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ABSTRACT

Analysis of adult evaluation of children's linguistic output provides a basis for elaboration upon the work of McNeill (1970) and Brown (1970). When limited to the uttered words of a child paired with an utterance spoken at an earlier time, adults cannot judge the relative age of the children making those utterances; in fact, their predictions of language maturity do not rise substantially above the level of chance. When restating what the children's deviant utterances mean in the absence of context, most adults retain the original vocabulary and word order and supply functors to make grammatical sentences appropriate to typical childhood interests; with context supplied, functors are added to produce well-formed simple sentences appropriate to the circumstances. (Author/DB)

Adult evaluation of child language

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Adults have been observed to judge a child's age and linguistic maturity on the basis of his linguistic output. Such judgments have sociological and educational ramifications: Parents worry if their child is slow to speak or has deviant speech patterns. Nursery school and elementary teachers may have to make professional evaluations of language maturity and deviance. From the evidence of a child's linguistic output, the adult may evaluate his age, intelligence, and personality. The research reported in this paper deals with the adult's ability to judge the language maturity of children solely from linguistic evidence on the basis of utterances used at different ages.

Related Research

Among arguments advanced to support the contention that such judgments can be made accurately is McNeill's (1970) suggestion that 'the theory of grammar and its universal constraints describe the internal structure of LAD [Language Acquisition Device] and, thus, of children'. Since all adults must have passed through the same LAD stages or evolutionary process, they can understand deviant sentences, whether those of the child

or semigrammatical ones, in terms of these linguistic universals. It is obvious that in the course of language acquisition the child, while deviating from standard grammar, achieves communication with peers, older children, and adults, both intimates and relative strangers. If the adult does indeed understand such deviant forms, there is a parallel between understanding semigrammatical sentences and being able to predict the age of a child uttering a certain sentence. The adult needs only to note which universals are being observed and which violated to judge relative grammaticality or age. Given this line of reasoning it would follow that utterances of an older child would come closer to adult norms. McNeill (1970) states that

'Unless adults have separate standards for judging the structure of child speech (which is most unlikely, since there is no way to develop them), this result shows a basic connection between semi-grammaticality and the linguistic development of children'.

The argument thus is intuitive, not substantive.

To test his proposition McNeill did a brief study: He asked fifteen adults to judge which sentence in each of 15 pairs of sentences was spoken by the older child. His subjects were almost 80% accurate in choosing the older child's sentences. McNeill's discussion of his hypothesis inspired the author to ask, 'Can adults judge which sentence in a pair of sentences was spoken by an older child?' and to develop a set of sentence pairs to be used in a replication of his study. McNeill's strong claim, that if the adult went through the acquisition process he can understand deviant sentences in terms of linguistic universals, is supported only by a study of 15 subjects that was not well controlled. It thus seemed reasonable to replicate and extend his study of adult judgment of linguistic maturity and grammar evaluation. Two experiments are reported:

The first experiment deals only with the question of the adult's ability to judge age of children solely from the linguistic evidence of two sentences uttered by children at different ages; middle class parents were asked to choose which sentence in each pair of sentences uttered by children at different ages was

uttered by the older child. The second experiment repeated the first (the sentence pairs were reordered) and, in addition, asked adults to look at each sentence of each pair in isolation and judge its closeness to good English and to state what they thought the child meant to say.

The research addresses three basic questions:

1. Can adults judge which sentence in a pair of sentences was spoken by an older child?
2. How do adults rate children's sentences in terms of their approximation of 'good English'?
3. How do adults reformulate children's sentences in the absence of contextual cues?

The first experiment deals only with question 1. Since the subjects were not able to predict age on the basis of the utterance with the accuracy of McNeill's subjects (80% accuracy), it seemed reasonable to replicate and extend the research to questions 2 and 3. Experiment 2 again presented sentence pairs and required subjects to choose the sentence used by the older child; the second experiment goes beyond the first by asking the subjects to look at each given

sentence and rate it in terms of its approximation to 'good English' (question 2) and to 'tell what they thought the child intended to say' (question 3).

Method of Procedure

Stimuli:

A set of twenty pairs of sentences was constructed, five from McNeill (1966b) and fifteen from Slobin (1967). Some were revised to make the content more uniform or to provide the second sentence of a pair. Table 1 contains the whole set of stimuli presented to the subjects. Each pair was written on a 5 x 7 card for Experiment 1. For Experiment 2 the sentence pairs were printed in a small booklet, one to a page. In addition the sentences given in the pairs were separated, randomly ordered, and printed one to a page for grammatical evaluation and interpretation by the adults. The isolated sentences were followed by a scale of numbers from 1 to 5; 1 represented the evaluation "Not acceptable as 'Good English'". Sentences rated 4 or less were interpreted by the subjects.

Each subject responded to a 'Personal Information Sheet' which probed areas of their experience which

might affect their perception of the child and his language (Slobin 1967).

Subjects:

Experiment 1: The subjects were white, middle class parents; all of them had at least one child who was able to talk. Of the eight subjects, only one was male. None of the women were working outside their homes although two were babysitting at home and several had worked. One of the subjects was eliminated because she had spoken only Czechoslovakian until she started to school.

Experiment 2: The subjects were students in a children's literature class at Eastern Michigan University. From this class, 16 students were present and all participated in the experiment. Of the 16 subjects, one was male, two girls were black, all were native English speakers. The subjects were middle class college students ranging in age from 19 to 33; some were married, but few had children.

Instructions and Presentation:

Experiment 1: The subjects were presented the 20 pairs of sentences on cards, one pair per card, which

were numbered from 1 to 20. Some subjects worked through the pairs from 1 to 20 and others reversed the order. All participated in their own homes with the investigator present. Subjects were orally asked to choose the sentence used by the older child and to respond to the personal information sheet.

Experiment 2: The subjects were given a small booklet containing written directions and the stimulus materials. They participated in a classroom situation; the experimenter read the directions aloud and wrote a summary of directions on a chalkboard. First the subjects chose the sentence uttered by the older child from the pairs of sentences; then they evaluated the randomly ordered, isolated sentences and immediately wrote down what they thought the child meant if their evaluation was less than 5, 'Good English'. Once they had finished an item, the subjects did not return to that item for cross comparison to any other item.

Table 1

	Sentence	E.1	E.2	Total	**Rating 1-2	3	4-5	Mean Rating	*Difference	No. of Translations
1. a.	Touch the snow no.	3	9	12	8	7	1+	2.44	- .13	5
#b.	No touch snow.	4	7	11	8	6	2+	2.31		5
2. #a.	I can't do nothing with no string.	2	5	7	8	6	2+	2.37	-1.07	5
b.	I can't do something with no string.	5	11	16	9	5	2+	3.44		5
3. #a.	I want not envelope.	5	15	20	12	3	1+	1.94	+ .19	5
b.	Want envelope no.	1	2	3	13	2	1+	1.75		3
4. a.	Put hat on.	1	1	2	3	4	9	3.44	+1.06	4
#b.	Put the red hat on.	6	14	20	2	Ø	14	4.50		6
5. a.	No wipe finger.	1	Ø	1	10	3	3+	2.19	+1.07	10
#b.	Don't wipe finger.	6	16	22	4	5	7+	3.06		6
6. a.	No David fun play?	3	3	6	16	Ø	Ø	1.31	+1.44	15
#b.	Why not he play?	4	13	17	6	7	3+	2.75		5

Table 1 (con't)

	Sentence	E.1	E.2	Total	**Rating 1-2	3	4-5	Mean Rating	*Difference	No. of Translations
7. a.	Fast the car.	3	2	5	16	Ø	Ø	1.50	+1.62	9
#b.	The car fast.	4	14	18	4	6	6+	3.12		5
8. #a.	Don't touch no fish.	2	Ø	2	6	6	4+	2.75	-1.25	3
b.	Don't touch the fish.	5	16	21	Ø	Ø	16	5		8
9. a.	Put gas in.	5	13	18	3	3	10	3.62	-1.12	6
#b.	Put a gas in.	2	3	5	9	4	3+	2.50		7
10. a.	Thats your a car.	3	6	9	6	4	6+	2.85	- .16	3
#b.	Thats a your car.	4	10	14	5	7	4+	2.69		5
11. #a.	I don't have no book.	Ø	1	1	6	4	6+	2.86	-2.05	2
b.	No, I don't have a book.	7	15	22	1	Ø	15	4.81		2
12. a.	No wear mitten.	2	2	4	10	6	Ø	2.06	+.50	8
#b.	Don't want wear it.	5	14	19	7	7	2+	2.56		3

Table 1 (con't)

	Sentence	E.1	E.2	Total	**Rating 1-2	3	4-5	Mean Rating	*Difference	No. of Translations
13. #a.	I didn't see nothing	5	12	17	3	6	7+	3.25	- .19	2
b.	I didn't see something.	2	4	6	2	6	8+	3.44		2
14. a.	That factory.	7	5	12	10	6	Ø	2.06	+ .69	4
#b.	That a factory.	Ø	11	11	5	9	2+	2.75		3
15. #a.	Where Mommy scissors go?	3	6	9	6	5	5+	2.94	+ .50	3
b.	Where scissors go?	4	10	14	8	7	1+	2.44		2
16. a.	A that's cheese.	1	2	3	9	5	2+	2.12	+1.19	8
#b.	That's a cheese.	6	14	20	4	5	7	3.31		8
17. a.	Big Eve toy.	3	2	5	13	4	Ø	1.75	+ .37	9
#b.	Eve toy big.	4	14	18	11	4	1+	2.12		3
18. #a.	This other one hammer.	4	7	11	12	4	Ø	1.75	+ .13	10
b.	This hammer other one.	3	9	12	13	2	1+	1.62		10

Table 1 (con't)

	Sentence	E.1	E.2	Total	**Rating 1-2	3	4-5	Mean Rating	*Difference	No. of Translations
19. #a.	It's won't hurt.	5	9	14	4	6	6+	2.94	+ .13	2
b.	It not hurt.	2	7	9	5	8	3+	2.81		6
20. a.	Horsie stop.	3	8	11	4	5	7	3.12	- .37	8
#b.	A horsie stop.	4	8	12	5	8	3+	2.75		7

* plus (+) indicates older sentence received higher rating

minus (-) indicates younger sentence received higher rating

\# indicates correct answer

** plus (+) after a number means that item received no 'Good English' rating

Results

Experiment 1: Of the 140 responses, a total of 62 or 44% correctly identified the sentence of the older child. The mean score for the subjects was 53%. Correct predictions ranged from a low of 40% to a high of 75% with 4 of the 7 subjects scoring 50% or more. Adults varied greatly in their ability to predict age of children from evidence of utterances alone; the above figures indicate that the adults were predicting language maturity at about chance level.

There was substantial intersubject agreement (6 out of 7) on only 5 of the 20 pairs. Of the pairs generating high intersubject agreement, three were correct.

Table 2

Correct Predictions:	4.a.	Put hat on.
	b.	Put the red hat on. (older)
	5.a.	No wipe finger.
	b.	Don't wipe finger. (older)
	16.a.	A that's cheese.
	b.	That's a cheese. (older)
Incorrect Predictions:	11.a.	I don't have no book. (older)
	b.	No, I don't have a book.
	14.a.	That factory.
	b.	That a factory. (older)

Of these 5 pairs, all of the subjects made incorrect judgments for 2 pairs. Eleven of the pairs generated intersubject agreement by at least 5 of the subjects; of those, 5 of the 11 predictions were incorrect. Since all estimates of subject accuracy are slightly above or below 50%, McNeill's position is thrown into doubt.

Experiment 2: Of the 320 responses, a total of 123 or 38% were incorrect predictions. Thus the second group of subjects scored higher (62% as opposed to 44%) than the first group although neither achieved the 80% accuracy of McNeill's subjects. The mean score was 58.75%; the range of scores was from 45% correct to 80% correct (one subject). Of the 20 pairs, 9 of the items were voted similarly by 14 of the 16 subjects. Table 3 lists these pairs. 7 were predicted correctly and 2 incorrectly.

Table 3

Correct Pairs:	3.a.	I want not envelope. (older)
	b.	Want envelope no.
	*4.a.	Put hat on.
	b.	Put the red hat on. (older)
	*5.a.	No wipe finger.
	b.	Don't wipe finger. (older)
	7.a.	Fast the car.
	b.	The car fast. (older)
	12.a.	No wear mitten.
	b.	Don' want wear it. (older)
	*16.a.	A that's cheese.
	b.	That's a cheese. (older)
	17.a.	Big Eve toy.
	b.	Eve toy big. (older)
Incorrect Pairs:	8.a.	Don't touch no fish. (older)
	b.	Don't touch the fish.
	*11.a.	I, don't have no book. (older)
	b.	No, I don't have a book.

* These were high subject-agreement pairs in both experiments.

Note that both incorrect predictions involve the rejection of double negatives, a structure proscribed by school grammar. Although the double negative is grammatically progressive (Bellingi's Stage IV), the simpler single negative generally provided a sentence conforming to school grammar conventions which the adults seemed to insist upon, at least in written form. When the four pairs containing double negatives are removed from the total, all of the subjects' scores improved, some only slightly, except one whose score remained the same; the mean score rose from 58.25% to 68.81%. This score still is not as high as a strong interpretation of McNeill's hypothesis would lead one to expect. The two pairs containing a double negative that did not receive a large subject agreement vote were 2 and 13:

2.a. I can't do nothing with no string. (5)
b. I can't do something with a string. (11)

13.a. I didn't see nothing. (12)
b. I didn't see something. (4)

As the votes in parenthesis indicate, the subjects found 13.b. much less mature than 2.b. Evidently, the violation of the negative-quantifier constraint was more obvious when in final position. None of the sentences in 2 and 13 received any 'Good English' ratings.

Of the seven pairs predicted correctly by 14 of the 16 subjects, most of the older utterances did reveal some

structural complexity. For instance, the subject is expressed in 3.a or occurs in initial position as in 7.b and 17.b; in 7.b, 16.b, and 17.b, the linking verb construction is more obvious than in the second sentence in the pair; and don't is chosen as older than a preposed no. In general, there were more different versions of what the child meant to say for the rejected sentences. Note especially that 17.a and 12.a are open to several semantic interpretations.

Of the 20 sentences actually uttered by older children, 8 were rated lower than their corresponding sentences. Of those 8, 4 included double negatives confirming the adults' rejection of double negatives, assumably on the basis of school grammar. Ratings of sentences show some correlation between accuracy of prediction and higher relative rating of thr sentence used by the older child. Eight of the older sentences received lower mean ratings.

When restating what the children's utterances meant in the absence of context, most adults limited themselves to providing grammatically necessary elements -- auxiliaries, plural markers, etc., or changing words to conform to selectional restrictions:

	Original	Translations
2.a.	I can't do nothing with no string.	I can't do anything with (a/any) string.
		I can't do anything without (any) string.
12.b.	Don't want wear it.	I don't want to wear it/that.

A few adults added more to the content of the child's utterance:

Original	Translations
2.b. I can't do something with a string.	I can't do anything with (a/this) string.
	I can't do anything creative with that piece of string.
	I don't want to wear (a) mitten (s).
	I don't wear (any) mittens.
	I did not wear my mittens.
	I am not wearing a mitten.
	Don't wear (the) mitten(s).
	Don't you wear mittens?

The utterances that were ambiguous in some way generated the most adult translations. As in 12.a above four versions are negative statements, but adults also saw a potential command and question in the three-word sentence.

The adults seemed to function like the hypothetical mother machine described by Brown and Bellugi (1964) that is programmed to 'Retain the words given in the order given, and add those functors that will result in a well-formed simple sentence that is appropriate to the circumstances'. Not knowing what the circumstances were, the subjects kept the words and word order and supplied functors to make grammatical sentences that were appropriate to typical childhood interests. Most subjects changed the utterances into statements unless there was a definite clue that a given utterance was a command or a question.

Discussion

Children's language has been studied as an exotic language, that is, the language is described by means of a distributional analysis with supposedly no reference to the adult language to which the child has been exposed. (Bellugi and Brown 1964). Such avoidance of the target language may be workable for linguists but it does not seem to be what the adult community does when it speaks to its young. The Experiment 1 subjects, all of whom had children who were speaking, found the task of choosing the sentence uttered by the older child difficult. Some claimed, 'My child never spoke that way'. This may indicate that they never listened solely to the words their children spoke but always to the words in a situational context. Both Bloom (1970) and DeLaguna (1924) emphasize the unity of the child's speech and the child's action. Parents can often interpret the utterances of their children because they know their child's speech patterns, personality, habits, and past experiences. In any instance of the child's speaking, the adult hears the words, sees the child's action or focus of attention, and recalls the child's past reactions in similar situations. 'Adults who know children tend to know what they are saying more often than not'. (Bloom, 1970). Other researchers (Brown 1970) have noticed that the child is rewarded by his parents for the content of his language, not the structure of it. This would support the suggestion that adults focus on the words in context while ignoring the words in their structure.

Even though the sentences were rephrased with no reference to context, the adults generally attained a consensus as to what the child probably meant. For the utterance, The car fast, they generally supplied a form of be or a verb of motion. The most deviant sentences inspired more variety of translation; for example, No David fun play had 15 different translations. Thus, in the absence of context, adults can make logical interpretations of child language; they usually add grammatically required terms to complete the sentence.

Summary

When limited to the uttered words of a child paired with an utterance spoken at an earlier time, adults cannot judge the relative age of the children making those utterances. Their predictions of language maturity were not much above chance level. McNeill's language acquisition hypothesis suggests there is a strong relationship between age and sentence structure; he claims that adults can judge and understand both semigrammatical sentences and children's early sentences because 'The order of development in

child language corresponds to this order of grammaticality'.(1970) Thus to support his theory adults should be able to predict the age of child utterances with more accuracy than these subjects were able to do; 75 to 80 per cent accuracy would be necessary to support a strong claim of adults using linguistic universals to judge these kinds of deviant sentences. According to McNeill, linguistic universals describe 'important aspects of the deep structure of sentences ... Assuming that linguistic theory describes linguistic abilities, we can say that the abstractions of the underlying structure reflect childrenns linguistic capacities, and are made abstract by children discovering the transformations of their language'.(McNeill, 1970). His strong claim of innateness and that 'children begin speaking underlying structure directly' appears to be too strong. Brown's description of child grammar is more neutral:

> ...it is correct to say that the child's early grammar comprises a base structure not very different from that of the adult grammar and a syntactic transformational component that is rudimentary in stage III and almost totally absent in stage I. This is not the same as saying that children directly speak base-structure sentences. It is not clear what that statement could mean since morphophonemic and phonetic rules are required to make sentences of underlying strings. But the underlying strings themselves seem to be chiefly those that can be generated by the base.(Brown 1969)

If adults and children share grammars that are 'not very different', then adults judging the age of children from their utterances can be considered as estimating the extent or kind of difference between the two grammars. Brown's hypothesis does not require the high level of accuracy that McNeill's does.

These judgments of language maturity may reflect the native speaker's utilization of linguistic universals, but the data of the two experiments described here indicate that McNeill is making too strong a claim about the kind of utilization that the adult is able to make.

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