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COGNITIVE DEVELOPMENT AND ITS IMPLICATION TO THE TEACHING OF ENGLISH AS A FOREIGN LANGUAGE

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ERRATA

Page 1, line 22, instead of "necessary tools", please read "adequate structures".
Page 25, line 24, instead of "to his development stage;" please read "to his mental development stage".
Page 58, lines 2 and 3, instead of "no powers of reflection" please read "no powers of expressing his ideas".
Page 59, line 23, instead of "adolescents will have problems to argue", please read "adolescents will probably have problems to argue".
Page 60, line 2, instead of "they will be able to" please read "they will probably be able to".
Page 60, line 11, instead of "they will be able to write" please read "they will probably be able to write".
Page 60, line 23, instead of "They will not be able to" please read "They will probably not be able to".
Page 60, line 26, instead of "students will have difficulty to" please read "students will probably have difficulty to".
Page 67, lines 13-15, instead of "They have no way to make a promise or threat because there were no examples of this modality. It is expressed by the use of SHALL", please read "They can make a promise or threat by using speech acts or conditional clauses, IF clauses, but they will not be able to express this modality by the use of SHALL".
Page 69, instead of "Logical Connectors", please read "Logical Connectors, Occurence and Frequency".
Page 70, instead of "Modal Verbs", please read "Modal Verbs, Occurence and Frequency".
Page 81, line 5, instead of "desnvolvimento", please read "desenvolvimento".
Page 91, line 15, instead of "The Growth of Thinking", please read "The Growth of Logical Thinking".

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ABSTRACT

The aim of this research is to study cognitive development and its implication to the teaching of English as a foreign language, i.e., to check whether the Language Courses in Brazil provide the level of proficiency for the students to communicate at the level of cognitive development they are in, that of formal operations, and, consequently, argue, especially during their literature classes. This work involves the study of the modal verbs and the logical connectors collected from the basic texts of each unit of two-first-year English coursebooks used at University level. The analysis is carried out on a cognitive development perspective, derived from different authors. Therefore, a review of the literature on cognitive development, logical connectors and modal verbs has been included in the present research.

After analysing the data, we drew the conclusion that the English coursebooks used at University level in Brazil do not provide the level of proficiency for the students to communicate at the level of cognitive development they are in, that of formal operations. They were originally designed for High School students and not for University students.

1 - INTRODUCTION

The English Language is taught as a foreign language in Brazil in High School (First and Second levels), and at the University level. High School in Brazil refers to a period of formal instruction which covers the ages between eleven and eighteen. The third level is the University level, for which the minimum age is about eighteen.

At this level it may be taught as Technical English, i.e., English for Specific Purposes (ESP), for all courses, except for "Letras". Whereas in courses in which it is taught as ESP the students will learn how to read and understand technical literature, in courses like "Letras" students may take English, among other languages, as one of their major subjects and will acquire the four basic skills in learning a language, i.e., listening, speaking, reading and writing. The material used for this purpose ranges from coursebooks, short stories, novels to movies, songs, games, etc. The classes are normally structured around a coursebook for which the other materials are a complement. As a result of the use of these materials students should acquire the knowledge to listen, speak, read and write in English.

Therefore, the choice of the book is very important, and thus the necessity of the teachers to choose and adopt a book which would provide the necessary tools for the students to communicate and argue at the level of mental development they are in, that of logical and abstract reasoning; and yet, observe whether the book was originally designed for High School or for

University students.

In case an inadequate book is chosen, it may cause a serious problem either for the students because they will not be able to structure their ideas (they may have all the vocabulary they need, but they will not master the adequate structures); or for the teachers because they will have, somehow, to complement the book by providing the missing linguistic elements, when they are aware of this problem. Otherwise, students will be able to communicate as if they were in the stage of concrete reasoning, where the child just creates descriptive sequences and enumerates facts. In addition, this may make the adolescents feel uncomfortable about using the foreign language because they may feel a little childish using only simple structures. And, besides, there is a hierarchical preference within the individual, i.e., a disposition to prefer a solution of a problem at the highest level available to him.

It is really a hard task to choose a book for teaching a foreign language. Though the University students are adults, they know very little English. Thus the natural tendency for teachers to choose and adopt a book for beginners, and not to take the target students' level of mental development into account.

Students need English to carry out argumentations, especially during their literature classes. They need to have all the necessary background for them to argue and write essays on literary analysis and criticisms. This normally does not occur, and, consequently, students will be able to argue as if they were in the stage of concrete reasoning.

The present dissertation will be primarily concerned with the problem: "Students in the first-University-year of Language

Courses in Brazil do not acquire the level of proficiency for them to take literature studies in the second year".

We intend to limit our analysis to the logical connectors (conjuncts, conjunctions and correlatives), and the modal verbs used in two different coursebooks adopted for the teaching of English as a foreign language at the University level in Brazil.

The choice of the logical connectors is due to the fact that they keep the argumentative orientation (and, besides, either ... or); they are structures that oppose argumentative orientation (but, although), and they are also structures that articulate argument and conclusion (so, once that, because, as, then, since, for). Argumentation is characteristic of the level of mental development the University students are in, that of logical and abstract reasoning. And, besides, because they enable the students to compare, to express implications, alternative courses of actions, to formulate hypotheses, etc. The students will need the logical connectors to utter coordinate as well as subordinate sentences, the latter being more appropriate to the stage of logical and abstract reasoning because, at this stage, the adolescents are entering adult society and part of being an adult is communicating like one. Adolescents will make use of and, but, then, which are pertinent to the concrete reasoning stage, but they will, as well, need most of the other connectors to convey their ideas according to their level of mental development, that of logical and abstract reasoning. In addition, it is also during this stage that adolescents acquire the capacity to use both deduction and experimental induction at the same time.

At this stage individuals are ready to master almost all the structures of their first language, as well as of any other

foreign or second language. "Within Piaget's framework mature development virtually ends with logical and abstract reasoning; adolescents entering this period have achieved fully logical thinking, and there is little more for them to do, except, perhaps, to extend their logical thinking to new content areas".[1] Linguistically speaking this expansion would be actualized at lexical (vocabulary) level, and not at the structural one.

In addition, at the stage of logical and abstract reasoning "an adolescent is capable of thinking of himself or herself as a more open and creative individual".[2] How can an adolescent be creative and express his doubts and uncertainties about the world having at his disposal a limited English background, specifically a small number of logical connectors? It will be difficult for him to find the correspondent linguistic elements in the structure of the language.

And, besides, "although the use of proper logical connectors is essential in the production of good writing, it is also important for ESL/EFL students to be able to recognize their function while reading and listening and it is also important for the students to control the more common ones while speaking".[3]

The students understand more than they can produce; they assimilate many logical connectors although they may be able to master few (the more common ones) in their structures. And, besides, if they are exposed only to the more common ones, they will be able to produce a very limited number of different structures.

As for the modal verbs because they enable the students to convey the idea of judgement, possibility, obligation, intention, permission, prediction, necessity, certainty, in order to argue. These ideas are expressed through "modality", which is

a semantic term relating to the meanings that are usually associated with mood. They need the modal verbs to ascertain facts and test the results of their experiments by formulating hypotheses.

The adolescent at the University level is at the stage of logical and abstract reasoning whose most important hallmark is the reversal of the relation between concrete reality (actuality) and possibility. New possibilities can be derived and are combinations of the variables inherent in the problem, without regard to whether they were previously actualized or experienced. At this level what counts is what "could be" and not merely what "is" or "was". He will be able to express this possibility mainly through the use of the modal verbs.

The analysis will be limited to the first-year-course-books adopted by the Universidade Federal do Paraná (UFPr) and at the Fundação Universidade Estadual de Maringá (FUEM). It was decided to analyse these books, first, because the present dissertation was carried out in Curitiba; second, because the author graduated in "Letras Anglo-Portuguesas" at the FUEM. The idea was to analyse two different samples used at two different universities, and thus extend the results to the Brazilian reality.

Typically, different authors have different objectives in mind when writing their books; consequently, they write a book aimed at a target clientele. Based on the coursebooks selected for the present work it seems that teachers choose and adopt their teaching materials at random. They do not observe if the books selected presuppose a basic English background which would be previously acquired at High School. The books adopted at the UFPr and at the FUEM, respectively, do not possess an author's

description where it would be mentioned that the books were designed for University-level students. Thus, the books' content, especially concerning modal verbs and logical connectors may not reflect the cognitive development of the students for whom they are adopted. Coursebooks are written for wide audiences. Books for TEFL are written for an even wider audience, to be used in many countries at various types of teaching institutions. Therefore, the necessity of analysing a book before adopting it.

As the first-year-coursebook offers the adolescents a limited range of possibilities for them to convey their ideas in English, they will either enter the second year with a very limited number of structures, or drop out. This may also be the reason why adults usually prefer to take "private" English classes, where they can negotiate the content with their teachers. With the knowledge acquired in the first year they will have the necessary information to communicate as if they were in the previous stage of mental development, that of concrete reasoning, where the child bases himself on reality and just describes what he sees, and not as if they were in the stage of logical and abstract reasoning, when they formulate hypotheses, and create utterances about the utterances, i.e., they ascertain a fact and based on the assertion they compare things and formulate other propositions, and also test the results of their experiments. They start to make extensive use of deductions and experimental inductions at the same time.

Therefore, in order to investigate and carry out the problem of the students not acquiring the level of proficiency necessary for carrying out literature classes at the University-level in Brazil, the following hypothesis was built: "The Language Courses in Brazil do not correspond to the cognitive

necessities of the students".

Our main objective is to test the hypothesis mentioned previously. A review of the literature on cognitive development, logical connectors, and the modal verbs will be presented before the analysis is carried out.

In order to test our hypothesis an analysis of the modal verbs and of the logical connectors will be presented, on a cognitive development perspective.

The framework for interpreting and analysing the logical connectors will be derived from a recent English grammar, by Quirk et al., 1985, because this is the most up-dated and the most comprehensive descriptive grammar available. Murcia and Freeman, 1983, was also consulted because they present a functional approach to logical connectors.

In addition, in order to carry out the analysis of the modal verbs, Palmer, 1979, was consulted because he presents one of the most complete surveys on modality and the English modal verbs, as well as Murcia and Freeman, 1983.

Based on the authors consulted some adaptations were made in order to build a framework with which the data would be analysed. This adaptation was due to the fact that some of the examples could not be analysed according to the classification available.

1.1 METHODOLOGY

The first step in this work was to select the course-books that would be analysed. The books selected were: "Person to Person", adopted at the UFPr, and "Streamline"; English Departures, adopted at the FUEM.

The second step was to limit the research to the first-

year-University level because the first year is a pre-requisite for literature studies. Therefore, at this level students should acquire the necessary English background for them to argue and write essays on literary interpretation, analysis and criticisms. They need to know how to handle argumentation, and that is pertinent tc the level of logical and abstract reasoning in the human mental development.

The third step was to revise the literature concerning not only cognitive development, but modal verbs and logical connectors as well.

The following step was to decide on the kind of data to be collected and analysed. Thus the final decision was to collect and analyse all the modal verbs and the logical connectors from the basic texts of each unit. This choice was due to the fact that the basic texts normally carry the main theme and main points of the unit. All the secondary texts or exercises are usually based on them, as a way of reinforcing some of the most relevant structures and lexical items.

Afterwards, the data was collected, organized and analysed according to types and frequency, and discussed and correlated with the cognitive development stages, which lead to the final conclusion.

NOTES

[1]FISCHER, K. W. Theory of Cognitive Development. Psychological Review. USA, nov. 1980, 87(6), p. 496.

[2]GRINDER, Robert E. Studies in Adolescence; a Book of Readings in Adolescent Development. New York, Macmillan, 1975, 501.

[3]MURCIA, M. C. & FREEMAN, D.L. The Grammar Book; an ESL/EFL Teachers Course. Massachusetts, Newbury House, 1983, 323.

2 - REVIEW OF LITERATURE

In the present chapter we shall be dealing with descriptions and linguists' points of view and attitudes concerning cognitive development and its linguistic markers, with special reference to logical connectors and modal verbs.

2.1 - THE COGNITIVE DEVELOPMENT THEORY

Cognitive developmental theories are "interactional", i.e., they assume that basic mental structure is the product of the patterning of the interaction between the organism and the environment, rather than directly reflecting innate patterns of event-structures (stimulus contingencies) in the environment.

Cognitive means "putting things together, relating events, and in cognitive theories this act of relating is assumed to be a passive connecting of events through external association and repetition". According to cognitive developmental theory, all mental structure has a cognitive component and all cognition involves structures.[1]

Cognition is defined as function (as modes of action) rather than as content (as set of words, "verbal responses", associations, memories, etc,) or as a faculty or ability (a power of producing words, memories, etc,).

Cognitive development is the result of guided learning, of recurrent associations between specific discriminative stimuli in the environment, specific responses of the child, and specific reinforcements following these responses.[2]

According to Grinder,[3] Piaget studied cognitive development deeply and designed four main stages, as follows:

2.1.1. SENSORI-MOTOR STAGE

It covers the period from birth to about two years. This is the period when the child learns to coordinate perceptual and motor functions and to utilize certain elementary schemata (in this context, a type of generalized behavior pattern or disposition) for dealing with external objects. He comes to know that objects exist even when outside his perceptual field and coordinates their parts into a whole, recognizable from different perspectives.[4]

According to Herriot,[5] during the sensori-motor stage, the child responds to sensory input, whether it consists of events outside or inside himself, or of his own behavior. As a result, this behavior occurs as a linear sequence, since each response acts as a stimulus to the next response.

2.1.2. PRE-OPERATIONAL OR REPRESENTATIONAL STAGE

It extends from the beginnings of organized symbolic behavior - language in particular - until about six years. The child comes to represent the external world through the medium of symbols, but he does so primarily by generalization from a motivational model - e.g., he believes that the sun moves because "God pushes it" and that the stars, like himself, have to go to bed. He is much less able to separate his own goals from the means for achieving them than the operational level child, and when he has to make corrections, after his attempts to manipulate reality are met with frustrations, he does so by intuitive regulations, rather than operations - roughly, regulations are after-the-fact corrections analogous to feedback mechanisms.

2.1.3. CONCRETE OPERATIONS STAGE

It occurs between seven and eleven years of age, and the child acquires the ability to carry out concrete operations. These greatly enlarge his ability to organize means independently of the direct inputs toward goal achievement; they are instruments for dealing with the properties of the immediately present object world.

A concrete operation is a mental action in which classes of objects or relationships between objects are combined or related to make statements about the environment.[6]

According to Grinder,[7] thinking in the concrete stage is limited primarily (almost exclusively) to thinking about things. The fundamental "building blocks" of the concrete stage are the Logic of Class and the Logic of Relations.

The Logic of Class refers to the child's ability to handle problems of classification. The child decides whether something is or is not a member of classification. (The class boundaries are treated as "given". Thinking at this stage is about things, and the class boundaries are, by and large, not treated as "things").

The Logic of Relations refers to the child's ability to relate things of differing sizes among the context of graded and ordered series. The child can take things of varying sizes and place them in size place, relating any one to any other one within the context of series. Furthermore, the child can set one series into correspondence with another series by means of "one to one correspondence", which is a major step toward the mastery of cause and effect relationships.

The concrete operation child is limited to thinking about actual concrete situations and things as they are presented to him in the real world. There is some limited capacity in the

concrete stage to think about some abstractions, but the degree is sufficiently limited and the "abstractions" are usually sufficiently close to concrete and perceptual realities as to warrant the generalization that thought about abstractions does not come until the formal stage.

According to Inhelder,[8] at this stage "the child develops concrete operations and carries them out in classes, relations or numbers, but their structure never goes beyond the level of elementary logical groupings, or additive and multiplicative numerical groups. During the concrete stage, he comes to utilize both the complementary forms of reversibility (inversion for classes and numbers and reciprocity for relations), but he never integrates them into the single total system found in formal logic. According do Richmond,[9] reversibility with classes is achieved by performing an opposite action which will undo the first action, e.g., taking apart as opposed to putting together. The reversibility of relations, on the other hand, is achieved by performing a second action, which exactly compensates for the first condition without undoing it. The result of the two conditions together produces an equivalence.

Inhelder[10] mentioned the following example of a reversible operation: the child who puts a weight on the balance scale and realizes that it tips too far can take it off and search for a lighter one, rather than add more weight simply for the sake of corrective action. With the advent of operations, the margin of trial-and-error is greatly decreased because the child selects means on the basis of an intended structure (in this example the structure is a <u>serial-order</u> of weights).

And yet, Inhelder[11] concludes by saying that: "In sum, the concrete operations are based on the logic of classes and the logic of relations; they are means for structuring immediately

present reality".

Richmond concludes that:

> In sum, concrete thought remains essentially attached to empirical reality. The system of concrete operations - the final equilibrium attained by pre-operational thought - can handle only a limited set of potential transformations. Therefore, it attains no more than a concept of "what is possible", which is a simple (and not very great) extension of the empirical situation.[12]

2.1.4. FORMAL OPERATIONS STAGE

It starts between twelve and fifteen years of age and involves the appearance of formal as opposed to concrete operations. It is characteristic of the years from middle adolescence onward, including adulthood. It is the "final equilibrium" in cognitive development as formulated by Piaget.

According to Inhelder,[13] "the adolescent is the individual who is still growing, but one who begins to think of the future, i.e., his present or future work in society. Further, in most cases in our societies, the adolescent is attempting to plan his future work in adult society and has the idea of changing it".

Grinder[14] mentions that the distinguishing characteristics of the formal stage are suggested by the three names that are used interchangeably for this stage: "formal", "propositional", "abstract". "Formal" emphasizes that what counts is form and not content, as in formal logic where the focus is on the formal relations between the propositions or as in mathematics where an equation represents a formal relation among the symbols that is essentially independent of the particular realities they represent. "Propositional" emphasizes that, as in formal logic, thinking is cast in terms of "propositions", statements, hypotheses. "Abstract" emphasizes that thinking here is no longer bound

by "the thing itself", but deals with attributes abstracted from the thing itself; formal stage thinking deals with propositions, words, thoughts, concepts, hypotheses, ideas, ideologies, as well as with "things" themselves.

Grinder mentions that, perhaps, according to Piaget, the most important hallmark of the formal stage is the reversal of the relation between concrete reality (actuality) and possibility. In the concrete stage, actuality is in the foreground. In the formal stage, the relation is reversed and possibility comes to the foreground. New possibilities can be derived and are recombinations of the variables inherent in the problem, without regard to whether they were previously actualized or experienced. What counts in the formal stage is what "could be" and not merely what "is" or "was". All combinations of all possible values of all the relevant variables are given equal weight in formal stage thought without regard to whether they are actualized or not.

The fundamental theoretical "building blocks" of the formal stage are the Combinatorial System (sometimes called the Structured Whole) and the INRC Group of Operations. They are conceptualized as the theoretical foundations of the formal stage, analogous to the Logic of Class and the Logic of Relations to the concrete stage.

The Combinatorial System refers to the complete and ordered (organized) matrix of all possible combinations of all possible values of all possible variables inherent in a problem.

The INRC Group is the set of four logical operations that together with the Combinatorial System constitute the theoretical foundations of the formal stage. The four operations are Identity, Negation, Reciprocity and Correlativity, each represented by its initial in INRC. They are operations by means of which one "gets around" within the Combinatorial Matrix, transforming one combi-

nation into another and grouping combinations into logically significant groupings.

The INRC Group can be defined in terms of mathematical logic, but it will be defined here in terms of a concrete example: Identity refers to some initial given operation. Negation is a simple direct undoing of that operation. Reciprocity is undoing the effect of the initial operation by changing some other variables in the system. Correlativity refers to negation of the reciprocal change, completing the set. As illustration, if putting weight onto one side of a previously balanced scale is the initial operation (Identity), then Negation would be directly removing that weight; Reciprocity would be either shifting the pan or adding weight on the other side to restore the balance, and Correlativity would be the operation undoing that reciprocal change thereby leading to the same effect as was created by the initial operation (with which it thus "correlates").

It is also during this stage that the adolescent acquires the capacity to use both deduction and experimental induction at the same time, but he uses the first very effectively and is late in making use of the second in a productive and continuous task. Though the principal intellectual characteristics of adolescence stem directly or indirectly from the development of formal structures.[15]

Whereas a child is limited to action and a partial reality the adolescent mentally surveys many possibilities, forms theories and conceives imaginary worlds, but his commitment begins in real life situations. Adolescents can be mentally creative, while a child limits himself to action and a partial reality. The adolescent is capable of dealing with the combinatory system as well as with problems in which many factors operate at the same time. The adolescent ascertains a number of facts and formulates them

as propositions, e.g., "This rod is steel; it is also long", "That rod is steel, but it is shorter", etc. He also ascertains the results of his experiments, e.g., "a long steel rod bends, a short brass one does not, a shorter steel one does", etc. The formal operations enable him to combine these propositions mentally and to isolate those which confirm his hypotheses, on the determinants of flexibility. The combinatorial system is the structural mechanism which enables him to make these combinations of facts.

According to Richmond,[16] the child structures only the reality in which he acts and so extends the real in the direction of the possible. With formal operations, on the other hand, the given environment can be treated as one of a number of possible conditions. The adolescent then verifies which condition actually pertains in the given situation, i.e., he begins with the possible and proceeds toward the real; he starts to make extensive use of deductions. Thus, formal operations reverse the relationship between the real and the possible. In Richmond it was found that Piaget comments about this as follows:

> The most distinctive property of formal thought is the reversal of direction between reality and possibility; instead of deriving a rudimentary type of theory from the empirical data, as is done in concrete inferences, formal thought begins with a theoretical synthesis implying that certain relations are necessary and thus proceeds in the opposite direction.[17]

According to Inhelder,[18] "in our society the 7-8-year-old child (with very rare exceptions) cannot handle the structure which the 14-15-year-old adolescent can handle easily. The reason must be that the child does not possess a certain number of coordinations whose dates of development are determined by stages of maturation. In other words, the lattice (combinatorial system)

and group structures (INRC group) are probably isomorphic with neurological structures and are certainly isomorphic with the structure of the mechanical models devised by cybernetics in initiation of the brain.

At the concrete operations stagea child at kindergarten has already acquired 8.000 words and almost all of the basic grammatical forms of the language. They can handle questions, negative statements, dependent clauses, compound sentences and a great variety of other constructions. He uses language in many different social situations. Later on, during the school years, he acquires the written language.

On the other hand, at the formal operations stage, assuming they have language, teenagers add their own special style. They can learn concepts from the verbal context and they acquire some verbal concepts. At this period the importance of content before structure is stressed; one describes what one wants to say before how one is going to say.

And, besides, whereas the adolescent starts to make use of deductions, i.e., he begins with the possible and proceeds toward the real, the concrete child is limited to thinking about concrete situations and things as they are presented to him in the real world.

According to Beard,[19] in this period the adolescent can accept assumptions for the sake of argument; he makes a succession of hypotheses which he expresses in propositions and proceeds to test them; he begins to look for general properties which enable him to give exhaustive definitions, to state general laws and to see common meanings in proverbs or other verbal material; in his spatial concepts he can go beyond the tangible, finite and familiar to conceive the infinitively large or infinitively small and to invent imaginary systems; he becomes conscious of his own

thinking, reflecting on it to provide logical justification for judgements he makes; he develops an ability to deal with a variety of complex relations such as proportionality or correlation.

The formal stage has its onset in early adolescence and is regarded as characteristic of the years from middle adolescence on through adulthood, being the final "equilibrium" in cognitive development as formulated by Piaget. In general, the formal stage bears a hierarchical relation to the concrete stage, subsuming concrete-stage function as a part of itself rather than simply replacing it.[20]

According to Lavatelli and Stendler,[21] concrete operational thought or even sensori-motor thought does not disappear when formal thought arises, but continues to be used in concrete situations where it is adequate or when efforts at solution by formal thought have failed. However, there is a hierarchical preference within the individual, i.e., a disposition to prefer a solution of a problem at the highest level available to him.

In summary, then, fully developed formal-stage thinking appears to be a kind of "cognitive maturity". It integrates all that has gone before. It is more ideal than typical, more potential than actual.[22]

Within Piaget's framework, cognitive development virtually ends with formal operations; adolescents entering the formal operational period have achieved fully logical thinking, and there is little more for them to do, except perhaps to extend their logical thinking to new content areas.[23]

2.2. LINGUISTIC MARKERS OF COGNITIVE DEVELOPMENT

Since birth a baby tries to communicate by using some sort of a code. He starts by crying, smiling or babbling. Human beings

are social individuals, thus the need for communication. The individuals need to communicate their ideas, either through verbal codes, as in human language, or through body language (gestures, mimes, facial expressions, etc.).

According to Gleason,[24] young children acquire the components of their native language in a short time. By the time they are at school age and begin the formal study of grammar, they already know how to vary their speech to suit the social and communicative nature of a situation; they know the meaning and pronunciation of literally thousands of words, and they use quite correctly the grammar forms: subjects, objects, verbs, plurals, tenses - whose names they learn in the late elementary years. Language development, however, does not cease when the individual reaches school age or adolescence or maturity for the matter. The development process continues throughout the life cycle.

In order to understand language development we have to analyse it from early infancy to old age, as did Gleason.[25] At each stage language, i.e., vocabulary, categories, syntax, semantics, reflects the stage of cognitive development the child is going through. According to Grinder, each stage reflects what is essentially an optimal trend within its associated age range.

2.2.1. LANGUAGE IN INFANCY (SENSORI-MOTOR STAGE)

Human beings begin to acquire language during their first months, long before they say their first words. They pay attention to adult faces and are responsive to the language spoken to them; they take their turn in conversation, even if the turn is only a burble (Snow, 1977; Lieven, 1978). Infants are capable of, among other things, making fine distinctions among speech sounds, including sounds that are both rare in the world's lan-

guages and previously unkown to them (Eimas, 1975; Trehub, 1976).

Midway through their first year, infants begin to babble, to play with sounds as they play with their fingers and toes. Nowadays most researchers believe that babbling and early speech are continuous phenomena. At approximately the same time they take their first steps, many infants produce their first words.

Children first acquire a meaning in a very context-bound way, as a part of their real-world expectations. Children's early learning is based upon prior cognition: they already have many meanings. By the time children begin to acquire a vocabulary, they have already been exposed to a great deal of language and have a wide range on individual experiences.

Gleason mentions that, according to Brown, 1973, once infants have begun to say a few words the course of a language development appears to have some universal characteristics. The early utterances are only one word long; the words are simple in pronunciation and concrete in meaning (Stoel-Grammar & Cooper, 1984). They refer to the objects, events, and people in the child's immediate surroundings.

2.2.2. THE PRESCHOOL YEARS (PRE-OPERATIONAL STAGE)

Gleason states that, according to Brown, 1973, sometime during their second year, after they know about fifty words, most children progress to a stage of two-word combinations. They make the combinations into short utterances, without articles, prepositions, or any other grammatical modifications adult language requires. The child can now say such things as "That doggie", meaning "That is a doggie", and "Mommy juice", meaning "Mommy's juice" or "Mommy, give me juice" or "Mommy is drinking her juice".

A little later in the two-word stage, another dozen or so

kinds of meaning appear. For instance, children may name an actor and a verb: "Daddy eat". They modify a noun: "Bad doggie". They specify a location: "Kitty table". They name a verb and an object, leaving out the subject: "Eat lunch". At this stage children are expressing these basic meanings, but they cannot use the language forms that indicate number, gender and tenses.

As the child's utterances grow longer, grammatical forms begin to appear. In English, for instance, children learn in and on before other prepositions such as under, and they learn the progressive form with -ing before other verb endings such as the -ed of the past. After they learn regular plurals and past tenses like horses and skated, they create some regularized forms of their own, like mouses and eated.

In the learning of morphological systems, such as the plural or past tense, remains some of the strongest evidence we have that children are not simply learning bits of pieces of the adult linguistic system, but are constructing productive and cohesive systems of their own.

At very young ages, as early as two and a half, children begin combining sentences to express complex or compound propositions. The simplest and most frequent way children combine sentences is to conjoin two propositions with and.

At this stage the child starts to develop different types of sentences such as negatives, questions, and imperatives. By the time they begin school, they have acquired most of the morphological and syntactic rules of their language. They can use language in a variety of ways, and their simple sentences, questions, negatives, and imperatives are much like those of adults. There are more complex grammatical constructions that children begin using and understanding during the preschool years, but

their acquisition is not complete until some years later. At this stage they also start to develop passives, coordinations, and relative clauses.

Word meaning acquisition depends at first on knowledge of social and physical domains and later on knowledge of syntactic and other word meanings as well. In addition to semantic knowledge of words, children gradually acquire an understanding of the nature of words and their relationships to one another.

Even though children begin producing and understanding some sentences with embedded relative clauses when they are about three years old, they do not develop full structural knowledge of this construction until they reach school. During these years children develop an extremely rich and intricate linguistic system.

2.2.3. THE SCHOOL YEARS (CONCRETE OPERATIONS STAGE)

By the time they get to kindergarten, children have acquired a vocabulary of perhaps 8,000 words and almost all of the basic forms of the language. They can handle questions, negative statements, dependent clauses, compound sentences, and a great variety of other constructions. They have also learned to use language in many different social situations. They can, for instance, talk baby talk to babies, tell jokes and riddles, be rude to their friends and somewhat polite to their parents.

During the school years they acquire another linguistic system - the written language. This would be almostimpossible if they did not already possess spoken language.

The development of oral and written language systems is profoundly interactive. What occurs in early phonological and metalinguistic development affects the acquisition and level of achievement in early readings. The development of reading with

its thrust toward understanding and evaluating previously unknown thought affects the ability to communicate in oral and written forms. The development of writing with its emphasis on expressing, refining, and at times changing our thoughts affects how we speak, read and think. The language can make the difference between oral and written language or never making the ongoing transitions between them.

2.2.4. LATER DEVELOPMENT (FORMAL OPERATIONS STAGE)

Language development, like human development, in its other manifestations, continues beyond the point where the individual has assumed the outward appearence of an adult. The teen years may mark a crucial developmental line in the individual's ability to learn a first language.

Assuming they have language, teenagers add their own special style, and part of being a successful teenager lies is knowing how to talk like one.

Language development during the adult years varies greatly among individuals, depending on such things as their level of education and their social and occupational roles.

There is an attractive case for supposing that concepts can be learned from the verbal context, in which the words denoting them occur. The acquisition of some verbal concepts will lead by geometric progression to the acquisition of more.

Herriot thinks that the acquisition of concepts, and in particular, the transition from pre-operational to operational thinking, might be assisted by language, for it is a feature of pre-operational thinking that perceptual features rather than functional attributes dominate performance at problem-solving. For him concept formation may be a very different thing from

concept attainment.

Herriot points out that the work concerning social class has shown interesting differences in language skills, but has so far failed to show convincingly that these differences are the cause of cognitive differences.

And yet, Herriot mentions that Osgood, 1968, stresses the importance of content before structure; one describes what one wants to say before how one is going to say. The adolescent wants to talk about subjects of his stage of cognitive development , i.e., formal operations, but the vocabulary taught to him, the how he may put it, is not adequate. In particular, there are features of the non-linguistic situation which act as cues to utterance.[26]

Great variability in both the structure and uses of language is common, expected, and in fact critical for mature language performance.

The adolescent needs to have access to the content, the lexicon necessary for him to produce his structure. Otherwise, he will have to give up communicating his ideas because he will not have the necessary vocabulary. The adolescent is able to identify and assimilate more than he can produce. First he thinks on what he is going to say and, afterwards, he decides on how he is going to say that. Thus he needs to know the necessary content according to his development stage, that of formal operations. In this special case, he needs to know all the modal verbs and the logical connectors.

Our main interest in the present dissertation is in the fourth period, that of formal operations, because this is the period that starts from early adolescence onwards, including adulthood. Students who enter a University in Brazil are mostly adolescents (17, 18, or 19 years old).

2.3 - LOGICAL CONNECTORS

The aim of this chapter is to present a review of literature on the logical connectors (conjuncts, conjunctions and correlatives), based mainly on Quirk et al, 1985, and on Murcia and Freeman, 1983.*

According to Murcia and Freeman, 1983,[29] conjunctions and correlatives have as much a syntactic function and serve to coordinate clauses within a surface structure sentence; logical connectors have primarily a semantic cohesive function, which holds between surface structure sentences. (Halliday and Hasan, 1976: 244).

Conjuncts are structures that keep the argumentative orientation (and, besides, either ... or); they are structures that oppose argumentative orientations (but, (al)though), and they are also structures that articulate argument and conclusion (so, once that, because, then, since, for, as).

Typically, logical connectors are presented according to the function they fulfill. Murcia and Freeman presented an enumeration of the most common functions which logical connectors can express, based on Secord's hierarchy (1978) of functional categories, which in turn draws heavily from Halliday and Hasan (1976). The four broad headings under which they classified all the connectors are the following: additive (used to signal addition, introduction, to show similarity, etc.); adversative (used to signal conflict, contradiction, concession, etc.); causal (used to signal cause/effect and reason/result, etc.), and sequential (used to signal a chronological or logical sequence).

2.3.1 - ADDITIVE

* We are going only to present these frameworks, and not to criticize them.

1. Addition

   a. Simple:

additionally	in addition (TO THIS)
also	furthermore
moreover	further
not to mention THIS	and
	too
	either (negative)

   b. Emphatic:

besides (THIS)		as well (AS THIS)
not only THIS ... but ...	also / as well	what is more

   c. Intensifying:

in fact	actually
as a matter of fact	indeed
to tell (you) the truth	let alone (negative)
to say nothing of (neg.)	much less (negative)

   d. Alternative:

or	nor (negative)
alternatively	on the other hand

2. Exemplification

   a. To exemplify a representative member:

such as	as
for example	like
for instance	

   b. To exemplify the most important member:

especially	in particular
particularly	notably

   c. To introduce an ordinary group member:

   including

d. To introduce a specific example which comes in a separate sentence from the preceding general statement:

for one thing	by way of example
as an illustration	to illustrate

3. Reference

To introduce a topic:

speaking about THIS

as for THIS

considering THIS

concerning THIS

regarding THIS

on the subject/topic of THIS

with/in { respect / regard / reference } to { THIS / the fact that }

4. Similarity

similarly	in a like manner
likewise	by the same token
in the same way	equally

5. Identification

To identify a constituent for which the reader/listener has already been prepared:

that is (to say)	specifically
namely	

6. Clarification

To clarify or rephrase a preceding item:

that is (to say)	in other words
I mean	(to) put (it) another way

2.3.2 - ADVERSATIVE

1. Conflict/Contrast (Two ideas incompatible or in contrast)

but	while
however	whereas
in contrast	conversely
by way of contrast	on the other hand
(and) yet	though (in sentence-final posi-
when in fact	tion)

2. Concession (Reservation without invalidating the truth of the main clause)

but	on the other hand
even so	despite THIS
however	in spite of THIS
(and) still	regardless (of THIS)
(and) yet	notwithstanding (THIS)
nevertheless	be that as it may
nonetheless	granted (THIS)
although	admittedly
though	albeit
even though	

3. Dismissal

   a. Alternative circumstances (Quirk et al., 1972):

either way	in either case
whichever happens	in either event

   b. Universal circumstances - two or more possibilities (Quirk et al., 1972):

whatever happens	in any case/event
all the same	at any rate

4. Replacement

   a. To rectify a preceding item:

(or) at least	(or) rather

b. To substitute a positive statement for a negative one or to substitute an actual outcome for a prior expectation: instead

2.3.3 - CAUSAL

1. Cause/Reason

being that	due to (the fact that)
seeing that	in view of (the fact that)
since	owing to (the fact that)
as	for the (simple) reason that
inasmuch as	for
forasmuch as	in that
because (of the fact that)	

2. Effect/Result

so that	consequently
so	as a consequence
so much (so) that	thus
for this reason	hence
as a result (of THIS)	in consequence
because (of THIS)	accordingly
therefore	

3. Purpose

so	in the hope that
so as to	for the purpose of
so that	to the end that
in order that	for fear that (negative)
in order to	for fear (negative)
with this in mind	lest (negative)
with this intention	

4. Condition

a. To introduce the condition:

if	granted (that)
in case	granting (that)
provided that	as/so long as
providing that	even if
on (the) condition that	only if
in the event that	unless (negative)
given that	

b. To introduce the consequence:

then	under those circumstances
if so	if not (negative)
in that case	otherwise (negative)
that being the case	

2.3.4 - SEQUENTIAL

1. Chronological and Logical

a. Numerical:

(chronological and logical)

in the (first) place	initially ...; secondly ...
first ...; second ...	

b. Beginning:

(chronological)	(chronological and logical)
at first	to start with
	to begin with
	for a start
	first of all
	initially

c. Continuation:

(chronological)	(chronological and logical)
previously	next
after THIS	then

afterwards

eventually

subsequently

before THIS

d. Conclusion:

(chronological)	(logical)
finally	at last
eventually	last but not least
at last	as a final point
in the end	lastly
	to conclude (with)

2. Digression

by the way incidentally to change the subject

3. Resumption

anyhow	to get back to the point
anyway	to return to the subject
at any rate	to resume

4. Summation

a. General:

in conclusion	in summary
to sum up	in sum
to summarize	

b. Review of main idea or purpose:

as I have said as has been mentioned/noted

as was previously stated

c. Combination of effect/result and summary:

then	consequently
given (all) these points	thus
therefore	hence
so	

d. Summary of points:

on the whole	all in all
altogether	overall
in all	

e. Condensation:

to make a long story short	in short
to put it briefly	to be brief
briefly	in a word

According to Quirk et al., 1985,[28] conjuncts are more like disjuncts than adjuncts in having a relatively detached and "superordinate" role as compared with other clause elements. But they are unlike disjuncts in not typically filling the semantic roles characteristics of adjuncts. Conjuncts often have semantic roles that are conjunct-specific, i.e., they have the function of conjoining independent units rather than one of contributing another facet of information to a single integrated unit. They have primarily a connective function of indicating the connection between what is being said and what was said before. Most conjuncts are adverb phrases or prepositional phrases.

Quirk et al., 1985, distinguished seven conjunctive roles, which are listed as follows:

2.3.5 - LISTING

1. ENUMERATIVE

first, second, third ...

first(ly), secondly, thirdly ...

one, two, three ...

a,b,c, ...

in the first place, in the second place ...

first of all

second of all

on the one hand ... on the other hand

for one thing ... (and) for another (thing)

for a start

to begin with, to start with

next, then

to conclude

finally, last, lastly, last of all

2. ADDITIVE

Equative

correspondingly, equally, likewise, in the same way, by the same token

Reinforcing

again, also, further, furthermore, more, moreover, in particular, too, what is more, in addition, above all, on top of it all, to top it (all), to cap it (all)

2.3.6 - SUMMATIVE

altogether, overall, then, therefore, thus, (all) in all, in conclusion, in sum, to conclude, to sum up, to summarize.

2.3.7 - APPOSITIVE

namely (often abbreviated as viz in formal written English), thus, in other words, for example (often abbreviated to eg or e.g. in written English), for instance, that is (often abbreviated to ie or i.e. in specialized written English), that is to say, specifically

2.3.8 - RESULTIVE

accordingly, consequently, hence, now, so, therefore, thus, as a consequence, in consequence, as a result, of course

2.3.9 - INFERENTIAL

else, otherwise, then;

in other words

in that case

2.3.10 - CONTRASTIVE

1. REFORMULATORY

better, rather, accurately, more precisely, alias, alternatively, in other words

2. REPLACIVE

again, alternatively, rather

better, worse;

on the other hand

3. ANTITHETIC

contrariwise, conversely

instead (blend of antithetic and replacive)

oppositely, then

on the contrary, in contrast, by contrast, by way of contrast, in comparison, by comparison, by way of comparison, (on the one hand ...) on the other hand

4. CONCESSIVE

anyhow, anyway, anyways, besides

else, however, nevertheless, nonetheless, notwithstanding, still, though, yet, in 'any case, in 'any event, at 'any rate, at 'all events, for 'all that, in spite of that, in spite of it all, after all, at the same time, on the other hand, all the same, admittedly, still and all, that said

2.3.11 - TRANSITIONAL

1. DISCOURSAL

incidentally, now

by the way

by the by(e)

2. TEMPORAL

meantime, meanwhile, in the meantime, in the meanwhile, originally, subsequently, eventually

And yet, according to Quirk et al, 1985, subordination is a non-symmetrical relation holding between two clauses in such a way that one is a constituent or part of the other. Explicit indicators of subordination are termed subordinating conjunctions or subordinators. Both coordination and subordination involve the linking of the same rank, but in coordination the units are constituents at the same level of constituent structure, whereas in subordination they form a hierarchy, the subordinate unit being the constituent of the superordinate unit. They distinguished the coordinators and subordinators as follows:

2.3.12 - COORDINATORS

and, or, but

2.3.13 - SUBORDINATORS

They are divided into simple and complex subordinators, as follows:

1. Simple Subordinators

after, although, as, because, before, directly, if, immediately, lest, like, once, since, that, though, till, unless, until, when(ever), where(ever), whereas, whereupon, while, whilst.

2. Complex Subordinators

- ending with that:

but that, in that, in order that, insofar that, in the event that, save that, such that

- ending with optional that:

(a) participle form:

assuming, considering, expecting, given, granted, granting, provided, providing, seeing, supposing } that

(b) others:

except, for all
now, so } (that)

- ending with as:

according as, as far as, as long as, as soon as, forasmuch as, inasmuch as, insomuch as

Others:

as if, as though, in case

Out of the 234 different logical connectors presented by Murcia and Freeman, 1983, and of the 268 presented by Quirk et al, 1985, the connectors and, sometimes but, because are used by the child at the concrete operations stage. The child at this stage handles problems of classification and relates things of differing sizes within the context of graded and ordered series. He is limited to thinking about actual concrete things and situations as they are presented to him in the real world.

On the other hand, all the other connectors presented are pertinent to the formal operations stage because it has its onset in early adolescence and is regarded as characteristic of the years from middle adolescence on through adulthood, being the final "equilibrium" in cognitive development formulated by Piaget. In general, this stage bears a hierarchical relation to the concrete stage, subsuming concrete stage function as a part of itself, rather than simply replacing it.

According to Fischer, 1980,[29] within Piaget's framework, cognitive development virtually ends with formal operations: ado-

lescents entering the formal operational period have achieved fully logical thinking, and there is little more for them to do, except perhaps to extend to new content areas.

Therefore, adolescents will need to master the most complex logical connectors like: likewise, therefore, accordingly, otherwise, nevertheless, rather, incidentally, meanwhile, thus, whereas, etc., that a child would never have maturity or ability to use. Adolescents need to express their ideas by using more complex structures than those used by a child at the concrete operations stage.

All the logical connectors presented here are used to keep, oppose, articulate and conclude argumentative orientations, which are characteristics of the formal operations stage, in which adolescents deal with reasoning and start to argue about facts.

2.4 - MODAL VERBS

Modal verbs is one of the elements that can actualize modality. "Mood" is a grammatical term, while "modality" is a semantic term relating to the meanings that are usually associated with mood. The relation between mood and modality is thus that between tense and time.[30]

2.4.1 Palmer, 1979, by taking the syntax and semantics carefully into account, made the distinction between three kinds of modality which he labeled "epistemic", "deontic" and "dynamic".

2.4.1.1 EPISTEMIC MODALITY

In language it is usually what Lyons (1977; 792) calls "subjective" in that it relates to an inference by the speaker, and is not simply concerned with "objective" verifiability in the light of knowledge. It is the modal of propositions rather than of actions, states, events, etc. This is exemplified by MAY

for possibility and MUST for necessity, though other verbs, notably SHOULD and WILL are used epistemically.

2.4.1.1.1 Possibility

Epistemic possibility is indicated by MAY, and the paraphrase in terms of "possible that" is an accurate one.

- They're all very sort of Kentish and they may be in Sussex actually.

2.4.1.1.2 Necessity

Epistemic necessity, unlike factual assertion, makes judgement and making the strongest of all judgements is not the same as making a factual assertion.

1. MUST - You must find a change being back in London.
2. BE BOUND TO - It's bound to come out though, I think.
3. HAVE (GOT) TO - Something has got to give in this second half, I think.

2.4.1.1.3 Will

It refers to what is reasonable to expect.

- The French will be on holiday today.

2.4.1.1.4 Tentative Forms

Might and would are the relevant forms of MAY and WILL, but we must also consider the status of what seems to be epistemic SHOULD. Could is a more difficult problem, (except where it is used in a negative context).

1. MIGHT - Might is used exactly as may is. It merely indicates a little less certainty about the possibility.
   - You think someone might be watching us.
2. WOULD - Would is clearly the tentative form of will. It is a kind of conditional.
   - I think it would be Turner as well.

3. SHOULD - Should does not express necessity; it expresses rather extreme likelihood, or a reasonable assumption or conclusion.

- You should be meeting those later on this afternoon.

2.4.1.2 DEONTIC MODALITY

The modal verbs are used to express what is obligatory, permitted, or forbidden. It is usually subjective in that the speaker is the one who obliges, permits, or forbids. By uttering a modal verb a speaker may actually give permission (MAY, CAN), and make a promise or threat (SHALL), or lay an obligation (MUST).

2.4.1.2.1 Possibility

Deontic possibility consists essentially in the giving of permission. But there is one curious"extended" use of CAN, to a lesser extent, of MAY, and a theoretical point about the status of CAN that must be considered.

1. Permission

- If you want to recall the doctor, you may do so.
- Can I pinch a ciggie? - Course you can. Would you like a menthol or a plain?

2. Command - Can is often used to convey a command, often of a brusque or somewhat impolite kind.

- I'm Dr. Edgton now, so you can observe my new status.

May is also used in such expressions as:

- You may take it from me.
- You may rest assured.

2.4.1.2.2 Necessity

The speaker clearly takes responsibilities for the imposing of the necessity.

- The University is saying "These people must be expelled if they disrupt lectures".

2.4.1.2.3 Shall

The speaker gives an undertaking or guarantees that the event will take place.

- You shall have it tomorrow.

2.4.1.2.4 Should and Ought to

The distinction between these two pairs is more than subject involvement. OUGHT TO and SHOULD will be treated with dynamic necessity, though they sometimes have highly deontic characteristics.

2.4.1.2.5 Had Better

The speaker advises the hearer of his best course of action, and is fairly firm about his advice with the implication that unpleasant consequences may follow it if it is not taken.

- You'd better ask him again when he comes.

2.4.1.3 DYNAMIC MODALITY

It is the modality of events that are conditioned deontically (and both dynamic and deontic modal are distinct from epistemic modality in that they are modalities of events, while the latter is the modality of propositions). Under dynamic modality, therefore, we shall consider not only "possible" for, but also "necessary for", and, in additional, the volitional sense of WILL.

2.4.1.3.1 Possibility

1. It has a neutral and a circumstancial use and a subject oriented use of CAN.

a. Neutral - The use of CAN simply indicates that an event is possible.

- Signs are the only things you can observe.

b. Ability - It is often said that CAN may refer to the ability of the subject.

- They can't speak a word of English, of course, you know, they can say what they like.

c. Implication - CAN is often used not simply to say what one can do or what is possible, but actually to suggest, by implication, that action will, or should be taken.

- Yes, we can send you a map, if you wish.

2. BE ABLE TO

BE ABLE TO also expresses possibility. It always indicates ability and as such, is always subject oriented.

- And yet you're able to look at the future in this very objective way without making a value judgement.

3. DARE

Semantically DARE is subject oriented.

- Inflation is a problem which dare not be neglected.

2.4.1.3.2 Necessity

1. MUST is sometimes used where there is deontic modality. Yet it often occurs where, in assertion, there is little or no indication of the involvement of the speaker.

- If the ratepayers should be consulted, so too must the council tenants.

2. HAVE (GOT) TO

Often the meaning simply is that of "circumstances compel" - external necessity, etc.

- I've got to be at London airport at fourish.

3. SHOULD and OUGHT TO

It is not clear that (except in subordinate clauses) Eng-

lish makes any distinction between SHOULD and OUGHT TO. They seem to be largely interchangeable, even with tag questions, since there is nothing odd about:

- He ought to come tomorrow, shouldn't he?

The only point is that SHOULD is more common than OUGHT TO.

4. WILL

1. Volition - as contrasted with futurity (or conditional futurity).

- I'm seeing if Methuen will stump up any money to cover the man's time.

2. Power - "Power" is little more than volition applied to inanimate objects, to indicate how such objects will characteristically behave.

- You know that certain drugs will improve the condition.

Inference use of WILL, as in:

- Oil will float in water.

3. Habit - The use of <u>will</u> to refer to habitual (or better, "typical") activity.

- So one kid will say to another, one kid will make a suggestion to another, he'll say the moon's further away from the earth than the sun.

2.4.14 WILL, SHALL and futurity

Futurity WILL as epistemic has the meaning of prediction about the present.

- That is a doctor.
- That will be the doctor.
- That must be the doctor.
- That may be the doctor.

Because of the close relation between modality and futurity, it will often be difficult to distinguish clearly at all times between an epistemic future and a "pure" future use.

(i) There is a device in English for distinguishing the futurity use and the epistemic use with future reference - the progressive form (which is similarly used with can't.) Compare:

- John will come tomorrow.
- John will be coming tomorrow.

The use of the progressive might also be intended to prelude the volitional use of WILL.

(ii) With I, We, WILL and SHALL are virtually interchangeable, with only stylistic differences in the futurity use, but SHALL is never epistemic.

(iii) The futurity use has little in common semantically with uses such as that of They'll be on holiday, where there is no doubt about all that an epistemic judgement is being made by the speaker. Yet WILL and (SHALL) may be used where no epistemic judgement is being made at all, but a plain statement about the future, as in:

- I will/shall be fifty tomorrow.

(iv) Totreat futurity WILL as epistemic in no way explains its "conditionality".

2.4.1.5 CONDITIONALS

1. WILL and SHALL can be used in the present tense sentences in conditional sentences like:

- If John comes, Bill will leave.

2. WOULD, SHOULD, WOULD HAVE and SHOULD HAVE may also be used in conditionals.

- If John came, Bill would leave.

- If John had come, Bill would have left.

These are "unreal" conditionals, present and past respectively, as compared with the first which is a real (present) conditional.

2.4.1.6 CAN AND VOLITIONAL WILL

With CAN and with volitional WILL the forms could, could have, would and would have can be used to refer to the conditional unreality of the ability or volition.

- And then we could ask for the most monumental present.

- I wouldn't have been without them.

2.4.2 Murcia and Freeman, (1983),[31] gave at least as much consideration to the semantic system as they did to the individual meanings and forms.

According to them the best foundation for discussing the systematic meanings is the "root" ("social interaction"), versus the "epistemic" ("logical probability"). This distinction was discussed by Hofmann (1966).

- You may leave the room. (social interaction)

- It may rain tomorrow. (logical probability)

Modal verbs which have a social interaction function require that a person using them properly take into account the characteristics of the social situation. In the first example the speaker is of sufficient authority to be able to grant permission to the listener. Furthermore, it can also be inferred that the context is likely a formal one, since the speaker chose to use may rather than can in his or her granting of permission. Knowing the social situation allowed the speaker to select the appropriate modal for this interaction. In the second sentence above, however, knowledge of the social situation would have little or no effect on the second modal selected. What the speaker is intending to convey is the relatively low probability of precipi-

tation. He or she would likely use may regardless of who his or her listener was or where the interaction took place.

2.4.2.1 SOCIAL INTERACTION USES OF MODALS

1. The modals are used in a social way to make requests. They can be of a general nature:

Will
Would
Can
Could

} you help me with this math problem?

or can be specific requests for permission:

Might
May
Can
Could

} I leave the room?

There is a subtle difference between can/could and will/would in making requests.

Could (instead of can) I	Would (instead of will) you
talk to you a minute?	open the door?

The former seems to imply: "Is this possible...?", while the latter forms seems to query the willingness of the person being addressed.

When asking for permission, as in the above example, the use of may or can is significant. The greater the listener's degree of formal authority (as perceived by the speaker or asserted by the listener), the more likely the use of may.

2. The modal verbs are also used to give advice. We can order the modal verbs according to the speaker's degree of authority and/or convinction, or the urgency of the advice, e.g.:

You {might / could} see a doctor.
You should see a doctor.
You had better see a doctor.
You must see a doctor.
You will see a doctor.

Speaker's authority or urgency of the message increases, but not necessarily in equal increments.

2.4.2.2 LOGICAL PROBABILITY USES OF MODAL VERBS

The logical use of some of the same modal verbs typically deals with an inference or prediction, e.g.:

Wilbur : Someone's at the door.

(inference) Gertrud: It may be Sydney.

It is possible to establish a hierarchy for the logical use of the modal verbs. Here what increases is the degree of certainty regarding the inferences:

Wilbur : Someone's knocking.

Gertrud: That {could / might} be Sydney.
That may be Sydney.
That should be Sydney.
That must be Sydney.
That will be Sydney.

Degree of certainty (again, degrees are not necessarily equidistant.

2.4.2.3 OTHER USES OF MODAL VERBS AND MODAL-LIKE FORMS

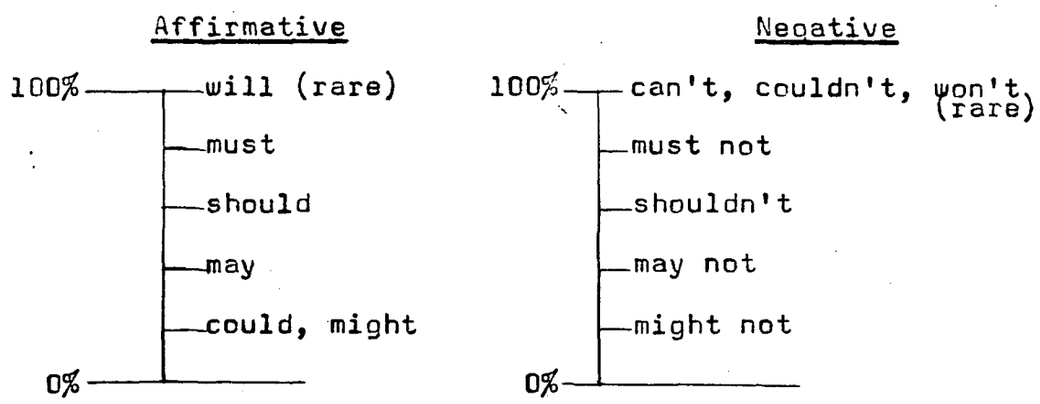
There are four other cases of modal verbs and modal-like

forms which do not function in either the social or logical uses, namely:

1. Ability - CAN, BE ABLE TO
   - I can speak Indonesian.
   - Superman is able to leap tall buildings with a single bound.
2. Desire - WOULD LIKE TO
   - Sarah would like to travel around the world.
3. Offer - WOULD you LIKE (frozen formula in questions expressing an invitation).
   - Would you like anything to drink?
4. Reference - WOULD RATHER (X than Y), WOULD PREFER TO
   - Brad would rather study languages than mathematics.
   - George would prefer to go to school instead of working.

2.4.2.4 ADDITIONAL FACTS

1. There are important semantic differences that occur when the logical modals are negated. The two probability scales below will help illustrate this:



   a. While <u>can</u> is rarely used to express logical probability in affirmative sentences, it is used frequently in negative sentences.
   b. The logical probability of <u>can/could</u> in affirmative sen-

tences is very low; however, in negative, it is high, i.e., 100%.

c. The negative element in can't, couldn't and shouldn't may be contracted in statements reflecting logical probability; however, it is rarely contracted with may and might in such sentences, and in some dialects is not contracted with must, perhaps to avoid confusion with the negated situational modal mustn't (=prohibition).

2. Shall can be used for requests for advicing involving the first person, and should can substitute for shall:

- Shall I call her or will you?
- Shall we go to the Natural History Museum today?

Shall occur in some frozen formulas where it signifies an invitation. In such cases should cannot substitute for shall without causing a change in meaning:

- Shall we dance? (Would you like to dance?) i.e., an invitation
- Should we dance? (Is it advisable that we dance?) i.e., a question

3. Most use of modal verbs with the perfective aspect or the passive voice involves logical use, not social ones, e.g.:

- John must have been out of town for the 4th of July. (inference)
- The Giants will be beaten by the Dodgers. (prediction)

The following is a chart of the semantic notions expressed by modal perfects adapted from the Bowen and McCreary article (1977:289). It has been modified to fit the five categories already mentioned with regard to simple modals.

a. Social Interactional:

Advisability/Obligation

- You should have paid him a better salary.
- They might have at least sent her a get-well card.

- They could have at least paid the postage.

b. Logical Probability:

Inference

- She can't have finished the entire assignment yet.
- He must have been here earlier today.
- They should have arrived in London by now.

Possibility

- Pierre may have been Belgian.
- He might have seen her already.
- He could have come on the early train.
- Who can that have been?

Prediction

- He will have left by the time we get there.
- By then I shall have collected the last cent of what he owes.

4. There are some possibilities for modals to occur with the progressive aspect or with both the progressive aspect and a perfect verb tense. Again, the semantics are complicated and there are ambiguities, but the progressive seems to add concreteness and a sense of present time to such statements, e.g.:

- I must go. (exhortation, vague time reference).
- I must be going. (more concrete, present time reference, i.e., now!)
- He could work. (a suggestion or possibility)
- He could be working. (a stronger or an inference with present time reference).
- He could have been working. (an inference with past time reference, but also possible current relevance, e.g., "since 8 a.m.")

Epistemic modality is pertinent to the formal operations stage because it is the modality of propositions rather than of actions, states, events, etc. At the stage of formal operations the adolescent ascertains a fact and formulates it as propositions. In addition, one of the distinguishing characteristics of this stage is to be "propositional"; it emphasizes that, as in formal logic, thinking is cast in terms of "propositions", statements, hypotheses. Therefore, the modality "possibility" is one of the most pertinent to this stage.

The adolescent will create propositions like: "If the long rods bend more than the short rods, other things, being equal, will also bend more"; or "Oil will float in water".

On the other hand, at the concrete operations stage the child will handle the modalities "permission", and "obligation/compulsion". Thus they will be able to use can, could, may and might for permission, and must, need, shall, should, ought to and have (got) to for obligation/compulsion. At this stage the child consults his parents or older people to know what they are permitted or obliged to do, e.g., he will ask his parents "May I play now?", and his parents will either answer "Yes, you may.", or "No, you may not". And yet, he may be told by his parents "You must go to bed now."

At the level of formal operations what counts is what "could be" and not merely what "is" or "was"; there is the reversal of the relation between concrete reality(actuality) and possibility.

In order to facilitate working with the data, two summaries were made, based on Palmer's and on Murcia and Freeman's frameworkson modal verbs, as they follow, at the end of this chapter.

PALMER'S SUMMARY

CAN
a) Permission
b) Possibility
c) Command
d) Ability
e) Implication

COULD
a) Possibility
b) Permission
c) Ability

MAY
a) Possibility
b) Permission
c) Command

MIGHT
a) Possibility
b) Permission

MUST
a) Necessity
b) Obligation/compulsion
c) Possibility

NEED
a) Obligation/compulsion
b) Necessity

OUGHT TO
a) Necessity
b) Obligation/compulsion

HAVE (GOT) TO
a) Necessity
b) Obligation/compulsion

BE BOUND TO
a) Necessity (epistemic)

HAD BETTER
a) Suggestion/advice

SHALL
a) Promise/threat
b) Obligation/compulsion
c) Futurity
d) Permission

SHOULD
a) Permission
b) Obligation/compulsion
c) Necessity
d) Habitual
e) Suggestion/advice

WILL
a) Volition
b) Suggestion/advice
c) Possibility
d) Conditionality
e) Futurity
f) Power

WOULD
a) Volition
b) Conditionality

WOULD RATHER

MURCIA AND FREEMAN 'S SUMMARY

CAN
a) Request (general)
b) Request (permission)
c) Possibility
d) Ability

COULD
a) Request (general)
b) Request (permission)
c) Probability
d) Ability
d) Advice

MAY
a) Request (permission)
b) Probability

MIGHT
a) Request (permission)
b) Probability
c) Advice

MUST
a) Prohibition
b) Advice
c) Probability

HAD BETTER
a) Advice

SHALL
a) Request for advicing
b) Invitation

SHOULD
a) Probability
b) Advice

WILL
a) Request (general)
b) Request (permission)
c) Probability
d) Advice

WOULD
a) Request (general)
b) Request (permission)
c) Desire (would like to)
d) Offer (would you like)
e) Reference (would rather, would prefer to)

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[4]INHELDER, B. The Growth of Logical Thinking from Childhood to Adolescence. USA, Basic Books, 1958, xi.

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[7]GRINDER, R.E. Studies in... 538.

[8]INHELDER, B. The Growth of... 335.

[9]RICHMOND, P.G. An Introduction to... 42.

10 INHELDER, B. The Growth of... xiv.

[11]____. xvii.

[12]RICHMOND, P.G. An Introduction to... 46.

[13]INHELDER, B. The Growth of... 339.

[14]GRINDER, R.E. Studies in... 538-540.

[15]INHELDER, B. The Growth of... 347.

[16]RICHMOND, P.G. An Introduction to... 58.

[17]____. 58-59.

[18]INHELDER, B. The Growth of... 336-337.

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3 - PRESENTATION OF THE DATA

The aim of this chapter is to present the data, as well as the analysis of the logical connectors based on frameworks derived from Quirk et al., 1985, and from Murcia and Freeman,1983, and of the modal verbs, based on Palmer, 1979, and on Murcia and Freeman, 1983, with some adaptations.

3.1 LOGICAL CONNECTORS

According to Quirk et al., 1985, there are 268 different logical connectors (tokens), i.e., 172 conjuncts and 96 conjunctions.

According to Murcia and Freeman, 1983, there are 234 different logical connectors (tokens), that can be conjunctions and correlatives (words or phrases whose function is to show some logical relationship between two or more basic sentences or - in some cases - between a basic sentence and a noun phrase).

In both books analysed only 26 different logical connectors (tokens) were found, as follows, according to occurence and frequency:

AND	=	253	(concrete operations)
BUT	=	82	(concrete operations)
THEN	=	26	(concrete operations)
OR	=	24	
WHEN	=	20	
BECAUSE	=	16	(concrete operations)
OF COURSE	=	15	

IF	=	11
NOW	=	10
SO	=	7
TOO	=	5
FIRST	=	4
UNTIL	=	4
ANYWAY	=	3
BY THE WAY	=	3
WHERE	=	3
ELSE	=	2
NEXT	=	2
THAT	=	2
WHILE	=	2
AS FAR AS	=	1
EITHER	=	1
INSTEAD	=	1
MORE	=	1
SECOND	=	1
UNLESS	=	1

Whereas at the level of formal operations the adolescent starts to make extensive use of connectors to subordinate his structures, at the stage of concrete operations the child conveys his ideas through the use of coordinated sentences. And, besides, the child will mainly describe things, while the adolescent will make use of deductions and experimental inductions.

Thus, on one hand, a child at the concrete operations stage will produce a statement like, "the rods which are long and thin bend more than the rods which are short and thick." On the other hand, an adolescent at the stage of formal operations will produce a statement like, "if the long rods bend

more than the short rods, other things being equal, then greater length causes more bend." The child has no powers of reflection as the adolescent does.

Inhelder, 1958, mentions that the adolescent goes beyond the level of groupings and starts to make deductions about what he has in mind; he starts to ascertain facts and formulate them as propositions, e.g., "This rod is steel; it is also long." "That rod is steel, but it is shorter", etc. He also ascertains the results of his experiments, e.g., "a long steel rod bends, a short brass one does not, a short steel one does", etc. The formal operations enable him to combine these propositions mentally and to isolate those which confirm his hypotheses. He mentally surveys many possibilities, but his commitment begins in real life situations.

According to the data collected the adolescents will be able to use:

1. Additive connectors, that are used to signal addition, introduction, to show similarity, etc. They have:

ADDITION	= and (253)
	too (2)
	either-neg. (1)
ALTERNATIVE	= or (24)

2. Adversative connectors, used to signal conflict, contradiction, concession, etc. They have:

CONFLICT/CONTRAST	= but (82)
	while (2)
REPLACEMENT	= instead (1)

3. Causal connectors, used to signal cause/effect and reason/result, etc. They have:

CAUSE/REASON = because (16)

EFFECT/RESULT = so (7)

CONDITION = if (11)

else (2)

4. Sequential connectors, used to signal a chronological or logical sequence. They have:

NUMERICAL = first (4)

second (1)

CONTINUATION = then (26)

next (2)

DIGRESSION = by the way (3)

RESUMPTION = anyway (3)

5. And all the other following logical connectors:

When (20)

of course (15)

now (10)

until (4)

where (3)

that (2)

as far as (1)

more (1)

unless (1)

On the other hand, adolescents will have problems to argue, which is pertinent to the level of cognitive development they are in, that of formal operations. They have no adequate linguistic means of how to introduce a topic, give examples, intensify their ideas, or even condense or conclude them. There was no occurence of any of the logical connectors used to express these functions in the books analysed.

If the students have to discuss poetry during a literature class, they will be able to argue like this:

> "I think this poem is important because it has good ideas. First, because the author used many figures of speech; second, because he also used Alexandrian verses."

From what they have already learned they will not be able to say anything at a higher structural level, especially concerning the use of logical connectors.

In addition, if they have to write about divorce in class, for instance, they will be able to write their topic sentences and their supporting sentences by using logical connectors, such as:

> "I think there should exist divorce in Brazil. First, because people need to have freedom to decide what they want to do; second, because they should also have the opportunity to decide if they want to continue married to a certain person or not. Of course there should be certain limitations so that the persons could only ask for a divorce when they have a justification for that."

They will not be able to conclude their ideas because they do not know any summative or conclusive connectors like: finally, in sum, in short, etc.

Furthermore, students will have difficulty to understand a literature definition, such as:

> CACOPHONY: The opposite of EUPHONY; a harsh, unpleasant combination of sounds or tones. Though most specifically a term used in the CRITICISM of POETRY, the word is also employed to indicate disagreeable sound effect in other forms of writing. CACOPHONY may be used unconsciously for effect, as Browning

> and Hardy often used it. CACOPHONY is an intractable term because the classification of a given sound or combination as harsh tends to be relative and subjective. Words with harsh meanings will sound harsh whether or not they possess any acoustic features that are correspondingly harsh. Even so, it is difficult to imagine anyone's regarding such a monstrosity as "sphygmomanometer" as anything but cacophonous.[1]

It should be considered that from this stage on adolescents are entering adult society and they need to talk like adults; they need to have all the necessary knowledge to enable them to communicate in this society.

Out of the 26 kinds of logical connectors found in both books analysed, most of them present a very low frequency, namely:

TOO, FIRST, UNTIL = 4 each

ANYWAY, BY THE WAY, WHERE = 3 each

ELSE, NEXT, THAT, WHILE = 2 each

AS FAR AS, INSTEAD, MORE = 1 each

EITHER, SECOND, UNLESS

The lack of repetition reveals that the focus of the book is not on "reasoning" and argumentation.

Moreover, it has to be considered that the absence of, for example, notwithstanding, whereupon, whilst, insofar that, likewise, albeit, hence, contrariwise, etc, may not cause a serious problem in communication; however, the absence of, for example, besides, in fact, specifically, however, though, in sum, finally, in short, furthermore, on the other hand, anyhow, etc, may allow for a gap in communication at a mature and developed cognitive level, that of formal operations stage. Therefore, because of this lack of the connectors, the adolescents will have problems to argue, especially during their

literature classes, in which they have not only to express their ideas, but to structure them at a high level as well.

Furthermore, besides the immediate academic problems they may have, they will sound childish. Their arguments, if any, will sound immature; they will lack depth. They will be able to handle only the more common structures, and most of the time they will not know how to establish a linking between them, and, consequently, how to organize them in a cohesive way.

3.2 MODAL VERBS

In order to carry out the present analysis some adaptations of the framework were made, based on Palmer, 1979, and on Murcia and Freeman, 1983, to make it possible to analyse all the modal verbs. Based on this adapted framework a table was elaborated and is at the end of this chapter.

Palmer, 1979, mentions 15 different kinds of modal verbs, each one having different kinds of modality, according to its use, which are: can, could, may, might, must, need, ought to, have (got) to, be bound to, had better, would rather, will, would, shall and should.

Palmer also made three distinctions in modality, namely: "epistemic" (the modality of the propositions); "deontic" (the modality of the events), and "dynamic" (the modality of disposition).

In both books analysed 10 kinds of modal verbs were found, namely: can, could, may, might, need, shall, must, will, should, and would, some of them occuring as different kinds of modality, as follows:

CAN = possibility (dynamic) = 28

WOULD	= volition	= 24
WILL	= volition	= 21
MUST	= obligation/compulsion	= 14
CAN	= permission	= 12
CAN	= ability	= 12
CAN	= request	= 12
COULD	= possibility (dynamic)	= 9
WILL	= habitual	= 9
WOULD	= offer	= 9
COULD	= request	= 9
COULD	= ability	= 6
MAY	= possibility (epistemic)	= 6
WOULD	= conditionality	= 6
MAY	= permission	= 5
SHALL	= permission	= 5
MUST	= prohibition	= 5
CAN	= implication	= 4
SHOULD	= obligation/compulsion	= 3
NEED	= obligation/compulsion	= 3
COULD	= permission	= 2
MIGHT	= possibility (epistemic)	= 2
MUST	= necessity (epistemic)	= 2
SHOULD	= suggestion/advice	= 2
MUST	= possibility (epistemic)	= 1
SHOULD	= permission	= 1
SHOULD	= conditionality	= 1
WILL	= conditionality	= 1
WILL	= request	= 1

The highest frequencies were: <u>can</u> (dynamic possibility) 28; <u>would</u> (volition) 24 and <u>will</u> (volition) 21.

In addition, most of the modal verbs had a very low frequency, as follows:

COULD	(permission/possibility)	= 2
MIGHT	(epistemic possibility)	= 2
MUST	(epistemic possibility)	= 1
	(necessity)	= 2
NEED	(obligation/compulsion)	= 3
SHOULD	(permission)	= 1
	(obligation/compulsion)	= 3
	(suggestion)	= 2
	(conditionality)	= 1
WILL	(conditionality)	= 1
	(request)	= 1

At the stage of formal operations the adolescent ascertains a number of facts and tests the results of his experiments. Thus he will need to make use of a high number of conditionals. In both books analysed there was no occurence of shall; only 1 of should, 1 of will and 5 of should. The sample may not be sufficient for the adolescents to acquire this structure, and, consequently, it is possible that they will not know how to use the conditional to formulate their hypotheses and to test the results of their experiments. Out of the examples found in both books they will be able to elaborate propositions like, "If Peter comes, I will take him to the club.", or "If Peter came, I would take him to the club."

Whereas a child is limited to action and a partial reality the adolescent mentally surveys many possibilities, forms theories and conceives imaginary worlds, but his commitment begins in real life situations. What counts is what "could be", and not merely what "is" os "was". In order to convey

these ideas the adolescent will need to make use of the modal verbs which express possibility, futurity, which are: can, could, may, might, will, would, should. There are examples of can, could, may, might, for possibility, presented below, but no examples of will, would, and should for futurity.

- I think I can find it.
- Could you take a message?
- May I ask you a question?
- Well, I was going to college, but I might have to postpone and get a job instead.

At the concrete operations stage, which is a mental action in which classes of objects or relationships between objects arecombined or related to make statements about the environment, the child does not need to make use of the modal verbs because he bases himself only on reality; he does not surveys many possibilities as the adolescent does. Thus at the formal operations stage the adolescent should be able to know and master (handle) all the modal verbs and all their different kinds of modality.

Based on the data collected the adolescents will be able to express 10 out of the 15 kinds of modal verbs presented by Palmer, and by Murcia and Freeman. They will be able to express the following modalities:

POSSIBILITY	= can, could, may, might, must
NECESSITY	= must
OFFER	= would
PERMISSION	= can, could, may, shall, should
OBLIGATION/COMPULSION	= must, need, should
VOLITION/DESIRE	= will, would
IMPLICATION	= can

PROHIBITION = must

REQUEST = can, could,will

SUGGESTION/ADVICE = should

HABITUAL = will

CONDITIONALITY = should, will, would

On the other hand, no samples of the following modalities were found:

CAN = command

HAD BETTER = suggestion/advice

MIGHT = permission, suggestion/advice

MUST = necessity (dynamic), suggestion/advice

HAVE (GOT) TO = obligation/compulsion, necessity (dynamic)

NEED = necessity (epistemic)

SHALL = obligation/compulsion, conditionality, futurity, promise/threat, possibility (epistemic)

OUGHT TO = obligation/compulsion, necessity (deontic, dynamic)

SHOULD = habitual, necessity (dynamic)

MAY = command

WILL = suggestion/advice, futurity, power, possibility (epistemic)

WOULD = request

The adolescents will be able to express the modality <u>necessity</u> only by the use of MUST; they have 5 examples of it; however, they have no examples of MUST (dynamic necessity); HAVE (GOT) TO, NEED and OUGHT TO. They will be able to say and understand sentences like:

- I must go now.

But not
- I've got to go now.
- I need to go now.
- I ought to go now.

And, besides, they only have two examples of advice SHOULD, but no examples of MIGHT, COULD, MUST, HAD BETTER, WILL. They will be able to say and understand sentences like:

- You should see a doctor.

But not
- You might see a doctor.
- You could see a doctor.
- You must see a doctor.
- You had better see a doctor.
- You will see a doctor.

They have no way to make a promise or threat because there were no examples of this modality. It is expressed by the use of SHALL. Therefore, they will not be able to use this modality in such an example as:

- You shall have it tomorrow.

In addition, they have no example of the modality power expressed by WILL, which is little more than volition applied to inanimate objects, to indicate how such objects will characteristically behave, as in the example:

- You know that certain drugs will improve the condition.

The students need to recognize and know the modal verbs to understand a literature definition such as:

> POETIC LICENSE: The privilege, sometimes claimed by poets, of departing from normal order, DICTION, RHYME, or pronunciation in order that their VERSE may meet the requirements of their metrical pattern. The idea of a certain measure of license goes back at least as far as Quintilian, and the Elizabethan critic George Gascoigne granted that some distortions and deviations may be

> justified "per licentiam Poeticam"; in the seventeenth century Dryden described such license as the liberty taken by all poets in all ages to liberate their work from the strictness and severity of prose.
>
> The best poets, however, rarely resort to poetic license, since they take care to avoid such distortions. Readers of poetry should not be too hasty in setting down as license some such irregularity as the use of an archaic word of the departure from normal word order - which may have been deliberately planned by the poet to establish a desired poetic effect. If one applies the strict demands of prose to poetry, of course, many poetic expressions will consist of poetic license. The decision is largely relative. Prose, for instance, would state boldly: "Kubla Khan decreed that a stately palace be built in Xanadu".[2]

Even if the students are not able to produce an essay in which they would use the modal verbs presented above, as well as any others, they may be able to understand them. Therefore, they should be exposed to them because, normally, perception or reception is higher than production.

TABLE 1

LOGICAL CONNECTORS

AND 253	BUT 82	THEN 26	OR 24	WHEN 20
BECAUSE 16	OF COURSE 15	IF 11	NOW 10	SO 7
TOO 5	FIRST 4	UNTIL 4	ANYWAY 3	BY THE WAY 3
WHERE 3	ELSE 2	NEXT 2	THAT 2	WHILE 2
AS FAR AS 1	EITHER 1	INSTEAD 1	MORE 1	SECOND 1
UNLESS 1				

	MODALITY	CAN	COULD	MAY	MIGHT	MUST	HAVE (GOT TO)	NEED	OUGHT TO	SHALL	SHOULD	WILL	WOULD	BE BOUND TO	WOULD RATHER	HAD BETTER
EPISTEMIC	POSSIBILITY			6	2	1										
	NECESSITY					2										
	FUTURITY															
DEONTIC	PERMISSION	12	2	5						5	1					
	OBLIGATION/COMPULSION					14		3			3					
	PROHIBITION					5										
	NECESSITY															
	PROMISE/THREAT															
	REQUEST	12	9									1				
	COMMAND															
DYNAMIC	OFFER/INVITATION												10			
	IMPLICATION	4														
	POSSIBILITY	28	9													
	NECESSITY															
	ABILITY	12	6													
	SUGGESTION/ADVICE										2					
	VOLITION/DESIRE											21	24			
	POWER															
	HABITUAL (OR TYPICAL)											9				
	CONDITIONALITY										1	1	6			

TABLE 2 - MODAL VERBS

NOTES

[1]HOLMAN, C.H. & HARMON, W. A Handbook to Literature. New York, Macmillan, 1986, 69.

[2]___. 383.

4 - CONCLUSION

The purpose of the present dissertation was to study cognitive development and its implication to the teaching of English as a foreign language. It was carried out through the analysis of modal verbs because they convey the idea of possibility, ability, volition, obligation, intention, permission, prediction, circumstances, which enable the adolescents to argue; and of logical connectors because they keep the argumentative orientation and thus enable the adolescents to compare, to express implications, to make considerations, judgements, to formulate hypotheses, etc.

The frameworks for interpreting and analysing the data, i.e., the modal verbs and the logical connectors, were derived from recent descriptions on modality and on the logical connectors (Quirk et al., 1985; Palmer, 1979; Murcia and Freeman, 1983).

Based on the analysis of the modal verbs and of the logical connectors we confirmed the hypothesis that the books adopted at the University level in Brazil do not provide the necessary background for the students to communicate and argue at the level of cognitive development they are in, that of formal operations. Thus the adolescents will communicate as if they were in the previous stage, that of concrete operations, where the child uses only and, but, then, because to convey his ideas, to form sequences, enumerate facts, i.e., the logic of classes versus class inclusion or serial ordering operations.

In both books analysed the highest frequencies were: and, 253; but, 82, and then, 26, which proves that the books were originally designed for High School students at the concrete operations stage.

In addition, most of the connectors presented a very low frequency, as follows:

TOO (5)

FIRST, UNTIL (4 each)

ANYWAY, BY THE WAY, WHERE (3 each)

ELSE, NEXT, THAT, WHILE (2 each)

AS FAR AS, EITHER, INSTEAD, MORE, SECOND, UNLESS (1 each)

The lack of repetition proves that the books' focus is not on reasoning and argumentation.

The formal operations stage includes the concrete operations information, but not vice-versa, as stated by Lavatelli and Stendler, as follows:

> Formal operational thought includes all the structural features of concrete operational thought but at a new level of organization. Concrete operational thought or even sensorimotor thought does not disappear when formal thought arises, but continues to be used in concrete situations where it is adequate or when efforts at solution by formal thought have failed. However, there is a hierarchical preference within the individual, that is, a disposition to prefer a solution of a problem at the highest level available to him.[1]

According to Inhelder, 1958, "in our society the 7-8-year-old child (with very rare exceptions) cannot handle the structure which the 14-15-year-old adolescent can handle easily. The lattice (combinatorial system) and group structures (INRC Group)

are probably isomorphic with the structure of the mechanical models devised by cybernetics in initiation of the brain."[2] For these reasons it seems clear that the development of formal structures is linked to maturation of cerebral structures. Thus, adolescents can handle the structures the children can handle, but there is no reciprocity. In general, the formal stage bears a hierarchical relation to the concrete stage, subsuming concrete-stage function as a part of itself rather than simply replacing it. It integrates all that has gone before.

In both books analysed a limited set of logical connectors was found, i.e., 26 (tokens). Therefore, adolescents will not be able to express thoroughly, and sometimes will not be able to do the following: to introduce a topic; to make reference; to show similarity; to identify a constituent for which the reader/listener has already been prepared; to clarify or rephrase a preceding item, to make concession (reservation without invalidating the truth of the main clause); to show dismissal; to rectify a preceding item; to conclude; to show resumption; to summarize; to condense facts; to show resultive relations; to infer; to express contrast (either in a reformulatory, replacive. or antithetic way); to express temporal relations.

Consequently, if the adolescents have to write about a certain topic in class they will be prepared to start writing about the topic, because they know connectors such as: <u>first</u>, <u>second</u>; however, they will not be able to give examples, emphasize, make concessions, express contrast, intensify, clarify and condense their ideas, and even to draw conclusions on them. This means that they still do not possess the necessary elements to write about a topic because they have a gap in their structure

background; they have not acquired all the necessary connectors for them to write an essay.

Therefore, adolescents will certainly have problems to write a paragraph like:

> "Riding a bicycle is preferable to driving a car. First of all, a bicycle is relatively inexpensive to buy and to maintain. Whereas a car may cost thousands of dollars to buy and hundreds of dollars annually, a good bicycle will cost only a hundred dollars or so, and its annual maintenance cost is very small. Biking is also healthier; not only does the biker get more physical exercise than the driver, but bicycles are nonpolluting. The consequence is a person with strong legs and a strong heart. Finally, bicycling is, unlike driving, personally satisfying. Instead of being a robot inside a machine, the biker pedals along, enjoying the scenery, becoming a part of nature. In all but the most inclement weather, the bicycle is a pleasurable means of transportation."

They do not know any of the underlined connectors.

At the stage of formal operations adolescents exchange view points and discuss their merits before joint control of the group is possible. The adolescents will not be prepared to argue because they know just the connectors but, because, of course, and an irrelevant occurence of anyway (3). They will still need: besides, (al)though, once that, since, for, as, etc. It will be difficult for the adolescent to reinforce their ideas because they only know the connectors then and more, and even to conclude them because they have learned no summative connectors.

Out of the 15 types of modal verbs presented by Palmer, 1979, and by Murcia and Freeman, 1983, only 10 were found in

the books, namely: can, could, may, might, must, need, shall, should, will and would, with some of them presenting no occurence of some of their modalities,

Therefore, on one hand the adolescents will be able to express 13 out of the 20 different modalities presented by Palmer, and by Murcia and Freeman, as follows:

POSSIBILITY	= can, could, may, might, must
NECESSITY	= must
OFFER	= would
PERMISSION	= can, could, may, shall, should
OBLIGATION/COMPULSION	= must, need, should
VOLITION/DESIRE	= will, would
IMPLICATION	= can
PROHIBITION	= must
ABILITY	= can, could
REQUEST	= can, could, will
SUGGESTION/ADVICE	= should
HABITUAL	= will
CONDITIONALITY	= should, will, would

On the other hand, they will not be able to express the modality necessity expressed by HAVE (GOT) TO, NEED, and OUGHT TO; advice expressed by MIGHT, COULD, MUST, HAD BETTER and WILL. There were no examples of these modalities in the books analysed,

In addition, they will not be able to make a promise or threat because there was no example of this modality which is expressed by the modal verb SHALL. And, besides, there was no example of the modality power, expressed by WILL, which is little more than volition applied to inanimate objects to indicate how such objects will characteristically behave.

Based on all these results, we can draw the conclusion

that students will have problems to understand a literature definition such as:

> PROVERB: A sentence or phrase briefly and memorably expressing some recognizable truth or shrewd observation about practical life; originally preserved by oral tradition, though it may be transmitted in written literature as well. As far as form goes, proverbs may owe their appeal to the use of metaphor ("Still waters run deep"), antithesis ("Man proposes, God disposes"); a play on words ("Forewarned, forearmed"); rhyme ("A friend in need is a friend indeed"); or alliteration or parallelism. Since the true proverb is old, its language is sometimes archaic. Thus, in "The exception proves the rule", the "proves" ought to retain its old meaning of "tests" or "challenges"; exceptions do not establish rules, certainly, except in a proverb that has achieved currency.[3]

They do not know and handle any of the underlined connectors or the modal verb.

Our hypothesis was that the Language Courses in Brazil do not correspond to the cognitive necessity of the students. In order to carry out this study two-first-year courseboks, used at University level were analysed. In the first year students should acquire the English background which enables them to argue. Besides, it is a pre-requisite for literature studies. Therefore, students at this level should acquire not only the basic structures, but the most complex ones as well.

Based on the books consulted we can draw the conclusion that the books were originally designed for High School students at the concrete operations stage. They present a very low occurence of logical connectors, i.e., 26 (tokens) out of the 268 presented by Quirk et al., 1985, and of the 234 presented by Murcia and Freeman, 1983. In addition, most of them presented a very low frequency. The highest frequencies were: and, 253; but, 82, and then, 26, which in turn are pertinent to the

concrete operations stage. Furthermore, they present only the more common modal verbs, 10 out of 15, and some of them had a very low frequency as well.

"Within Piaget's framework cognitive development virtually ends with formal operations; adolescents entering the formal operational period have achieved fully logical thinking, and there is little more for them to do, except perhaps to extend their logical thinking to new content areas."[4] Linguistically speaking, this expansion would be actualized at lexical (vocabulary) level.

From this stage onwards adolescents are mentally developed to assimilate and produce all the most complex structures.

Based on the results we can say that the books were originally designed for beginners, i.e., they are basic level books. University students are not beginners, because although they are starting a new level, the third, they have already studied English formally in High School, in which English is a compulsory subject in Brazil. And, besides, even if they had not acquired this background in High School, they are not children any more. The materials chosen to teach them should be adequate to their level of cognitive development. Therefore, at this level students should be adding knowledge to their previous background, and not be merely repeating what they have already studied at the High School level. They are supposed to master the basic structures, and, consequently, be able to improve them by acquiring new and more complex structures at the University level.

Teachers need criticism on the coursebooks in order to help them choose their teaching materials. If they know what

the problems are and what level of cognitive development the target students will be, they may be able to opt for one book, adequate to the clientele, instead of opting for one that has nothing to do with the students the book will be adopted for. The teachers may start to analyse and decide whether a book is adequate to the students' level or not, and, consequently, they may start to observe whether the books were originally designed for High School or for the University students, and yet, whether they present an author's description where that would be mentioned.

In addition, the authors should prepare their books more specifically, presenting an introduction where a limitation to the use of that book would be mentioned.

It is typical for researchers to reach the end of their studies with more questions than answers. The findings presented here should be viewed as preliminary in nature. Therefore, we suggest further research on the analysis of the adequacy of lexical items, of syntactic structures, of speech acts. Further research in the area of adolescents' cognitive development as reflected in language is also needed.

NOTES

[1]LAVATELLI, C.S. & STENDLER, F. Readings in Child Behavior and Development. New York, Harcourt Brace Jovanovich, 1972, 505.

[2]INHELDER, B. The Growth of Logical Thinking from Childhood to Adolescence. USA, Basic Books, 1958, 336-337.

[3]HOLMAN, C. H. & HARMON, W. A Handbook to Literature. New York, Macmillan, 1986, 401.

[4]FISCHER, K.W. Theory of Cognitive Development. Psychological Review. USA, nov. 1980, 87(6), 496.

RESUMO

Este trabalho tem como objetivo estudar desenvolvimento cognitivo e sua implicação no ensino de Inglês como uma língua estrangeira, isto é, verificar se os Cursos de Letras no Brasil fornecem o grau de proficiência para os alunos se comunicarem no nível de desnvolvimento cognitivo em que se encontram, ou seja, o das operações formais, e, por conseguinte, argumentar, especialmente durante as aulas de literatura. Esta pesquisa envolve um estudo dos modais e dos conetores coletados nos textos básicos de cada unidade de dois livros textos, usados a nível de Universidade. A análise foi desenvolvida com base em desenvolvimento cognitivo, derivada de diversos autores. Para isto foi incluída uma revisão de literatura sobre desenvolvimento cognitivo, modais e conetores.

Depois de analisar os dados chegou-se à conclusão que os livros usados a nível de Universidade no Brasil não fornecem o grau de proficiência para os alunos se comunicarem no nível de desenvolvimento cognitivo em que se encontram, ou seja, o das operações formais. Os livros foram originariamente elaborados para estudantes a nível de Primeiro e Segundo Graus, e não para estudantes a nível de Universidade.

ANNEX I

MODAL VERBS SAMPLES COLLECTED FROM "PERSON TO PERSON"

UNIT 2 - We'll have to fill out some forms. (habitual - 2)
- Can I help you, sir? (possibility/permission)
- Yes, I'd like to open a savings account. (volition)
- Could I have your name, please? (request)

UNIT 7 - Can you help me? (request)
- You can't miss it. (possibility)

UNIT 8 - Oh, hey, can you turn that up a little? (permission/possibility)
- I can't stand mobs of pushy people. (possibility)

UNIT 10 - Saturday would be fine. (conditional)
- Oh, I'd love to, George,... (volition)
- I thought that would be fun. (conditional)
- Well, could we make it another time, say, Saturday? (permission/possibility)
- Hello, I'd like to speak to Karen Simmons, please. (volition)
- I was just wondering if you'd like to go to the movies this Friday. (conditional)
- I think I can find it. (neutral possibility)

UNIT 11 - I think I'll have the chef's salad. (volition)
- May I help you? (possibility/permission)
- Yes, we'd like to order please. (volition)
- And what would you like? (offer)
- I'll have a cheeseburger, medium, rare, with french fries. (volition)
- Could I have the chef's salad please? (request)
- And what kind of dressing would you like on the salad? (offer)
- Would you care for anything to drink? (offer)
- Well, I'll have a coffee, then. (volition)
- Would you like anything else? (offer)

- Could you bring me some sliced potatoes? (request)
- And shall I bring you your coffee now? (permission - deontic)

UNIT 12 - Look, I'd like to hear more about it, but I really have to run. (volition)
- I will. (volition)

UNIT 13 - Ok, now I'll need your name and address. (volition - dynamic)

UNIT 15 - Then call the waiter/waitress (Student C) who will write down your order. (habitual)

PERSON TO PERSON (BOOK 2)

UNIT 1 - And could you tell me what kind of experience you've had? (possibility)
- Could you tell me what kind of salary you are expecting? (request)
- That would be fine with me. (conditional)
- And is there anything you'd like to know about the job? (volition)
- Yes, I'd like to know if the company provides opportunities for further education. (volition)
- We'll call you within the week. (volition)

UNIT 3 - We should invite them over for coffee. (suggestion/advice)

UNIT 4 - Is there a place near here where I can get my camera repaired? (possibility)
- You can't miss it. (possibility)

UNIT 5 - Introduce yourself to as many people as you can. (possibility)

UNIT 6 - Well, maybe you should go to the health center and see a doctor. (suggestion/advice)
- Yeah, I guess I should, but you know how I hate doctors. (obligation/compulsion)

- I will. (volition)
- You know, you really shouldn't try to do any work right now. (obligation/compulsion)
- If I were you, I'd just lie down and take it easy for a while. (conditional)

UNIT 7 - I'd like some information on how to get into an American university. (volition)
- ..., and for some schools I think you may also have to take the SAT. (possibility - epistemic)
- When can I apply for that? (possibility - neutral)
- Well, you can't apply for the visa until you get a letter of acceptance,... (permission)
- They'll let you work in the summer. (volition)
- And you'll need to get a permission from the U.S. Office of Immigration to do that. (habitual)

UNIT 8 - Cathy, could we begin with you? (permission/possibility)

UNIT 10 - Can I ask you some questions about your country? (permission/possibility)
- Well, first of all should I...? (permission)
- Student B can answer like this: (possibility - neutral)

UNIT 11 - Oh, I think I'll just travel around for a while. (volition)
- Well, I was going to college, but I might have to postpone it and get a job instead. (possibility)
- Well, if I get a scholarship, I'll study architecture in New York. (habitual)
- Well, then I suppose I'll have to look for a job, too. (conditional)

UNIT 12 - It may be cholera. (possibility)
- He should have seen a doctor earlier. (obligation/compulsion)
- He must have gotten it while he was there. (possibility)
- The doctor says if he stays in the hospital for a few weeks, he should be able to avoid complications. (conditional)

UNIT 13 - Could you show me how this vacuum cleaner works? (request)
- That's so you can clean under furniture more easily. (ability)
- I think I'll take this one. (volition)
- Can it be delivered? (possibility - epistemic)
- We can deliver it to your home tomorrow morning. (possibility)

UNIT 14 - She said we'd really enjoy it. (conditional)

UNIT 15 - The first time, your partner will be your future husband/wife. (habitual)
- ... so that you will be ready to answer the editor's questions. (habitual)
- He/she will ask you questions about your wedding plans. (habitual)
- Here are some questions that the editor might ask. (possibility)

ANNEX II

MODAL VERBS SAMPLES COLLECTED FROM "STREAMLINE"

UNIT 7 - Mrs. Connor, could you pass the salt please? (request)

UNIT 11 - I'd like the menu, please. (volition)
- I'd like some soup. (volition)
- ... and I'd like a steak. (volition)
- Which vegetables would you like? (offer)
- I'd like some potatoes,... (volition)
- Oh, and I'd like some wine. (volition)
- Which wine would you like? (offer)

UNIT 13 - ... he'd like a Rolls-Royce. (volition)
- ... he'd like a new mini. (volition)

UNIT 14 - Yes, he can speak six languages. (ability)
- Can he? (ability)
- Which languages can he speak? (ability)
- He can speak French, ... (ability)
- Yes, he can swim, ski, ... (ability)
- Can he cook? (ability)
- Can your husband cook? (ability)
- My husband can't play sports, but... (ability)
- Yes, and he can sew, and iron... (ability)

UNIT 15 - Would you like a cup of tea? (offer)
- Can I help you? (possibility/permission)
- I'd like a pair of shoes, please. (volition)
- Can I try them on? (permission/possibility)
- Where can we meet? (possibility)
- Yes, I'd like some information about trains please. (volition)
- I'd love to. (volition)

UNIT 17 - Can I see your passport? (possibility)

UNIT 19 - Can you show me some cameras please? (request)
- Can you show it to me, please? (request)
- Could you bring us some more tea, please? (request)
- ... and could you bring me the bill, please? (request)
- Can you take me to the airport, please? (request)
- You can send it to me at the office. (possibility)

UNIT 22 - Can you help me? (request)
- ... and I can't understand this word. (ability)
- I can't help you now. (possibility)
- Can Mr. Taylor help me? (request)
- No, he can't now. (possibility)
- Oh, she can't help you now,... (possibility)

UNIT 23 - Would you like to come to a party? (offer)
- Well, I'd like to... (volition)
- May I borrow it for a minute, please? (permission)
- Can I help you? (permission/possibility)

UNIT 25 - Peter can't see the film. (possibility)

UNIT 29 - May I ask you some questions? (permission/possibility)
- Oh, well... can you complete this form later, and send it by post? (possibility)

UNIT 30 - I'm sorry Charles, but I can't. (possibility)
- I can give you everything. (possibility - neutral)

UNIT 31 - Well, can you change a pound note? (possibility)
- Could you repair these shoes, please? (request)

UNIT 34 - Now, you can ask one last question. (permission)

UNIT 35 - Oh, I can't do that, vicar. (possibility)

UNIT 36 - May I ask you some questions? (permission/possibility)
- May I ask you a question? (permission/possibility)

UNIT 39 - Would you like to dance?(offer)

UNIT 41 - I can't remember. (possibility)

UNIT 43 - Can you change this pullover, please? (request)
- Can you measure me? (request)
- I'd like a room, please. (volition)

UNIT 45 - I can't remember, dear. (possibility)

UNIT 54 - Well, can you work on Saturdays until we finish it? (permission/possibility)

UNIT 56 - ... What can you remember about the attack? (possibility)

UNIT 57 - ... Can you swim? (ability)
- Yes, I can. (ability)
- I could swim when I was five. (ability)
- Could you? (ability)
- Yes, miss... Could you swim when you were five? (ability)
- I could swim when I was three. (ability)
- Could you read and write when you were three? (ability)
- ... of course I couldn't. (ability)

UNIT 58 - What must I do? (obligation/compulsion)
- You must go go to Moscow on tonight's plane.(obligation)
- ... but you mustn't visit her.(prohibition)
- Where must I stay? (obligation)
- You must go to the airport hotel. (obligation)
- Which passport must I use? (obligation)
- ... and you must speak Swiss-German all the time. (obligation)
- They mustn't know your nationality.(prohibition)
- What must I take with me? (obligation)
- Well, you mustn't carry your gun... (prohibition)
- You must check into the airport hotel tonight. (obligation)
- Must I reserve a room? (obligation)
- No, you needn't. (negative of must - root sense)
- Must I stay in my room? (obligation)
- No, you needn't stay in your room, but you must stay in the hotel. (negative of must - root sense and obligation)

- No, you needn't ... but you must discover why he's here. (negative of must - root sense and obligation)
- Must I be nice to him? (obligation)
- Must I contact you every day? (obligation)
- No, you mustn't. (prohibition)

UNIT 59 - I'll see. (volition)
- Could you take a message? (request)
- Can I dial direct to Zurich? (permission/possibility)
- Yes, sir, you can. (permission)
- I'd like a taxi, please. (volition)
- Can I help you? (permission/possibility)
- I'd like to make a three-minute call to Madrid. (volition)
- ... and I'll call you back. (volition)

UNIT 61 - ... can you hear me? (possibility)
- Yes, I can hear you clearly. (possibility)
- I can see the moon. (possibility)

UNIT 62 - Can you lend me £5? (request)
- Sorry, I can't.(possibility)

UNIT 63 - I can't find my pen. (possibility)
- You mustn't laugh. (prohibition)

UNIT 66 - Can you send me a thousand dollars? (request)

UNIT 72 - Will you marry me, darling? (request)
- Of course I will. (volition)
- I'll do the washing-up. (volition)
- All right, I'll make you a cup of tea. (volition)
- No, you won't. (permission)
- Well, will you do it today? (volition)
- Yes, I'll do it now, (volition)
- I'll do it tomorrow. (volition)
- Shall we eat out? (permission)
- Where shall we go? (permission)
- Shall I drive? (permission)
- I'll drive. (volition)

UNIT 73 - Can I borrow £10? (possibility)
- What can I do? (possibility)

UNIT 74 - ... I can't see anything. (possibility)
- ... and I can't find it anywhere. (possibility)

UNIT 79 - Can I help you? (permission/possibility)
- Shall I open it now? (permission)
- I'm afraid I can't. (possibility)
- But you can't go yet. (possibility)
- I'm sorry, but I must. (necessity)
- What kind of flowers would you like? (offer)
- I'd like to say goodbye to everybody. (volition)
- I'll give you a lift. (volition)

UNIT 80 - I'll write again soon. (volition)
- I must finish. (necessity)

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