above tables that a comparatively greater variety of class changing derivative morphemes are used in the LNS in the formation of adjectives from nouns and verbs.

Summary of the findings

The following are the major modifications made in the LNNS with regard to vocabulary :

- (a) use of a higher type-token ratio for each of the content word classes except adjectives (Tables 51 - 53)
- (b) use of a lesser proportion of compound, complex and co-ordinate nouns and greater proportion of simplex noun phrases (Table 54) and
- (c) use of a lesser number of class changing derivative morphemes in the formation of adjectives from nouns and verbs (Tables 56 and 57).

Interpretation

The use of a slightly greater number of nouns (16.36% in the LNNS and 14.00% in the LNS) coupled with a higher TTR for nouns in the LNNS data is an indirect indication that verbs with a lesser number of arguments are used in these data compared to the LNS. This can be confirmed by what is called "noun verb ratio" (NVR) which can be arrived at by dividing the total number of nouns by the total number of verbs which occur in the data. Calculations indicate that NVR in the LNS is 1.85 and NVR in the LNNS is 1.29. Higher NVR is a direct indication that a comparatively greater number of verbs with several arguments are used. Conversely, the lower NVR in the LNNS is an indication that in these data, verbs with several arguments are less frequent. Previous research has revealed that two place argument verbs are comparatively more difficult to process cognitively than one

place argument verbs and that the three place argument verbs. are comparatively ~~more~~ difficult to process than the one and the two place argument verbs (Chomsky, 1965). This means that verbs that occur in the LNS are comparatively more complex to process than those that occur in the LNNS.

The use of a lesser number of compound, co-ordinate and complex noun phrases in the LNNS indicates less information content compared to the LNS. In a way, then, the propositional complexity of the noun phrases is comparatively less complex than the LNS. This is confirmed by the lower percentage of prepositions in LNNS (8.65% in the LNNS and 6.95% in the LNNS) also. Note in this regard that in the English language system, prepositions always bring in either modification or extra details.

The use of a lesser number of class changing derivative morphemes is an indication that the adjectival system used in the LNNS is comparatively easier to process.

The findings in general indicate that vocabulary in the LNNS is propositionally less complex, and reflects less rich content.

CONCLUSION

Major Findings

The aim of this research was to identify and study the linguistic and extralinguistic adjustments made for nonnative speakers at the discourse level in a university subject-matter classroom which may facilitate perception and conceptual understanding of the input language. The major findings, in general, confirm that the example of foreigner register in this case study is characterized by modifications in the frequency or frequency range of the various phonological, lexical, syntactic, semantic and discourse options present in the standard language⁶².

The findings, in general, indicate that in addition to the generally recognised features of foreigner register observed in other studies, such as syntactic complexity (the shorter mean length of T-units, S-nodes, clauses, preference for the use of co-ordinations) and lower type/token vocabulary ratios, there exist many more distinguishing features ranging from the discourse level to that of minimal syntactic categories.

In this study, the discourse addressed to nonnative speakers used a significantly greater proportion of (i) discourse adjuncts, (ii) topical (as opposed to dummy) subjects, (iii) topic recycling (as opposed to topic reintroduction) strategies,

(iv) parallel (as opposed to sequential) progression and (v) simplex (as opposed to complex) speech acts. Furthermore, the discourse was characterized by a lower frequency of multiple cohesive ties. Also, multiple cohesive ties, when they occurred, were in closer proximity to one another. There were no quantitative differences in the distribution of pronouns. At the minimal syntactic category level, complex phrases were less frequent and there was a significantly smaller proportion of class changing derivative morphemes.

Interpretation

In this section, I shall attempt to show how the discourse modifications as seen in the fourth chapter make the input language perceptually, conceptually, and cognitively simpler compared to that produced in native speaker-native speaker (NS-NS) communication in a parallel situation in terms of the cognitive involvement required. In short, the general research question is whether the LNNS data set is cognitively less demanding for processing purposes than the LNS data set. For this, arguments from three different areas will be used. They are: (i) background knowledge, (ii) processing strategies and (iii) short and long term memory.

I. Background Knowledge

Immanuel Kant claimed as long ago as 1781 that new ideas can have meaning only when they can be related to something the individual already knows. This applies as much to second language comprehension as it does to comprehension in one's native

language. Recent empirical research in the field which has come to be known as schema theory has demonstrated the truth of the above observation. It indicates that what the addressee brings to the comprehension task is more persuasive and more powerful than the general psycholinguistic model suggests. According to schema theory, "a text only provides directions for listeners or readers as to how they should retrieve or construct meaning from their own previously acquired knowledge" (Carrell and Eisterhold, 1980 : 556). In other words, language understanding is an active process involving the interaction of sensory/auditory information with our general knowledge of the world. The knowledge sources function together in construction of the most plausible interpretation of the input signal. The details of how these systems work together is not known, but that they do is clear.

Out of the many factors which contribute to the realisation of background information via the oncoming input signals, I shall discuss here only those which may have provided such information to the nonnative speakers in a comparatively more easily perceived and cognitively less demanding manner. They are : (a) context information (Carrell, 1985), (b) transparency, (Carrell, 1985) and (c) narrow listening (cf. narrow reading (Krashen, 1981)).

I prefer to call these three factors which can provide background knowledge "global strategies" since they help to

determine the global meanings of fragments of the discourse or of the discourse as a whole. In other words, information about the overall theme of the discourse does not merely come bottom-up from local meanings of words and sentences. We often make a guess about the theme of a discourse on the basis of inferences from interactional situations; hence the use of global strategies.

A. Context Information

Context information generally refers to the presence of titles and illustrations (See Carrell, 1985). In the given data sets, the following are some of the ways by which context information is provided.

i. Topical sentences

In both data sets, topical sentences function as titles and examples as illustrations.

ii. The occurrence of a global speech act

The occurrence of a global speech act in the LNNS data is particularly important for it narrows the scope of the possible interpretations of the discourse. The listener gets a semantic awareness of the structure of the ongoing discourse even without syntactically parsing the sentence.

B. Transparency

For Carrell, transparency refers to the absence of lexical items with highly specific meanings. Broadly interpreted, this can be said to refer to (i) the use of less complex semantic

concepts and (ii) less complex argument structure, or what is called argument simplicity.

1. Use of less complex semantic concepts

Recall that less complex noun phrases characterized the LNNS data. An experiment by Kintsch (1974) indicated that the amount of time required to read and remember a proposition is proportional to the number of component-propositions in its base. The implication of this finding for the present research is that the comparatively less frequent occurrence of complex noun phrases in the LNNS makes this discourse comparatively easier to process.

ii. Argument simplicity

The lower noun-verb-ratio in the LNNS data is an indication that argument structure in the LNNS data set is comparatively less complex.

C. Narrow listening

The concept of narrow listening can also be applied to the nonnative speakers. The concept is based on what Krashen calls "narrow reading".

Krashen's term "narrow reading" refers to reading that is confined to a single topic or to the texts of a single author. Krashen suggests that "narrow reading, and perhaps narrow input in general, is more efficient for second language learning"

(Krashen, 1981 : 23). For him, students who read either a single topic or a single author find that the text becomes easier to comprehend after the first few pages, thus providing comprehensible input for language acquisition.

In the present context, what I prefer to call "narrow listening" can be defined as listening to a discourse that is confined to a particular subject matter by a single speaker. Listeners, in this case, adjust to the repeated vocabulary of a particular topic as well as to the particular style of the speaker. Furthermore, repetitions of vocabulary, structures and content mean that review is built into the listening. The significant advantage from the schema-theoretic point of view is that schemata are repeatedly accessed and further expanded and refined, resulting in increased intake. In brief, the concept of "narrow listening" is evoked to show that apart from other global strategies, narrow listening may also augment the comprehension of the subject-matter on the part of the nonnative speakers.

II. Local (Processing) Strategies for the Retrieval of Meaning

As opposed to the global strategies used to evoke contextual information, local strategies essentially deal with various aspects of grammar. However, they are not strategies that are formulated by the grammar; rather, they are, in essence, cognitive strategies that are used to produce or understand structures that are specified by the rules of the grammar. In the present context, the use of the following discourse modifications

in the LNNS data may result in retrieval processes which require comparatively less time. They are:

- i. the occurrence of a comparatively lesser number of anaphors which carry extended reference (Table 26)
- ii. the occurrence of a comparatively lesser number of anaphors which carry double reference (Table 28)
- iii. the occurrence of a lesser number of anaphors per antecedent (Tables 29 and 30)
- iv. the occurrence of a comparatively shorter clause length (Table 43)
- v. the occurrence of comparatively shorter S-nodes (Table 42)
- vi. the occurrence of comparatively shorter DT-units (Table 41)
- vii. the closer distribution of text-forming anaphors and antecedents
- viii. the use of a lesser proportion of compound, complex and co-ordinate noun phrases and a greater proportion of simplex noun phrases (Table 54)
- ix. the use of a lesser number of class changing derivative morphemes in the formation of adjectives from nouns and verbs (Tables 56 and 57)

III. Memory Storage Strategies

In the previous two sections, I examined in some detail the various processes found in the LNNS data which may make comparatively lower cognitive demands in discourse comprehension. In this section, I shall attempt to show that the classical working memory concept as it has evolved from many laboratory

studies with nondiscourse materials is a useful explanatory concept for evaluating two discourse comprehension processes.

Human memory system and storage

Like all large scale storage systems, the human memory system appears to be highly organized, in the sense that similar and associated units of information are stored together. It is this organization that allows us to regain access to information once we have stored it away.

Research on the human memory system indicates that information that we have just received remains for awhile (for fifteen to twenty seconds) in an active state in the short-term memory. Research further indicates that information from the memory storage can be readily retrieved only when the information in the short term memory has been rehearsed or deposited in long-term memory. In the following section, I shall enumerate the discourse modifications made in the LNNS data which may facilitate information processing and subsequent storage in the long-term memory.

1. Comparative frequency of occurrence of communication strategies

Experiments by Woodward, Bjork, and Jongeward (1973), Atkinson and Shiffrin (1968), and Norman and Rumelhart (1970) suggest that (a) constant memory activations help to hold information for any period of time, (b) that the longer the information is maintained in a memory activation, the stronger

the memory trace finally left in long-term memory and (c) that an input that is thoroughly rehearsed can easily be retrieved from long term memory and finally (perhaps more importantly) that (d) access to long-term memory ordinarily proceeds from semantic cues.

It can be noted that the main purposes of using the four communication strategies described (Chapter IV Section V) are to check comprehension and/or clarify propositional content of the ongoing communication. The comparatively more frequent occurrence of these strategies in the LNNS data is an indication that the speaker has unconsciously attempted to aid storage of the information (semantic content of the ongoing communication) in the nonnative speakers' long term-memory.

In my view, self-repetitions, comprehension checks and simplification strategies may have helped the less proficient nonnative speakers to (a) rehearse the semantic content and (b) maintain frequent memory activations, both of which would facilitate permanent storage of the information in the memory system. Frequent elaborations may not only have helped in rehearsal of the semantic content but may thus have strengthened the memory trace left in the long-term memory.

ii. Topic recycling

The frequent topic recycling strategy used with nonnative speakers may also help rehearsal of information content, thereby

strengthening the memory trace left in the long-term memory and, consequently, facilitating later retrieval.

iii. Absence of topic reintroduction strategies

Topic reintroduction strategies are used only in the native speaker discourse. This may be due to the speaker's preference to avoid what are called "confusion errors" (Rumelhart, 1977 : 181) within the chunks of information to be stored.

iv. Repetition of vocabulary

The comparatively higher type-token ratio for nouns and verbs (Tables 52 and 53) used in the LNNS data probably ensured that much of the vocabulary would be rehearsed more frequently by the nonnative speakers. This, in my opinion, apart from strengthening permanent memory traces may have also given what Krashen calls "a feel" for the language and the subject matter. This consequently may have accelerated the comprehension process also.

v. Role-play and non-verbal support

Experiments by Bransford and Johnson (1973) indicate that contextual information plays a critical role in language understanding. The frequent role-plays and the appropriate non-verbal support in the LNNS data provide visual stimuli to the ongoing communication process, leaving a trace in the semantic memory and thereby helping the development of associational memory networks, which may be accessed later through these cues.

Conclusion

The results of this study show that the native subject-matter teacher who participated in the experiment did make systematic discourse adjustments in his speech when he was talking to his nonnative students. It seems probable that he manipulated discourse and linguistic variables according to his judgement of what these students would be able to comprehend. It appears that this teacher made his discourse "input language" simpler perceptually (in terms of background knowledge), conceptually (in terms of background knowledge and processing strategies) and cognitively (in terms of background knowledge, processing strategies and human memory systems) in comparison with the discourse addressed to the native speakers in the parallel situation. The fact that the nonnative speakers did understand the input language over the 13-week course, while increasing their second language proficiency level and self-confidence level, suggests that input language has a vital role to play in comprehension and indirectly the second language acquisition process.

END NOTES

Chapter 1

1. Others who have talked about the importance of input data for a theory of language acquisition are : Snow (1972), Henzl (1973), Brown (1977), Gaies (1977), Katz (1977), Hatch, Shapira and Gough (1978) and Krashen (1978).
2. Chaudron (1983b) also has a similar definition. For him, "intake" means "not only perception and comprehension of forms (ie. preliminary intake) but the incorporation of the forms in the learner's grammar (final grammar)" (p.438).

The distinction between input and intake is as follows: "Input" is "what goes in" (Corder, 1967) and "linguistic forms used" (Long, 1981).

"Intake", on the other hand, does not refer to a single event or product, but to a complex phenomenon of information processing that involves several stages, roughly characterized as (1) the initial stages of perception of input, (2) the subsequent stages of recoding and encoding of the semantic (communicated) information into long term memory, and (3) the series of stages by which learners fully integrate and incorporate the linguistic information in input into their developing grammars.

My definition of "intake" (especially in relation to my definition of "acquisition"), in essence attempts to emphasize two factors in the context of the second language acquisition process. First, the definition refers to the mediating process between the target language available to learners as input and the learners internalized set of L2 rules and strategies for second language development. Secondly, the definition identifies the learner as an active agent in acquiring the target language.

3. cf. Selinker (1972)
4. The term "acquisition" can be defined in two ways. On the one hand, it can refer to the notion of acquiring not something previously possessed by the learner. In this sense, the learner (acquirer) is seen as going through increasingly more advanced stages of acquiring aspects of the complete adult language system as used by the native speaker. The focus of this definition is on what is to be acquired (the features of the native adult language) and how the learner goes about acquiring them. On the other hand, the term can also refer to the process of creating an increasingly complex rule governed system from the input available to the learner. Out of the two definitions, I have adopted the latter one since it recognizes the importance of input data in a language acquisition process.

At the same time, I am aware that both first and the second language acquisition research studies have shown that the learner created systems are far from identical with the systems from which he draws raw material (input) for this creation.

5. Greenberg (1963); Rutherford (1982), Zobl (1983) and many others.
6. For Krashen and his followers, one of the distinctions that must be preserved is the distinction between "learning" and "acquisition". "Learning" is what has been consciously abstracted from experience, concentrated on and corrected, grasped and stored against future need. By contrast, what has been "acquired" is what has come in as part of a total experience, frequently at the edge of attention rather than at its centre.
7. Note that Brown and Yule (1983) recognize the fact that discourse is not a rule governed behavior, but there are regularities (p.22).
8. I use addressee in preference to hearer or listener in order to suggest the meaning 'person designated' by the speaker as a recipient of the communication - as distinct from one who chooses to listen or happens to listen.
9. Hymes (1972), Halliday (1973), Goffman (1976)
10. cf. Rumelhart (1977:169) : Language understanding "is not a simple bottom-up process in which we somehow construct the meaning of input sentences out of the stimuli impinging on our eyes or ears. Rather, language understanding is an active process involving the interaction of sensory information and with our general knowledge of the world. All of these knowledge sources work together to construct the most plausible interpretation of the input signal. The details of how these systems work together is not known, but that they work together is clear".
11. Grice (1975) has divided these conventions into four categories with more specific implications : quantity, quality, relation and manner.

Quantity : (a) Make your contribution as informative as possible.
(b) Do not make your contribution more informative than required

Quality : (a) Do not say what you believe to be false

Relation : (a) Be relevant

- Manner : (a) Avoid obscurity of expression
(b) Avoid ambiguity
(c) Be brief
(d) Be orderly

12. The distinction between my term "input language" and Krashen's very well known term "comprehensible input" is subtle. For Krashen, "input that contains structures at our 'next stage' - structures that are a bit beyond our current level of competence - (we move from i , our current level, to $i+1$, the next level along the natural order, by understanding input containing $i+1$)" is made comprehensible with the help of context, which includes extra-linguistic information, our knowledge of the world, and previously acquired linguistic competence. Note that my terminology of "input language" unlike that of Krashen's does not refer to syntax or a block of structures at the next stage alone. It refers to the whole system of language the learner is provided with - including the unfamiliar lexicon and the interactional factors.

13. For useful reviews of the literature on first language acquisition, see Farwell (1973), Landes (1975), Clark and Clark (1977), Snow (1977), de Villiers and de Villiers (1978), and Long (1980).

For an excellent review and evaluation of research on language addressed to second language learners, see Long (1980).

14. Snow (1972), Bailey et. al (1980), Krashen (1981a)

15. Brown (1977), Snow (1977), Freed (1978)

16. Vorster (1975), Van der Geest (1977), Freed (1980; 1981), Chaudron (1983)

17. Gaies (1977:204) further states : "Analysis of the data collected indicates that many linguistic and communicative strategies typically used by adults in their interactions with children in the early stages of language acquisition are equally characteristic of the classroom language of ESL teachers".

18. Since linguistic theory fails to provide us with an operational definition of what the notion of simplicity in language entails, analytic work on this question suffers from subjective assumptions. In my view, one must distinguish the overall (structural) simplicity of a particular code from the simplicity in the description of grammars in general; in other words, overall (structural) simplicity of a particular code has nothing to do with the evaluation of grammars, or simplicity metrics to the study of which linguists commit themselves.

19. See Hatch (1983 : 155-158) for a list of these experiments.
20. Simple codes in the sense of being simple to process (particularly in terms of demands made on cognition for comprehension purposes).
21. Krashen's definition of each of these terms is particularly interesting for it recognises the inherent limitation involved in each of them. The limitations are as follows: Caretaker speech is limited by the cognitive competence of children; foreigner talk is inherently limited due to the limitation of the context where communication takes place; interlanguage talk is limited by the competence of the speakers; teacher talk may be inherently limited due to the limitation of what can be discussed in the classroom.
22. I am aware of the fact that the definition of what is simplified speech can be quite different for different learners.
23. The concept of language register was first described by Reid (1956:32) who noticed that the linguistic behavior of a given individual is by no means uniform; placed in what appears to be linguistically identical conditions, he will on different occasions speak (or write) differently according to what may roughly be described as different social situations: he will use a number of distinct "registers". Subsequently, as a unit of linguistic analysis, register represents a language variation that is pertinent to different language uses rather than that associated with the language users. It is a situationally conditioned language variation that cuts across the boundaries of social regional dialects, as well as those of languages. The concept of register is a language universal but its formal realizations vary from language to language. Likewise, there exists no definite number of registers in any one language, as the range of registers that make up each speaker's linguistic repertoire, depends on the extent of his personal involvement and experience with various types of social situations.

The situational factors which collectively influence register variation in a language include the speaker and the addressee (sex, age, social status, etc.), the roles they play in the discourse (teacher, student; student, peer; mother, daughter, etc.), the topic discussed (science, sales, love, etc.), the setting of the communication (home, playground, lecture hall, etc.), the mode of discourse (spoken unprepared, written to be read, etc.), and the form of discourse (narrative, apology, scolding, etc.) (Hymes, 1962; Ervin-Tripp 1964; Fishman, 1972). Native speakers of all human languages possess the ability to change their language according to their environment. By switching register, even though done unconsciously, a speaker overtly demonstrates his

familiarity with a particular situation he finds himself in at the time of speaking, as well as his willingness to comply with the rules for appropriate behavior associated with that situation.

24. The present data as per these criteria qualify to be called "foreigner register", because the adjustments made are well within the bounds of the grammatical rules.
25. The T-unit measure was first introduced by Hunt (1965). He suggested that we could judge syntactic maturity of first language learners by counting the length of T-units in their compositions. The T-unit is a single independent clause together with all its modifying subordinate clauses. As the student matures, his or her T-units become larger, especially if embedding is used.
26. Long (1980), Cross (1977), Gaies (1977), Newport et al. (1977), Krashen (1981)

Cross suggests that the child acquires two levels of complexity : "One level pitched very close to his own so that he can process it and comprehend the meaning, and the other slightly in advance of his own syntactic abilities. The child should then be able to comprehend the meaning, and also the relationship between characteristic mode of expressing it and the more sophisticated version" (1977:181).
27. Chaudron (1983b) also gives a similar warning that modifications may be linguistically or cognitively simpler, but that one form of simplification does not guarantee the other.
28. Van der Geest (1977), Bailey et.al (1974), Krashen (1981), Chaudron (1983)
29. How much redundancy is required for effective communication with different learners and in what aspects of input language will be an interesting area for further research.
30. Long (1983), Gass and Varonis (1985)
31. In my opinion, input studies attain much more importance because of this crucial factor. In fact, by studying input language, it may be possible to know to certain extent (a) where an individual is at linguistically and cognitively and (b) how and why some input facilitates speech and language, while some other does not.
32. For Snow (1977b), modifications in this sense are "language lessons" : "modifications that lead to more successful communication are also modifications that lead to 'primary data' from which it may be easier for children to learn".

Cross as early as (1978), thinking along the lines of Krashen makes the following observation : "Acceleration in linguistic acquisition is associated with an input that is substantially matched to the child's own communicative intentions....." For him, what is important "is the extent to which the mother's discourse adjustments permit the child to guess accurately her meaning". "By matching the child's semantic intentions and ongoing cognitions, her speech may free the child to concentrate on the formal aspects of her expressions and thus (the child may) acquire syntax efficiently" (p.214).

Cross, however, differs from Krashen in the sense that for her, it is semantic rather than syntactic extension which strongly associates with overall child-progress. Further, it is teaching the child how language is mapped onto the categories and relations which provide the experience for his/her non-linguistic experience.

Chapter 2

33. The first two are : Edwards, et al. (1984) and Wesche and Ready (1985).
34. In the given case, it may be "foreigner register", which has been defined as a modified but grammatical input which is used with non-native speakers who typically are in the process of acquiring more than rudimentary skills for referential communication.

Also, this can be regarded as a "marked register" since the teacher is capable of, and normally uses a more complex register and thus can properly be regarded as simplifying his rhetoric in his interaction. In brief, simplified registers involve a selection out of the total repertoire of forms generated by the grammar of their complex code. This means that certain forms and structures may be less frequent or completely absent in a simple register.

For further observations on foreigner register, see Arthur, et al. (1980)

35. It is for this reason, subject-matter language teaching is of interest to second language acquisition theory. Krashen's (1983) "Input-hypothesis" claims that second language acquisition results from comprehensible input provided in sufficient quantities within a real communication situation. It claims that we subconsciously acquire new linguistic structures by understanding messages that contain these new structures with the aid of extra-linguistic information provided in and by the context.

The input hypothesis also claims that if the acquirer obtains enough comprehensible input, the language structures for which the acquirer is ready will be automatically provided. In this way, the acquirer builds up receptive competence which forms a basis for the subsequent emergence of productive skills.

In short, for Krashen and his followers, the input available to second language learners is the raw data from which they derive both meaning and awareness of the rules and structures of the target language.

36. Krashen, (1981b :61)

37. nor did students demand this

38. Edwards et al. (1984) report that the fact that the ESL group did not show any significant second language gains may be due to the unduly high pre-test scores which may have resulted in a ceiling effect (p.279).

39. Student comments at the end of the course also indicated that most gained considerable satisfaction from "doing something real" in their second language and that they used the language out of class more than before.

Chapter 4

40. As commonly used by native speakers, the word utterance is applicable to linguistic acts (or entities) and, further, it is taken to apply only to cases of linguistic cases (or entities) that count as speech production. Even in technical usage, for example, that of linguists, the term is applicable only to the performance (versus competence) aspects of language. This usage is reflected in the fact that (1) and (2) are not acceptable sentences of English, while (3) - (5) are acceptable:

(1) *In his book on Africa, he made the following utterance.....

(2) *Every utterance in his article was carefully checked for accuracy.

(3) Every utterance at his trial was carefully recorded.

(4) He held us spellbound on his every utterance.

(5) His final utterance was lost in the crash of the springing trap door.

41. A speech paragraph has been generally defined as a chunk of conversation about the same theme. Most commonly, it also preserves action continuity.
42. See Anderson and Bower (1973) and Murdock (1974) for a model of working memory. The current view with regard to long-term memory is that information in the short-term memory cannot be readily retrieved after some fifteen to twenty seconds unless it has been rehearsed or deposited in long-term memory.
43. Wesche and Ready (1985) found a significant difference in the use of pauses between the LNS and the LNNS.
44. The general class of adverbials which can appear initially in a sentence are generally considered as possible (micro)markers of sentential topic-conclusion: adjuncts, conjuncts and disjuncts. The occurrence of different types of fillers such as "well", "mmm", "you know" and others may also regularly coincide with sentential topic-shifts/conclusions. What is discussed here is topic-conclusion at the macrolevel.
45. For Hurtig (1977), "a topic will be shifted either by shading or a fading, the former being an expansion of the domain of the topic and the latter being a movement away from the topic, preparing for a new topic". His attempt was essentially to bridge the concepts of topic maintenance and topic change.
46. Robert Lado (1965) has cited research that found memory span shorter in the foreign language than in the native language, but amenable to training.
47. It may be for this reason that Van Dijk and Kintsch (1983:201) call the topic boundary markers "structural signals".
48. See Van Dijk and Kintsch (1983 : 194) : "Semantic macrostructures are signaled directly by thematic sentences or words, connectives, pronouns, etc., or else they are expressed indirectly by sequences of sentences".

"For a cognitive model, such methodological issues may be much less relevant because meanings are constructed out of various knowledge units, that is cognitive structures. In other words, understanding a discourse is a process of inference making at all levels, both at the levels of words, phrase, and sentence meanings and at the more global level of macrostructures. As Slobin (cited in Bates and MacWhinney, 1982:187) put it : "Language evokes ideas; it does not represent them". From that perspective, the

macrostructure of a discourse is the conceptual global meaning assigned to it. This assignment is based both on textually manifested surface and meaning structures on the one hand and on various knowledge or other purely cognitive structures on the other".

49. Terminology differs from analyst to analyst. For example, for Weissberg (1984 : 488), what is generally called "parallel progression" is "constant topic progression" and "sequential progression" is "linear progression".

50. Clark suggests that successful communication requires that three conditions on the nature of the given and the new be met. They are :

- (a) Appropriateness : The Given part of the sentence ought to convey known, or knowable information and the New part, unknown information.
- (b) Uniqueness : The Given information provided by the speaker must enable the speaker to compute an Antecedent (referent) that is unique.
- (c) Computability : Most fundamental of all, the listener must be able to compute the intended Antecedent to the Given information on what he knows.

51. Clark and Haviland (1977), Olson (1970)

52. Bridging : The listener must be assumed to have sufficient knowledge and skill to be able to compute the intended message - the given information must match information in memory directly; violations lead to bridging; then the speaker must be confident that the listener has the information from which he can build a bridge to the intended message and that he has the skill to do so.

53. By greater implicitness, I mean the experiential function of the language itself as reflected in the lexicon. For example, consider the following two sentences :

- (a) The car hit the post violently.

- (b) The car smashed the post

The experience one associates in the listening of "smash" is greater than the listening of 'hit violently'. In fact, the adverb "violently" becomes redundant when we use "smash".

54. The transcribed data can be given to native and nonnative speakers for reading comprehension purposes to find out whether the insights provided through these measures have reliability.

55. There are three schools of thought with regard to the relation between clauses/sentences and speech acts. For the traditional school (Searle 1975, Goffman 1976, Gumperz and Hymes 1972), speech acts are not identifiable with the sentence, or with any other level of grammatical description. The other school, especially Fraser (1975), favours a distinction between strongly performative speech acts (those which are easily seen as counting as the act denoted by the verb) and weakly performative acts. Recent schools (Van Dijk and Kintsch 1983, Schmidt and Richards 1980) recognize the fact that there is no one to one relationship between an utterance and a speech act. There is yet another school (Boyd and Thorne 1969) which considers modal verbs as indicators of the illocutionary potential of the utterances in which they occur.
56. See Van Dijk and Kintsch (1983 : 82-83) : "That is, we must assume in understanding a discourse that it is produced and used within a larger social context or at a more local social occasion. In other words, as Van Dijk and Kintsch say, "We must apply different strategies when understanding a discourse produced by the government, a bank, a judge in the courtroom, a student in our class, a friend in a bar, or our child at the breakfast table. The strategic nature of the understanding process lies in the fact that we activate different kinds of expectations about possible interactional functions (intentions), speech acts, global themes, discourse types, coherence, styles, etc. From a government or bank, we do not expect stories, but laws, documents, or reports - discourse types we, in turn, do not expect from friends or family members in everyday conversation..... Hence, an interactional strategy for discourse understanding means that a hearer derives effective expectations from the global or local social context with respect to the interactive intentions, goals, and motivations of the speaker as they relate to cognitive or actional changes of the hearer".
57. They further add that "hearers apparently have strategies for an effective preanalysis of speech acts and speech act sequences. Such strategies are possible because of the general motivational (wants, wishes, preference) and goal directed nature of action and interaction, and hence also of speech acts.... a hearer need not hear a whole discourse before knowing or being able to guess what the global pragmatic point is. That is, the initial speech acts of a text or conversation will be interpreted as possible components in a global speech act, which need not be directly expressed in the text" (p.87).
58. Halliday and Hasan (1976) take the view that the primary determinant of whether a set of sentences do or do not constitute a text depends on cohesive relationships within and between the sentences, which create texture : "A text

has texture and this is what distinguishes it from something that is not a text The texture is provided by the cohesive RELATION (p.2).

59. For example, consider the following examples (from Clark and Haviland, 1977):

"John is a democrat. Bill is honest too"

The greater use of metatextual markers in the LNNS in this way can be said to contribute what Clark and Haviland call "computability" and "minimal inferential bridging".

60. The finding that metatextual markers are used significantly less in the LNS is in tune with this finding.

Consider the example given in the previous note :

John is democrat. Bill is honest too.

The information conveyed by a pair of sentences such as above, in fact, become part of the listener's model of the speaker's world and not necessarily part of the beliefs of the listener himself. Note that it is possible for the listener to understand that Bill is honest too without believing that all, or even any, democrats are honest.

61. In this style dichotomy, according to Hartnett (1980), the analytic cognitive style is associated with abstracting information from a stimulus to reality, while the relational mode sees meaning only in the global characteristic of the stimulus associated to some total context.

Chapter 5

62. The methodology in many cases is new and also this is a case study with one speaker; hence, the experiment and the analyses will have to be replicated by another researcher for these findings to get their validity.

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Ce questionnaire a pour but de faciliter l'étude des aspects socio-psychologiques de ce cours. Vos réponses à chacune des questions demeureront strictement confidentielles. Bien que nous vous demandons d'inscrire votre nom sur la feuille de réponse informatisée, nous le faisons simplement pour être en mesure d'associer ce questionnaire avec d'autres informations que nous recueillerons plus tard. En séparant ainsi les questionnaires de la feuille de réponse, cela évite d'associer directement votre nom et votre réponse à une question particulière.

Afin que ce sondage soit significatif, il est important que vos réponses soient aussi précises et aussi franches que possible. Vous êtes libre de refuser de répondre à certaines questions ou même au questionnaire entier. Cependant vous devez réaliser que la valeur de l'ensemble de vos réponses sera diminuée dans la mesure où vous ne répondrez pas à toutes les questions. Nous insistons donc pour que vous répondiez à toutes les questions, à moins qu'il vous soit personnellement important de vous abstenir.

Instructions

PRIERE DE NE PAS ECRIRE SUR CE QUESTIONNAIRE.

1. Veuillez en premier lieu inscrire votre nom en lettres d'imprimerie ainsi que votre numéro d'étudiant(e) au haut et à droite de la feuille de réponse informatisée qui est jointe à ce questionnaire.
2. Dans les pages qui suivent, vous trouverez un certain nombre d'affirmations avec lesquelles certaines personnes sont d'accord et d'autres non. Vous devez indiquer la mesure dans laquelle vous êtes d'accord avec ces affirmations en utilisant l'échelle suivante:
 - (0) Je désapprouve tout à fait
 - (1) Je désapprouve légèrement
 - (2) Je désapprouve très légèrement
 - (3) J'approuve très légèrement
 - (4) J'approuve légèrement
 - (5) J'approuve fortement

Pour répondre, vous n'avez qu'à noircir complètement, sur la feuille de réponse, la case correspondant à votre opinion pour chacune des affirmations.

Si, par exemple, vous approuvez légèrement l'affirmation no. 1, votre réponse sur la feuille de réponse devrait correspondre à ceci:

1. (0) (1) (2) (3) ☒ (5) (6) (7) (8) (9)

Notez qu'il n'y a pas de bonne ou de mauvaise réponse; tout ce qui est important, c'est que vous donniez votre opinion personnelle.

- (0) Je désapprouve tout à fait
- (1) Je désapprouve légèrement
- (2) Je désapprouve très légèrement

- (3) J'approuve très légèrement
- (4) J'approuve légèrement
- (5) J'approuve fortement

-
1. Le dévouement dont les Canadiens anglais font preuve pour le développement et l'amélioration du Canada devrait être apprécié par tous les Canadiens français.
 2. Mes contacts avec les anglophones sont généralement agréables.
 3. Je me sens confiant(e) et détendu(e) quand je dois demander ma route en anglais.
 4. Lorsque je parle anglais, j'ai l'impression de perdre mon identité culturelle.
 5. Mes contacts avec des anglophones sont habituellement de pures pertes de temps.
 6. Parler anglais ne me fait pas douter de ma capacité de demeurer francophone.
 7. Plus je connais les Canadiens anglais, plus je voudrais parler leur langue couramment.
 8. Parler anglais avec un supérieur me gêne beaucoup.
 9. Les Canadiens anglais constituent un élément stable et "fiable" de la population.
 10. Mes contacts avec les anglophones sont habituellement enrichissants.
 11. Je me sens calme et sûr(e) de moi quand je dois commander un repas en anglais dans un restaurant.
 12. Je me sens mal à l'aise lorsque je parle anglais parce que j'ai l'impression d'être assimilé(e) à la culture anglaise.
 13. Mes interactions avec les anglophones sont plutôt distantes et hostiles.
 14. L'héritage culturel des Canadiens anglais est une partie importante et précieuse de notre identité nationale.

- | | |
|------------------------------------|--------------------------------|
| (0) Je désapprouve tout à fait | (3) J'approuve très légèrement |
| (1) Je désapprouve légèrement | (4) J'approuve légèrement |
| (2) Je désapprouve très légèrement | (5) J'approuve fortement |
-

15. Lorsque je place un appel téléphonique, je m'embrouille s'il est nécessaire de parler anglais.
16. Je ne perds pas mon héritage culturel français lorsque je parle anglais.
17. J'aimerais connaître plus de Canadiens anglais.
18. Mes interactions avec les anglophones sont amicales et chaleureuses.
19. La plupart des Canadiens anglais sont tellement amicaux et conciliants que nous sommes chanceux de les avoir comme citoyens.
20. Je deviens nerveux(se) chaque fois que je dois m'adresser en anglais à un vendeur.
21. Le fait d'apprendre l'anglais ne me fait pas douter de mon identité culturelle.
22. Dans le passé, mes interactions avec les anglophones se sont avérées plutôt négatives.
23. Les Anglophones sont sociables et sympathiques.
24. Plus j'apprends l'anglais, moins je suis sûr(e) du groupe culturel auquel j'appartiens.
25. Je me sens à l'aise lorsque je parle anglais dans une réunion d'amis où il y a des gens qui parlent anglais et des gens qui parlent français.
26. L'apprentissage de l'anglais ne me fait pas douter de mon appartenance au groupe francophone.
27. Les députés canadiens anglais sont parmi les meilleurs hommes politiques du Canada.
28. Je me sens mal à l'aise toutes les fois que je parle anglais.
29. L'apprentissage de la langue anglaise a pour effet de me dépayser culturellement.
30. Chaque fois que je rencontre une personne de langue anglaise et que je lui parle, je suis détendu(e).

S'il vous plaît, répondre à chacune des affirmations suivantes en choisissant la phrase qui vous décrit le mieux. Noircissez sur la feuille de réponse la case correspondante. Nous tenons à vous rappeler qu'aucun de vos professeurs n'aura accès à ce questionnaire ni à toute autre information qui associerait ce questionnaire à votre nom. Étant donné que le succès de cette recherche dépend de votre franchise, nous insistons pour que vous répondiez le plus spontanément possible.

31. S'il y avait des familles de langue anglaise dans mon entourage...

- a) je leur parlerais anglais aussi souvent que possible.
- b) je leur parlerais anglais de temps à autre.
- c) je ne leur parlerais jamais en anglais.

32. Si j'avais l'occasion de voir une pièce en anglais...

- a) j'y assisterais sûrement.
- b) j'y assisterais si je n'avais rien d'autre à faire.
- c) je n'y assisterais pas.

33. Lorsque j'entends une chanson anglaise à la radio...

- a) je change le poste.
- b) j'écoute la musique en faisant attention aux mots qui sont les plus faciles.
- c) j'écoute attentivement en essayant de comprendre tous les mots.

34. Je pense qu'apprendre l'anglais est...

- a) très intéressant.
- b) n'est pas plus intéressant que les autres langues.
- c) n'est pas intéressant du tout.

35. Si je savais suffisamment l'anglais et si j'en avais l'occasion, je lirais des revues et des journaux anglais...

- a) le plus souvent possible.
- b) pas très souvent.
- c) jamais.

36. Si j'en avais l'occasion et si je savais suffisamment l'anglais, je suivrais à la télévision des émissions anglaises...

- a) jamais.
- b) quelquefois.
- c) le plus souvent possible.

37. Si j'avais l'occasion de parler anglais...

- a) je refuserais de le parler.
- b) je le parlerais à l'occasion, en employant le français le plus possible.
- c) je parlerais anglais presque tout le temps; j'utiliserais le français seulement si c'était nécessaire.

Indiquez vos réponses aux affirmations qui suivent en noircissant sur la feuille de réponses la case correspondant à votre opinion. Par exemple, si vous pensez que vous pouvez écrire un peu l'anglais, vous devez noircir la case (2) ainsi:

38. (0) (1) ☒ (3) (4) (5) (6) (7) (8) (9) (exemple)

Si toutefois, vous pensez que vous pouvez écrire en anglais entre "pas du tout" et "un peu" vous devez choisir la case (1).

38. J'écris en anglais.

(0) : (1) : (2) : (3) : (4) : (5) : (6) :
pas du tout un peu assez bien couramment

39. Je comprends l'anglais.

(0) : (1) : (2) : (3) : (4) : (5) : (6) :
pas du tout un peu assez bien couramment

40. Je lis l'anglais.

(0) : (1) : (2) : (3) : (4) : (5) : (6) :
pas du tout un peu assez bien couramment

41. Je parle anglais.

(0) : (1) : (2) : (3) : (4) : (5) : (6) :
pas du tout un peu assez bien couramment

Veillez, s'il-vous-plaît répondre aux questions suivantes:

42. A l'avenir j'ai l'intention d'utiliser l'anglais plus souvent qu'avant ce cours.

Définitivement
Non (0) (1) (2) (3) (4) Oui

43. A l'avenir, j'aurai plus de contacts informels avec les anglophones que j'avais avant ce cours.

Définitivement
Non (0) (1) (2) (3) (4) Oui

Psychology 1200

1983-1984

COURSE CONTENTOUTLINE

This yearly course is divided into nine sections: the first five will be studied in the first semester. These sections are as follows:

1. Psychology: a science
2. Heredity and environment in the development of behavior
3. Nervous system and consciousness
4. Perception
5. Complex cognitive processes

The other four sections studied in the second semester, are as follows:

6. Basic learning processes
7. Personality
8. Mental health and abnormal behavior
9. Social psychology

Following the detailed outline for each section, you will find references to the appropriate chapter(s) in the textbook as well as a short description of the audio-visual production(s) relating to that section.

DETAILED OUTLINE

Second Semester

SECTION VI: BASIC LEARNING PROCESSES:

VI.1 Definition

- learning vs performance
- learning vs conditioning

VI.2 Classical or respondent conditioning

- Pavlov, Watson
- conditioned and unconditioned stimulus
- conditioned and unconditioned response
- acquisition, trials, pairing
- simultaneous, delayed, trace and backward conditioning
- extinction and spontaneous recovery
- generalization and discrimination
- reciprocal inhibition

VI.3 Instrumental or operant conditioning

- Skinner
- operant vs respondent behavior
- reinforcement process: positive or negative
 - primary or secondary
 - conditional
 - continuous or partial
- positive and negative reinforcers
- punishment, avoidance and escape
- base level, reinforcement, reversal
- partial reinforcement schedules
 - fixed or variable intervals
 - fixed or variable ratios
 - their effects on behavior
- effects of amount of reinforcement
- delay of reinforcement
- drive
- shaping
- extinction and spontaneous recovery
- response differentiation
- generalization and discrimination
- discriminative stimulus
- biofeedback and ANS conditioning
- brain stimulation as a reinforcement

IV.4 Learning theories

- associative theories
- cognitive structure
- Köhler and intuitive learning
- Tolman and the cognitive map
 - latent learning
- Bandura and social learning

References

Textbook: Chap. 7, pp. 193-219

Film:

Learning, by: Robert Leclerc, Ph.D.

The concepts of behavior, stimulus, response and reinforcer are defined and illustrated. Then, operant and classical conditioning procedures are presented, in a laboratory situation.