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Promises in French children: Comprehension and metapragmatic knowledge☆

Josie Bernicot[a], Virginie Laval[b]

[a]*Laboratoire PSYDEE, Université de Paris 5-CNRS, 46 rue Saint Jacques, F-75005 Paris, France*
[b]*Laboratoire LACO, Université de Poitiers-CNRS, 95 avenue du Recteur Pineau, F-86022 Poitiers Cedex, France*

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Abstract

The present study focuses on children's comprehension and metapragmatic knowledge of promises. Searle (1969) defines a promise as a commitment on the part of a speaker to accomplish a future action. Two conditions govern the fulfillment of a promise: the preparatory condition (the listener wants the promised action to be accomplished) and a sincerity condition (the speaker intends to accomplish the action). Two experiments were conducted. The first was designed to determine how children's comprehension of promises and their corresponding metapragmatic knowledge is affected by whether or not the preparatory condition is satisfied, and by the linguistic form of the statement (contains vs. does not contain the verb *promise*). The second experiment was designed to determine the effects of the linguistic form of the promise statement and of whether or not the sincerity condition is satisfied. Children between the ages of 3 and 10 were asked to complete comic strip stories and justify their responses. The main results showed the following: (1) By the age of 3, both the preparatory condition and the sincerity condition are used by children to comprehend promises, the sincerity condition being mastered earlier than the preparatory condition; (2) The metapragmatic knowledge children express about promises depends on the characteristics of the communication situation (whether or not the preparatory and sincerity conditions are met); (3) Children's metapragmatic knowledge changes with age: references to execution of the promised action appear between the ages of 3 and 6, whereas remarks concerning the speaker's intentions are not observed until age 10; (4) The linguistic form of the statement has little effect on promise comprehension and thus deserves further investigation. The results are interpreted in the light of the functionalist and interactionist theories of development.

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1. Introduction

How do children understand statements expressing a promise? What cues do they use to arrive at an interpretation? What metapragmatic knowledge do they have about promises? How do the comprehension of promises and the corresponding metapragmatic knowledge evolve with age?

Studies on promises are scarce: what few there are have been conducted in research on the philosophy of language, and concern native speakers of English.

Speech act typologies, like the ones proposed by Austin (1962), Vendler (1972), Searle (1969, 1979, 1992), Searle and Vanderveken (1985), and Vanderveken (1992) always include a category for promises. As in the study of requests, Searle's classification is the most highly used. For Searle (1969, 1979), a promise, i.e. an illocutionary act in the commissive category, is a commitment on the part of a speaker to accomplish a future action. A promise is defined by nine fulfillment conditions, which can be grouped into four main categories:

(i) Propositional Content Condition. A statement is made about a future action to be accomplished by the speaker.

(ii) Preparatory Condition. (a) The first preparatory condition concerns the listener's wishes: the listener would rather have the speaker accomplish that future action than not accomplish it, and the speaker thinks that this is the case. (b) The other concerns the accomplishment of the action: neither the speaker nor the listener knows whether or not the speaker will accomplish the action in the end.

(iii) Sincerity Condition. The speaker intends to accomplish the future action.

(iv) Essential Condition. It becomes the speaker's obligation to accomplish the future action.

To study promises from a developmental standpoint, language learning should be viewed as the acquisition of a communication system. In other words, the emphasis should be placed on context, on the use of language and its functional features (Bates, 1976; Becker, 1990; Blum-Kulka et al., 1989; Hickmann, 1987; Niño and Snow, 1988; Verschueren, 1987, 1991). Studies conducted in this perspective have highlighted and discussed the importance of interaction routines or formats, i.e. prototypical social relations (see for example Bruner, 1983; Garvey, 1984; Hausendorf and Quasthoff, 1992; Marcos and Bernicot, 1994; Snow et al., 1987; Schieffelin and Ochs, 1986; Shatz and Watson O'Reilly, 1990).

As a general rule, promises are less frequent than requests both in children and adults (Astington, 1988a; Bernicot et al., 1993; D'Andrade and Wish, 1985; Dore, 1974). However, the speech act of promising is a highly interesting object of study due to the fact that the execution of the promised action is deferred until some future time, even more so than for requests. Understanding a promise thus implies being able to process linguistic cues which place the action in the future, i.e. the listener must be capable of processing verb tense.

Research on the comprehension of promises should be considered separately from research on metapragmatic knowledge about promises.

In their study on promise comprehension, Gibbs and Delaney (1987) and Laval (1992) demonstrated the importance of the preparatory condition (regarding the lis-

tener's wishes) and the sincerity condition in the comprehension of promises by adults. Astington's (1988b) work showed that the comprehension of promises by children evolves with age. For children between the ages of 5 and 9, a promise appears to correspond to a true statement which can refer to a past or future action. What is important at that age is that the action corresponding to the propositional content of the statement be accomplished; the fact that the speaker has (or does not have) control over the action is not considered. Starting at age 9, children make the distinction between a promise and a prediction, based on whether or not the speaker has control over the occurrence of the action. The distinction between a promise and an assertion begins to appear between the ages of 11 and 13.

The highly interesting findings obtained from these studies (Astington, 1988b; Gibbs and Delaney, 1987; Laval, 1992) can be supplemented by the work done on a different speech act, the request (Blum-Kulka, 1990; Clancy, 1989; Ervin-Tripp and Gordon, 1986; Koike, 1992; Sinclair and Van Gessel, 1990).

To test the comprehension of speech acts like requests and promises, two comprehension criteria (corresponding to two different levels of comprehension) have been used: comprehension of the action to be accomplished (Elrod, 1983) and comprehension of the speaker's intentions (Bernicot and Legros, 1987; Rappaport Liebing, 1988). The criterion chosen in the present study will be the comprehension of the speaker's intentions. For promises, three components must be considered:

(a) The statement produced by the speaker.

(b) The accomplishment or non-accomplishment of the future action by the speaker.

(c) The listener's state of satisfaction or non-satisfaction.

The comprehension of the speaker's intentions will be operationalized by the child's ability to ascertain the listener's state of satisfaction or non-satisfaction. The comprehension task will be clearly distinguished from the metapragmatic knowledge task. Comprehension will be tested by observing the children's non-verbal behavior, whereas their metapragmatic knowledge will be tested by examining their verbal explanations of that behavior.

Children's metapragmatic knowledge about speech acts (promises or requests) is defined as their capacity to talk and think about those acts. This type of knowledge deals with the various linguistic forms used to produce utterances which result in the accomplishment of a given act in accordance with the characteristics of the communication situation. This definition corresponds to Caffi's (1994) third and narrowest meaning of metapragmatics. The other two meanings are much more general: reflecting upon the epistemological bases of pragmatics as a discipline (first meaning), and highlighting the conditions which make speakers' use of language possible and effective (second meaning). Caffi (1994) states that the metapragmatic level differs from the metalinguistic level in that the metapragmatic level is the interface between the linguistic and the extralinguistic: it means being able to relate language and world, by checking the adequacy of utterances with regard to actual contexts.

In the light of past research on metapragmatic knowledge about requests (Axia and Baroni, 1985; Baroni and Axia, 1989; Bates, 1976; Blum-Kulka, 1987; Sinclair, 1986; Wilkinson et al., 1984), Bernicot (1991) proposed that verbal explanations of a previous behavior should only be considered if they are indicative of

request comprehension. Accordingly, the analysis of the data in the present study will take into account the stages of development of children's knowledge of social rules. Responses based on the characteristics of the commissive statement and/or on the characteristics of the communication situation, particularly those based on whether or not one of the promise fulfillment conditions is met, will be viewed as metapragmatic, regardless of whether they correspond to the adult system. It is indeed important to make the distinction between the appearance in children of the ability to make a verbal statement about the relationship between an utterance and a social rule, and changes in the nature of the metapragmatic knowledge expressed, which lead to the adult system. The study by Bernicot (1991) on requests in native French-speaking subjects showed that (a) 5-year-olds have metapragmatic knowledge which essentially concerns the communication situation and politeness, (b) the size of the metapragmatic knowledge base increases with age: at the age of 10 metapragmatic knowledge concerns the communication situation, the syntactico-semantic characteristics of utterances, and above all, the relationship between the form of utterances and the communication situation, and (c) the expression of this kind of knowledge is linked to the linguistic form of the request and to the degree of co-operation between the interlocutors. Children do not express metapragmatic knowledge about the listener's desires until the age of 10.

Astington (1990) related the production of commissive speech acts by children to the metapragmatic knowledge they have about such acts. At age 5, children know how to make promises in the appropriate situations; a little later at the age of 6, they correctly use the verb *promise*. Astington's (1990) study only provides us with information about complete metapragmatic knowledge, i.e., knowledge about the relationship between the form of an utterance and the communication situation. According to Astington (1990), metapragmatic knowledge about promises – assessed by having children judge speech acts produced by other individuals – appears at about the age of 10. The metapragmatic knowledge possessed at that age pertains to the speaker's responsibility to perform the action corresponding to the propositional content of the promise-making statement.

In order to clearly distinguish between performance and metapragmatic knowledge, the analysis presented here focuses solely on conscious metapragmatic knowledge: i.e., knowledge expressed verbally by the children, outside of the communication situation (in their response justifications, for example). As a speech act is defined by both an utterance and a communication situation (see Bernicot and Legros, 1987), responses which refer to the utterance alone, or to the communication situation alone, are considered to be incomplete metapragmatic responses. Responses which relate the utterance to the communication situation are considered to be complete metapragmatic responses.

The study presented here concerns the comprehension of promises by children between the ages of 3 and 10. The criterion for comprehension was the comprehension of the speaker's intentions. Three main objectives guided this study.

(i) The first objective was to gain an accurate understanding of the role of the preparatory condition (regarding the listener's wishes) and the sincerity condition in the comprehension of promises.

The preparatory and sincerity conditions were operationalized on the basis of Searle's definitions (1969, 1979). For the preparatory condition, the listener's desire for the action to be accomplished by the speaker was either apparent or not apparent before the utterance was produced. For the sincerity condition, the speaker's intention to accomplish or not to accomplish the action was made evident by whether it was in fact accomplished in the end. It is clear that using action accomplishment to operationalize the speaker's intentions is not totally satisfying from a theoretical standpoint. Indeed, the intent to act does not always lead to an act, and no intent to act does not always lead to no act. However, despite its limitations, the operationalization chosen in the experimental framework of our study (intention=action and no intention=no action) allows us to approach the role of the sincerity condition in young children.

Based on Astington's (1988b, 1990) findings, which demonstrated the importance of the accomplishment of the action (an essential component of the sincerity condition), it was hypothesized that in comprehending promises, children consider the sincerity condition at a younger age than they do the preparatory condition. Moreover, the importance of interaction formats (Bruner, 1983) allows us to predict that promises made in situations where both the preparatory condition and the sincerity condition are satisfied will be understood better by young children than ones made in situations where either of these conditions is not met.

(ii) Our second objective was to assess the role of the linguistic form of promise statements. We thought it might be interesting to test linguistic forms which do not contain the verb *promise*, but which, according to Searle's (1969, 1979) classification, are specifically commissive, i.e. they contain verbs in the future tense (active or passive voice).

(iii) The third objective was to get the children to express their metapragmatic knowledge about the promises they understand. In the light of past research on requests (Bernicot, 1991) and promises (Astington, 1988b, 1990), it was hypothesized that the metapragmatic knowledge expressed would vary with the characteristics of the situation and the promise statement, and would evolve with age.

To meet these objectives, two experiments were conducted. In the first, the variables manipulated were the satisfaction/non-satisfaction of the preparatory condition, the linguistic form of the commissive statement, and the children's age; the sincerity condition was always met. In the second experiment, the variables were the satisfaction/non-satisfaction of the sincerity condition, the linguistic form of the commissive statement, and the children's age; the preparatory condition was always met.

2. Experiment 1

2.1. Method

2.1.1. Subjects

Seventy-two native French-speaking children participated in the experiment (42 girls and 30 boys). They were divided into three groups of 24 subjects on the basis

of age. The three groups will hereafter be called the *3-year-olds* (mean age: 3;10, range: 3;3 to 4;1), the *6-year-olds* (mean age: 6;10, range: 6;2 to 7;0), and the *10-year-olds* (mean age: 10;10, range: 10;2 to 11;1).

2.1.2. Materials

Eighteen stories about the adventures of a young boy named Bill were constructed. In each story, made up of four frames consisting of a picture with a caption, Bill makes a promise. The linguistic context and situational context combined created realistic, everyday life situations. The material was designed to keep the child's attention focused on the task. Some sample stories are given in Fig. 1.

All of the stories had the same 4-frame structure, as follows:

FRAME 1: THEME. The picture showed two characters, the speaker and the listener, in the story's setting. The caption was used to manipulate the preparatory condition (PC) (Searle, 1969, 1979). The preparatory condition was definitely satisfied in half of the stories (PC+) and was not satisfied in the other half (PC–), i.e. either the listener wanted the speaker to keep his promise or the listener did not want the speaker to keep his promise.

FRAME 2: PROMISE. The picture showed the speaker up close talking to the listener. The caption contained the statement made by the speaker (Bill). The promise was being made to a different listener in each story (a friend or one of Bill's parents) using one of the following three statement forms, which varied in illocutionary force.

Promise-to-act statements, which explicitly contained the verb *promettre* (promise) followed by a verb in the infinitive form. The grammatical subject of the sentence was the person making the promise. The social act intentionally posed by the speaker was a firm commitment (e.g. *"Je te promets de laver mon vélo"*, "I promise I'll wash my bike").

Future-action statements, in which the verb was conjugated in the future tense. The verb *promettre* (promise) did not appear and the grammatical subject of the sentence was the person making the promise. The social act intentionally posed by the speaker was a commitment, but not a firm one (e.g. *"Je laverai mon vélo"*, "I'll wash my bike").

Predictive-assertion statements, in which the verb was in the passive voice and future tense. The verb *promettre* (promise) did not appear and the grammatical subject of the sentence was not the person making the promise. In this case, there was no commitment on the part of the speaker (e.g. *"Mon vélo sera lavé"*, "My bike will be washed").

FRAME 3: PROMISE FULFILLMENT. The picture showed Bill accomplishing the action corresponding to the propositional content of the commissive statement. The caption described the fulfillment of the promise made in the second frame of the story. The sincerity condition (Searle, 1969, 1979) was satisfied in all stories.

FRAME 4: END OF STORY. Two different pictures were constructed for frame 4, each depicting a possible ending to the story. In one, the listener was shown with a clearly contented expression on his/her face and the caption described him/her as *happy*. In the other, the listener was shown with a clearly discontented expression on his/her face and the caption described him/her as *unhappy*. These two endings

reflected the listener's reactions to the fulfillment of the promise, depending on his/her desire for the promise to be kept or not kept.

2.1.3. Procedure

The children were tested individually using a story completion task. The experimenter told the beginning of the story, i.e. the first three frames. The child was to complete the story by choosing one of the two pictures proposed for frame 4 (happy or unhappy listener). The experimenter then asked the child to explain why he/she had made that choice. The answers to this question were indicative of what verbally expressible criteria the children used to choose an ending. The child's complete response was written down by the experimenter.

A total of nine stories were presented to each child (the preparatory condition being an intergroup variable): three stories with a promise-to-act statement (PTA), three with a future-action statement (FAC), and three with a predictive-assertion statement (PAS).

Four story-presentation orders were used, each of which was randomly assigned to three children. The presentation order of the two endings was also varied randomly across stories.

2.1.4. Experimental design

The experimental design included three independent variables: (1) subject age (3, 6, 10; independent samples), (2) preparatory condition (PC+: satisfied, PC−: non-satisfied; independent samples), and (3) linguistic form of the commissive statement (PTA: promise-to-act, FAC: future-action, PAS: predictive-assertion; related samples).

2.2. Data coding

The procedure was designed to allow us to determine to what extent children distinguish statements which are promises from ones which are not (Searle, 1969, 1979), both in their responses and in the explanations made of those responses.

2.2.1. Coding of correct responses

Following Searle's (1969, 1979) proposal, two types of correct responses were defined, depending on the satisfaction/non-satisfaction of the preparatory condition and the happiness/unhappiness of the listener at the end of the story.

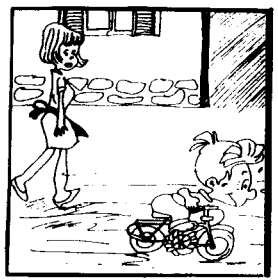
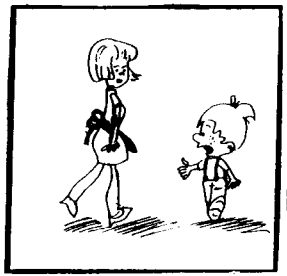
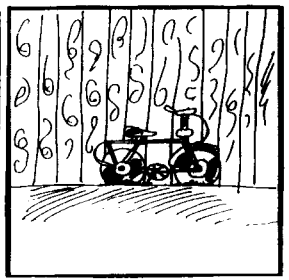
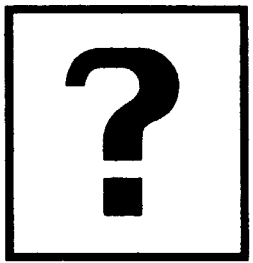
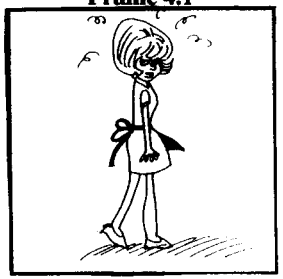
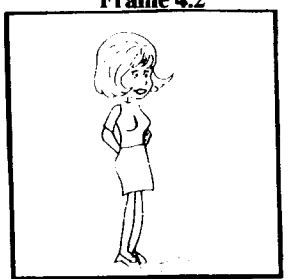
First type of correct response. When the preparatory condition was met, the correct response was the picture of the *happy* listener. In the sense proposed by Searle, there was no promise in this case.

Second type of correct response. When the preparatory condition was not met, the correct response was the picture of the *unhappy* listener. In the sense proposed by Searle, no promise was made in this case.

2.2.2. Coding of correct response justifications

The children's task was to choose a frame to complete the story and then explain their choice. In reference to Searle (1969, 1979), correct, complete justifications

Example 1 : PC+ with a predictive-assertion statement

Theme of story	Production of Promise-making statement	Fulfillment of promise	Empty window to fill in
Frame 1	Frame 2	Frame 3	Frame 4
			
Bill has been biking all afternoon. He loves to bike, and especially loves to go fast. Bill'smother is glad that Bill likes to go biking, but he's supposed to wash his bike before putting it away. His mother likes Bill's bike to be clean.	Bill says to his mother : "my bike will be washed tonight".	That evening, Bill's mother notices that Bill washed his bike before putting it away.	Frame 4.1  Bill's mother is unhappy Frame 4.2  Bill's mother is happy

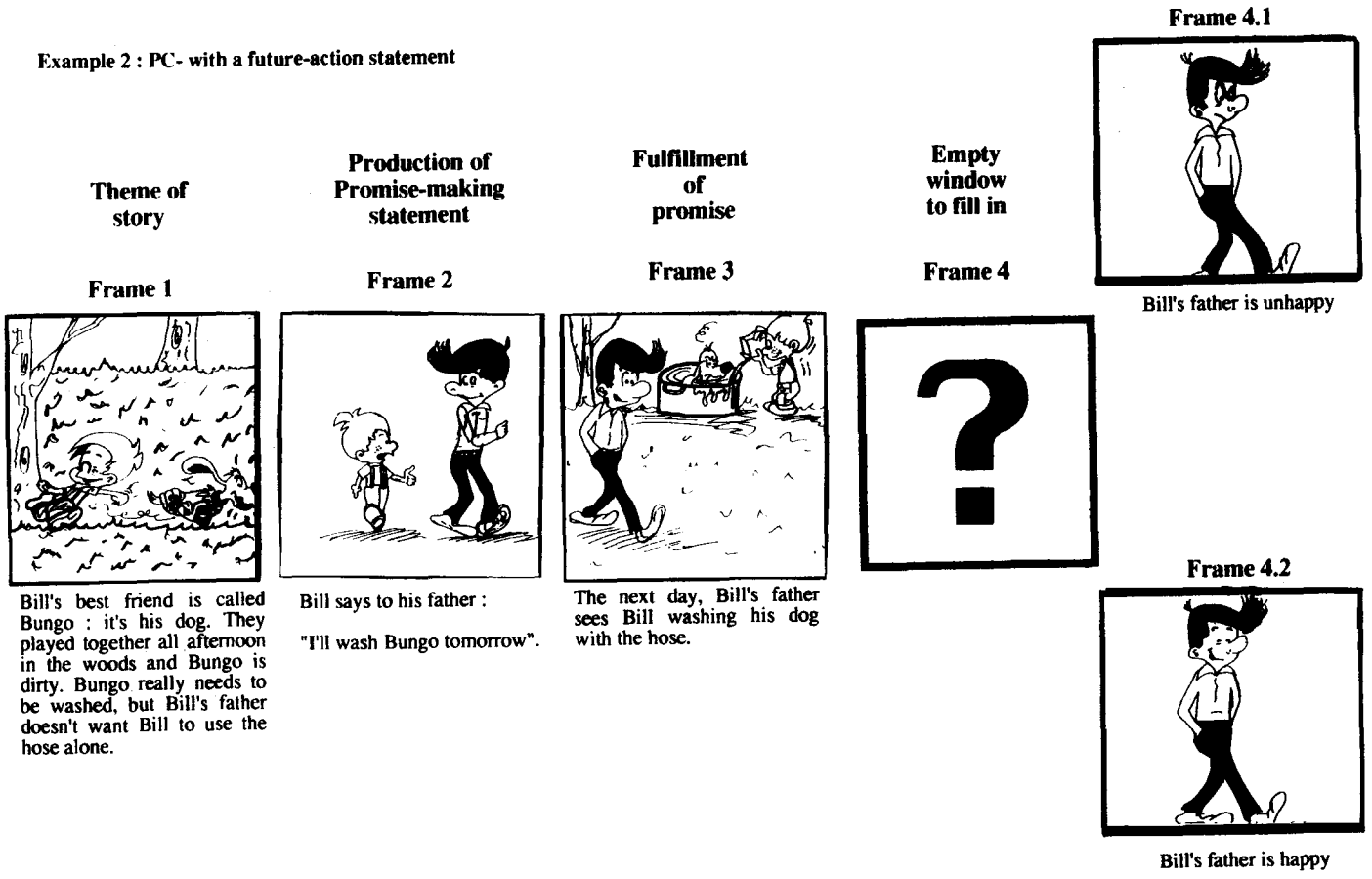


Fig. 1. Examples of experiment 1 stories with satisfied preparatory condition (PC+) and non-satisfied preparatory condition (PC–).

should be indicative of the fact that the preparatory condition, the sincerity condition, and the propositional content were all taken into account. The children came up with five types of justifications:

(i) No explanation. No justification was given. The answer to the question "Why?" was "I don't know", "Because he's happy", "Because he's unhappy", etc.

(ii) Action-execution. The justification referred to the action accomplished by the speaker (Bill). For example, "Bill's mother is happy because Bill washed his bike".

(iii) Listener's desires. The justification concerned the listener's desires. For example, "Bill's mother is happy because she wanted Bill to wash his bike and he did".

(iv) Speaker's intentions. The justification pertained to the fulfillment/non-fulfillment of the promise. For example, "Bill's mother is happy because Bill promised to wash his bike and he did".

(v) Listener's desires + speaker's intentions. The justification combined the listener's desires and the fact that the promise was or was not kept. For example, "Bill's mother is happy because she wanted Bill to wash his bike; Bill promised to do it and he did".

For the corpus as a whole, inter-judge reliability by two independent judges was 0.910.

According to Searle (1969, 1979), only justifications falling in the last category (listener's desires +speaker's intentions) correspond to the definition of a promise.

Categories (ii) (action-execution), (iii) (listener's desires), (iv) (speaker's intentions), and (v) (listener's desires + speaker's intentions) are considered here to reflect metapragmatic knowledge varying in completeness and nature. Indeed, categories (iv) and (v) deal with a characteristic of the statement and a social rule, while category (iii) deals with the satisfaction of one of the promise-fulfillment conditions, the preparatory condition. Category (ii) corresponds to one of the important components of the sincerity condition.

2.3. Results

2.3.1. Correct responses

For each subject, the correct response rate was obtained by taking the ratio of the number of correct responses to the total number of responses (9). This ratio was multiplied by 100 and then treated in a 3-factor analysis of variance with the following design: age(3) × preparatory condition(2) × linguistic form of the promise(3). Table 1 indicates the mean per-subject correct response rate as a function of the three factors. The analysis yielded a significant effect of age ($F(2, 66)=7.71$, $p<0.001$), preparatory condition ($F(1, 66)=28.64$, $p<0.0001$), and linguistic form of the promise ($F(2, 132)=7.84$, $p<0.001$), and an interaction between the preparatory condition and the linguistic form ($F(2, 132)=7.19$, $p<0.001$). These results can be described and interpreted as follows:

(1) Three-year-olds give fewer correct responses (61.9%) than 6-year-olds (70.7%), who in turn give fewer correct responses than 10-year-olds (91.6%).

Table 1
Mean per-subject percentage of correct responses, by subject age, preparatory condition (PC+: satisfied, PC−: non-satisfied), and linguistic form of the promise (PA: promise-to-act, FAC: future-action, and PAS: predictive-assertion)

	PC+			PC−		
	PTA	FAC	PAS	PTA	FAC	PAS
3-year-olds	86,1	80,55	88,8	27,7	47,22	41,6
6-year-olds	88,8	91,6	91,6	38,8	63,8	50
10-year-olds	97,2	100	100	75	88,8	88,8

(2) Children give a greater number of correct responses when the preparatory condition is met (91.6%) than when it is not met (57.9%). Satisfaction of the preparatory condition appears to promote correct responding, regardless of age. In other words, children seem to have difficulty functioning in a context which is not prototypical of a promise situation.
(3) The linguistic form of the commissive statement has no effect when the preparatory condition is met. In contrast, when it is not met, the promise-to-act form results in fewer correct responses (PTA=47.1%, FAC=66.6%, PAS=60.1%). A strong contradiction between the linguistic form of the statement and the statement production context (CP−) seems to induce the highest number of incorrect responses. Indeed, in promise-to-act statements, the speaker's intentions are explicitly expressed as a firm commitment, at the same time as the non-satisfaction of the preparatory condition generates a context in which the listener does not want the speaker to accomplish the promised action. In other words, the listener's desires (contextual cue) radically oppose the speaker's intentions (linguistic cue). The large number of "The listener is happy" responses observed here shows that in cases of strong conflict between contextual cues and linguistic cues, children tend to base their interpretation on linguistic cues, i.e. on the promise-to-act statement.

2.3.2. Justifications of correct responses

The results for this measure were obtained by calculating the number of justifications per category and per child. The dependent variables for each of the five observed justification categories (no-explanation, action-execution, listener's desires, speaker's intentions, listener's desires +speaker's intentions) were treated in a 3-factor analysis of variance with the following design: age(3) × preparatory condition(2) × linguistic form of the promise(3). Table 2 shows the mean per-subject number of justifications by category and age group. For all three dependent variables, there was a significant effect of age. No-explanation justifications were the most numerous for the 3-year-olds ($F(2, 66)=17.85$, $p<0.0001$). Action-execution justifications were given mostly by 3-year-olds and 6-year-olds ($F(2, 66)=22.07$, $p<0.0001$). Justifications mentioning the listener's desires were characteristic of the 6-year-olds and 10-year-olds ($F(2, 66)=4.22$, $p<0.05$). The speaker's intentions ($F(2,$

66)=32.52, $p<0.0001$) and the listener's desires +speaker's intentions were typically expressed by the 10-year-olds ($F(2, 66)=29.73$, $p<0.0001$).

Partial comparisons by age group were made in order to assess the effects of the preparatory condition and the linguistic form of the promise for the most characteristic dependent variables. Table 2 indicates the mean per-subject number of justifications per category, by age group, preparatory condition, and linguistic form.

Table 2
Mean per-subject number of explanations in each category, by subject age, preparatory condition (PC+: satisfied, PC−: non-satisfied), and linguistic form of the promise (PA: promise-to-act, FAC: future-action, and PAS: predictive-assertion)

			No-explanation	Action-execution	Listener's desires	Speaker's intentions	Listener's desires + Speaker's intentions
3-year-olds	PC+	PTA	11	20	0	0	0
		FAC	11	18	0	0	0
		PAS	11	21	0	0	0
	PC−	PTA	10	0	0	0	0
		FAC	13	3	1	0	0
		PAS	14	1	0	0	0
Total			**70**	**63**	**1**	**0**	**0**
6-year-olds	PC+	PTA	0	29	1	1	1
		FAC	1	30	1	0	1
		PAS	0	30	1	2	0
	PC−	PTA	0	4	7	0	3
		FAC	0	7	14	0	2
		PAS	1	11	6	0	3
Total			2	111	30	3	10
10-year-olds	PC+	PTA	0	0	0	26	9
		FAC	0	0	0	21	14
		PAS	0	0	0	26	10
	PC−	PTA	0	1	5	0	20
		FAC	0	0	11	0	21
		PAS	0	0	9	0	23
Total			**0**	**1**	**25**	**73**	**97**

Three-year-olds. For action-execution justifications, the effect of the preparatory condition was significant ($F(1, 22)=12.98$, $p<0.001$). The 3-year-olds gave more explanations based on the accomplishment of the action when the preparatory condition was satisfied (59), and practically never gave this type of explanation when it was not (4). The effect of linguistic form was nonsignificant.

Six-year-olds. For action-execution justifications, the effect of the preparatory condition was significant ($F(1, 22)=27.69$, $p<0.0001$). Like the 3-year-olds, the 6-

year-olds gave more explanations referring to the accomplishment of the action when the preparatory condition was satisfied (89) than when it was not (22). The effect of linguistic form was nonsignificant.

For justifications about the listener's desires, the effect of the preparatory condition was significant ($F(1, 22)=14.46$, $p<0.005$). The 6-year-olds more frequently explained their response in terms of the listener's desires when the preparatory condition was not satisfied (27), but gave practically no explanations of this type when it was (7). The linguistic form did not have a significant effect.

Ten-year-olds. For justifications referring to the listener's desires, the effect of the preparatory condition was significant ($F(1, 22)=4.81$, $p<0.05$). The 10-year-olds only explained their responses on the basis of the listener's desires when the preparatory condition was not satisfied. The linguistic form effect was nonsignificant.

For justifications oriented towards the speaker's intentions, the effect of the preparatory condition was significant ($F(1, 22)=34.43$, $p<0.0001$). The 10-year-olds only explained their responses in terms of the speaker's intentions when the preparatory condition was satisfied. The linguistic form did not have a significant effect.

For justifications based on both the listener's desires and the speaker's intentions, no significant effects were obtained. It should be noted, however, that only the 10-year-olds expressed their metapragmatic knowledge in terms of the intentions/desires of both interlocutors.

3. Experiment 2

3.1. Method

3.1.1. Subjects

Thirty-six native French-speaking children participated in the experiment (20 girls and 16 boys). As in experiment 1, they were divided into three groups (12 subjects each) on the basis of age. The three groups will hereafter be called the *3-year-olds* (mean age: 3;7, range: 3;3 to 3;11), the *6-year-olds* (mean age: 6;8, range: 6;3 to 6;11), and the *10-year-olds* (mean age: 10;9, range: 10;4 to 11;0).

3.1.2. Materials

Eighteen stories were constructed in the same fashion as in experiment 1. The only differences were that the preparatory condition was always satisfied in the first frame of each story, and the sincerity condition (SC) (Searle, 1969, 1979) was manipulated in the caption of the third frame: the sincerity condition was definitely satisfied in half of the stories (SC+) and was not satisfied in the other half (SC–), i.e. either the speaker kept his promise or the speaker did not keep his promise. Some sample stories are presented in Fig. 2.

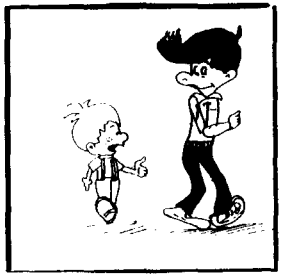
3.1.3. Procedure

The procedure was exactly the same as in experiment 1. A total of eighteen stories were presented to each child (the sincerity condition being an intragroup variable):

Example 1 : SC+ with a promise-to-act statement

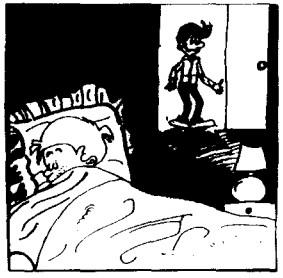
Theme of story	Production of Promise-making statement	Fulfillment of promise	Empty window to fill in
Frame 1	Frame 2	Frame 3	Frame 4

Bill is supposed to go to bed at 8: 30. He's allowed to look at a book before going to sleep. One night, Bill's father *thinks* Bill is very tired. He wants Bill to turn off the lights very soon.



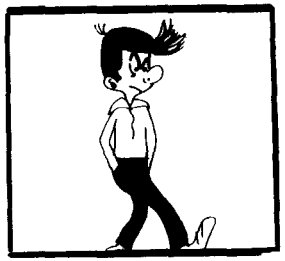
Bill says to his father :

"I promise I'll turn out the lights right away".



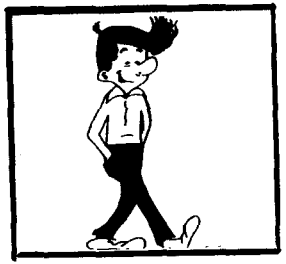
Five minutes later, Bill's father sees that the lights are out.

Frame 4.1



Bill's father is unhappy

Frame 4.2



Bill's father is happy

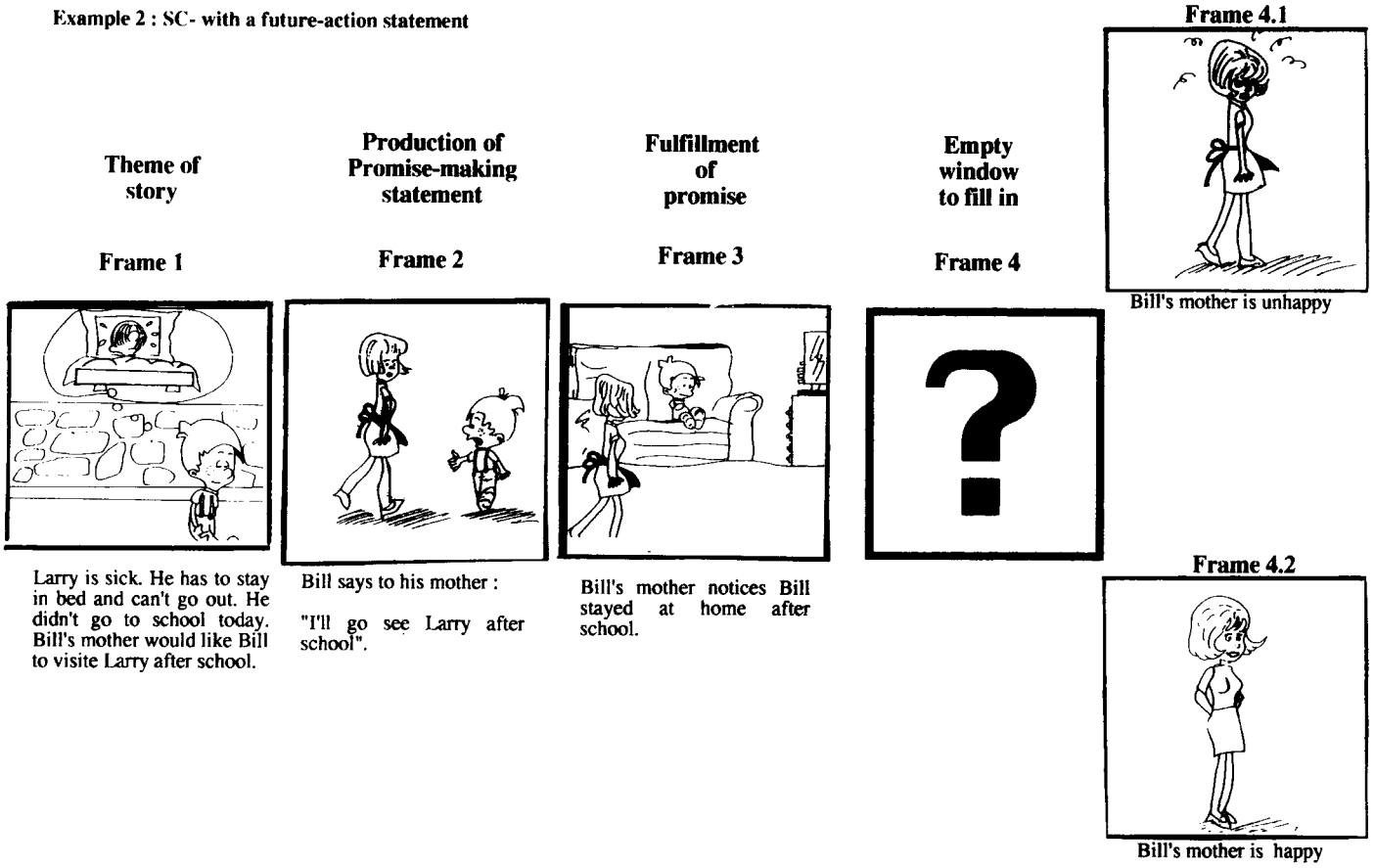


Fig. 2. Examples of experiment 2 stories with satisfied sincerity condition (SC+) and non-satisfied sincerity condition (SC–).

six stories had a promise-to-act statement (PTA), six had a future-action statement (FAC), and six had a predictive-assertion statement (PAS).

3.1.4. Experimental design

The experimental design included three independent variables: (1) subject age (3, 6, 10; independent samples), (2) linguistic form of the commissive statement (PTA: promise-to-act, FAC: future-action, PAS: predictive-assertion; related samples), and (3) sincerity condition (SC+: satisfied, SC−: non-satisfied; related samples).

3.2. Data coding

As in experiment 1, the procedure enabled us to determine to what extent children distinguish statements which are promises from ones which are not (Searle, 1969, 1979), both in their responses and in their explanations of those responses.

3.2.1. Coding of correct responses

Following Searle's (1969) proposal, two types of correct responses were defined, depending on the satisfaction/non-satisfaction of the sincerity condition and the happiness/unhappiness of the listener at the end of the story.

First type of correct response. When the sincerity condition was met, the correct response was the picture of the *happy* listener. According to Searle's definition, this is a promise.

Second type of correct response. When the sincerity condition was not met, the correct response was the picture of the *unhappy* listener. According to Searle, this is not a promise.

3.2.2. Coding of correct response justifications

The types of justifications given by the children fell into the same categories as above, except for the fact that no listener's desires explanations were observed. On the whole corpus, inter-judge reliability by two independent judges was 0.895. As in experiment 1, the categories considered to reflect metapragmatic knowledge of varying completeness and nature were action-execution, speaker's intentions, and listener's desires +speaker's intentions.

3.3. Results

3.3.1. Correct responses

For each subject, the correct response rate was obtained by taking the ratio of the number of correct responses to the total number of responses (18). This ratio was multiplied by 100 and then treated in a 3-factor analysis of variance with the following design: age(3) × sincerity condition(2) × linguistic form of the promise(3). Table 3 indicates the mean per-subject correct response rate as a function of the three factors. The analysis yielded a significant effect of age ($F(2, 33)=13.51$, $p<0.0005$), and a significant interaction between age and the sincerity condition ($F(2, 165)=11.26$, $p<0.0005$). These results can be described and interpreted as follows.

Table 3
Mean per-subject percentage of correct responses, by subject age, sincerity condition (SC+: satisfied, SC-: non-satisfied), and linguistic form of the promise (PA: promise-to-act, FAC: future-action, and PAS: predictive-assertion)

	SC+			SC–		
	PTA	FAC	PAS	PTA	FAC	PAS
3-year-olds	86,1	80,55	88,8	66,6	50	55,5
6-year-olds	88,8	91,6	91,6	94,4	83,3	100
10-year-olds	97,2	100	100	100	100	100

(1) Three-year-olds produce fewer correct responses (71.2%) than 6-year-olds (91.6%) and 10-year-olds (99.5%).
(2) Three-year-olds produce a greater number of correct responses when the sincerity condition is met (85.18%) than when it is not met (57.4%). This difference does not exist for the 6- and 10-year-olds, who produce a high percentage of correct responses regardless of whether the sincerity condition is met. Thus, satisfaction of the sincerity condition appears to promote correct responding for 3-year-olds only. In other words, only 3-year-old children seem to have difficulty functioning in a context which is not prototypical of a promise situation; 6-year-olds and 10-year-olds have mastered the various sincerity condition modalities.

3.3.2. Justifications of correct responses

The results for this measure were obtained by calculating the number of justifications per category and per child. The dependent variables for each of the four observed justification categories (no-explanation, action-execution, speaker's intentions, listener's desires + speaker's intentions) were treated in a 3-factor analysis of variance with the following design: age(3) × sincerity condition(2) × linguistic form of the promise(3). Table 4 indicates the mean per-subject number of justifications by category and age group. For all three dependent variables, there was a significant effect of age. No-explanation justifications were the most numerous for the 3-year-olds ($F(2, 33)=11.23$, $p<0.0005$). Action-execution justifications were given mostly by 3-year-olds and 6-year-olds ($F(2, 33)=32.49$, $p<0.0001$). Justifications referring to the speaker's intentions ($F(2, 33)=39.98$, $p<0.0001$) or to both the listener's desires and the speaker's intentions ($F(2, 33)=6.48$, $p<0.005$) were typical of the 10-year-olds.

Partial comparisons by age group were made in order to assess the effects of the sincerity condition and the linguistic form of the promise for the most characteristic dependent variables. Table 4 indicates the mean per-subject number of justifications by category, age group, sincerity condition, and linguistic form.

Three-year-olds. For action-execution justifications, the sincerity condition had a significant effect ($F(1, 55)=11.30$, $p<0.005$). The 3-year-olds gave more explanations pertaining to the accomplishment of the action when the sincerity condition was satisfied (59), and fewer explanations of this type when it was not (38). The effect of linguistic form was nonsignificant.

Table 4
Mean per-subject number of explanations in each category, by subject age, sincerity condition (SC+: satisfied, SC-: non-satisfied), and linguistic form of the promise (PA: promise-to-act, FAC: future-action, and PAS: predictive-assertion)

			No-explanation	Action-execution	Listener's desires	Speaker's intentions	Listener's desires + Speaker's intentions
3-year-olds	SC+	PTA	11	20	0	0	0
		FAC	11	18	0	0	0
		PAS	11	21	0	0	0
	SC–	PTA	7	17	0	0	0
		FAC	9	9	0	0	0
		PAS	7	12	0	0	1
Total			**56**	**97**	**0**	**0**	**1**
6-year-olds	SC+	PTA	0	29	1	1	1
		FAC	1	30	1	0	1
		PAS	0	30	1	2	0
	SC–	PTA	1	31	0	1	1
		FAC	1	21	3	3	2
		PAS	0	34	1	0	1
Total			**3**	**175**	**7**	**7**	**6**
10-year-olds	SC+	PTA	0	0	0	26	9
		FAC	0	0	0	21	14
		PAS	0	0	0	26	10
	SC–	PTA	0	1	0	27	8
		FAC	0	1	1	26	8
		PAS	0	2	0	22	11
Total			**0**	**4**	**1**	**148**	**60**

Six-year-olds. For action-execution justifications, the effect of the sincerity condition was not significant, but the linguistic form effect was ($F(2, 22)=6.12$, $p<0.05$), as was the interaction between sincerity condition and linguistic form ($F(2, 22)=4.38$, $p<0.05$). When the sincerity condition was not met, there were fewer explanations based on action execution for future-action statements than for the other two statement forms. This difference did not exist when the sincerity condition was satisfied.

Ten-year-olds. For justifications containing the speaker's intentions alone, or both the listener's desires and the speaker's intentions, neither the sincerity condition effect nor the linguistic form effect was significant ($F(1, 22)=4.81$, $p<0.05$). It should be noted, however, that 10-year-olds were the only ones to express their metapragmatic knowledge in terms of the intentions/desires of both interlocutors.

4. Discussion

This study deals with the comprehension of promises by children and their metapragmatic knowledge about promises. The children's non-verbal behavior was used to test for comprehension, and their ability to verbally explain their behavior was used to test their metapragmatic knowledge. Two factors contributed to generating the experimental 'promises': a verbal statement and the communication situation in which the statement was made. Consequently, explanations pertaining to one and/or the other were considered to be metapragmatic.

4.1. Comprehension of promises

The preparatory condition and the sincerity condition are two cues used to comprehend promises by children as early as age 3. They begin at that age to distinguish statements expressing a promise from ones which do not express a promise on the basis of the satisfaction/non-satisfaction of either of these conditions. This capability increases between the ages of 3 and 10. Thus, for promise comprehension tested by means of non-verbal behavior, it was shown here that in addition to considering the accomplishment of the action described in the propositional content of the statement (Astington, 1988b), children as young as age 3 and 6 are able to take into account cues indicating the listener's desires and the speaker's intentions.

In line with Bruner (1983), comprehension of prototypical situations with interaction formats, i.e. situations in which both the preparatory condition and the sincerity condition are met, was found to be superior to comprehension of non-prototypical situations. The result was obtained at all ages for the preparatory condition, but only at age 3 for the sincerity condition, where the responses of the 6-year-olds and 10-year-olds did not depend on whether or not this condition was satisfied. These results show that, by the age of 6, children can correctly interpret promise statements on the basis of sincerity condition cues, regardless of the prototypicality of the situation. For the preparatory condition, prototypical situations continue to facilitate the correct interpretation of promise statements until the age of 10. Thus, sincerity condition cues are understood before preparatory condition cues. This result is consistent with and complementary to Astington's (1988b, 1990) data for children between the ages of 5 and 9, where action accomplishment, an essential component of the sincerity condition, was found to be highly important.

The linguistic form of the statement (promise-to-act, future-action, and predictive-assertion) appear to play a minor role in children's comprehension of promises. However, our results pointed out that promise-to-act statements, which explicitly contain the verb *promise*, are generally not interpreted any better than future-action (future tense, active voice) and predictive assertion statements (future tense, passive voice). For children between the ages of 3 and 10, future-action and predictive-assertion statements are just as specific to promising as statements containing the verb *promise* itself. It is therefore not necessary to systematically use this verb to test promise comprehension (see Astington, 1988b). Moreover, the large number of "the listener is happy" responses when the sincerity condition was not met and a

promise-to-act statement was used showed that in cases where the contextual cues and the linguistic cues are highly contradictory, children tend to base their interpretation on linguistic information.

4.2. Metapragmatic knowledge

As in Bernicot's (1991) experiment on requests, the metapragmatic knowledge expressed by children about promises was found to differ here across situations, i.e. whether or not the preparatory and sincerity conditions were met. These differences were observed for age 3, 6, and 10, and for all explanation categories used by the children. Note, however, that for the satisfaction/non-satisfaction of the sincerity condition, the variation only occurred for the 3-year-olds and the action-execution category.

The effect of the linguistic form of the promise statement on the metapragmatic knowledge expressed by the children was limited, and in any case, was much less systematic than for requests (see Bernicot, 1991).

Metapragmatic knowledge was found to evolve with age. At the ages of 3 and 6, children's metapragmatic knowledge mainly concerns the execution of the action. At age 6, the listener's desires start being added in cases where the preparatory condition is not satisfied. At age 10, explanations pertaining to action accomplishment completely disappear, and explanations about the speaker's intentions alone or about both the speaker's intentions and the listener's desires appear.

These results indicating the existence of action-related metapragmatic knowledge until the age of 6 and intention-related metapragmatic knowledge after age 6 are consistent with the data obtained for requests by Bernicot and Legros (1987).

This study confirms the existence of a developmental shift of several years (see Karmiloff-Smith, 1986) between the comprehension of promises and the ability to express metapragmatic knowledge about them. The importance of the promise fulfillment conditions is clear by the age of 3, the sincerity condition seeming to play an earlier part than the preparatory condition (regarding the listener's wishes). Future research should attempt to determine the exact role of the linguistic form of the promise-making statement by comparing statements with verbs in the future tense – undoubtedly the specific form of promises – to statements with other verb forms.

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