University of Wollongong

Research Online

Vice-Chancellor's Unit

1997

Referential communication tasks: Performance by normal and pragmatically impaired children

Eeva K. Leinonen *University of Wollongong*, leinonen@uow.edu.au

Carolyn Letts

Follow this and additional works at: https://ro.uow.edu.au/vc

Recommended Citation

Leinonen, Eeva K. and Letts, Carolyn, "Referential communication tasks: Performance by normal and pragmatically impaired children" (1997). *Vice-Chancellor's Unit*. 54. https://ro.uow.edu.au/vc/54

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

Referential communication tasks: Performance by normal and pragmatically impaired children

Abstract

Two groups of children, a pragmatically impaired (PI) group and a group of language-normal (LN) age-matched peers, were compared by use of a referential communication task. Experimenter and child both played the roles of listener and instructor during the task and, in addition, the experimenter sometimes failed to give adequate information when in the role of instructor. Lexical content and structural complexity were controlled, and it was hypothesised that difficulties for the PI group would arise when in the role of instructor, as a result of failing to specify necessary information in order for the experimenter to respond appropriately. In fact, the main difference between the two groups arose when the experimenter failed to give adequate information to the child; the LN children were quick to realise this and to request clarification, whereas the PI children requested clarification to a lesser extent and appeared less aware of the need to do so. Possible explanations for this pattern of results are explored.

Keywords

impaired, children, pragmatically, normal, performance, tasks, communication, referential

Publication Details

Leinonen, E. K. & Letts, C. (1997). Referential communication tasks: Performance by normal and pragmatically impaired children. European Journal of Disorders of Communication, 32 (2s), 53-65.

Referential communication tasks: performance by normal and pragmatically impaired children

EEVA LEINONEN
The University of Hertfordshire, UK

CAROLYN LETTS
The University of Reading, UK

ABSTRACT

Two groups of children, a pragmatically impaired (PI) group and a group of language-normal (LN) age-matched peers, were compared by use of a referential communication task. Experimenter and child both played the roles of listener and instructor during the task and, in addition, the experimenter sometimes failed to give adequate information when in the role of instructor. Lexical content and structural complexity were controlled, and it was hypothesised that difficulties for the PI group would arise when in the role of instructor, as a result of failing to specify necessary information in order for the experimenter to respond appropriately. In fact, the main difference between the two groups arose when the experimenter failed to give adequate information to the child; the LN children were quick to realise this and to request clarification, whereas the PI children requested clarification to a lesser extent and appeared less aware of the need to do so. Possible explanations for this pattern of results are explored.

Key words: language-normal (LN), pragmatic impairment (PI), referential communication.

INTRODUCTION

Interest is increasing within the speech and language therapy and teaching professions in children whose deficits seem to lie with the use of language rather than with the processing of linguistic structures. These children have been described as 'semantic-pragmatic disordered' or 'pragmatically impaired'. Identification and description of this disorder is problematic. There is, at present, no assessment procedure that clearly identifies pragmatically disordered children, although there are procedures that evaluate pragmatic skill (Shulman, 1985; Dewart & Summers, 1988). Features of the disorder that are commonly mentioned in descriptions lack any obvious common underlying thread; typically, they include inadequate discourse and interactive skills, problems of interpretation where inference and non-literal language is involved, and problems of a more cognitive nature, such as inflexibility and obsessive interests (see, for example, the features listed by Culloden, Hyde-Wright & Shipman, 1986). These features overlap with those of autism and Asperger's syndrome; it is not clear to what extent these latter disorders are similar or the same as

semantic-pragmatic disorder (see Bishop, 1989, for a discussion of this problem). There is clearly a need for more focused description. It may be that a number of different underlying deficits account for pragmatic disorder, which would, in turn, account for the disparate features, or it may be that some underlying problem can be identified that would unite and explain all these features (see Smith & Leinonen, 1992, for further discussion).

Many studies that have focused on this subject population have been based on descriptions of behaviour patterns evidenced in natural communicative contexts (Culloden, Hyde-Wright & Shipman, 1986; Adams & Bishop, 1989; Bishop & Adams, 1989, Smedley, 1989). Such studies have tended to identify and address discourse features and, in particular, the 'appropriateness' of the child's contributions to ongoing conversation. Although this approach is in many ways a desirable one, it brings with it problems of reliability, in that agreement as to what constitutes pragmatically inappropriate behaviour may be difficult to find (Letts, 1990; Leinonen & Smith, 1994; Letts & Reid, 1994). Similar surface behaviours can reflect various underlying causes, and different clinical populations may exhibit rather similar communicative behaviours (McTear, 1985a; McTear & Conti-Ramsden, 1992; Smith & Leinonen, 1992). More targeted approaches are now being used to establish whether a clinical population exists whose primary deficit lies within the pragmatic sphere, and what the defining characteristics of this population might be (Bishop & Adams, 1991, 1992). Such approaches typically involve setting a task for a child that requires a pragmatic skill such as inferencing. Referential communication is one area that can be investigated in this way.

Referential Communication Studies

One aspect of pragmatic functioning which is believed to be problematic for pragmatically impaired (PI) children is that of providing too much or too little information for adequate processing by the listener to be possible (McTear, 1985b; Bishop & Adams, 1989). Referential communication tasks provide a way of examining children's sensitivity to the needs of the listener in communication, and thus of examining the child's potential for successful exchange of information.

These tasks have two characteristics which make them particularly valuable for looking at the PI child. Firstly, they incorporate aspects of realistic communication in the sense that one participant must make knowledge available to another participant, who cannot gain that knowledge from any other source; there is always some sort of barrier involved which prevents one participant from seeing materials that may be available to the other, and it is ensured that participants do not have prior knowledge of these.

The second important feature of the referential communication task is that it is, nonetheless, highly structured, and the researcher can control both the nature of the barrier between participants and the nature of the verbal response that is required for successful completion of the task. Variables such as vocabulary and structural complexity can be kept under control. Hence, from the point of view of this study, PI children can be put into a situation where there is a need to communicate and comprehend specific information, but where it is possible to control for the effects of grammatical and lexical

processing loads. Similarly, external distractions and potential sources of misunderstanding can be kept to a minimum.

The referential communication paradigm has been used extensively with normal child populations (Lloyd (1990) gives a short historical account). Typically, tasks involve arrays of items which vary on critical dimensions (for example, colour, shape, size) and from which the child must describe a specific item in a manner that will enable the listener to identify it. Participants are separated in some way so that the information given has to be precise; the listener cannot depend on any other cues. For example, Lloyd (1990) used a task which involved giving directions to get from one point to another on a map. Subjects communicated by means of a telephone link between different rooms.

Studies of children with specific language impairment (SLI) have also employed this paradigm. A study by Meline (1986) demonstrated that SLI children performed better than younger children with similar language levels, and performed as well as age-matched control subjects, suggesting that this sort of task may be more dependant on abilities other than structural linguistic ones. Bishop and Adams (1991) found that a group of SLI children performed less well than age-matched control subjects on a referential communication task. A subgroup of these children, those with the highest conversational inappropriacy indices (considered pragmatically impaired) performed equally to other SLI children. The referential communication task did not in this instance pick out those children judged insensitive to the needs of the listener in conversation. Bishop and Adams (1991) conclude that referential communication may not necessarily measure those aspects of communicative competence which are needed in everyday conversational encounters.

The present study examines referential communication in PI children and age-matched control subjects, within a more interactive paradigm than that used by Bishop and Adams (1991). However, in order to focus on information exchange, tasks that would involve too many uncontrolled social interaction variables were avoided (as might be the case with the telephone task used by Lloyd (1990), where children would first need to know how to conduct a conversation by telephone). We wanted to focus on the ability of a child to select and transmit relevant information within a limited communicative situation. This awareness of how much and which information it is necessary to give is one of the skill areas that (it has been hypothesised) underlies adequate pragmatic functioning. In addition, a more interactive element was added to the task in that the child needed to request clarification at certain points. The child was given feedback if he produced an inadequate or inappropriate message; this provided the child with an opportunity to learn more about the task as it progressed, and minimised the possibility of failure resulting from lack of understanding what was required. The researcher also gave inadequate messages at times, again giving feedback if the child appeared not to have noticed this.

The study represents a pilot stage in this work. Numbers of subjects involved are small, and only two groups of children are compared, pragmatically impaired and pragmatically normal age-matched control subjects who had no language impairment. It is felt that the results yield some interesting insights and pave the way for future larger-scale studies.

METHOD

Subjects

The subjects for this study were seven PI children attending special schools or units for severely language impaired children. They had all been diagnosed by a speech and language therapist as having a disorder of the semantic-pragmatic type. This diagnosis was made on the basis of commonly cited features of the disorder, for example, poor interactive skills, a tendency to provide too much or too little information in conversation, problems with non-literal language, rigid concepts and obsessive interests (see Culloden, Hyde-Wright & Shipman 1986; Bishop & Adams, 1989). In all cases, the disorder was not considered to be the result of a generalised learning disability or to be the secondary result of language disorder at other levels. Average age of the group was 7;4 (range 6;4–8;9). In addition, there was an age-matched control group of seven LN children all attending mainstream school and having no history of speech, language or hearing problems. Average age for the control group was 7;1 (range 6;3–7;9).

Since all the PI children were receiving speech and language therapy, it could be argued that any difficulty with the referential task would result from language problems with comprehension and with language processing for production. The nature of the referential communication task chosen, however, meant that it was possible to check both comprehension and production skills in terms of sentence length and grammatical complexity. It could then be seen whether poor performance was related to either of these factors, and thus whether non-pragmatic processing problems were playing a role.

The Task

The referential task used was based on an idea used in the *Derbyshire Language Scheme* (Knowles & Masidlover, 1982) 'Detailed Test of Comprehension'. Children and adults had a group of objects in front of them, and a stack of cards each. Each took turns to turn up a card from his pile and to instruct the other, who could not see the card, to arrange the objects according to the illustration on the card. The end result was then compared with the picture, and the two participants would then agree on whether the instruction had been carried out correctly. A total of 15 instructions were given by each participant. The objects consisted of a plate, cup and spoon, two sizes of bricks of three different colours, and pencils of three different colours. Vocabulary was thus limited to six common nouns (*brick, pencil, plate, cup, spoon, box*), the colour adjectives *red, blue, yellow*, the number *two* and the size adjectives *big* and *small*. To be carried out correctly, many of the instructions had to specify size and colour, as well as name the objects concerned. Subjects' comprehension of these vocabulary items was tested by means of a pre-test before the task began.

Grammatical structure was also controlled: all the instructions were of the form 'put the X Y', where X is a noun phrase, and Y a prepositional phrase. The noun phrase (NP) could be expanded, either by adding up to two modifiers before the noun (for example, 'the big blue pencil'), or by coordinating two NPs ('the spoon and the cup'), or by a combination of both, resulting in coordination of modified NPs ('the big blue brick and two yellow pencils'). In the task, the simplest instruction was of the form:

'put a blue pencil in the cup'

and the most complex was of the form:

'put the blue pencil and a large yellow brick on the plate'.

These are, of course, canonical forms; the child could choose to express the instruction somewhat differently, but there was a degree of control over the complexity of these idealised targets. The adult always used these forms when giving instructions. In addition, on five occasions the adult gave inadequate instructions, failing to specify size or colour where necessary. The aim here was to see whether the child would realise that the instruction was inadequate and initiate a repair (by asking for clarification), another area of communication that may pose problems where interactive skills are weak.

During the task, if the child gave the adult an inadequate instruction (i.e. one that was not specific enough to elicit a successful response), the adult would ask for clarification until such point as he could carry out the instruction, or it became evident that the child could not supply the necessary clarification. The child's instruction would be scored as inaccurate whatever the outcome of these requests for repair. If the adult gave an inadequate instruction and the child failed to ask for clarification it was pointed out that the child's response was incorrect and that the adult had made a mistake.

Appendix I contains the pre-test, full lists of target sentences for experimenter and child, and inadequate instructions given by the experimenter. A total of six (i.e. three instructions given by each) warm-up items were used at the beginning of the task, which were not subject to analysis.

Analysis

Performance was examined in the following four areas:

- 1. Accurate as opposed to inaccurate instructions given by the child.
- 2. The success or otherwise of the child's attempts to carry out adult instructions. (This gave an indication of the comprehension and general processing abilities of the child in respect to the relevant dimensions and instructions involved in the task.)
- 3. The use of clarification requests by the child, when given inadequate adult instructions.
- 4. The role of grammatical loading in the child's production of inaccurate instructions. This involved the number of coordinated noun phrases (NPs) needed in an instruction, and the number of modifiers (not counting determiners) required in an NP.

RESULTS

All subjects were able to complete the task, and all passed the pre-test. Interrater reliability of 0.97 was obtained by two raters scoring one of the PI children on variables 1–3 above. The Mann-Whitney test was used to make across-group statistical comparisons, whereas the Wilcoxon signed ranks test was used for within-group comparisons. It should be noted though that numbers of subjects are very small and therefore statistical results need to be interpreted bearing this in mind. Table 1 gives mean percentages of occurrence, for

each group, of the following variables: accurate instructions; successful responses; and use of clarification requests.

Table 1: Mean percentage (range) of occurrence for accurate instructions, successful responses and clarification requests

	Accurate instruction	Successful response	Clarification request*
Control group	84.76 (60–100)	93.33 (86–100)	85.71 (60–100)
PI group	64.47 (47–80)	82.22 (66–93)	22.86 (0-60)

^{*}Figures for clarification requests represent use of such requests where the adult instruction is inadequate.

Accurate versus Inaccurate Instructions

Overall, whereas the PI group was found to give fewer accurate instructions than the control subjects, this comparison was not statistically significant.

Success in Carrying out Adult Instructions

Again, the control subjects were somewhat more successful in carrying out instructions than the PI group, but this result was non-significant. Both groups gave statistically more correct than incorrect responses to adult instructions (p<0.05). Since the two sets of items (those given by the experimenter and those given by the child) were balanced grammatically (only differing in terms of vocabulary items, which came from a very small pool of items known to the child), it was possible to make direct comparisons between production and comprehension of items that were potentially identical structurally. Interestingly, there was no correspondence between items not fully understood and similar items not produced correctly. For example, in the PI group, subject LJ, responded to instructions incorrectly on four occasions and gave inadequate instructions herself six times. The same grammatical form was involved in both comprehension and production attempts in only two instances. Subject RI responded incorrectly twice, and gave inadequate instructions on three occasions. The same grammatical structure was involved for only one of these. The number of incorrect responses that matched inadequate instructions grammatically was no more than two for any subject. This suggests that individual differences in comprehension, at least as regards grammatical structure, were not great enough to influence overall results.

Clarification Requests

As regards clarification requests, two of the PI children failed to make any requests at all, and the maximum made by any individual in this group was three requests out of a possible five. This variable yielded a significant difference between the two groups (p<0.01). With the control subjects the pattern was very much that once the children realised the nature of the task, that the adult might try to 'trick' them by giving them inadequate information, they were very keen not to get caught out again. The PI children seemed much less aware of this; they did not give evidence of learning as a function of feedback from the adult (who pointed out that an inadequate instruction had been given).

Grammatical Complexity

Concerning grammatical complexity of target instructions a hierarchy of difficulty as follows was noted for the PI group:

- Type 1 (least difficult); simple sentence with one modifier in an NP, for example, 'put a red pencil on the plate'.
- Type 2; two coordinated NPs, one modifier in each, for example, 'put a red pencil and a yellow pencil on the plate'.
- Type 3; two coordinated NPs, one modifier in one NP, for example, 'put a spoon and the red pencil in the cup'.
- Type 4; two coordinated NPs, two modifiers in one NP, none in the other, for example 'put the spoon and a large blue brick in the cup'.
- Type 5; no coordinated NPs, two modifiers in one NP, for example, 'put the small yellow brick on the plate'.
- Type 6 (most difficult); two coordinated NPs, two modifiers in one NP, one modifier in the other, for example, 'put a yellow pencil and the small blue brick in the cup'.

Percentage items correct are reported in Table 2 for both groups of children. It can be seen that, with the exception of an odd result for structure Type 1 for the control group (brought about by one child making one error), the hierarchy of difficulty is the same for the control group. It was noted that for all the children, the number of coordinated NPs in the target had no major effect on the accuracy of instructions given. The presence of one versus two modifiers within an NP did have an effect such that any instructions involving two modifiers were produced less accurately.

Table 2: Items produced correctly as a function of grammatical structure

Structure type	No of structures of this type in task	Percentage correct: control group	Percentage correct: PI group
Type 1			
No coordinated NPs, one modifier in NP	1	86	100
Type 2			
Two coordinated NPs, one modifier in each	1	100	100
Type 3			
Two coordinated NPs, one modifier in each NP	2	100	92
Type 4			
Two coordinated NPs, no modifier in one NP, two modifiers in other NP	3	95	57
Type 5			
No coordinated NPs, two modifiers in NP	6	92	55
Type 6			
Two coordinated Nps, one modifier in one NP, two modifiers in other NP	2	57	28

DISCUSSION

The above results suggest that use of a referential communication task was to some extent successful in identifying areas of difficulty for the PI children. However, as regards giving adequate and appropriate instructions, the area where one might think that differences would emerge, the results are inconclusive. Although the PI group performed less well than control subjects on this aspect of the task, the difference in performance between the two groups was not significant. There could be two possible reasons for the poorer performance of the PI group. One would be an inability to select and transmit the relevant information required, a difficulty frequently reported in such children (Bishop & Adams, 1989) giving too much or too little information. The other explanation would be that the PI children were likely to have linguistic difficulties at other levels, and a more generalised language impairment may account for their performance. Most children identified by speech and language therapists as having semantic-pragmatic disorder will probably also have a history of general linguistic delay, resolved to greater or lesser extent. The fact that the PI children were not significantly behind the LN group in terms of producing accurate instructions suggests that it may be a problem of general language impairment that leads to this patchy performance. This possibility is supported by the fact that the PI group also performed less well than the control subjects, though again not significantly so, on carrying out instructions (suggesting comprehension deficits, although (as already indicated for this group) there appears to be no correlation between this aspect of the task and performance on production of instructions), and also by the finding that both groups were affected similarly by grammatical loading. These findings suggest that the PI children may have been performing in a way similar to the LN subjects, but less efficiently, rather than in some qualitatively different way.

It would be useful at this point to look a little more closely at the skills demanded by the production task. The problems encountered by PI children with the selection and transmission of relevant information are frequently attributed to a lack of ability to take the point of view of the listener; hence in the task used in this study it could be argued that the PI children would be unable to work out what information the adult needed in order to carry out the instruction correctly. Alternatively, it may be argued that the task merely involves simple description of the pictures and that the child need not be concerned with the communicative needs of the adult listener at all. Some evidence to support the latter view can be found in the fact that two of the PI children gave information in their instructions which, although accurate, was not strictly necessary. For example, they referred to 'the blue cup' when there was only one cup to be selected (subject RH did this in nine out of his 15 instructions, and subject LJ in four out of 15). None of the control group supplied unnecessary information of this kind.

If picture description is all that is required, the relevant skills will be, firstly, the grammatical ability to produce coherent instructions and, secondly, the cognitive ability to manipulate concepts such as size, number and colour. The fact that NPs with two modifiers, involving simultaneous manipulation of two such concepts, proved to be particularly problematical, suggests that cognitive factors interact with grammatical features here. Johnston (1992) reports on a task

involving identifying two items out of a set of three, by use of parameters of size and colour. Language-impaired children were able to identify the items, but formulated their descriptions differently from their non-language impaired peers. Combining two parameters in a well-formulated description was difficult, and Johnston (1992) suggests 'processing capacity' (p. 111) limitations are the problem here. However, in the present study, the PI children did not formulate different descriptions but rather could not formulate adequate descriptions at all. This may highlight more particular cognitive problems in PI children when compared to other language-disordered children. It is clear that future studies of 'pragmatic' difficulty need to compare normal subjects, PI children and other language-impaired children.

It should also be noted that Bishop and Adams (1991) found that PI children could not be distinguished from language-impaired children on the basis of performance on their referential communication task. These authors suggest that it may take more open-ended communicative tasks to reveal the specific difficulties of the PI child. However, there is one aspect of the performance of the PI subjects in the current study that is not easily explained in terms other than pragmatic impairment. This is their lack of response to inadequate information from the adult. In order to cope with this situation a child needs to first recognise that something is missing from the information he has been given, and then to formulate a clarification request. The clarification request has to be quite specific; that is to say it must highlight the piece of information that has been omitted.

There are three possible explanations for the poor performance of the PI group in this area. Firstly, experience of language comprehension deficit may lead to reluctance on the part of the children to ask for clarification. They may frequently have been in a position where they have failed to completely understand what is said to them, and have found that people grow tired of constantly responding to requests for clarification. Furthermore, these children may tend to locate the blame for poor understanding with themselves (as poor comprehenders) rather than with their interlocutor (for not having supplied adequate information). Brinton and Fujiki (1982) found that language-impaired dyads (aged 5:6-6:0) used clarification requests less frequently with each other than LN dyads of the same age. On the other hand, Leonard (1986), looking at language-impaired children matched for language stage (all at the one-word stage) to LN subjects, found a much wider range of conversational response patterns, including clarification requests, from the language-impaired children than from the much younger LN group. He suggests that the languageimpaired children have acquired conversational skills as a normal result of experience, and are only inhibited about using them where the linguistic demands of the situation are too great.

The second possibility is that the PI children were aware of the need for clarification requests, but because of linguistic and/or cognitive processing limitations, were unable either to locate accurately what they needed to know, or to formulate the request itself. However, if such limitations were at the root of difficulties for subjects producing clarification requests in the current study, one might expect some indication from the behaviour of the children that they were struggling to formulate the request, or at least were aware that they were acting on inadequate information. Such evidence was not apparent; the chil-

dren responded to these instructions in the same way that they did to the others. Where the PI subjects did ask for clarification there was no learning pattern apparent. Some requests appeared early in the task, whereas other instances where they were required were missed later. The LN children, on the other hand, were quick to learn from their mistakes. If they failed to ask for clarification the first time, they invariably made sure that they did on subsequent occasions, having learned from the feedback supplied by the adult.

The third interpretation of these results is that the children's tendency not to ask for clarification is a direct consequence of their lack of awareness that clarification is required. Whilst they carried out instructions, they did not seem to recognise that someone may make a mistake or deliberately withhold information. It may be said that there may be a lack of appreciation of the motives and/or shortcomings of others.

CONCLUSION

A group of PI children were compared to age-matched LN control subjects on a referential communication task. Results show that while the PI subjects performed less well than the control group on giving information, they nonetheless clearly could cope with the task and were able to to give the accurate information required in order for the adult to carry out instructions correctly. Difficulties encountered could be explained in terms of linguistic delay.

However, the PI group did show a lack of awareness of the need to ask for clarification when being given instructions. Unlike the LN subjects, who quickly adjusted to the idea that the experimenter would try to 'trick' them, the PI subjects appeared unable to learn from experience in this way. The fact that it is difficult to tease out effects on performance that may relate to pragmatic impairment or to general linguistic or cognitive limitations, illustrates the need for more in-depth evaluation of subjects in future studies of this kind. In particular, a profile of the linguistic and cognitive abilities of each subject needs to be drawn up in order to compare subjects who have different strengths and weaknesses in underlying areas.

ACKNOWLEDGEMENTS

Thanks are due to Wendy Huins and Johanna Goodson for collecting some of the data. Also to Margo Sharp of the Charles Burns Clinic, Central Birmingham Health Authority, for permitting some of the data to be collected there. This study was supported by a British Association for Applied Linguistics (BAAL) small research grant.

APPENDIX I

Referential Communication Task

Equipment

3 small bricks, red, yellow, blue
3 large bricks, red, yellow, blue
6 coloured pencils, 2 each of red, yellow, blue
plate
cup
spoon
box
relevant pictures

Pre-test

find the box
find the spoon
find a blue brick
find a yellow pencil
find a red pencil
find a large brick
find the cup
find a small brick
put the spoon in the box
put the cup on the plate
find two pencils
find the spoon and the cup

Test Proper

Consists of two picture sets, one where adult is instructor, one where child is instructor. Child and adult each has pile of pictures from relevant set, the three 'warm up' cards on top, the others organised at random. Each take turns to tell the other to arrange items as drawn on the cards. Adult to consistently say large, small, but to accept big, little from child. There are 15 test items. Five of the adult's instructions are inadequate in that size or colour are not specified.

Warm-up Items

(Child given help if necessary)

Set 1

- 1. Put the spoon in the box.
- 2. Put a blue pencil in the cup.
- 3. Put the small red brick on the plate.

Set 2

- 1. Put the cup on the plate.
- 2. Put a yellow pencil in the box.
- 3. Put the large blue brick in the cup.

Task

No further help given. Where child is instructor, adult follows child's verbal instructions, and asks for clarification (for example, 'which brick?') where necessary. Where adult is instructor, five items (indicated on back of card) lack sufficient specificity.

Set 1: Adult is instructor (pictures in random order)

- 1. Put the large red brick in the box.
- 2. Put the spoon and a yellow pencil in the box.
- 3. Put the spoon and a red pencil in the cup.
- 4. Put the two red pencils on the plate.
- 5. Put the small blue brick on the plate.
- 6. Put the large blue brick and a yellow pencil in the box.
- 7. Put the spoon and the large yellow brick on the plate.
- 8. Put a yellow pencil and the small blue brick in the cup.

- 9. Put a blue pencil in the box.
- 10. Put a red pencil and a yellow pencil in the cup.
- 11. Put the two (blue) pencils on the plate (blue omitted).
- 12. Put the spoon and the (small) red brick on the plate (small omitted).
- 13. Put the (large) blue brick in the cup (large omitted).
- 14. Put the spoon and the two (yellow) pencils on the plate (yellow omitted).
- 15. Put the (small) yellow brick on the plate (small omitted).

Set 2: Child is instructor (pictures in random order)

- 1. Put the small blue brick in the box.
- 2. Put the spoon and a red pencil on the plate.
- 3. Put the spoon and a yellow pencil in the cup.
- 4. Put the two blue pencils in the box.
- 5. Put the large red brick in the cup.
- 6. Put the small yellow brick and a blue pencil in the cup.
- 7. Put the spoon and the large red brick in the box.
- 8. Put a blue pencil and the large yellow brick on the plate.
- 9. Put a red pencil on the plate.
- 10. Put a blue pencil and a yellow pencil in the box.
- 11. Put the two red pencils in the cup.
- 12. Put the spoon and the large blue brick in the cup.
- 13. Put the small yellow brick on the plate.
- 14. Put the spoon and the two blue pencils in the box.
- 15. Put the large blue brick in the box.

REFERENCES

- Adams C, Bishop DVM (1989). Conversational characteristics of children with semantic-pragmatic disorder. I: Exchange structure, turntaking, repairs and cohesion. British Journal of Disorders of Communication 24: 211-240.
- Bishop DVM (1989). Autism, Asperger's syndrome and semantic-pragmatic disorder: where are the boundaries? British Journal of Disorders of Communication 24: 107-121.
- Bishop DVM, Adams C (1989). Conversational characteristics of children with semantic-pragmatic disorders. II: What features lead to a judgement of inappropriacy? *British Journal of Disorders of Communication* 24: 241-264.
- Bishop DVM, Adams C (1991). What do referential communication tasks measure? A study of children with specific language impairment. Applied Psycholinguistics 12: 199-215.
- Bishop DVM, Adams C (1992). Comprehension problems in children with specific language impairment: literal and inferential meaning. *Journal of Speech and Hearing Research* 35: 119-129.
- Brinton B, Fujiki M (1982). A comparison of request-response sequences in the discourse of normal and language-disordered children. *Journal of Speech and Hearing Disorders* 47: 57-62.
- Culloden M, Hyde-Wright S, Shipman A (1986). Non-syntactic features of 'semantic-pragmatic' disorders. In: Advances in Working with Language Disordered Children. London: ICAA.
- Dewart H, Summers S (1988). The Pragmatics Profile of Early Communication Skills. Windsor: NFER-Nelson
- Johnston JR (1992). Cognitive abilities of language-impaired children. In: P Fletcher, D Hall (eds). Specific Speech and Language Disorders in Children. London: Whurr.
- Knowles W, Masidlover M (1982). Derbyshire Language Scheme. Derby: Derbyshire County Council.
- Leinonen E, Smith BR (1994). Appropriacy judgements and pragmatic performance. European Journal of Disorders of Communication 29: 77-84.
- Letts CA (1990). The problem of reliability in the assessment of semantic-pragmatic disorder. *Proceedings of the Conference on Child Language Disorders*. Trondheim: The Norwegian Centre for Child Research, pp. 122-136.

Letts CA, Reid J (1994). Using conversational data in the treatment of pragmatic disorder in children. Child Language Teaching and Therapy 10: 1-22.

Leonard LB (1986). Conversational replies of children with specific language impairment. *Journal of Speech and Hearing Research* 29: 114-119.

Lloyd P (1990). Children's communication. In: R Greve, M Hughes (eds). *Understanding Children: Essays in Honour of Margaret Donaldson*. Oxford: Blackwell.

McTear MF (1985a). Pragmatic disorders: a question of direction. British Journal of Disorders of Communication 20: 119-128.

McTear MF (1985b). Pragmatic disorders: a case study of conversational disability. British Journal of Disorders of Communication 20: 129-142.

McTear MF, Conti-Ramsden G (1992). Pragmatic Disability in Children. London: Whurr.

Meline T (1986). Referential communication skills of learning disabled/language impaired children. Applied Psycholinguistics 7: 129-140.

Shulman B (1985). Test of Pragmatic Skills. Tucson, AZ: Communication Skill Builders.

Smedley M (1989). Semantic-pragmatic disorder: a description with some practical suggestions for teachers. Child Language Teaching and Therapy 5: 174-190.

Smith BR, Leinonen E (1992). Clinical Pragmatics. London: Chapman & Hall.

Address correspondence to Dr CA Letts, Department of Linguistic Science, Faculty of Letters and Social Sciences, The University of Reading, Whiteknights, PO Box 218, Reading RG6 6AA, UK.

Received November 1994; revised version accepted February 1996.