

WHEN THE CHILD BECOMES A GRAMMARIAN: ASPECTS OF THE CONCEPTUALIZATION OF THE NOTION OF 'SENTENCE'

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This article aims at describing the conceptualization of the notion of 'sentence' in children aged six to eleven, on the basis of an experimental study held in a French Canadian primary school. The main issues are: 1) the re-examination of the delimitation between the non-metalinguistic and the metalinguistic types of reasoning as put forward by Berthoud-Papandropoulou 1980; Boutet, Gauthier, Saint-Pierre 1983a, b; and Christinat-Tièche 1988; 2) the evolution of children's ability to take the sentence as an object of reflection distinct from its referent.

1. INTRODUCTION

The definition of the notion of 'sentence' has been subject to multiple contradictions among grammarians in the history of French linguistics as shown in Marchello-Nizia's (1979) and Mounin's (1970) works. Although the notion of 'sentence' appears to be rather problematic on a theoretical level, the term 'sentence' is currently used in the teaching of French as a first language. As early as the very first grade, the teacher makes requests such as: read the sentence, find the sentence, write the sentence. The term 'sentence' will explicitly be defined or explained to the child only in grade four; it is therefore assumed that the six-year-old child has a certain idea about the concept of sentence when he starts school. What idea about the sentence does the child build through his first experiences at school? How does it develop? Does scientific or academic knowledge replace spontaneous knowledge? How can this knowledge be categorized?

To answer these questions, it is necessary to distinguish different types of knowledge related to language acquisition. While acquiring a first language, the child discovers which linguistic devices (verbal flexion, *determiner*, etc.) express the cognitive relations that he/she is aware of. Before going to school, the child has a "know-how" that enables him to produce grammatically well-formed utterances while school helps him learn to explicitly formulate how sentences are structured. This metalinguistic activity is translated through scientific metalanguage. This metalanguage is not the only form of metalinguistic activity which comprises, according to Gomber (1986:5), "*toutes les manifestations d'une réflexion sur l'activité de langage. Est métalinguistique, toute activité qui suppose que le langage soit traité comme objet de pensée.*"

This paper re-examines the delimitation between the non-metalinguistic and the metalinguistic types of reasoning as put forward by Berthoud-Papandropoulou's study

(1980) and our own study (Boutet, Gauthier and Saint-Pierre 1983a and 1983b). Berthoud-Papandropoulou's (1980 and 1987) works on the conceptualization of the notion of "word" in children have led to the present research. Berthoud-Papandropoulou describes this evolution in terms of a progressive capacity of the child to take into consideration the specific properties of the linguistic sign. This progression is clearly describable in terms of stages: 1) a non-metalinguistic attitude at 4-5 years of age: the child does not dissociate the word from its referent, for example, a *train* is a long word because the referent is long. 2) At 7, the child has a real metalinguistic attitude towards the word that evolves in the sense of an elaborated and complex construct completely distinct from its referent. Christinat-Tièche (1988) presents an analysis of the evolution of the conceptualization of the notion of 'sentence' resulting from experimentation where children were asked to construct and transform certain sentences. The author also identifies certain stages in the development of metalinguistic skills of children aged 4 to 11: 1) at 4-5 years old, the sentence is acceptable if it represents a plausible or true event; 2) at 7-8, the children say that the sentence must contain semantically related parts; 3) at 10, the children take into consideration more formal properties of the sentence and talk about the necessity of the presence of certain constituents and of their grammatical relationships.

On the basis of the Berthoud-Papandropoulou's and Christinat-Tièche's studies, we put forward the following hypothesis: the arguments given by children aged six to eleven can be described in terms of different evolutive stages —a non-metalinguistic one at six and a metalinguistic one at eleven.

2. METHOD

2.1. *The data*

The experimentation was held both in Montreal, Canada and Paris in two French primary schools of socio-economic middle class. 139 children ranging from 6:6 to 11:6 years of age were selected, of whom nearly half were female. The sample comprises six school levels in Montreal and five in Paris, distributed as follows:

School Grade	N/C*	N/F**	Age
1°	12	11	6 : 6
2°	12	13	7 : 6
3°	12	13	8 : 6
4°	11	11	9 : 6
5°	12	12	10 : 6
6°	20	0	11 : 6
Total	79C	60F	

The results presented in this article concern the French Canadian data and the first and third tasks of the experimentation.

* = Number of Canadian subjects

** = Number of French subjects

First, each child was asked the following questions:

- a. "Can you give me a very very short sentence?"
- b. "Can you give me a very very long sentence?"
- c. "Can you give me a very very easy sentence?"
- d. "Can you give me a very very difficult sentence?"

Each sentence was transcribed by the experimenter on a separate card.

Secondly, the children were asked to recognize and comment on the thirteen series which were presented to them one by one, the results of which have been published in Boutet, Gauthier and Saint-Pierre 1983a, b.

Thirdly, the children were asked again to give one shorter, longer, easier and more difficult sentence. By comparing the short/long and easy/difficult pairs of sentences transcribed by the experimenter, they were then asked to choose the shorter, longer, easier or more difficult one of the two and explain why it was so.

All the answers were tape-recorded and transcribed. All but two children succeeded in giving well-formed sentences. The latter gave four letters and four separate words, respectively, when asked to produce the sentences requested.

The answers have been classified according to the nature of the argumentation they contained. 436 different arguments have been identified and classified in the production task by the 79 French Canadian children. These arguments will be analysed on the basis of their qualitative aspects in 2.2 and their quantitative ones in section 3.

2.2. *The categorization*

The answers given by the children were classified into two types and six sub-types as follows. The metalinguistic and the non-metalinguistic types of answers were characterized, respectively, by the presence or absence of metalinguistic discourse. In the non-metalinguistic type of discourse, the child does not differentiate or dissociate the sentence from its referent, as will be shown in Type 1.

2.2.1. *Non-metalinguistic arguments*

TYPE 1: Indifferentiation between the sentence's referent and the term 'sentence'.

This type of reasoning is characterized by a non-dissociation between the sentence's referent and the sentence itself, as shown in the child's argumentation about why the said sentence is easy, difficult, short or long. The sentence is easy or difficult depending on the action referred to being easy or difficult.

- 1) a. La maîtresse se retient pour ne pas se fâcher.
(The teacher restrains herself from getting angry.)
- b. La maîtresse s'est fâchée car personne ne l'a écoutée. (8:6, #24)
(The teacher got angry because no one listened to her.)

Commenting on the chosen sentences, the child justifies his choice as follows: "It's difficult to restrain or contain oneself. But the second one (1b) is even more difficult because here (1a) she only contains herself, there (b) she becomes angry."

Although the child produces syntactically complex sentences, he justifies his choice

of the more difficult sentence using a non-metalinguistic type of reasoning.

- 2) a. Lili pêche à la ligne.
(Lili is fishing.)
- b. Lili passe par-dessus la clôture.
(Lili is going over the fence.)

The child says: "This one is shorter (2a) because she is just sitting there doing nothing, waiting. She moves in the other one (2b); therefore it's longer, it takes more time to go over the fence."

2.2.2. *Metalinguistic arguments*

The metalinguistic type of reasoning is characterized by the capacity to take the sentence as an object, distinct from its referent, and to give one or more of the following types of arguments: utterance activity or situation, the semantic and the formal properties.

TYPE 2: Taking the *utterance situation or activity* into consideration.

The sentence is apprehended as a whole, as a real utterance or by its different constitutive elements. The proposed sentence is easy, difficult, short or long if it is possible or not to identify a definite situation or support for its production (time, space, speaker, reader, writer, book, etc.). Commenting on the choice made, the child explains either by saying:

- 3) "It's easy, it's in my book." (6:6, #3)
- 4) "This is when someone speaks to someone else." (9:6, #47)
- 5) "We always say this when arriving home." (11:6, #66)

Another argument concerns the encoding and decoding activities related to the sentence: read, pronounce, say, write. The answers given by the children are formulated as follows:

- 6) "This one is longer because it is longer to pronounce it." (7:6, #14)
- 7) "This one is more difficult to read." (7:6, #15)
- 8) "It's easier because one can say it using his own words." (12:6, #78)

TYPE 3: Taking the *semantic* properties into account.

The children express the semantic properties in two ways. First of all, the child argues on the basis of the truth of the proposition as a condition for the status of sentence. The sentence must not be semantically deviant and must refer to something true. The answers are of the type:

- 9) a. Je joue au ballon à la récréation.
(I play ball during recess.)
- b. Le canard nage dans la mare. (10:6, #50)
(The duck is swimming in the pond.)

Commenting on (9a), the child says: "It's true, but this one (9b) is also true. I always see it at Lafontaine Park."

- 10)a. Les savants explorent des mines et des cavernes.
(Scientists explore mines and caves.)
b. Mon frère court à l'école chaque jour. (10:6, #50)
(My brother runs to school every day.)

Referring to (10 a), the child says: "This one is more difficult because I never heard that. I don't know what that is. We must find out how they do it. As for my brother, I see him do it, I know it."

In our previous studies (Boutet, Gauthier and Saint-Pierre), along with Berthoud-Papandropoulou's classification, this type of reasoning has been judged as non-metalinguistic. The delimitation between non-metalinguistic and metalinguistic reasonings is re-examined to distinguish this type of reasoning from the non-metalinguistic one (Type 1). The main criterion is the child's capacity to take the sentence as an object of thought, his reflection being directed towards the truth of the proposition and its conformity with the real world. This way of reasoning about language takes into consideration some semantic aspects concerning the truth conditions of the proposition, as philosophers do.

Secondly, the arguments concern the meaning or the interpretation of the sentence. The sentence or some specific words are easy/difficult if they are easy or difficult to understand or to explain.

- 11) La loi est anticonstitutionnelle. (11:6, #62)
(The law is anticonstitutional.)

The child explains why this sentence is difficult. "It's difficult. I don't know what the last word means; we were told in class but I don't remember."

- 12) Je regarde les bourgeons dans la forêt et les feuilles mortes de l'automne. (9:6, #40)
(I examine the buds in the forest and the dead leaves of fall.)

"This sentence is difficult to explain. These are words that we cannot explain: buds, dead leaves. We would need a dictionary to explain them."

TYPE 4: The sentence is defined in *quantitative* terms.

The formal properties of a sentence in quantitative terms characterize this type of reasoning. It is because the sentence contains a certain quantity of elements that it can be identified as such. These elements are words, syllables, letters, etc. The answers are formulated as: "it is / it is not a sentence because there are "x" words, syllables or letters." Comparing two sentences, a child would say: "Those sentences are alike because they have the same number of words."

TYPE 5: The sentence is defined on the basis of the *syntactic relationship* between its elements.

The arguments classified in Type 5 express the necessity of there being a relationship between the constituents of the sentence on a syntactic basis. Because this experimentation uses schoolchildren, this type of argument is separated from the Type 4 argument, even though both types of reasoning (#4 and #5) put forward two

dimensions of the formal properties of a sentence, which are: quantitative and qualitative.

For example, a child would compare the following and say:

- 13)a. J'ai aperçu mon grand-père et ma grand-mère dans un camping.
(I saw my grandfather and my grandmother at a camp ground.)
b. Nous avons fêté toute la famille pour la fête de Pâques dimanche dernier.
(11:6, #65)
(The whole family celebrated Easter last Sunday.)

The child says: "There is a subject group "mon grand-père et ma grand-mère", a verb group "j'ai aperçu", an object group "dans un camping". This sentence is simpler than the second one because the other one has two verbs: "avons fêté" is a verb but it makes two of them. The object is longer too."

Although some metaterms (word, letter, sentence, syllable) are being used as early as the first grade, grammar itself only starts to be explicitly taught in the 3rd and 4th grades of primary school.

TYPE 6: The arguments relate to a *cognitive activity* involved in the production of the sentence.

The child puts forward the difficulty or easiness of finding, learning, memorizing, etc., a sentence when arguing about the easier or more difficult sentence.

"It is an invented sentence; I thought of it fast." (6:6, #3)

"This one is easy because it's easy to remember." (6:6, #9)

"This one is longer because we have to think longer to find it; we have to think harder too." (11:6, #64)

These answers illustrate that the child distinguishes the sentence from the sentence's referent as something that comes out of our imagination, mind or memory.

TYPE 7: Unclassifiable answers or no answers.

Some arguments were too vague or imprecise to be classified. Answers such as "because it's simple" or "it's all mixed up" are some of the very few included in this category.

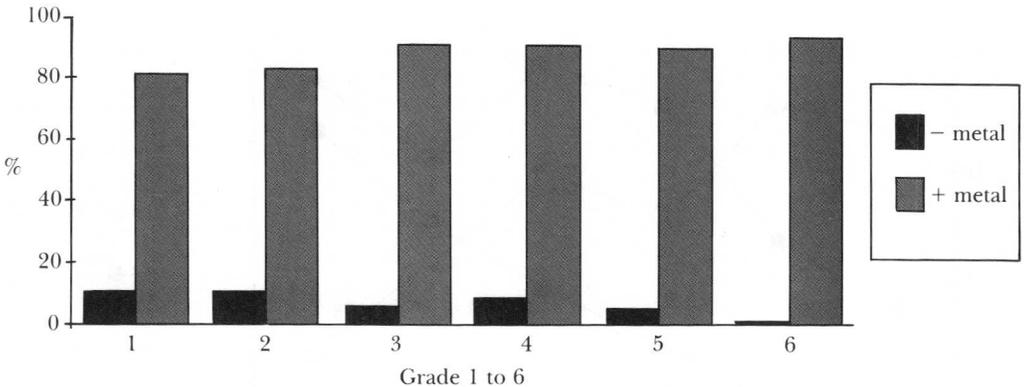
3. RESULTS AND DISCUSSION

The analysis shows how the different types of reasoning are interrelated and distributed according to the children's age to illustrate the development of their metalinguistic abilities.

Table 1 shows the evolution of the non-metalinguistic type of reasoning as compared to the metalinguistic one as a whole. Between six and eleven years of age, the proportions drop from 11.4% to 2% in the non-metalinguistic type of answers and increase from 81.4% to 94% in the metalinguistic ones.

A closer look at the data concerning the different types of reasoning indicates the presence of certain movements (increasing and decreasing) as a function of age along the following lines:

Table 1
EVOLUTION OF THE NON-METALINGUISTIC AND
METALINGUISTIC TYPES OF ARGUMENTS (n = 416)



First movement: The non-metalinguistic type of arguments decreases.

Although it is well dominated by metalinguistic reasoning at six, the non-metalinguistic discourse is not totally replaced by the "scientific" one at eleven, where both types of arguments can be given by the child (Tables 1 and 2). These findings contrast with Berthoud-Papandropoulou's results concerning the conceptualization of the word and Christinat-Tièche's work on the notion of 'sentence'. In both studies, it has been observed that the seven- or eight-year-old child abandons the non-metalinguistic mode of reasoning. Can these differences be explained by the present type of experimentation where the children are asked to give explicit answers to the experimenter? More fundamentally, this situation may be related to the linguistic objects themselves: the sentence and the word do not hold the same type of relation to the extralinguistic world. The sentence introduces both the phenomena of how the words refer to the world and the predication relationship.

The present results confirm, however, the ones obtained in the other part of this experimentation and which appeared in Boutet, Gautier and Saint-Pierre 1983a, b.

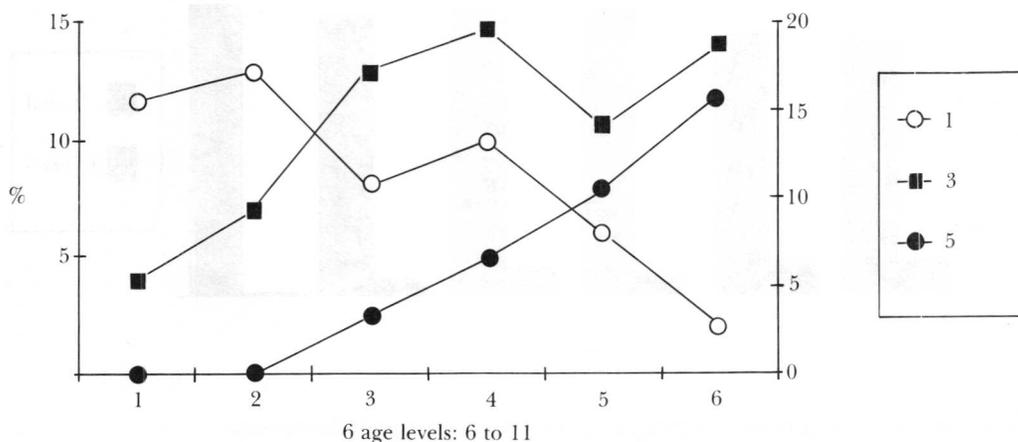
Second movement: The growth of metalinguistic types of arguments.

The increasing capacity to objectivize language is directly related to the children's age. The development of the metalinguistic reflection seems to be a result of an abstraction-conceptualization process by which children are progressively able to isolate the linguistic units and consider them as such. Table 2 shows that two sub-types of metalinguistic answers are directly related to the children's age: the semantic and the syntactic types of arguments.

1) The *semantic* types of arguments increase from 4% at six to 7% at seven and stabilize at 13% and 15% after eight.

2) The *syntactic* properties of the sentence are relied on progressively as the child explicitly learns in class how to objectivize grammatical properties. As shown in Table 2, this type of answer is directly related to schooling: at six and seven, none of the

Table 2
EVOLUTION OF TYPES 1, 3 AND 5 OF ARGUMENTS



children referred to the syntactic properties of the sentence. The progression is constant from then on: 3.3% at eight, 6.6% at nine, 8.6% at ten, up to 12% at eleven. This evolution is more important when the child compares the easy and difficult sentences: from 0% at six and seven, the percentage then increases to 5% at eight, 11.1%, 19% and 24% from the ages of nine to eleven.

To illustrate other aspects of this evolution, a more detailed analysis needs to be presented to compare the sets of arguments in the two types of opposition: long/short (L/S) and easy/difficult (E/D). Table 3 and Table 4 show the distribution of the seven types of arguments for each age. In these tables, each column represents a different level.

Table 3 shows the distribution of the different types of arguments at each age level in the opposition S/L. Five points need to be made in relation to this distribution: 1) a quasi-absence of the non-metalinguistic type of arguments (Type 1); 2) an important proportion of arguments of Type 2, taking into consideration the utterance situation or activity; 3) a saw tooth course of evolution of the semantic type of arguments (Type 3); 4) a high proportion of quantitative arguments (Type 4). This important proportion can be explained both by the nature of the task (opposition S/L) and by the fact that the primary school children are learning to read and write, which supposes a first visual contact with units such as letters, syllables, words; 5) the proportion of quantitative arguments is higher in the first three years of school as compared to the relational or syntactic type of arguments (Type 5) which are, on the contrary, referred to even more by the older children.

Table 4 illustrates the distribution of all types of arguments in relation to the opposition E/D. A greater variety of arguments can be noted which represent 257 different arguments as compared to 177 in the opposition S/L (see Table 5 for this aspect).

Table 3
DISTRIBUTION OF ARGUMENTS IN THE OPPOSITION S/L

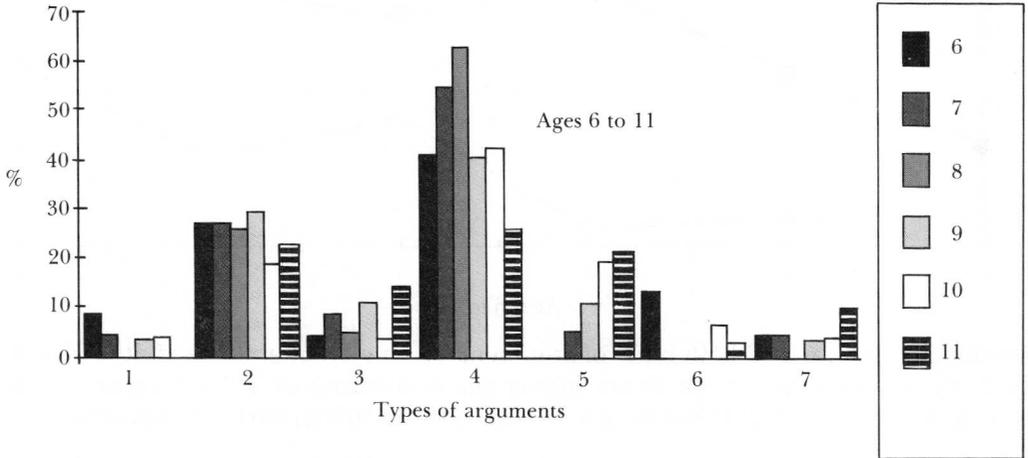
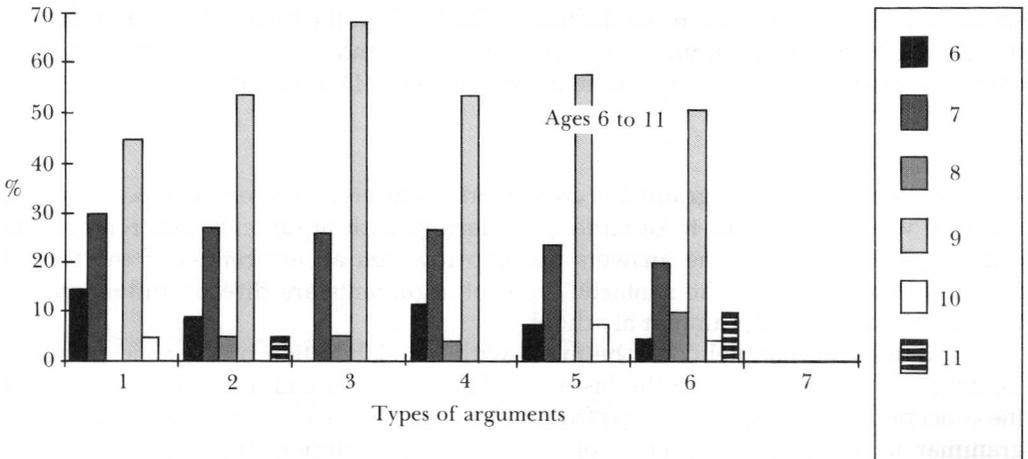
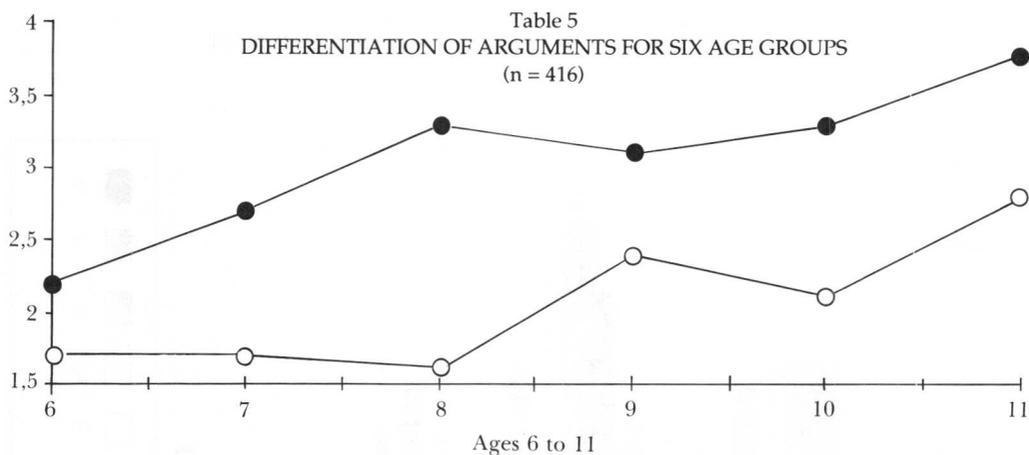


Table 4
DISTRIBUTION OF ARGUMENTS IN THE OPPOSITION E/D



The main characteristics in the children's answers concerning the opposition E/D are expressed in their relative proportions at each age level: 1) looking at the non-metalinguistic type of arguments, the rate varies from 13.8% at six, as opposed to 3.9% at eleven; 2) the semantic type of arguments increases in the first three years of school; 3) the syntactic arguments (Type 5) are directly related to the school grade and to the



teaching of grammar; 4) both types of arguments relying on utterance activity (Type 2) and cognitive activity (Type 6) are numerous. A decrease of Type 6 arguments is noticeable in the older children's answers, from 19% to 10% in the E/D opposition.

Third movement: The diversification of arguments according to age.

The evolution of the metalinguistic activity in children is also seen in the increasing number of different arguments given by the children of each age level. Table 5 shows this differentiation in the type of arguments from 1.7 at six to 2.8 at eleven when comparing the S/L sentences. The older children tend to diversify their arguments more in the opposition E/D, where the average of different answers varies from 2.2 at six to 3.8 at eleven. This can be explained by the fact that the opposition S/L polarizes the quantitative types of arguments, on the one hand, and, on the other, by the nature of the comparison which is implied in the opposition E/D sentence.

CONCLUSION

The children succeed in gradually coordinating different linguistic aspects of the sentence which they learn to differentiate. Starting with arguments that refer to the extralinguistic situation, the answers develop towards an awareness of the formal aspects of the sentence. The syntactic types of arguments are directly influenced by the explicit teaching of grammar at school.

An interesting parallel could be made with the elaboration of the concept of the 'sentence' by grammarians in the history of linguistics. Indeed, it can be noticed that the conception of sentence develops from a semantically-based definition in traditional grammar to a definition in terms of predicate and argument functions in modern grammar towards a definition referring to the syntactic constituents generated from an initial axiom in generative grammar. Christinat-Tièche 1990 develops this interesting parallel.

Finally, it would be interesting to compare the learning by children of scientific concepts with that of metalinguistic ones. This would enable us to observe the influence that the scientific learning of different concepts has on the spontaneous knowledge or ideas that children already possess of those concepts. What happens to the spontaneous

knowledge children have before the explicit teaching of those concepts? Is the latter totally replaced by the former as soon as children learn?

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