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CONTENTS

The Acquisition of English Derivational Suffixes: A Pilot Study

Herbert R. Harris

Abstract

0. Children, ages six through twelve, were tested to determine when they acquired certain derivational suffixes as rule governed elements of their grammars. The suffixes tested were -y and -able. "Rule governed" was defined as the ability to manipulate these suffixes on nonsense syllables. This ability appeared as late as eleven years old with -able.

Introduction

1.1 The derivational morphology of English creates a problem for anyone writing a grammar of English. On the one hand it gives hints of regularity, but when a rule is formulated the exceptions either overwhelm the rule or the semantics of the new formations cannot be regularized. However, adults can form and understand such nonce formations as periodicalizationalize, barbaric through it may be. This study attempts to see if there is any psychological reality to the position that these suffixes are added by rule. And if they are added by rule; when the rules are acquired. The study reported on here contain some defects, but has sufficient validity to demonstrate the -y and -able are both rule governed. However, the study is best viewed as an extensive pre-test of some techniques that can more effectively be applied in another inquiry based on this experience.

1.2 The subjects were fifty-five children from grades one through six at the Blackburn Elementary School in Independence, Missouri.[1] There were five first graders in the sample and ten from every other grade. The children were selected by by the teachers. The teachers were told to select average children. The definition of "average" was left to them.

1.3 A model for testing was suggested in a study by Jean Berko-Gleason, "The Child's Learning of English Morphology" (1958). In this study she used nonsense syllables to test whether children had acquired rules for adding inflectional suffixes to stems and whether all the allomorphic variants of a suffix had been learned.

1.31 Her justification for using nonsense syllables was to eliminate the possibility that the child had memorized some variant form of a word that is conditioned to appear in a suitable context. It is not clear that this precaution is necessary when working with derivational suffixes. It is only necessary that the formations elicited be ones the child has never heard. For example, the author has observed that a child of four years and nine months used unquick when asking her father why he had taken so long to return from the store. "Why were you so unquick?" And again the same child fromed decidement in "We must make a decidement about when to go get the baby sitter." Both of these forms probably never appear in adult speech.

1.32 But in trying to elicit forms such as these, there is a danger of violating a constraint on the formation. There is no assurance that these constraints have not already been internalized by the child. And since no one has been able to explicitly state the contraints,they cannot be controlled in the test situation. For example there are the English words candor-candid and splendor-splendid. If one creates the form splendify with splend- and -ify, it seems a possible English word and can be understood although it is not listed in Websters Third International Dictionary as an English word. Then an analogous formation is made on the root of candor, *candify, the root is not recognizable and the formation seems impossible although I am a loss to say exactly why. To avoid the problem of dealing with these unstated constraints, nonsense syllables were used in this study.

1.41 There were four affixes tested: two prefixes and two suffixes, un-, re-, -y, and -able. This paper will discuss only the suffixes. The study attempted to test three elements of the affixation process. We wanted to know if the child could: (1) add the suffix to a root, (2) remove the suffix from a root, and (3) understand the meaning of the resulting form. The test for semantic interpretation was not very successful and will be discussed later. Each of these processes was tested both on real words and on nonsense syllables. With three processes being tested on each of four affixes on both real and nonsense words, this gives a total of twenty-four questions. The test was administered orally and the sessions were recorded. Since the test was oral the subjects did not have the advantage of seeing either the roots or the affixes being manipulated. Two people were present during the questioning, one giving the questions and one writing the answers down. The children were told nothing about the test ahead of time. The questioners alternated places with each new grade level. Neither questioner appeared more adept at eliciting responses. The questions and the instructions are listed in Appendix A.

1.42 The twenty-four questions were divided into two parts. In one part the children were asked to manipulate real words and on the other they were asked to manipulate nonsense words. The original design of the test called for alternating these as the first set of questions. But after giving the test it became apparent that giving the real words first was helping the subjects determine what the nature of the task was that they were being called on to perform. Therefore, manipulating the real words was kept as the first part of the test.

1.43 The subjects were brought into a room one at a time and seated before the questioner. They were read the following instructions:

> "This test has two parts and will take about five minutes. In this part we will ask you to give us a word or to explain something. Some of the questions will seem very easy. This is because these questions are also being given to very young children. There is nothing tricky about the questions. Just give the obvious answer."

Then each of the questions were read to the subject. For example, the first question was: "When you go outside, you button up your coat. When you came inside again, what do you have to do to your coat?" If the subject said take it off as many of them did, they were asked what they would have to do to get their coat off. The questioner usually attempted at least one prompt with each question

1.44 before the section of questions using nonsense syllables the following instructions were read:

> In the following questions there are some words that you probably have never heard before. We are going to ask you to change them around some. Don't worry if you don't know what they mean. It isn't necessary to know their meanings in order to answer the questions. In some cases there is more than one answer possible. If you think of more than one, give all the answers you think of. The answers, however, always have some part of the new words in them.

Pictures were used with the questions about the nonsense syllables. It was hoped that these pictures might help focus the attention of the younger children. Berko-Gleason had also used pictures. But in many cases the pictures worked to a disadvantage. The child thought that the question was about the picture. Although the pictures were not specifically of real life situations, they may have been too representational. The picture was presented to the subject and he or she was read a statement about the picture. Then the subject was asked a question about the picture. For example, the picture of the cat with spots was shown to the subject and was told, "This cat has wugs on his head, wugs on his body, and wugs on his feet. He has wugs all over him. He is a very (pause) cat" or "what kind of cat". If this subject was either silent or had an incorrect response he was prompted with, "How would you describe him?" All of the pictures are included in Appendix B.

Grading

2.1 The answers to the test questions were graded as either correct or incorrect. In two-thirds of the questions the correct answer involved either putting the suffix on a new root or taking it off a root. Therefore, repeating the root either with or without the suffix was judged as correct. There were occasions, however, where some interpretation seemed necessary. The following rules were used:

> (1) Is the suffix present or not?
> (2) No pro-form was accepted in place of the root sought.
> (3) A response is correct if a word is substituted with the correct suffix, but the response was deemed incorrect if a word was substituted without the suffix, even if the word was appropriate. In some cases this rule had to be interpreted. For example, if [tem] was substituted for [tæm] , the word repeated seemed to have sufficient similarity to the original root to count the answer correct. But, for example, in question 23 if drink was substituted for drick, this was not accepted as correct.
> (4) With the semantic questions: (a) A response was counted as correct if the response indicated that the meaning of the suffix was understood or (b) if the statement logically followed from the question. Responses were not counted as correct if they were merely acceptable second lines to the statement given. For example, if the response to the question, "What could you do to a drickable darf?" were "Anything you want to.", this would not be counted as correct; but "You can drick it when you want to." was counted as correct. There are some other problems with the semantic questions, but these will be discussed later.

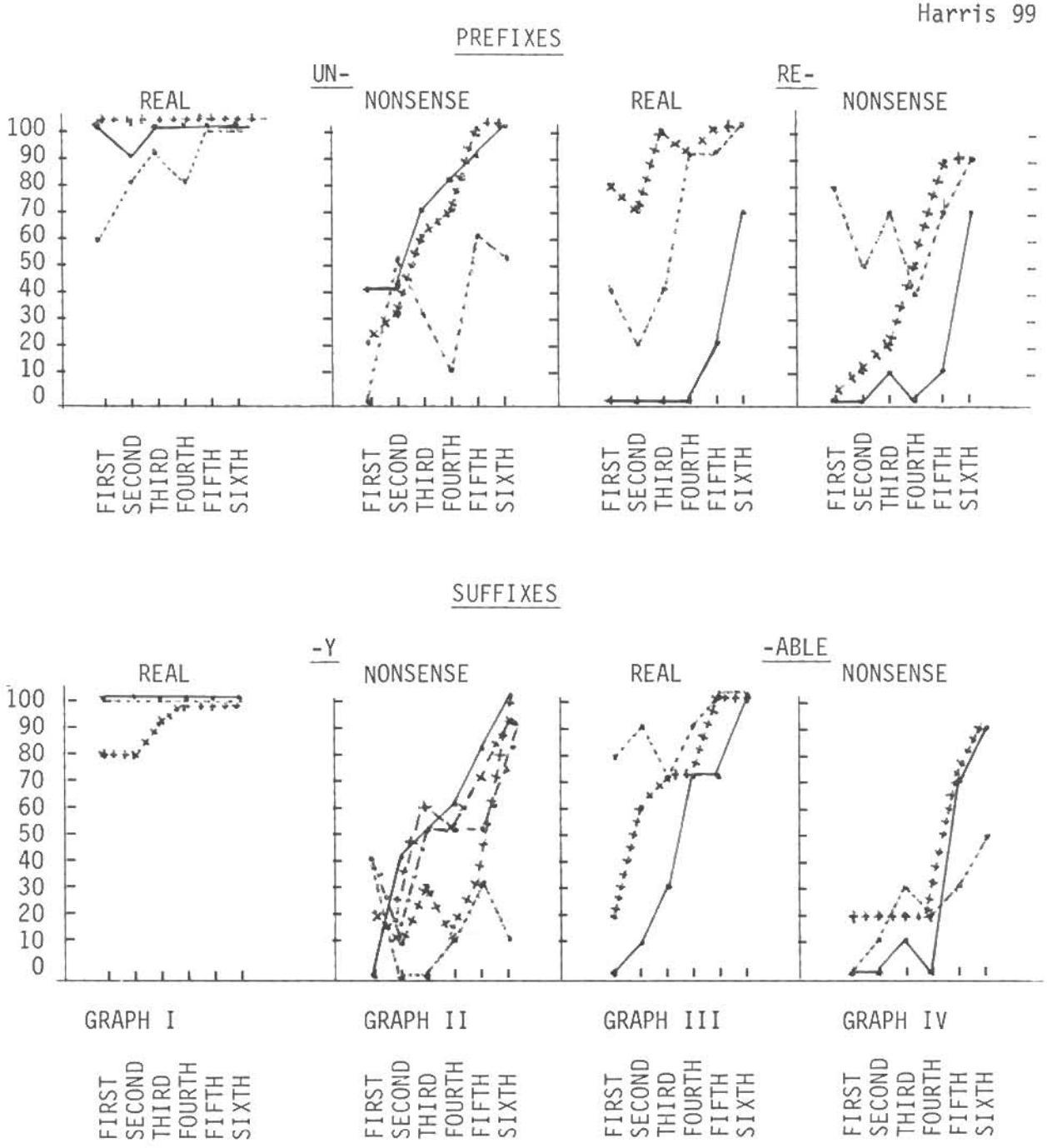

PREFIXES
UN-
RE-
REAL
NONSENSE
REAL
NONSENSE
100
90
80
70
60
50
40
30
20
10
0
FIRST
SECOND
THIRD
FOURTH
FIFTH
SIXTH
SUFFIXES
-Y
-ABLE
REAL
NONSENSE
REAL
NONSENSE
GRAPH I
GRAPH II
GRAPH III
GRAPH IV
KEY
ON
OFF
SEMANTIC

FIGURE I

2.2 Giving the test to adults to establish a base line for responses was unnecessary since sixth graders performed with close to 100 per cent accuracy. The exceptions to this are the questions which have dubious validity anyway.

Results

3.1 The results of this investigation are graphed in Figure I. All of the graphs are constructed on the same scale. The grade level is listed on the x-axis and the percentage correct is indicated on the y-axis. Each line in the graphs represents the responses on one question and in the second through the sixth grade each 10% increase on the graph is the response of one child. The top series of graphs in Figure I shows the results with the prefixes and the bottom series shows the results with the suffixes.

3.2 In graph I, the results of testing the ability to manipulate -y on real words are presented. The questions asked were as follows:

Off--3. My back yard is bushy. What are there a lot of in my back yard?

On--7. Jane has come in from outside with dirt all over her. Her mother asked her how she got so _____?

Semantic--11. If a bed is sandy, what does it have in it?

Although these questions were originally formulated to test whether the child could manipulate the suffix on real words, all they really show is the presence in the child's vocabulary of pairs of lexical items with and without the suffix. These questions cannot distinguish between the presence of these pairs and the manipulation of the suffix by rule. Some children in the first, second, and third grades do not appear to have the pair bushy-bushes. However other factors complicate the interpretation of the responses on this pair.

3.21 First, the question was the third on the questionaire. There is some question if the child was clear on what the nature of the task was at this early stage in the game. This lack of understanding might also be the cause of the erratic behavior on the first two questions. These questions were about prefixes: One, involved attaching un- to button. All the first graders could to this while one second grader missed this question. The second called for taking re- from reread. Again the curve of the responses on this question shows erratic jumps. Also the incorrect answers to the question about what a bushy backyard would have in it were all semantically appropriate, i.e., leaves, trees, grass, etc. The children were looking for a real world answer to the question and bushes seemed too obvious.

3.22 Second, the question not only demands the removal of the suffix, but the adding of a plural to the stem bush, a count noun. It would be interesting to see if the results using a mass noun like brushy-brush would be any different. The syntactic complication of taking off one suffix and adding another seems to be less of a factor since they have mastered the plural by this stage, although this allomorph of the plural is the one Berko-Gleason found that children this age have the most trouble with.

3.23 Third, the semantic question tests the same skills as the bushes-bushy question. Going from sandy to sand also involves removing the suffix. All children answered the sandy-sand question correctly.

3.24 However in spite of the trouble with this one question we can conclude that even the youngest children in our sample have pairs of words in their vocabulary both with and without this suffix.

3.31 The results of manipulating -y on nonsense words are indicated in Graph II. While pictures were shown to the children, the following questions were asked:

On--13. This cat has wugs on his head, wugs on his body, and wugs on his body, and wugs on his feet. He has wugs all over him. He is a very _____ cat.

Off--20. This yap is droonie. He has _____ all over him.

Semantic--24. What do you think a toopie dog would have all over him?

The graph indicates that at each succeeding grade level a larger number of children are able to add this suffix to nonsense syllables until everyone tested could by the sixth grade. However as the graph indicates behavior was erratic on the question calling for the removal of the suffix and on the semantic question.

3.32 A great many of the incorrect answers to the question requiring the removal of the suffix did not remove the -y from droony to give droons but merely added a plural to give droonies. Children seem to be taking droony to be a noun ending in -y like baby in baby carriage. A baby carriage would have either a baby or babies in it. The confusion is between noun-noun combinations and adjective-noun combinations. Both of which are possible in English. The picture used with this question seems to reinforce the noun-noun interpretation. The picture was of a fish. If a real word was given, it was invariably a noun like fins or scales. The line of stars represents correct responses not accepting droonies as correct. The broken starred line represents correct responses counting droonies as correct. This then parallels the 'on' line more closely, although retarded by a grade level.

3.33 The dotted line on the graph represents responses on the semantic question. As was the case with the real words, the skills required to answer this question are the same as those required to remove the suffix. The -y has to be removed from toopy in a toopy dog to give toops. In this question there were even more responses that the dog would have toopies all over him. This was especially the case in the sixth grade where only one person said toops. Again if toopies is counted as correct, then the broken dotted line results. The difference between this line and the broken starred line might be attributed to the use of the picture with the latter yielding more correct responses.

3.34 Berko-Gleason found that none of her children could add an -y to a nonsense syllable. Our results are the same for children of the same age. It will be remembered that the graph for real words indicated that pairs of real

words were present in the child's vocabulary in the first grade, but the child was not able at this age to manipulate these suffixes on nonsense syllables. We must conclude then that the questions on real words for first and second graders only demonstrate that they have pairs of such words in their vocabularies.

3.35 The slow rise in the ability to use -y with nonsense syllables represents the mastery of a rule governing the use of -y by a greater number of children. If suffixes such as the plural are rule governed as most linguists believe and if the manipulation of these suffixes on nonsense syllables demonstrates the acquisition of the rule as Berko-Gleason believes, then we must conclude that the suffix -y is rule governed since it also can be manipulated on nonsense syllables. It is interesting to speculate that it might be possible to formulate a test in which a sample vocabulary of pairs of words with and without a suffix could be tested to see if there is a proportion of this vocabulary that must be acquired before the appearance of a rule to manipulate the suffixes appears. The test might show that across children a certain percentage of the pairs have to be acquired before an ability to use the suffix with nonsense syllables would appear.

3.41 In graph III are the results of testing -able with real words. The questions testing the presence and absence of -able on real words were:

Off--4. A baby rabbit is lovable. Jane wants one so that she can ___it.

On--8. Joan's mother bought some vitamins that can be chewed. These are called what kind of vitamins?

Semantic--11. If something is drinkable, what can one do with it?

As in the previous cases the skills necessary for the semantic question are the same as taking the suffix off a stem.

3.42 First graders did not have the pair chew-chewable to any significant degree. Sixty percent of the second graders had this pair. This result is surprising since at the time this test was given there were a number of commercials on television advertising chewable vitamins. In the low grades chewy, chewing and chewed were answers but not chewable. The form made a gradual appearance culminating in perfect performance by sixth graders. The rise of the number of correct answers probably represents the learning of the word chewable until finally a rule for -able is formulated. Since the final rise of this line falls in line with the same line on the nonsense syllables, it is probable that some children never do acquire the word; but begin using the word after they have the rule.

3.43 Since the semantic question drew more correct responses than the question above, it is probable that the pair drinkable-drink is present in the children's vocabulary. If the responses on these two questions are compared, then one would be lead to conclude that it is harder to remove -able from chew than from drink. But if we see this difference as an expression of pairs in the vocabulary, then the difference in correct responses is completely natural. This re-inforces the interpretation of correct responses to questions about real words as being indicative only of the presence of pairs of words in the

child's vocabulary. This interpretation then holds till we see the onset of the ability to manipulate the suffix on nonsense words.

3.44 The younger children had a great deal of difficulty with the pair love-lovable. So much that one would be lead to speculate that the two words are not related in their vocabularies. This is entirely possible since a lovable rabbit might be associated with cuddling, hugging, etc., but not necessary with love. The older children seemed to attend to the form of the word and didn't allow this possible confusion in the semantics or pragmatics to interfere with their answers. But even with prompting the younger children only gave incorrect answers. This problem with the semantics of this question probably falsifies the seeming absence of love in their vocabularies although it probably does reflect the fact that lovable and love are not associated with each other.

3.51 The questions used to manipulate -able on nonsense syllables were as follows:

Off--19. If this dun is very tamable, then it is very easy to ___this dun.

On--16. This zigger is easy to tring. Even little children can tring this zigger. It is a very ____zigger.

Semantic--23. If a darf is drickable, what can be done to it?

The responses to these questions are presented in graph IV. There is again no difference in the processing tasks for the dotted line and the starred line on the graph. The difference in the performance between the two questions can be attributed to the use of a picture and/or the presence of a wh-question in the semantic question.

3.52 The question about a tamable dun presented phonetic problems for some children. The presence of the two bilabials in tamable generated pronunciation problems. These pronunciation problems introduced an extraneous element into the answer that was not a part of the ability being tested.

3.53 As can be seen from the graph the rule for the manipulating -able on words appear dramatically in the fifth grade. This is especially the case for adding the suffix. There is some indication of a difference in the difficulty in the skills necessary between adding a suffix and the ability to take it off a nonsense syllable. The issue is confused with the real words since there may be no adding or substracting involved. But the data with -able does suggest a difference. The case with -y is confused because of the difficulty with the question requiring the removal of the suffix. Both re- and -able suggest that it is easier to remove the suffix than to add it to a stem. This situation would be parallel to the fact that children are able to understand formations before they are able to use them. We might expect that it would be easier to remove a suffix than to add it to a stem since to add a suffix to a word correctly the restrictions on its use must be mastered, while in removing the suffix, the formulation of these restrictions is not necessary. All that is necessary is the recognition of the suffix and an idea of its function, either grammatical or semantic. Only more thorough testing will determine if adding a suffix and taking if off represent abilities that appear consistently at

different times with the former being always the last to appear.

3.54 The ability to manipulate -y on nonsense words appears earlier than the ability to use -able. We can conclude then that all these derivational suffixes do not become rule governed at the same time and that some of them are regularized as late as eleven years of age. The rule for -able has not been formulated by the fourth grade. But by the third grade 50% have the rule for -y. Berko-Gleason's data indicated that the ability to manipulate a suffix on nonsense words is already developed in first grade children since she had 97% correct answers on a question adding -ing to nonsense words with children of that age. We might then ask what causes the difference in the time at which these suffixes are acquired. In order to acquire these suffixes, a child will have to have pairs both with and without the suffix. Therefore the difference in the time of acquisition might be a function of vocabulary growth. This could be tested. Also some suffixes might be 'harder' to acquire than others. I am not sure how to define harder. But there is an intuitive impression that the purpose and meaning of some suffixes is clearer than others. I have chosen two of the clearest to manipulate in this sutdy. It might also be the case that 'harder' might be a function of the number of syntactic operations necessary to generate the surface form. Only by seeing when other suffixes are acquired will it be possible to correlate the time of acquisition with other factors.

Conclusions

4.1 The evidence presented in this study is by no means conclusive. It appears that a stock of lexical pairs with and without a suffix is learned by the child. There is some indication (love-lovable) that these pairs must be 'semantically related' without specifically determining what this relationship must be. Whether these pairs are rule governed is not clearly demonstrated by their presence in the vocabulary. It may be that certain lexical items are not acquired until the rule is formulated. Perhaps after a sufficient stock of such pairs is learned, then a rule is formulated. In so far as the ability to add a suffix to a nonsense syllable indicates the formulation of a rule to govern the use of the suffix, this study shows that some derivational suffixes are rule governed.

4.2 There is some indication that the ability to take the suffix off precedes the ability to add it to new stems. With the two suffixes tested the rule for -y is formulated before the rule for -able. The rule for -y begins to appear about the second grade and is applied by sixty percent of the sample by the fourth grade. The rule for -able however does not begin to appear till the fifth grade and then makes a dramatic appearance with seventy percent of the sample using the rule. The suddenness of this appearance might be the result of the suffix being taught in school, but this is only speculation.

4.3 Finally it would appear that people do manipulate at least the suffixes tested here by rule. There are of course many other suffixes some of which are very limited in distribution. The -id on candid and splendid is one with limited distribution. Whether these suffixes of limited distribution are manipulated by rule is an open question that can only be answered when it is known how many lexical items must be present as alternation pairs before a rule is formulated.

Discussion of the Limitations of this Study

5.1 Since young children see the test questions as questions about the real world, they search for whatever semantic links they can find to answer the questions. It might be possible to reduce this tendency by training for the task. The test as it was constructed for this report did not involve this type of training. Originally it seemed that this training would involve training for what was being tested. Also Berko-Gleason found that her subjects had no trouble understanding the nature of the task that they were being asked to perform. All of the children that we tested were very cooperative and attempted to perform for us, but it was clear that in many cases they did not understand the nature of the task. In some cases about half way through the test the child would say, "Oh, is that what you want me to do", indicating that he had discovered the nature of the game and after this insight he got a greater percentage of the items correct. It is admittedly difficult to tell when a child does not understand the task and when he simply cannot perform the task. But the subjective impression was that some children never understood what the nature of the task was.

5.12 In the instructions the children were told that the answer to the questions contained some part of the nonsense words. But this instruction did not 'take' with the younger children. The children could be trained to the task using some suffix other than those being tested. The past tense or the plural are likely candidates since the children in this age group will have already acquired these. Once the child knows that the game is to manipulate some part of the nonsence words, then give him the test items. This training will not prejudice the test since if the child does not have the linguistic competence to handle the suffixes in the first place he will not be trained to manipulate the suffix in question. The subjects ability to add the suffix to a stem should be tested before testing the ability to remove it. This order will insure that the subject cannot learn the suffix during the test.

5.2 There may be a sampling error in this study. The choice of children was left to the teacher. This was done to minimize interrupting the classroom activity. However, it would have been better to take the first ten children from an alphabetized roster in order to get a more random sample. The sample as it now stands may not be random. A random sample might change the general average of correct answers for some one grade, but the sequences for the acquisition of the suffixes are only being formulated in a general way. These sequences would probably not change with a more random sample.

5.3 The test was given orally and the sessions were recorded. But in the future one questioner should be used exclusively to minimize the variation in questioning technique. In this study the questioners alternated.

5.4 In giving the test without some prior training of the subjects, there is much room for judgement by the test giver over when to press for a correct answer. This was a constant problem. It was found that if the questioner pressed in some cases the 'right'response would appear; but in other cases if the questioner pressed, the child would think that he had misunderstood the nature of the task and would be thrown off for the next three or four questions when he was on the right track in the first place. With pre-training this variable could be minimized.

5.5 In the present study there was also no control on the responses that the questioner made to the children. On some questions there was no response and on some there was a 'good'or 'that's right'.

5.6 The use of stress was also not controlled. The questioner sometimes used normal stress patterns and if the child did not catch a word, then the questioner would repeat the question with an exaggerated stress pattern emphasizing the word being tested for. Sometimes this exaggerated stress pattern would be used the first time. The difference in the use of the stress patterns was to make the children more aware of the word being looked for. It was felt that this would not give a facility with the suffix if it was not already present for the child. But perhaps the exaggerated stress pattern should have been used with more consistency. This might have improved the scores in some cases.

5.7 The pictures probably did help the younger children focus their attention on the task. But in many cases they worked to a disadvantage. The child thought that the question was about the picture. The pictures should be more non-representational. Some of the older children looked at the examiner constantly and did not use the pictures at all. If pretraining is included in the test situation, it might be possible to give the test without the pictures at all. This probably would be an optimal condition.

5.8 In constructing the nonsense items, care should be taken to avoid alliteration that causes pronunciation problems for some children and thus injects an extraineous element into the test situation.

5.9 The complexity of the test questions can be reduced by using only one nonsence word in each question. The questions used often had two nonsense words in them. This was done to make the question more a formal exercise.

"This zigger is easy to tring."

But the use of a general or generic word might do just as well and reduce the difficulty for younger children.

"This toy is easy to tring."

Appendix A

This test has two parts and will take about five minutes. In this part we will ask you to give us a word or to explain something. Some of the questions will seem very easy. This is because these questions are also being given to very young children. There is nothing tricky about the questions. Just give the obvious answer.

Real Words

1. When you go outside, you button up your coat. When you come inside again, what do you have to do to your coat?

2. George reread a story. He did it because he couldn't remember it the first time that he had _____it?

3. My back yard is bushy. What are there a lot of in my backyard?

4. A baby rabbit is lovable. Janes wants one so that she can ____it.

5. A boy's shoe is untied. What will he have to do to his shoe to keep it from coming off?

6. Mother heated the soup, but now it is cold. In order to get it ready to eat, what will she have to do to it?

7. Jane has come in from outside with dirt all over her. He mother asked her how she got so _____?

8. Joan's mother bought some vitamins that can be chewed. These are called what kind vitamins?

9. Why can't you drink an unopened bottle of coke?

10. What would you do if you recounted a sack of nickels?

11. If a bed is sandy, what does it have in it?

12. If something is drinkable, what can one do with it?

In the following questions there are some words that you probably have never heard before. We are going to ask you to change them around some. Don't worry if you don't know what they mean. It isn't necessary to know their meanings in order to answer the questions. In some cases there is more than one answer possible. If you think of more than one, give all the answers you think of. The answers, however, always have some part of the new words in them.

Nonsense Words

13. This cat has wugs on his head, wugs on his body, and wugs on his feet. He has wugs all over him. He is a very ____ cat.
PMT How would you describe him?

14. This man has kented his boat. He didn't do a very good job, so he is going to have to kent it again. He is going to have to ____the boat.
PMT How else can you say he is going to have to kent it again?

15. When this man got home he found that his kids had glotted his whizzle all up. He doesn't want his whizzle glotted so he is going to have to ___ it.
PMT He is going to make the whizzle back like it was.

16. This zigger is easy to tring. Even little children can tring this zigger. It is a very ____ zigger.
PMT This zigger is very ____.

17. Sally is reknopping her kline because the teacher said she didn't do it right yesterday. John wasn't here yesterday so he is just starting to ____ his kline.
PMT If Sally is reknopping her kline, what is John going to do?

18. George unbicked John's simlach, but john didn't want his simlach unbicked. He told george that he wanted it ____ back again.
PMT If George unbicked it what would you have to do to get like it was before?

19. If this dun is very tamable, then it is very easy to ____ this dun.
PMT What could you do to a dun that is tamable?

20. This Yap is droonie. He has ____ all over him.
PMT What does he have all over him?

Now for these we don't have any pictures. You just tell us what pops into your head.

21. Mary has refigged her niz. Why do you suppose she had to refig her niz?
PMT What could refig mean?

22. Clarence unclaggified his radle. Why do you suppose he unclaggified his radle?
PMT What could unclaggify mean?

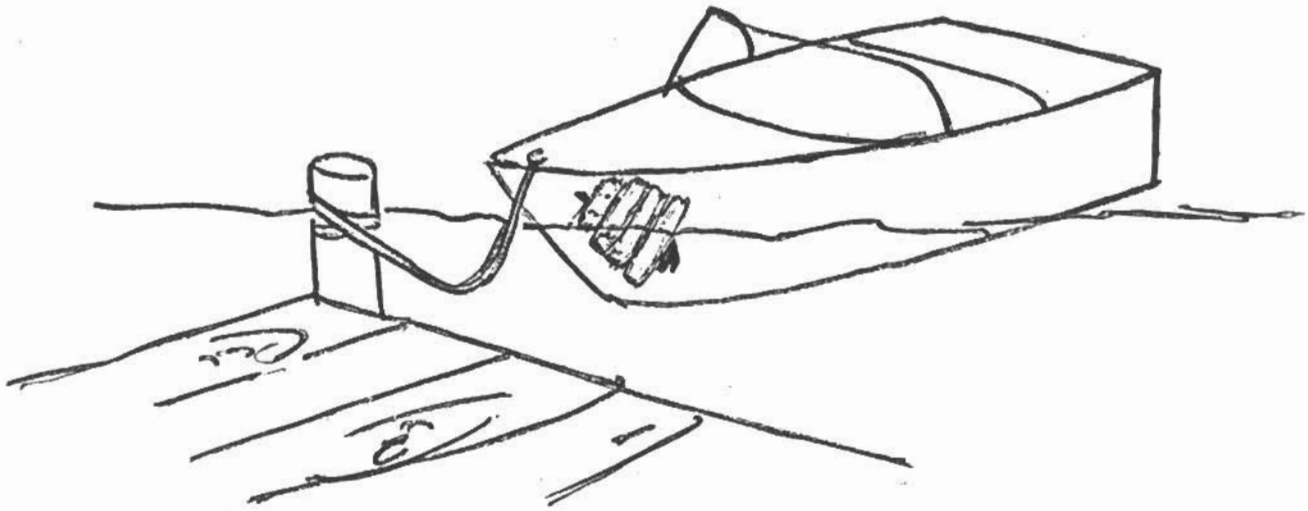
23. If a darf is drickable, what can be done to it?
PMT What could drickable mean?

24. What do you think a toopie dog would have all over him?
PMT What could toopie mean?

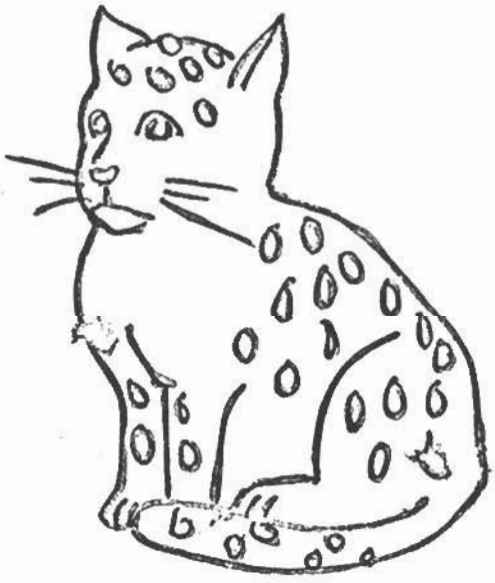
Appendix B

On the nest four pages are the pictures used with the first eight nonsense questions. The captions have been added to identify the picutre. They were not present on the cards used in the test.

Question 2. A man has kented his boat.

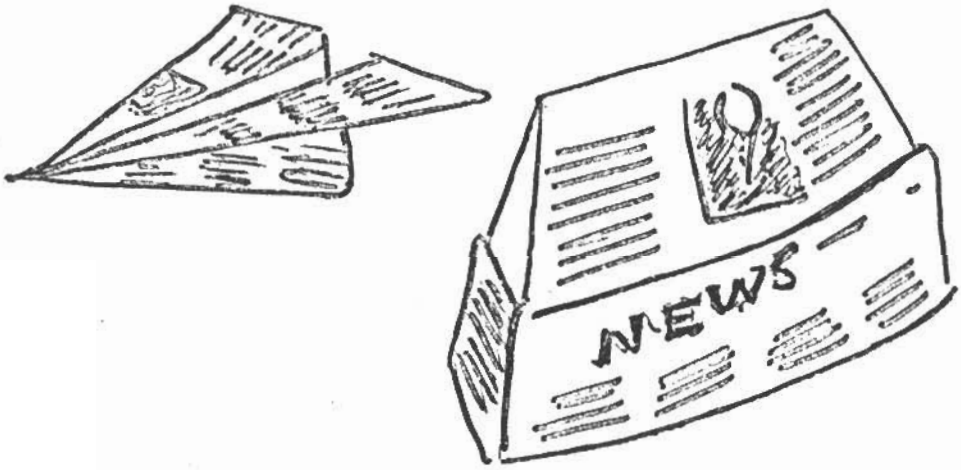


Question 1. This cat has wugs all over him.

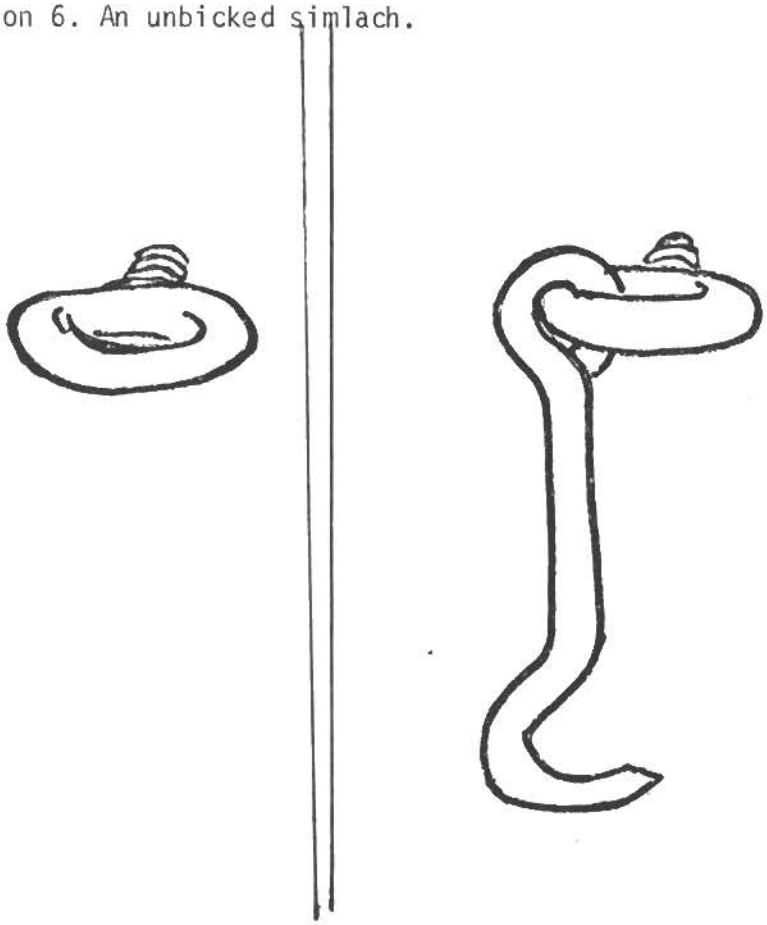


Question 4. This zigger is easy to tring.

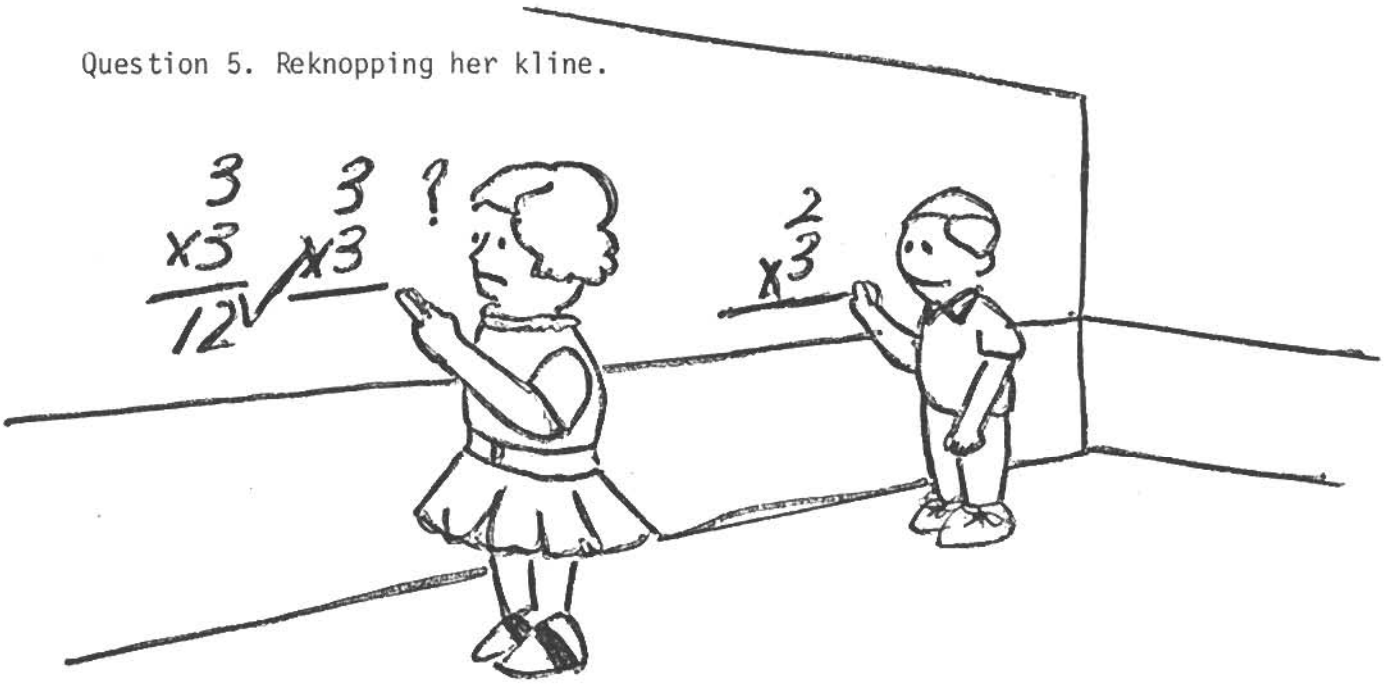
Question 3. A glotted whizzle.



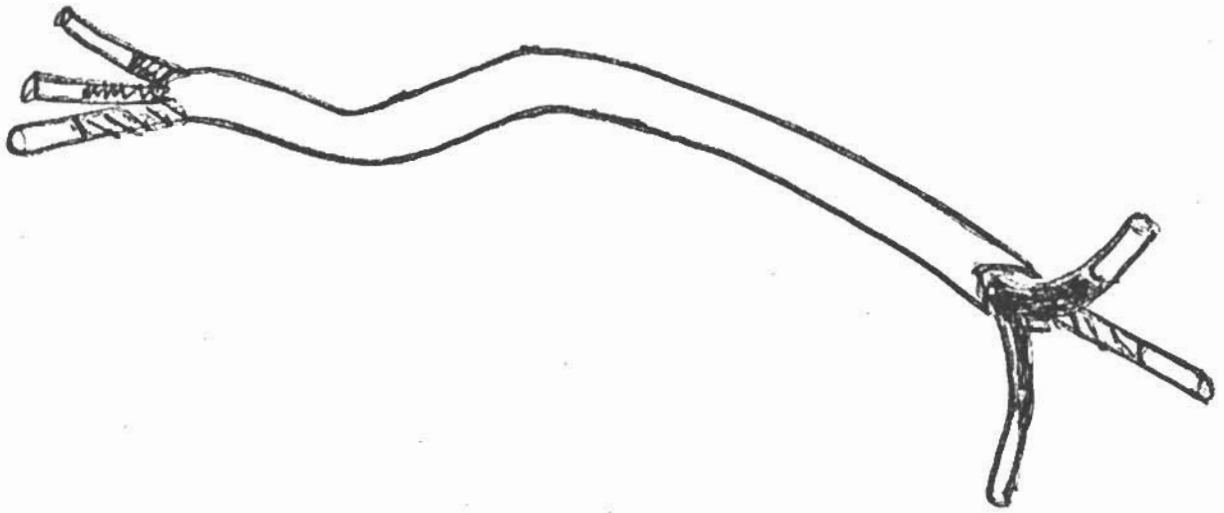
Question 6. An unbicked simlach.



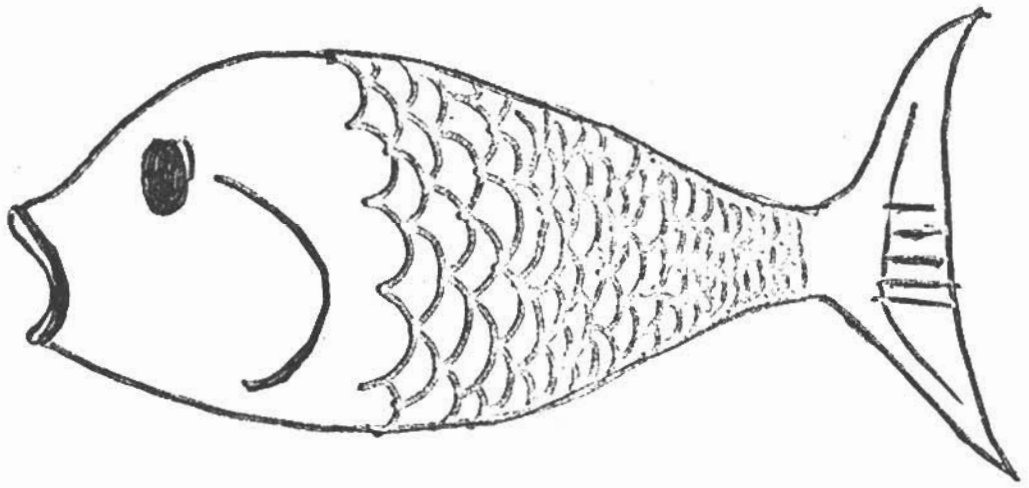
Question 5. Reknopping her kline.



Question 7. This dun is tamable.



Question 8. This Yap is droonie.



Footnotes

[1]I would like to thank the staff and students of Blackburn Elementary School for all of their help and cooperation.

References

Gleason, Jean Berko (1958). "The Child's Learning of English Morphology". Word 14: 150-177.