

THE DEVELOPMENT OF THE COMPREHENSION OF TOPIC-COMMENT MARKING

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The functionalist approach to syntactic structure (Bates & MacWhinney, 1980; MacWhinney, 1977; Rommetveit, 1974) assigns a central role to the topic-comment distinction in both production and comprehension. According to the functionalist approach, the speaker's role in communication involves him in a process of point-making (MacWhinney, 1980). In this process, the speaker first informs the listener that there is some topic he wants to talk about. This topic must be specified in sufficient detail so that it may be uniquely identified by the listener. Having selected and specified the topic, the speaker then proceeds to make some point about the topic. In most cases, the point that he makes contains some new information that then functions as a comment about the topic. Thus the various activities of topic-selection, topic-specification, comment-selection, and comment-specification can be viewed as pieces of a single unified process which has as its goal the making of points.

When viewed from the perspective of the listener, communication can be understood as a process of "knowledge acquisition". The listener first tries to figure out what the speaker is talking about. Having successfully identified the topic, the listener then acquires the rest of the sentence as a comment containing new information about that topic. After this initial acquisition, the listener can then proceed to utilize the new information in a variety of ways (Bransford & Franks, 1971; Potts, 1972).

It is generally the case that the topic is composed of given information and that the comment is composed of new information. However it may also happen that a comment contains at least some given information. Alternatively, it may also happen that material that is not given is nonetheless treated as a topic (Halliday, 1967). Thus the topic-comment distinction cannot be equated with the given-new distinction. MacWhinney and Bates (1978) reviewed a number of studies pointing toward a functional relationship between givenness and newness and the use of the sentential devices of ellipsis, pronominalization, emphatic stress, the indefinite article, the definite article, and initialization. At the same time, MacWhinney and Bates also presented new experimental developmental cross-linguistic data supporting the hypothesized relationship between these sentential devices and the marking of givenness and newness. Thus, there is now a fair amount of evidence supporting a functional relation between givenness and newness and the use of sentential devices in production. However there is much less evidence for a functional link between use of sentential devices and marking of the topic-comment distinction. Moreover, very little is known about the impact of sentence structure on the identification of topics and comments in comprehension.

Hornby (1971, 1974) has reported a pair of studies that directly addresses these two major gaps in our knowledge. Hornby's studies are particularly interesting in that they focus on the processing of topics and comments (as opposed to givens and news) in comprehension. The 1971 study has received much attention (e.g., Clark & Clark, 1977) because it examines these two crucial issues in the context of data from first-, third-, and fifth-graders. It is the only study heretofore available of the development of the comprehension of the devices that mark topics and comments. Moreover, Hornby's results suggest that there is in fact an interesting development in children's ability to process topics and comments. Because of its relevance to the present study, the Hornby study will be reviewed in some detail.

In his 1971 study, Hornby showed children pairs of pictures such as Picture A and Picture B coupled with sentences such as Sentence A:

Picture A: A boy ridea a bicycle.

Picture B: A girl rides a horse.

Sentence A: The boy is riding the horee.

One sentence was presented with each pair of pictures and subjects were asked to point to the picture that the experimenter was "talking about". Since neither picture really matched the sentence, subjects were in effect forced to pick the closest partial match. Hornby reasoned that subjects would point to the picture containing the topic rather than the picture containing the "comment" because the topic is generally presupposed to be veridical (Hornby, 1974). The subject's choice of pictures was thus considered to be a measure of his processing of the thematic structure of the sentence.

By varying the surface structure of sentence, Hornby was able to assess the development of the use of surface patterns as cues to thematic structure. The five sentence types that he examined were:

Standard Active The boy is riding the horse.

Standard Passive The horse is being ridden by the boy.

Cleft It is the boy who is riding the horse.

Pseudo-Cleft The one who is riding the horse is the boy.

Stressed The boy is riding the horse.

The comprehension data from the study are given in Table 1, which is taken from Hornby (1971). In that table a score of three represents chance performance.

Table 1

Mean Scores and Standard Deviations for Each Type of Sentence Structure for Each Age Level on the Test for Topic Comment Comprehension (From Hornby, 1971)

Sentence Structure

Grade	Active	Pass	Cleft	P-Cleft	Stress
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First:

M	2.70	3.35	3.85	4.50	3.45
s.d.	1.78	1.71	1.46	1.45	1.00

Third:

	M	3.55	3.95	3.90	5.15	3.25
	s.d	1.79	1.20	1.71	0.76	1.37
Fifth:	M	3.65	4.20	4.25	5.40	4.00
	s.d.	1.32	0.92	1.45	0.99	1.08

Hornby never stated explicitly what "other aspects of surface syntactic structure" were being used by his subjects. However, one clear possibility is that the first grade results were entirely due to the use of stress as a marker of newness and commentality (MacWhinney & Bates, 1978). In Hornby's study, the five sentence types had these intonational patterns:

<u>Standard Active</u>	The boy is riding the horse.
<u>Standard Passive</u>	The horse is being ridden by the boy.
<u>Cleft</u>	It is the boy who is riding the horse.
<u>Pseudo-Cleft</u>	The one who is riding the horse is the boy.
<u>Stressed</u>	The boy is riding the horse.

In the cleft, pseudo-cleft, and stressed sentences the comment is strongly marked by stressed. The fact that the first graders showed best performance for these three sentence types suggests that stress may have played an important role in determining their choice of topics. However, with development, stress comes into competition (MacWhinney, 1980) with word order as a cue to comment identification. When the two cases coincide, as in the pseudo-cleft, performance remains high. Where the cues do not coincide, as in the cleft and stressed sentences, performance dips until coordination is achieved. According to this account, only two factors are involved in the judgments made by the subjects in Hornby's study: word order and stress.

Hornby's (1971) study was not the only one in which stress could have been functioning as a primary determinant of comment identification. The results of two other studies of thematic comprehension in adults (Hornby, 1972 & 1974) can also be explained as reflections of the relative amounts of stress assigned to the comment in different syntactic patterns. Similarly, the use of stress as a cue to newness was not fully controlled by Bock (1977) in her study of adult's use of word order as a cue to givenness.

In order to clarify this issue, a more direct comparison of word order and stress was devised. Sentences were constructed so that four factors were systematically varied: (1) syntactic position of the topic, (2) the placement of stress on the first nominal element, (3) the placement of stress on the last nominal element, and (4) sentence type. If the factors of word order and stress are additive, the results should show children selecting unstressed initial items most often as topics and final stressed items least often. Stressed initial items and unstressed final items should be selected at intermediate levels. If the effects interact in some way, other results would be expected. In either case, the relative strength of stress as opposed to word order can be assessed in this design. If the data point to a role for the factors of sentence type and uniqueness of stress placement, the model must be made even more complex. Thus in general, this line of research can be seen as an attempt to delineate the relative strengths of the various syntactic clues to topicality and the ways in which these clues interact.

The present study sought to improve on three aspects of Hornby's design. First, a large number of veridical trials were included to maximize motivation. Second, the verbs that were used in the sentences were always veridical in the stimuli. This second modification of Hornby's design was motivated by the fact that the verbs cannot be directly represented

in the pictures. Because they cannot be represented in a direct graphic fashion, verbs can easily be "sacrificed" in the responses. Therefore, the present experiment excluded stimuli using non-veridical verbs. Third, the assignment of topicality to a sentence element was balanced within each sentence type. Although Hornby did not report all his stimuli, it is clear that topicality of elements was not balanced across the five types. For example, no sentence with a stressed object was used. Similarly, it is unclear how Hornby was able to devise active or passive sentences in which the verb was the topic. Because of these three minor modifications, the present study is not an exact replication of Hornby (1971). Nonetheless, one would still expect that Hornby's results should be replicated under these modified conditions, since the modifications are designed to clarify the technique. However, the study is more than just a simple replication, since it also seeks to deconfound the role of word order from the role of stress.

EXPERIMENT 1

Method

Design

The design involved five fully crossed factors including a grade factor and four linguistic factors. The sixth factor was the group factor for which groups were nested within conditions. Thus, the overall design included six factors, five fully crossed and one nested. The stimulus sentence types given in Table 2 were designed to vary four factors which involved various aspects of sentence construction. The first of these four linguistic factors was Clefting. Half of the sentences were non-clefts and half were clefts. The second linguistic factor was Case. In half of the sentences the agent was the topic and in half the patient was the topic. In non-cleft sentences the first item is taken to be the topic. This means that the agent is the topic in actives and that the patient is the topic in passives. In cleft sentences, the second item is taken to be the topic. This means that the patient is the topic in active clefts and that the agent is the topic in passive clefts. The four types of sentences are therefore: non-clefts with agent topics, non-clefts with patient topics, clefts with agent topics, and clefts with patient topics. The third linguistic factor was the use of emphatic Stress. In half of the sentences, the first noun was stressed. In half it was not. The fourth linguistic factor was Uniqueness of stressing. When one noun was stressed and the other was not, the one noun was said to be uniquely stressed while the other noun was uniquely unstressed. When both nouns were stressed or when neither was stressed, stress was considered to be non-unique.

Table 2

Sentence Types used in Experiment 1

			First Item	First Item	Second Item	Second Item
Sentence Type	Clefting	Topic	Stress	Uniqueness	Stress	Uniqueness
1 The boy eats the apple.	Non-cleft	Agent	Stressed	Non-Unique	Stressed	Non-Unique
2 The boy eats the apple.	Non-cleft	Agent	Unstressed	Non-Unique	Unstressed	Non-Unique
3 The boy eats the apple.	Non-cleft	Agent	Stressed	Unique	Unstressed	Unique
4 The boy eats the apple.	Non-cleft	Agent	Unstressed	Unique	Stressed	Unique
5 The apple is eaten by the boy.	Non-cleft	Patient	Stressed	Non-Unique	Stressed	Non-Unique
6 The apple is eaten by the boy.	Non-cleft	Patient	Unstressed	Non-Unique	Unstressed	Non-Unique
7 The apple is eaten by the boy.	Non-cleft	Patient	Stressed	Unique	Unstressed	Unique
8 The apple is eaten by the boy.	Non-cleft	Patient	Unstressed	Unique	Stressed	Unique
9 It is the apple which the boy eats.	Cleft	Agent	Stressed	Non-Unique	Stressed	Non-Unique
10 It is the apple which the boy eats.	Cleft	Agent	Unstressed	Non-Unique	Unstressed	Non-Unique
11 It is the apple which the boy eats.	Cleft	Agent	Stressed	Unique	Unstressed	Unique
12 It is the apple which the boy eats.	Cleft	Agent	Unstressed	Unique	Stressed	Unique
13 It is the boy who eats the apple.	Cleft	Patient	Stressed	Non-Unique	Stressed	Non-Unique
14 It is the boy who eats the apple.	Cleft	Patient	Unstressed	Non-Unique	Unstressed	Non-Unique
15 It is the boy who eats the apple.	Cleft	Patient	Stressed	Unique	Unstressed	Unique
16 It is the boy who eats the apple.	Cleft	Patient	Unstressed	Unique	Stressed	Unique

Before testing the first subjects, the experimenter tried out the sentences on several adult subjects to check for reliability of their judgments regarding stress placement. After having rehearsed his delivery of the sentences, the experimenter was able to obtain perfect identifications of the stress placement for all 16 sentence types from four different adult raters. In the sentences in which neither noun was stressed, the experimenter stressed the verb in order to preserve the naturalness of the sentence.

Subjects

There were three groups of subjects. The youngest group comprised 60 first-graders with ages varying between 6;1 and 7;0. Twelve subjects in this group were excluded because they missed more than one veridical trial, thus reducing the group to 48 children. The middle group comprised 48 fourth graders with ages varying between 8;9 and 10;1. The oldest group comprised 48 eighth graders with ages varying between 13 1 and 15;2. None of the children in the two older groups missed more than one veridical trial.

Procedure

Children were interviewed individually in a quiet room in their school building. Testing was preceded by three warm-up trials. In each of these three trials, children were shown pictures of a boy kicking a ball, a dog kicking a ball, and a boy kicking a tree. Each child was then asked to point to the picture in which "the boy is kicking the ball". All of the children chose the picture of the boy kicking the ball. In the second trial, each child was asked to point to the picture in which "the dog is kicking the ball." Again, all of them chose correctly. In the third trial, each child was asked to point to the picture in which "the dog is kicking the tree." At this point, children looked at the experimenter in a puzzled fashion. The experimenter said, "sometimes there won't be a picture that's just right for the sentence, but I want you to point to the picture that comes closest to what I'm talking about."

Having completed these three warm-up trials, the experimenter began the main experiment. In the main experiment children were presented with 16 triplets of pictures such as Pictures 1-3.

- Picture 1: The cook juggles the plates.
- Picture 2: The cook juggles the blocks.
- Picture 3: The soldier juggles the plates.
- Sentence 1: The soldier juggles the blocks.

Each triplet of pictures was accompanied by a sentence. Children were asked to point to the picture named by the sentence. In eight of the 16 trials, one of the three pictures exactly matched the sentence. These trials were called veridical trials, since one of the pictures was a veridical representation of the sentence. The other eight trials were called non-veridical trials, since none of the three pictures was a veridical representation of the sentence. For example, Sentence 1 above matches Pictures 2 or 3 above only partially and does not match either figure in Picture 1 at all. In the non-veridical trials, subjects always chose one of the partial matches. The measure of interest was which of the two partial matches was chosen in each non-veridical trial.

Stimuli and Ordering

Sentences describing the picture stimuli are given in Table 3. For every trial, pictures corresponding to the sentences labeled A, B and C were shown to the child. On veridical trials the sentences labeled A were used as the probes. On non-veridical trials, the sentences labeled D were used as the probes. The pictures were drawn so that the left-to-right positioning of the objects within each picture was counterbalanced across series. The 16 sentence types (see Table 2) were combined with the 16 picture sets (see Table 3) in 16 different ways, so that each picture set was presented with each sentence type in one of the 16 combination conditions. The choice of some picture sets for veridical trials and other for non-veridical trials was also varied across the 16 conditions. Finally, the physical placement of the three pictures at either the left, the middle, or the right of the table were varied systematically and balanced across the 16 conditions.

Table 3

Picture Stimuli in Experiment 1

1. A: The girl eats the ice cream.
 B: The girl eats the apple.
 C: The boy eats the ice cream.
 D: The boy eats the apple.

2. A: The boy breaks the baseball bat.
 B: The boy breaks the flower pot.
 C: The girl breaks the baseball bat.
 D: The girl breaks the flower pot.

3. A: The man throws the ball.
 B: The man throws the horseshoe.
 C: The woman throws the ball.
 D: The woman throws the horseshoe.

4. A: The woman rides the bike.
 B: The woman rides the skateboard.
 C: The man rides the bike.
 D: The man rides the skateboard.

5. A: The janitor folds the flag.
 B: The janitor folds the paper.
 C: The dancer folds the flag

- D: The dancer folds the paper.
6. A: The dancer opens the door.
B: The dancer opens the window.
C: The janitor opens the door.
D: The Janitor opens the window.
7. A: The baby drops the rattle.
B: The baby drops the spoon.
C: The mother drops the rattle
D: The mother drops the spoon.
8. A: The mother pushes the carriage.
B: The mother pushes the truck.
C: The baby pushes the carriage.
D: The baby pushes the truck.
9. A: The cook juggles the blocks.
B: The cook Juggles the plates.
C: The soldier juggles the blocks.
D: The soldier juggles the plates.
10. A: The soldier opens the bottle.
B: The soldier opens the box.
C: Thebook opens the bottle.
D: The book opens the box.
- 11: A: The policeman hoses the wagon.
B: The policeman hoses the swing.
C: The cowboy hoses the wagon.
D: The cowboy hoses the swing.
12. A: The cowboy pulls the log.
B: The cowboy pulls the rock.
C: The policeman pulls the log.
D: The policeman pulls the rock.
13. A: The fireman climbs the ladder
B: The fireman climbs the tree.
C: The Indian climbs the ladder.
D: The Indian climbs the tree.
14. A: The Indian kicks the barrel.
B: The Indian kicks the tire.
C: The fireman kicks the barrel
D: The fireman kicks the tire.
15. A: The boy scout cuts the cheese
B: The boy scout cuts the cake.
C: The girl scout cuts the cheese
D: The girl scout cuts the cake.
16. A: The girl scout builds the tunnel.
B: The girl scout builds the house.

- C: The boy scout builds the tunnel.
 D: The boy scout builds the house.

Results

The dependent variable in this study is the number of times that the children pointed to the picture for the item that was the topic in the non-veridical trials. First it should be noted that, overall, children did not show a significant tendency to point to the element that would be identified as the topic according to adult linguistic criteria. This means that they showed no overall tendency to select the first element in non-clefts or the second element in clefts. The first-graders pointed to the topic 196 times out of 384 trials. The fourth graders selected the topic 197 times out of 334 trials. The eighth graders selected the topic 194 times out of 384 trials. Chance performance would result in 192 selections of the topic. Thus it is clear that each of the three groups performed very close to chance in terms of this general measure.

As noted above, the overall design involved five fully crossed factors with a sixth factor of Groups nested within conditions. The five factors were Grade (1, 4, 8), Clefting (non-cleft, cleft), Case (agent given, patient given), Stress (first element stressed, unstressed), and Uniqueness (first element uniquely stressed, non-uniquely stressed). The only significant main effect was the effect of Case, $F(1,336) = 15.63$, $p < .001$. Overall the children preferred to point to the picture that contained the agent of the sentence. In this regard it is important to remember that agency was confounded with animacy in this study. Thus the main effect for agency could also be viewed as a main effect for animacy.

The main effect of Case must be interpreted in the light of a highly significant Grade x Case interaction, $F(1,336) = 15.56$, $p < .001$. The first graders preferred to point at the picture containing the inanimate patient mentioned in the sentence, whereas the fourth- and eighth-graders preferred to point at the picture containing the animate agent mentioned in the sentence.

The only other significant effect was the interaction of Grade x Clefting x Stress $F(1,336) = 3.47$, $p < .05$. The first-graders showed a tendency to choose the item that was stressed as the topic. However, this tendency was primarily concentrated in the clefts. Given a choice between the stressed item and the unstressed item in cleft sentences with only one item stressed, the first-graders pointed at the picture with the stressed item 64 times out of 96, $X^2(1) = 10.67$, $p < .001$. Given the same choice, eighth-graders showed precisely the opposite tendency by taking the unstressed item as the topic. The results for the fourth-graders were intermediate in that there was no preference for either the stressed or the unstressed element.

Discussion

The results of this study differ from those reported in Hornby (1971) in terms of the relation between emphatic stress and picture selection. In fact, the results for the first-graders on the cleft sentences are exactly contrary to the ones obtained by Hornby. Whereas Hornby's first-graders avoided pointing at the picture containing the stressed item, first-grade subjects in this experiment showed a strong preference for the stressed item in clefts.

One possible explanation for these divergent findings focuses on the effects of the different levels of stress in the two experiments. In Hornby's experiment, stress was quite light and conveyed no particular contrast on emphasis. In the present study, stress was more clearly emphatic. In fact the stress level used in this study was even more than that used by

Hornby in his stressed active sentences (Hornby, personal communication). It is possible that this high level of stress was interpreted by the first graders as a command to point at the object being stressed. The impact of stress is particularly strong in the cleft. This was true both for sentences like "It is the cook who juggles the PLATES" in which the stressed element is syntactically given and for sentences like "It is the COOK who juggles the plates" in which the stressed element is syntactically new. According to this account, first-graders are sensitive to the use of high levels of stress as cues to point to or attend to objects. When lesser levels of stress are used, first graders do not use them to control their attentional processes. A sentence like "It is the cook who juggles the PLATES" could be interpreted as a contrastive relative (Schachter, 1973), rather than a cleft. The contrast would be, in this case that this is the cook who juggles the plates, not the one who juggles the blocks. Of course, the point is that children are pointing at stressed items despite this possible interpretation.

Interestingly enough, the results of an unpublished study by Hornby (1973) provide evidence for exactly the opposite type of development. In his unpublished 1973 study, Hornby used a sentence-picture verification task to measure the treatment of sentence elements as either topic or comment. His stimuli included standard active sentences with contrastive stress on either the subject or the direct object. The stress levels used were comparable to those used in the contrastive sentences in Hornby's earlier study. The results showed that second-graders had a strong tendency to treat the stressed element as new, i.e., material to be attended to. In fifth grade, this tendency was weaker and by ninth grade it had disappeared altogether. Thus, the results of Hornby (1973) are in agreement with the results of the present study. However, they seem to be in disagreement with the results of Hornby's 1971 study. In the 1971 study, Hornby had found a minimal effect of stress on judgments of topicality in the youngest subjects and an increase in the reliance on stress with age. In the 1973 study, Hornby found just the opposite: a decrease with age in reliance on stress as a cue to identification of the topic and the comment. Thus, any simple reconciliation of the present findings and those of Hornby (1973) with those of Hornby (1971) seems impossible.

An even more serious problem highlighted by the present results involves the fundamental logic underlying the technique used both in the present study and in Hornby (1971). In his study Hornby assumed that subjects would generally respond to the task by pointing at the topic. The results for the first-graders in the present study show that for at least some stimuli at least some subjects will respond to this task by pointing at the comment rather than at the topic. Although the forced-choice technique yielded fairly clear results when used with adults (Hornby, 1972), the present results with first-graders show that there is no way of knowing in a given case whether a subject is pointing at what he takes to be the topic or at what he takes to be the comment. Thus the present data show that the results obtained through use of the forced-choice picture selection technique are at least problematic and possibly uninterpretable. Since this assessment must also apply to the present study, it would be a mistake to make too much of the otherwise interesting main effect for Case and the Case x Grade interaction.

These problems may well be specific to the picture choice task used in the present study and in Hornby (1971). Similar objections do not apply to Hornby's (1973, 1974) use of the sentence-picture verification task as a measure of topic-comment processing. Moreover Carrell (1977) has shown that the results from this latter task are easily replicable.

EXPERIMENT 2

The second experiment investigated the use of a picture memory task as a means of gaining additional information about the child's processing of topic-comment structures. It was

hoped that such additional information might clarify the results obtained from the technique used in Experiment 1. If the child takes one part of the sentence to be the topic and selects a picture that preserves the information found in the topic, then one might expect him to remember the veridical element in the picture he had selected. The present experiment tests for this possibility.

Method

Subjects

The subjects that participated in this experiment had also served as subjects in Experiment 1. In that experiment, 48 children had been tested in three age-groups. From two of these three age-groups, 24 subjects were selected at random for the present experiment. The two age-groups studied were first-graders (6;1 - 7;0) and eighthgraders (13;1 - 15;2). The fourth-graders that participated in Experiment 1 were not available for further testing.

Procedure

After a one-month delay, subjects were given a picture memory test. They were shown 16 picture sets similar to the ones they had seen a month before. However, for each set, they were told that they had only seen one of the three pictures before and that the other two pictures were new. Their task was to point to the picture they had seen before.

In the original test there had been eight picture sets for which one of the pictures was a veridical representation of the sentence. These eight sets were repeated exactly as given. However, the eight non-veridical picture sets were modified by removing the picture that the subject had originally pointed to and replacing it with the picture corresponding to the original test sentence. The three pictures on the right nonveridical trials thus had the following characteristics:

- Type A:
 - (1) the picture had never been seen , but
 - (2) it was a veridical match to the original test sentence, and
 - (3) it contained one of the elements the subject had pointed to in the original test.

- Type B:
 - (1) the picture had been seen, and
 - (2) it contained neither element in the sentence, but
 - (3) it contained the element the subject had been forced to select even though it was "wrong".

- Type C:
 - (1) the picture had been seen, and
 - (2) it contained the sentence element that the subject had not pointed at in the original test.

Results

The group results are given in Table 4. When the children were given pictures that they had actually seen, they chose them at a rate far above chance (binomial probabilities, $p < .001$). Chance responding on veridical trials would have led to 64 correct identifications. In fact

correct identifications were 97 for the first-graders and 105 for the eighth-graders. The first salient aspect of the results on the non-veridical trials is the children's tendency to choose a picture type that had not been seen (Type A) more often than a picture type that they had actually seen (Type C). In both grades, children pointed at the "C" picture significantly less than the "A" or "B" pictures, $X^2(2) = 15.76$ $p < .001$. The second salient result is the high level of pointing at the "B" picture even though it did not match either element in the original sentence.

Table 4

Total Numbers of Points to Each Picture Type in Experiment 2

	Grade 1	Grade 8
Type A	79	75
Type B	72	62
Type C	41	55
Veridical	97	105

Discussion

The results of Experiment 2 suggest that the picture-choice task forces children to pay a great deal of attention to the item that is non-veridical in the picture they choose. Perhaps children are trying to figure out how it can be that the object that looks like, say, a "tree" is being called a "ladder". Perhaps they are reasoning that, under some circumstances, a tree can function as a ladder. If children are in fact approaching the task in this way, we must wonder whether they are also using devices such as emphatic stress and clefting not as markers of topic-comment structure, but rather as markers of information that is pragmatically surprising or even bizarre.

The results of these two studies underscore the problems involved in attempting to test comprehension of thematic structure in isolated sentences. Although it may be possible to test for the processing of givenness and newness in isolated sentences or sentence pairs (Haviland & Clark, 1974), it is much more difficult to examine the processing of topics and comments in isolated sentences, the basic contribution of the two studies reported here is to serve as a cautionary guide for future research. Such research should focus on the development of tasks that can measure thematic comprehension as it functions in the processing of connected discourse. Above all, it should be kept in mind that the results of the present study and those conducted by Hornby (1971, 1972, 1973, 1974) will not necessarily generalize from the processing of individual sentences in a given experimental task to the processing of topicality in connected discourse. For example, it may well be the case that the development of the processing of topicality in isolated sentences involves a kind of metalinguistics ability acquired in the middle school years and that the processing of topicality in connected discourse is perfected at an earlier age and in quite different ways.

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