DOCUMENT RESUME

ED 077 025 CS 200 570

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TITLE A Test of Perception of Syntactic Alternatives. Studies in Language Education, Report No. 2.
INSTITUTION Georgia Univ., Athens. Dept. of Language Education.
PUB DATE May 73
NOTE 15p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Deep Structure; Grade 9; Grade 10; *Language Tests; *Linguistic Patterns; *Measurement Instruments; *Syntax; *Test Construction; Test Reliability; Test Validity

ABSTRACT

The O'Donnell "Perception of Alternate Structures Test" (P. A. S. T.) was designed to produce a more efficient measure of perception of syntactic features. Like Simons' "Deep Structure Recovery Test" (D. S. R. T.), the P. A. S. T. has two sentences in each item that are similar in underlying structure. Like the earlier O'Donnell "Test of Recognition of Structural Relationships in English," it employs nonsense vocabulary to encourage reliance on syntactic rather than lexical cues to structure. Of the thirty items on the test, two measure perception of the active-passive alternatives, two the indirect object-prepositional phrase options, six the relative clause-reduced relative variations, and two the adverbial clause-abridged adverbial alternatives. Six items deal with noun clauses-inifinitive-gerund phrase options. Although results from administering the test to 87 ninth-graders and 62 tenth-graders show reliability indices for individual items are low, the test reliability coefficient of .816 and the apparent validity of the test seem to justify its use until a better instrument can be devised. (See related documents CS 200 569, and CS 200 571.) (HS)

A TEST OF

PERCEPTION OF SYNTACTIC ALTERNATIVES

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Studies in Language Education, Report No. 2

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May, 1973

The need for a test to measure awareness of syntactic structure without relying on the terminology of grammar has long been recognized, and various attempts have been made to construct such an instrument. The success of these efforts in dealing with certain aspects of structure suggests the possibility of combining features of some of these instruments in another attempt to produce a more efficient test of perception of syntactic features. The results of such an attempt are described in this report.

Related Instruments

An innovative technique for measuring sensitivity to grammatical structure without using specific grammatical terminology was developed by John Carroll and used in one section of the Carroll-Sapon Modern Language Aptitude Test (1959). Correct responses to items in this section of the test depend upon the subject's ability to recognize similarity of function of a specified word in a sentence with that of a word in another sentence.

O'Donnell (1961) developed a fifty-item "Test of Recognition of Structural Relationships in English." This test was intended to measure ability to recognize various structural relationships of words in sentences without the use of grammar terms. Since the test was concerned with syntactic relationships, nonsense vocabulary was employed in order to exclude lexical meaning as much as possible. Normal English word order and function words were used to provide a distinctively English grmmatical structure, and derivational and inflectional affixes were used to give cues for distinguishing parts of speech. The test included items showing the relationships of head-word and modifier, of subject and predicate, of predicator and complement, of equivalent units in coordinate structures, and of units involved in cross-reference.

O'Donnell's structural relationships test was administered to 106 high school seniors. Statistical analysis yielded the following data: median score, 24; mean, 24.94; mode, 16; standard deviation, 8.72; split-half reliability coefficient (Spearman-Brown), .88; inter-item consistency coefficient (Kuder-Richardson), .86.

A similar test using nonsense vocabulary was developed by Woodward (1968). This "Nonsense Test of Structural Meaning" included sentences and short sequences of sentences to which subjects were required to respond in a variety of ways to show their comprehension of meaning conveyed by structural signals. Woodward's test consisted of six sections: Sentence Recognition, Sequence Signals, Sentence Kinds, Parts of Speech, Subjects and Objects, and Modifiers. On the basis of her experience with the nonsense-word technique of testing, Woodward suggested that such tests may be useful for establishing norms and tracing patterns in both normal and abnormal language development.

The techniques employed in the tests referred to above grew out of the study of structural linguistics. A more recent test constructed by Simons (1970) reflects insights from the study of transformational-generative grammar. Simons' "Deep Structure Recovery Test (D.S.R.T.)" consists of 25 items, each containing three sentences. Two of the sentences in each item are similar in deep structure; the remaining sentence, although similar to at least one of the other sentences in surface structure, has a different deep structure (and thus a different meaning). In taking the test, subjects are directed to indicate the sentence in each group which is different from the other two in meaning. In the following example, the asterisk indicates the desired response:

*a. What the boy would like is for the girl to leave.

b. For the boy to leave is what the girl would like.

c. What the girl would like is for the boy to leave.

The test described in this report is similar to the Simons test in its focus on similarities in underlying structure and to the earlier O'Donnell test in its use of nonsense vocabulary.

Descriptive Data

The O'Donnell "Perception of Alternate Structures Test (P.A.S.T.)" consists of thirty items of the three-option multiple-response type. Like the Simons' D.S.R.T., it has two sentences in each item that are similar in underlying structure. Like the earlier O'Donnell "Test of Recognition of Structural Relationships in English," it employs nonsense vocabulary to encourage reliance on syntactic rather than lexical cues to structure. Subjects were directed to indicate the one sentence in each item that is least like the other two in "meaning."

In the following example, the desired response is indicated by an asterisk:

a. The birtle scared the ilbid.

b. The ilbid was scared by the birtle.

*c. The ilbid scared the birtle.

Sentence c is least like the other two in "meaning," since the birtle does the scaring and the ilbid gets scared in both the other two sentences. Although ilbid and birtle lack lexical meaning, the syntactic cues distinguishing passive structures from their active equivalents are clear enough to establish the similarity of "meaning" in sentences a and b. More complex items can be found in the copy of the test included in the Appendix.

Of the thirty items on the test, two measure perception of the active-passive alternatives, two the indirect object-prepositional phrase options, six the relative clause-reduced relative variations (prenominal adjective,

participial phrase, and appositive), and two the adverbial clause-abridged adverbial alternates. Six items deal with noun clause-infinitive-gerund phrase variations, and the remainder of the items test various combinations of the options listed above.

The test was administered to 87 ninth-graders at Banks County (Georgia) High School in November, 1972. The mean score was 13.28 (maximum possible, 30), and the standard deviation was 5.46. The test was also administered to 62 tenth-graders in the same school for purposes of grade-level comparisons. The mean score for the tenth grade was 15.15.

Because of the lack of criterion tests with objectively established validity, no attempt was made to establish anything other than face validity. Reliability data, however, were computed by standard statistical procedures. Ninth-grade test scores were used in computing test reliability and item analysis data. Test reliability (Kuder-Richardson Formula 20) was .816. Item difficulty ranged from .816 to .126, with a mean of .440. Point biserial correlations of individual items with total test score ranged from .582 to -.125. Reliability indices for individual items ranged from .277 to -.062. Absence of higher reliability indices may be accounted for, in part, by the disproportionate number of low-ability students in the group tested. Approximately half of these ninth-graders were below the thirty-fifth percentile on the Cognitive Abilities, Verbal, section of ITBS.

Item analysis data are presented in detail in Tables 1 and 2.

Table 1

P.A.S.T. Item Information
Proportion of 87 Subjects Selecting Each Response

Item Number	Difficulty	Omit	Option a	b	c
1	.793	0.	.046	.161	.793
2	.126	0.	.126	.437	.437
3	.506	0.	.126	.368	.506
4	.322	0.	.414	.322	.264
5	.759	0.	.057	.184	.759
6	.368	0.	.368	.345	.287
7	.253	0.	.368	.253	.379
8	.782	0.	.057	.782	.161
9	.264	0.	.264	.529	.207
10	.483	0.023	.483	.184	.310
11	.207	0.011	.207	.310	.471
12	.241	0.	.057	.241	.701
13	.333	0.	.333	.368	.299
14	.598	0.	.115	.598	.287
15	.218	0.	.218	.402	.379
16	.241	0.	.241	.218	.546
17	.345	0.011	.391	.253	.345
18	.333	0.	.333	.506	.161
19	.345	0.	.149	.345	.506
20	.356	0.	.356	.462	.241
21	.586	0.	.092	.322	.586
22	.299	0.	.230	.299	.471
23	.816	0.	.057	.816	.126
24	.644	0.	.034	.322	.644
25	.598	0.	.207	.195	.598
26	.391	0.	.322	.287	.391
27	.460	0.	.425	.460	.115
28	.517	0.	.149	.517	.333
29	.678	0.	.161	.678	.161
30	.414	0.011	.149	.425	.414

Table 2

P.A.S.T. Item Analysis Information

Item Number	Proportion Answering Correctly	Standard Deviation of Item	Point Biserial Correlation with Total Score	Reliability Index
1	.793	.405	.462	.187
2	.126	.332	.418	.139
3	.506	.500	.454	.227
4	.322	.467	.582	.272
5	.759	.428	.382	.164
6	.368	.482	.542	.261
7	.253	.435	.532	.231
8	.782	.413	.409	.169
9	.264	.441	.561	.248
10	.483	.500	-.125	-.062
11	.207	.405	.317	.128
12	.241	.428	.183	.078
13	.333	.471	.513	.242
14	.598	.490	.204	.100
15	.218	.413	.340	.140
16	.241	.428	.522	.223
17	.345	.475	.477	.227
18	.333	.471	.451	.212
19	.345	.475	.556	.262
20	.356	.479	.375	.180
21	.586	.493	.551	.271
22	.299	.458	.445	.204
23	.816	.387	.442	.171
24	.644	.479	.481	.230
25	.598	.496	.123	.060
26	.391	.488	.167	.081
27	.460	.498	.494	.246
28	.517	.500	.554	.277
29	.678	.467	.053	.025
30	.414	.493	.415	.204

Although reliability indices for individual items are low, the test reliability coefficient of .816 and the apparent validity of the test seem to justify its use until a better instrument can be devised. At any rate, the test was used in an experimental project reported by O'Donnell and Smith (1973).

APPENDIX

PERCEPTION OF ALTERNATE STRUCTURES TEST

Directions: In each group of three sentences, indicate the one that is least like the other two in "meaning."

Sample: a. The birtle scared the ilbid.

b. The ilbid was scared by the birtle.

c. The ilbid scared the birtle.

In the sample item, sentence c is least like the other two sentences in "meaning." We don't know what a birtle is, and we don't know what an ilbid is; but in both a and b, we can tell that the birtle did the scaring and that the ilbid got scared. The sentences in this test use nonsense words, but you should be able to tell which sentence in each group "means" something different from the other two.

1. a. The bindle saw the duplon.
   b. The duplon was seen by the bindle.
   c. The duplon saw the bindle.

2. a. The barsil gave the molus the homon.
   b. The barsil gave the molus to the homon.
   c. The barsil gave the homon the molus.

3. a. The boskin that was sitting by the portis concealed the canis.
   b. The boskin sitting by the portis concealed the canis.
   c. The boskin was sitting by the portis that concealed the canis.

4. a. It was obvious that the kendis liked the dokis.
   b. The kendis that liked the dokis was obvious.
   c. That the kendis liked the dokis was obvious.

5. a. For the masil to see the femil was easy.
   b. It was easy for the masil to see the femil.
   c. For the femil the masil was easy to see.

6. a. It was fun for the dakus was teasing the modas.
   b. Teasing the dakus was fun for the modas.
   c. It was fun for the modas to tease the dakus.

7. a. It was fortunate that the thrap found the chud.
   b. The thrap that found the chud was fortunate.
   c. The thrap's finding the chud was fortunate.

8. a. The jandus decided to call the prinkas.
   b. The jandus decided that the prinkas would call.
   c. The jandus decided that he would call the prinkas.

9. a. While waiting for it was melus, the tagis bit the lestil.

   b. The tagis bit the lestil while waiting for melus.

   c. While it was waiting for melus, the tagis bit the lestil.

10. a. An artus dokas [illegible] learned plunning from his matros.

    b. The homos learned plunning from his matros, an artus dokas.

    c. The homos learned plunning from his matros, who is a[illegible]s [illegible]as.

11. a. It was lucky that the rabash that found the wigram was kind.

    b. It was lucky that the rabash that was kind found the wigram.

    c. It was lucky that the kind rabash found the wigram.

12. a. We were pleased that the magrip we met in the rinkin liked gerpers.

    b. We were pleased that we met the magrip in the rinkin that liked gerpers.

    c. That the magrip that we met in the rinkin liked gerpers pleased us.

13. a. It is not easy for a kirdil that is angry to handle a difficult mardon.

    b. It is not difficult for a kirdil that is angry to handle a mardon that is easy.

    c. For an angry kirdil to handle a mardon that is easy is not difficult.

14. a. We are happy that the barsil that was holding the waff on which we were sitting was strong.

    b. We are happy that the waff on which we were sitting was held by the barsil that was strong.

    c. We are happy that the barsil holding the waff we were sitting on was strong.

15. a. When a dunkle chases a blanner that goes fast, anyone can guess what the marbus will be.

    b. Anyone can guess what the marbus will be when a dunkle that runs fast chases a blanner.

    c. When a dunkle that goes fast chases a blanner, what the marbus will be can be guessed by anyone.

16. a. The nuplod pleased the lednib.

    b. The nuplod was pleased by the lednib.

    c. The lednib pleased the nuplod.

17. a. The sarbil sent the mohon the sulom.

    b. The sarbil sent the sulom to the mohon.

    c. The sarbil sent the sulom the mohon.

18. a. The skobin was standing by the stipor that covered the nisca.

    b. The skobin standing by the stipor covered the nisca.

    c. The skobin that was standing by the stipor covered the nisca.

19. a. That the disnek pleased the kadis was clear.

    b. The disnek that pleased the kadis was clear.

    c. It was clear that the disnek pleased the kadis.

20. a. For the melif the silma was hard to hear.

    b. It was hard for the silma to hear the melif.

    c. For the silma to hear the melif was hard.

21. a. It was fun for the samod to play the skuda.

    b. Playing the skuda was fun for the samod.

    c. It was fun for the samod was playing the skuda.

22. a. The prath's forgetting the dupper was unfortunate.

    b. The prath that forgot the dupper was unfortunate.

    c. It was unfortunate that the prath forgot the dupper.

23. a. The snadus hoped that he could hear the krindas.

    b. The snadus hoped that the krindas could hear.

    c. The snadus hoped to hear the krindas.

24. a. While it was riding on the crantos, the flinder saw the hastil.

    b. The flinder saw the hastil while riding on the crantos.

    c. While riding on it was the crantos, the flinder saw the hastil.

25. a. The sohon gives neslos to the sokon, who is a stodas tarstun.

    b. The sohon gives neslos to the sokon, a skodas tarstun.

    c. A skodas tarstun, the sohon gives neslos to the sokon.

26. a. It was good that the happy barsan saw the wamrah.

    b. It was good that the barsan that was happy saw the wamrah.

    c. It was good that the barsan that saw the wamrah was happy.

27. a. That the grimpan that they found on the rislin was a gronsil displeased them.

    b. They were displeased that they found the grimpan on the rislin that was a gronsil.

    c. They were displeased that the grimpan they found on the rislin was a gronsil.

28. a. For a happy drikil to manage a dromon that is easy is not difficult.

    b. It is not easy for a drikil that is happy to manage a dromon that is difficult.

    c. It is not difficult for a drikil that is happy to manage an easy dromon.

29. a. They were sorry that the rilbis supporting the ralt they stood on was unstable.

    b. They were sorry that the ralt on which they stood was supported by the rilbis that was unstable.

    c. They were sorry that the rilbis that supported the ralt on which they stood was unstable.

30. a. When a klennud that is slow follows a nerblan, what the barsun is can be seen by everyone.

    b. Everyone can see what the barsun is when a klennud that is slow follows a nerblan.

    c. When a klennud follows a nerblan that is slow, everyone can see what the barsun is.

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