Profiles of semantic-pragmatic disorder and the investigation of underlying psychological mechanisms

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Vol II

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Appendix I
An overview of Phase One assessment procedures

Test for the Reception of Grammar (TROG) (Bishop, 1982)

This test of verbal comprehension follows a picture-pointing format. For each item, the child is presented with four coloured line drawings. The examiner reads a word or sentence aloud and the child is required to select the picture which he thinks best illustrates that word/sentence. Items are organised in blocks of four and each block taps a different grammatical structure. The structures tested range in complexity from singular nouns and verbs to relative clauses and embedded sentences. There are twenty blocks in total. A raw score is calculated on the basis of the number of blocks passed. The child must answer all four items in a block correctly in order to be credited with a pass. The test is discontinued when five consecutive blocks have been failed. The raw score can be translated into an age-adjusted percentile range, an age equivalent and a standard score. Standardised norms are available for British children aged between 4 and 12 years.

British Picture Vocabulary Scale (BPVS) (Dunn, et al., 1982)

This test of receptive vocabulary is also a picture-pointing task. Again, the participant is presented with four line drawings (in black and white) and is required to select the picture which represents the stimulus word spoken by the examiner. A raw score is calculated on the basis of the total of number of items passed. This can be converted into a standard score, percentile rank and age equivalent score. The test was standardised on a population of British children. Norms are available for children between the ages of 2;11 to 18;1.

Test of Word Finding (TWF) (German, 1989)

The TWF assesses five aspects of word-finding ability: picture naming of nouns, picture naming of verbs, picture naming of categories, sentence completion naming and description naming. In the picture naming tasks the child is presented with a picture and simply required to name it. In the sentence completion task the child has to provide the last word of sentences that are spoken by the examiner; and in the description naming task the child is given a description of an object by the examiner and is asked to name it. Examples of items from description and completion tasks are given below. In each sub-test correct responses are awarded one point. Any items that the child is unable to name are then assessed for comprehension and the percentage of known words named correctly is calculated. If this exceeds 95% the scores from each sub-test are added together to produce an overall 'accuracy' raw score. If not, a pro-rated accuracy score is derived from the percentage of known words named correctly. In each case, the resulting score can the be translated into a standard score and a percentile rank with reference to American norms. The test is suitable for children between 6 and 12 years. Speed of response can also be analysed but this was not done in the present study.

Sample Items:

    Sentence completion: *On your cake you blow out your birthday (candles)*
    Description naming: *What floats in the sky, may be full of rain and is grey or white? (cloud)*

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Clinical Evaluation of Language Fundamentals - Revised (UK Version) (CELF-R (UK)) (Semel, Wiig, & Secord, 1994)

The CELF-R comprises six 'compulsory' sub-tests and five supplementary ones. Only the compulsory ones were administered in this study. Three of these tap aspects of receptive functioning and three, expressive. Each sub-test yields a raw score which is then converted into a standard score and percentile rank, with reference to American norms. The standard scores are then used as the basis from which to calculate receptive, expressive and total language scores. An overall age equivalent score can also be derived. Norms are available for children between the ages of 5 to 16 years. In this UK version, the stimulus materials have been Anglicised. The same American norms are used for the conversion of scores. An outline of each of the sub-tests is provided below.

Receptive Sub-tests

Oral Directions

Description:	The child is required to act on spoken commands of increasing length and complexity which concern printed black and white shapes. The order of actions specified in the command must be adhered to for a response to be scored as correct.
Examples:	Point to the black circle: point to the white square.
	Point to the last small black circle to the left of the big black square.

Word Classes

Description:	Four words are read aloud to the child who has to decide which two 'go together'. Practise items are given before the test commences. Each correct response is credited with a point.
Examples:	*tiger lion* tree baby
	before when after *under*
	happy *rainy windy* slowly

Semantic Relationships

Description:	This task assesses the child's ability to understand four different types of semantic relationship, namely comparative, spatial, passive and temporal. The examiner reads the child an incomplete sentence and the child has to select two correct written (and spoken) responses from an array of four. Both responses must be correct for the child to earn a point.
Examples:	Footballs are bigger than *bicycles/ pencils / apples / cars.*
	The elephant sat on the mouse. The mouse was *under the elephant/ on top/ sitting down / on the bottom.*
	Jerry and Tom were pushed by Bob, and Sue helped. Who pushed? *Jerry /Tom / Bob / Sue.*
	Monday comes between *Saturday and Wednesday / Tuesday and Wednesday / Sunday and Tuesday / Thursday and Saturday.*

Expressive Sub-tests

Formulated Sentences

Description: The child is presented with a spoken stimulus word and is asked to use it to make a sentence. A stimulus picture is available for inspiration but its use is optional. For the last five of the twenty items the child is given two words which to use both in his response. Each response is scored on a scale of 0 to 3, depending on the number of syntactic and/or semantic errors it contains.

Examples: car; before; but; although; and/because; before/if

Recalling Sentences

Description: The child is required to repeat sentences of increasing length and complexity that are read aloud by the examiner. Responses are scored on a three point scale on which wholly accurate responses receiving 3 points and responses with 4 or more errors, no points.

Examples: The dog chased the cat.

The man who painted the railings was very kind.

The boy who didn't turn up for practice wasn't allowed to play in the team until a week later.

Sentence Assembly

Description: The child is presented with written sentences that have been split into mis-ordered chunks and is instructed to mentally re-arrange them in order to construct two sentences. Two sentence responses must be given for an item to be scored as correct.

Examples: the man - the dog - chased by - was

the girls - the boys - walking - were - with

the boy - the race - going to win - isn't

South Tyneside Assessment of Phonology (STAP) (Armstrong & Ainley, 1990)

This picture-naming task comprises 74 pictures. Altogether the target words contain all of the phoneme and clusters used in the Tyneside dialect of English, in all word positions. In clinical practice the results are analysed qualitatively. For the purpose of this study, the percentage of target words correctly was used as a broad measure of phonological functioning at single word level.

Bracken Test of Basic Concepts (The Bracken) (Bracken, 1984)

This test of the understanding of concepts consists of seven subtests, including school readiness composite (SRC), direction/position, social/emotional, size, texture/material, quantity, time/sequence. The SRC contains a series of items relating to colour, letter identification, numbers/counting, comparisons and shape. The child's score on this sub-test determines his starting point on the other sub-tests. Each sub-test yields a raw score can then be converted into a standard score, percentile rank and age equivalent.

The total test score is derived from the sum of the raw scores for each sub-test. Norms are available for children between the ages of 2;6 to 7;11.

The Bus Story Test (Renfrew, 1981)

The child is told a story about a 'naughty bus', using a standardised script, while being shown corresponding pictures. He is then asked to retell the story using only the pictures as cues. The child's account is audio-recorded, transcribed, and analysed for the amount of relevant information given, the number of subordinate clauses used and the average length of the five longest sentences[1]. The resulting scores are transformed into broad age equivalent scores using the normative data provided.

Language Assessment, Remediation and Screening Procedure (LARSP) (Crystal, Fletcher & Garman, 1976)

LARSP provides a framework for profiling the child's spontaneous grammatical output. Each of the child's utterances is analysed at clause, phrase, and word level. The results are recorded on a chart which is divided into seven developmental stages, as follows. Stage I (0;9-1;6); Stage II (1;6-2;0); Stage III (2;0-2;6); Stage IV (2;6-3;0); Stage V (3;0-3;6); Stage VI (3;6-4;6); and Stage VII (4;6+). At clause level Stages II to IV correspond directly to the number of clause elements. The procedure is intended for use with language impaired children from 3 to 7 years and charts the main stages of grammatical acquisition from 0;9 to 4;6.

British Ability Scales - Short Form (BAS) (Elliot, 1987)

The short form of this intelligence test consists of four sub-tests, two of which are verbal and two non-verbal. These are outlined below. Each sub-test yields a t-score and a percentile rank. IQ score then calculated on basis of mean T-score with reference to age norms. Details of the sub-tests follows.

Verbal Sub-tests

Digit Recall

The child is required to recall strings of spoken digits of increasing length.

Similarities

The child is given three class members (for example, skirt, hat, trousers) and asked to provide a fourth. He is also asked to supply the appropriate category label but it is only his ability to produce an exemplar that is scored.

Non-Verbal Sub-tests

Matrices

The child is presented with a series of figures which, together make up a pattern. A space is left for the child to draw the next figure in the series, as in the example below. One point is awarded for each correct response.

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[1] Only the first two of these scoring parameters were employed in the present study.
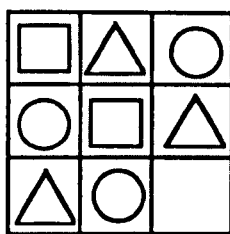
Speed of Information Processing

The child is required to identify the largest number of dots or the largest digit from an array, within a specified (but undisclosed) time period. Test items increase progressively in difficulty level. Responses are measured for speed and accuracy.

Childhood Autism Rating Scale (CARS) (Schopler et al., 1988)

The CARS comprises fifteen items. Each item concerns a different aspect of social or behavioural function, namely relating to people, emotional response, imitation, body use, object use, adaptation to change, visual response, listening response, taste/smell/touch response and use, fear or nervousness, verbal communication, non-verbal communication, activity level, level and consistency of intellectual response and general impressions. An observation is made about each item and a rating of 1(no abnormality) to 4 (severe abnormality) then allocated. Half-point scores can be allocated. This results in a minimum rating of 15 and a maximum of 60. The cut-off point for autism is a rating of 30; ratings between 30 and 36 indicate mild-to-moderate autism and ratings of 37 or above, severe autism.

Appendix II
Conversational Analysis

The two conversational coding procedures devised by Bishop & Adams are summarised, in turn, below. Quotation marks signify the original text.

Coding System I: Exchange structure, turn-taking and repair

Exchange structure

Initiation

"An item which begins anew and sets up an expectation of a response". There are two types of initiations:

Question	Utterances with the illocutionary force of a question or a request for action;
Statement	Utterances "where one speaker provides information in contexts other than in direct response to a request for information".

Response

Minimal	"Used for responses such as 'yes', 'no' or 'don't know', or the assumed non-verbal equivalents." These responses "provide no new information other than confirmation, denial or an inability to respond";
Extended	"Coded for any response that gives more information than just a minimal yes/no/don't know reply even if it consists of a single word".

Follow-ups

Serve to acknowledge the previous speaker's contribution.

Empty turns

Coded when the interlocutor fails to respond to an initiation. If any attempt is made to respond, this coding category is not used.

Unintelligible or Incomplete

'Unintelligible' is coded when the intelligibility was sufficiently impaired to preclude interpretation. 'Incomplete' utterances are coded as such.

Turn-taking

Gap
"Coded when there is a noticeable interval between the completion of the adult's utterance and the start of the child's".

Inadvertent overlap
Coded when the child interrupts at a point at which he has "legitimate reason to predict, on syntactic or prosodic grounds, that the adult had completed her turn".

Violating overlap
Coded when "the child simply cut [s] across in the middle of the adult's utterance".

Adult overlap
Coded when the adult interrupts the child with a response or an initiation but not when an adult follow-up overlaps child contribution.

Repairs

Repair behaviour is analysed when there is "a halt in the progress of the conversation while the speaker and listener confirm the preceding exchange." Adams & Bishop differentiate this from requests for further information.

Appropriate response
The child provides the adult with sufficient and appropriate information in response to a request for clarification.

Inappropriate response
The child fails to respond or fails to provide clarification.

Child request for clarification
Coded when the child asks for clarification.

Child self-repair
Coded when the child repairs or modifies his utterance to make it clearer.

Coding System II: The classification of inappropriate utterances

Expressive syntax/semantics

Used for "utterances where the sense of inappropriacy seemed to arise because of unusual syntax and/or semantics".

Failure to comprehend literal meaning

"Coded when the child gave a response that was not appropriate to the question asked by the adult, but to a related question".

Pragmatics I: Violations of Exchange Structure

Nil response
"Coded when there was an interval in which the adult waited for a response but the child produced nothing".

Ignored initiation	The child ignores the adult's initiation and instead continues on his own track.

Pragmatics II: Failure to use context in comprehension

Coded when interpretation is over-literal.

Pragmatics III: Too little information

Coded when the child gives the listener "too little information so that their meaning remains unclear".

Inappropriate presupposition	"Coded when the child's response omits one or more elements, apparently wrongly presupposing that the listener had knowledge of the 'elided' words".
Unestablished referent	"Coded when the child introduced a term whose reference had not be sufficiently well established for the listener".
Logical step omitted	Coded when "a logical step of the argument or a critical step in the sequence which the child is producing is omitted".

Pragmatics IV: Too much information

Coded when the child "provides unnecessary information to the listener".

Unnecessary assertion/denial	"Coded when a fact [is] unnecessarily asserted or denied".
Excessive elaboration	Coded when the child says "more in response to a question than was necessary".
Unnecessary reiteration	Coded when the child "reiterate [s] or confirm [s] a piece of information that has already been established".
Ellipsis not used	Coded when "an elliptical form is expected but not used".

Unusual or socially inappropriate content or style

Coded when there appears to be something atypical about the message which the child is attempting to convey.

Topic drift	Coded when a response is inappropriately tangential.
Unmarked topic shift	Coded when there is an abrupt and unmarked topic shift.
Stereotyped language	Coded when an utterance has "a stereotyped quality, as if [the child is] repeating information or a learnt construction".

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Inappropriate questioning	"Coded when a child asked a question that the adult could not possibly know the answer to, which was not they type of question typically asked about this topic, or to which the child already knew the answer".
Socially inappropriate remarks	"Coded when a child makes remarks which [are] over-friendly or over-personal".

Other

Coded when a child gives "a response that seems simply to reflect the fact that they do not know enough to be able to provide an adequate response".

Unclassified

Used for "unusual utterances which do not fall neatly into one of the [other] categories but which are too rare to rare to justify a separate category".

Comments on Adams & Bishop's coding systems

In this section, the two conversational coding procedures devised by Bishop & Adams are critically appraised. The relevant utterances in the examples have been italicised, as necessary.

System I: Exchange structure, turn-taking and repair

Comments concerning existing codes

Exchange structure

Initiation

The process of coding was confused when an initiation was repeated or paraphrased. It did not seem appropriate to code a second initiation because the repetition often signified a problem of some kind. When used by the adult, re-initiations tended to signal disruption to the conversational flow because of a failure on the child's part to respond, or to provide the information that had been requested (see the first example below). When used by the child, re-initiations tended to signal a tendency for excess elaboration.

A	do you have a favourite story?/ (9 seconds)	IS
	[child's name]/	IS
C	mmm/	RMv
A	*do you have a favourite story?/*	R-IS

C	sometimes there's Gnasher and Gripper/	IN
A	who's Gripper?/	R/IS
C	his other one/	RE
A	have they got two dogs now?/	R/IS
C	they've got Dennis so (..) it's there sometimes/	P

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A	oh right/	F
	is Gripper a dog?/	R-IS

Response

Coding was confused by the fact that some responses appeared to serve two functions. Not only were they directly related to, and prompted by, the utterance that immediately preceded them but they also set up the potential for a new exchange. Other researchers, such as McTear (1985) have recognised the presence of these "Response-Initiations" in their coding systems.

Unintelligible (Un) and Incomplete (X)

No problems were noted with the *Unintelligible* category. However, there were several occasions in which the researcher used an incomplete utterance as an intentional means by which to elicit a response. To exclude such utterances from the analysis because they were incomplete seemed inappropriate.

C	and I had two Toy Story ones/	C
A	*you had ---?/*	R/IS
C	two Toy Story ones/	RE

No problems were experienced with the categories of follow-up, continuation or empty turns.

Additional comments

Preliminary analysis of the conversations revealed a number cases in which it was difficult to assign a code. These are described below.

Side sequences

'Side sequences' occur when one or other of the speakers makes an initiation that is not directly related to the exchange in progress thus temporarily disrupting the conversational flow. They generally occur in the event of conversational breakdown or when one or other of the interlocutors is distracted by something in the environment (see examples below).

A	do you go swimming?/	
C	*hey look/*	[points to something in the picture]
	yeah	
	I do go swimming/	

A	so can you remember any of the things
	that you did at Butlins?/
	where's the missing piece?/
	I've been to somewhere like Butlins before/
	it was good fun/

A	what does she like to do?/
	what's her name?/
C	[*gives name*] /
A	[repeats name in acknowledgement]/
	what does [girl's name] like to do?/
	tell me about [girl's name]/
C	watches TV/

Side sequences like these caused problems for coding because they interrupted the conversational exchange.

Non-Verbal Contributions

Again, given the nature of the sampling procedure, it was not uncommon for an exchange to be set up by an action rather than a verbal initiation, as in the example below.

C	I had (..) I was (..) I was going (..) I does (..) I didn't wanted to wear one because I thought it was very strange/
A	right/
	[C passes A a completed picture]
	thank you /
	that's another one done/
	can you (..) do you mind doing a few more?/
C	no/

Ambiguities

There were some cases in which it was difficult to determine which code to use. In the examples below it was not clear whether the italicised utterances should have been coded as responses or initiations.

A	so what does she find in the bin?/
C	nothing/
	she has a dream about him tugging it/
A	a dream with what in it?/
C	*the man tugs the bag and the cat tugs the bag/*

A	oh what, to follow Mog so that he can get Mog's food?/
	(3 secs)
	is that how it finishes?/
C	*they eat some (..) things (the) thrown out /*

Word-finding difficulties

On occasions, the coding process was confused by the child's difficulty in recalling a word because this prompted the use of verbal strategies (by both interlocutors) for which there was no appropriate code. Consider the examples below.

```
A     what did you do?/
C     what did we do? /
      I can't remember now/
_____

A     what's that?/
C     that (.) he's a name/
A     who is he?/
C     who is he? /
      oh no!/
      he um (.) he works here/
_____

C     and over there there's a /s/ (..) there's a (..) what's that
      called?/
A     can you remember? /
C     no /
A     Worzel Gummidge was one /
C     mmm /
A     it's a sc --- /
C     sc --- /
A     scare-cr --- /
C     scarecrow/
A     well done! /
```

Double coding

Finally, there were some instances in which more than one code appeared to apply equally.

Turn-taking

No problems were encountered with the codes described by Adams & Bishop (1989).

Repair

Adams & Bishop (1989) analyse the child's ability to deal with conversational breakdown by assessing his ability to adopt repair strategies. In particular, they consider the child's ability to request clarification from the adult and to respond to requests for clarification made by the adult. The value of establishing how well a language-impaired child is able to deal with conversational breakdown is without question since it is a skill which is likely to be called upon with relative regularity. However, doing this without considering the child's ability to deal with requests for information in general is limiting because it fails to account of the fact that a specific problem in dealing with requests for clarification may have different theoretical and clinical implications than one which is part of a more general problem in responding to requests for information.

System II: The Classification of conversational inappropriacies

In Adams & Bishop's system inappropriate use of discourse devices is coded under the category of expressive syntax/semantics. In the following example, taken directly from their paper, it is the child's choice of discourse device that is at fault.

> A   so you usually go to France by boat/
>   do you take your car on the boat?/
> C   yes/
>   of course, we went from Dover/

However, preliminary analysis of the transcripts obtained in the present study indicated a different type of problem with discourse devices. That is, it was the sense of rigidity that the use of these terms conveyed about the child's understanding of the world, rather than simply the way in which they are used, that was striking.

> A   so you always go to France by boat/
>   do you usually take your car on the boat?/
> C   yes, of course/
>
> ___
>
> A   so do you usually go to France on holiday then?/
> C   well no-one usually goes to France do they/
>
> ___
>
> A   can you swim?/
> C   of course I can/
>   I'm ten/

Failure to comprehend literal meaning

There was some confusion as regards to which utterances to code under this category and which to code as instances of topic drift.

Pragmatics problem II: Failure to use context in comprehension

Although Bishop & Adams (1989) do not delineate sub-categories within *Failure to Use Context*, the examples that they give could be said to fall into two distinct sub-categories. The first concerns a failure to appreciate the illocutionary force of the utterance and the second, a problem providing the right sort of information. Consider the following examples, taken directly from Adams & Bishop (1989).

> A   can you tell me about your party?/
> C   *yes /*
>   (with no signs of continuing)
>
> ___

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A	how did you get to your holiday in Campomor?/
C	by car/
A	by car?/
	who drove you?/
C	and aeroplane/
	of course aeroplane/
A	plane/
	so it's not in England/
C	no/
A	where is it?/
C	*Campomor* /

In the first example, the child fails to make a non-literal interpretation when one was required and instead makes a direct translation of the utterance on the basis of its syntactic form. In the second example, it would appear that it is not so much the child's ability to appreciate non-literal meaning that is at fault as his ability to tune his response to the linguistic, situational or experiential context in which it occurs. In this case, the response is unsuitably 'specific' but it is also possible for a response to be too broad, as the following examples show.

A	who gives you presents?/
C	sometimes people do/

A	where did you go swimming?/
C	in the swimming pool/

Pragmatics problem III: Too little information

The three codes proposed by Bishop & Adams within this category - namely, *Inappropriate Presupposition, Unestablished Referent* and *Logical Step Omitted* did not pose any direct problems for the coder. However, there were several occasions when, although it was clear that too little information had been provided by the child, none of the available codes appeared to apply. For example, there were some instances in which a child was inappropriately vague or in which he provided a single piece of information when it would be more usual to provide a list. Given the age and language level of the children concerned, this behaviour stood out as anomalous. Some examples are given below.

A	what do you do in music?/
C	lots of things/

A	what do you do in music?/
C	listen to the CD/

A	which sports to you do at school?/
C	cricket/

Pragmatics problem IV: Too much information

No problems were encountered with this category, nor that of unusual content/style.

Other problems

In Adams & Bishop's system, this category is intended for cases in which the sense of oddness appears to stem from a lack of experience on the part of the child. They provide the following excerpts by way of illustration:

A	would you say that's a good place to break down?/
C	[shakes head]/
A	why not?/
C	it's not good/

A	would you say that's a good place to break down?/
C	no, not really/
A	why not?/
C	cos it's only a small it's only a small road - but you can park - you can push your car out of the way/

Since the first of these examples was taken from the transcript of a normally developing four-year-old, it would seem reasonable to explain the child's behaviour in terms of limited knowledge. However, had the same exchange involved an older language-impaired child, there are a number of alternative explanations which would need to be considered. For example, the child may have had a difficulty interpreting 'why' questions or may have lacked the necessary expressive skills to formulate a response to the question of that kind. Alternatively, such a response might reflect overall non co-operation rather than an inability to respond because of lack of knowledge. Thus to attribute lack of experience as the underlying cause in exchanges such as these may be misdirected.

The second of Adams & Bishop's examples also poses problems for interpretation. When asked why it would not be a good place to break down the child replied that the road was too small. In the event of a breakdown a small road can mean one of two things; that the broken down vehicle is likely to cause an obstruction and/or that help may not be readily at hand. As such, the child's assertion would appear to be a sensible one. Presumably, then, it is the child's suggestion that the car could be pushed out of the way that is at issue because it would seem to conflict with the fact that the road is small. However, this observation strongly suggests that the child *does* have knowledge and/or experience of a breakdown scenario.

Additional comments

A number of inadequate contributions were identified that did not appear to fit into any of Bishop & Adams' categories. In each case, the rules of exchange structure were adhered to, the appropriate amount of information was provided and there was nothing particularly untoward about the content of any of the utterances or unusual about the style in which the information was been conveyed.

Rather, the child simply appeared to have opted out. Some examples are given below.

A	which games did you play?/
C	don't know/

A	how do you play it?/
C	I don't know/

A	did you have chips for lunch?/
C	I don't know/

Another problem behaviour that arose on occasion was a tendency to provide information that contradicted that which had previously been asserted. This led to considerable confusion on the part of the listener. Sometimes the contradictory utterance occurred in close proximity to that which it challenged and sometimes at a distance.

A	do you like swimming?/
C	don't know/
	but I do/

C	there's sometimes in the Beano
	sometimes sweet on it/
A	what do you mean?/
C	weets on it/

↓ [1]

A	on the front?/
C	yes/

↓

C	not all the time they give you one/
A	just sometimes/
C	just the cover/
A	right/
C	*no sweet on it /*

---

1 The arrow signifies that a section of the original transcript has been omitted.

Details of modified coding systems

In view of the comments made in the previous section, a number of modifications were made to Adams & Bishop's (1989) coding procedures for use in the present study. However, the basic format of analysis suggested by Adams & Bishop (1989) has been retained.

System I: Exchange structure, turn-taking and information transfer

Exchange structure

The following exchange structure codes were assigned to each utterance on the first pass through the transcript.

Initiation

An utterance that seeks new information and creates the potential for a new exchange.

Soliciting Initiation (IS)

An utterance that seeks information and opens the potential for a new exchange by setting up the expectation of response. When a response is not provided there is a sense of interruption to the conversational flow. This category is very similar to Adams & Bishop's (1989) category of Initiating Questions, but different terminology has been chosen to emphasise the fact that a wide range of forms can be used to solicit a response.

Examples :

> I wonder whether your sister works
>
> does your sister work?
>
> does she work or is she still at school?
>
> she works at ...
>
> tell me about your sister
>
> is your sister younger or older than you?

As in Adams & Bishop's coding system, requests for action (such as *"guess what I did yesterday?"*) are also included within the category of soliciting initiations, as are vocatives which set up the expectation of a response.

Non-Soliciting Initiation (IN)

An utterance which provides information and opens the potential for a new exchange by creating the opportunity for a response but without demanding one, although some sort of acknowledgement is generally expected.

Examples :

I watched The Simpsons yesterday

I like tennis

I'm going on holiday soon

Although rhetorical questions generally take the form of soliciting initiations, they are coded as non-soliciting initiations because they do not set up a strong demand for a response and may, in fact, be answered by the speaker. If the speaker does provide his own response, it is coded as a continuation.

Examples :

C	where's the other bit?/	IN
	it's missing/	C
	a bit's missing/	C

Pre-initiations which set the context for the subsequent contribution are coded as non-soliciting initiations because an intervening response is optional. Any subsequent contributions by the same speaker are coded as continuations and any intervening response by the listener as follow-ups.

Examples :

C	you know why I like Sheffield Wednesday?/	IN
A	no/	F
C	because they score a lot of goals/	C

C	oh no!/	IN
	I'm sticking it in the wrong place/	C

It is possible for an initiation to be followed by another as in the examples below.

A	did you hear anything about it afterwards?/=	IS
	= did they get better?/	IS

A	I went to the circus yesterday/	IN
	have you ever been to the circus?/	IS

Re-Initiation (R-I)

An utterance which serves to re-assert a previous soliciting/non-soliciting initiation. These are usually used by the adult when the child has failed to respond, when an initiation has been met with another initiation or a tangential response. They are also used when insufficient/contradictory information has been provided so that additional information must sought or a request for clarification made in order to prevent the conversation from breaking down. A distinction is made between soliciting and non-soliciting re-initiations (R-IS and R-IN, respectively) on the same grounds as those described above.

Examples :

A	do you have a favourite story?/	IS
	(9 seconds)	
	[child's name]/	IS
C	mmm/	RMv
A	do you have a favourite story?/	R-IS

C	sometimes there's Gnasher and Gripper/	IN
A	who's Gripper?/	R/IS
C	his other one/	RE
A	have they got two dogs now?/	R/IS
C	they've got Dennis so (..) it's there sometimes/	P
A	oh right/	F
C	is Gripper a dog?/	R-IS

Although more commonly used by the adult, re-initiations were sometimes used by the child. Occasionally they served the same purpose as those just described. More often they were used inappropriately to re-iterate a previous assertion.

Example :

C	and when I was .. and then I bought .. at dinner time I .. I had to wear an apron and I didn't wanted to because I thought it was quite odd/	IN
A	when?/	R/IS
C	/I/ /I/ when I was when it was dinner time to wear an apron and I thought it was very odd/	R-IN
A	today?/	R/IS
C	no .. no/	RMv
	in [name of old school]/	C
A	right	F
C	but I had to wear an apron but I didn't want it because I thought it was very odd/	RI-N
A	did all the children wear aprons?/	IS
C	yeah/	RMv
	except me/	C
	I had .. I was .. I was going .. I does .. I didn't wanted to wear one because I thought it was very strange/	RI-N

When the speaker re-formulates an initiation immediately a re-initiation is not coded. Instead, the contributions are treated as two consecutive initiations, as shown below.

A	do you like (.) is there any sport that you really like?/	IS
	which sports do you like?/	IS

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Response

An utterance that is directly related to the initiation that immediately precedes it.

Minimal Response (RMv and RMn)

A response "such as 'yes', 'no', or 'don't know' or the assumed non-verbal equivalents of nodding, shaking the head, or shrugging, which provides no new information other than confirmation, denial, or an indication of an inability to respond." (Adams & Bishop, 1989). On occasions, the speaker may add to the minimal response with words that do nothing more than to re-assert the confirmation or denial. In these cases, a minimal response is still coded (contrast the two examples given below).

A	is your sister bigger than you?/	IS
C	yes/	RMv

A	is your sister bigger than you?/	IS
C	yes, she is/	RMv

Minimal responses can follow soliciting initiations, soliciting re-initiations, follow-up/initiations or response-initiations (soliciting). Minimal responses that proceed non-initiating follow-ups are coded as follow-ups. Contrast the following examples.

C	I went to the shops/	IN
A	did you?//	F
C	yeah/	RMv

C	I went to the shops/	IN
A	you went shopping/	F
C	yeah/	F

Extended Response (RE)

Extended Response (RE) is coded when a response gives "more information than just a minimal yes/ no/ don't know reply, although it may consist of a single word. Where an utterance consisted of 'yes' or 'no' plus additional new information, this [is] coded as RE " (Bishop & Adams, 1989).

A	did you ride your bike?/	IS
C	yes, yesterday/	RE

Response/Initiation (R/I)

An utterance that is directly related to the initiation that immediately precedes it but which, itself, creates the potential for a further exchange. In general, these are synonymous with a request for clarification but they may also occur in lieu of a follow-up. Response/Initiation is not coded when there is an intervening contribution of any sort. Again, initiation type is noted.

Response-initiations that solicit a response are coded R-IS and those which do not solicit a response as R-IN.

A	do you ever read any books or watch any films?/	IS
C	don't know/	RE
A	I some*t ---/	X
C	* but I do though/	C
A	you do?/	R/IS
C	no/	RMv
	in bed sometimes/	C
	not always/	C
A	what, you sometimes read books in bed?/	R/IS

A	what's your dog called again?/	IS
C	I've got two dogs/	R/IN

A	do your parents drive then?/	IS
C	pardon?/	R/IS
A	your parents drive?/	R/IS
C	mum (..) not my mum but Daddy/	RE

Continuation

"An utterance which continues or adds to the previous utterance within a turn." These may last "beyond one turn, with adult follow-ups or (ignored) initiation intervening." Continuations can proceed initiations, responses and follow-ups. In addition, two or more continuations can follow one another.

Examples:

C	I don't go outside a lot/	RE
A	you don't like to play outside/	F
C	no/	F
	not when it's cold/	C

A	was it fun?/	IS
C	yes/	RMv
	you see soap go all over the windows/	C

Occasionally, a speaker continues of adds to the interlocutor's previous contribution. These instances are coded as follow-ups rather than continuations.

Examples:

A	how often do you have to take him for a walk?/	IS
C	goes by himself/	RE
	I went down to a football pitch near Dalton um ---/	C
A	and he runs/	F
C	and he went with me/	F

C	sometimes when the car's too (.) the aerial's too long it gets snapped off/	IN
A	and then you have to go to the garage and get it fixed/	F

Follow-up

An utterance which neither elicits nor provides information but which acknowledges a previous utterance by echoing or reinforcing information which has already been given. It may take the grammatical form of a question but differs from a soliciting initiation inasmuch as a response is optional. "There may be a sequence of two follow-ups across [or within] speakers." Corrections are also treated as follow-ups. The first of the examples below has been taken directly from Adams & Bishop (1989).

Examples:

A	what did you see there?/	IS
C	there was this massive great tank/	RE
A	a big one/	F
C	yeah/	F

A	what did you see there?/	IS
C	there was this massive great tank/	IN
A	a big one/	F
	wow, sounds good/	F

A	what did you see there?/	IS
C	a massive great tank/	IN
A	did you?/	F

A	where are the (..) where are these people?/	IS
C	in the petrol/	RE
A	yeah/	F
	they're in the garage aren't they/	F

Laughter and/or non-verbal exclamations may also be used to acknowledge the previous speaker's contribution and so these, too, are coded as a follow-ups.

C	because when they moved their /hau/ they got black and white (..) spo (..) a Dalmatian house/	C
A	oh right/	F
C	yeah/	F
A	a house specially for Dalmatians/	F
C	yeah/	F
A	[*laughs*]/	F

A	did they have any chocolate in them?/	IS
C	yup/	RMv
A	[*gasps*]/	F

When a speaker summarises a portion of discourse that has gone before prior to offering his own contribution the summary is coded as a follow-up. When two consecutive follow-ups are the same (in form or meaning) the second is left uncoded.

A	when's your birthday?/	IS
C	[gives date]/	RE
A	oh right/	· F
	that's right/	F
	that's right/	(uncoded)

Empty Turns

Coded when a child fails(s) to give a response when a response is expected. "If a child showed signs of trying to respond, for instance by saying 'er ...', then this was coded as an incomplete utterance."

Unintelligible

An utterance that is sufficiently unintelligible to make coding "dubious or impossible" is coded U and is not subject to further analysis. If the unintelligible portion does not preclude classification a code is allocated as normal.

Incomplete

An utterance that is incomplete is coded X and is not analysed further, unless it functions as a soliciting initiation.

C	and (..) and I had two Toy Story ones/	C
A	did you?/	F
	*did they have --- /	X
C	*no the same pictures/	C

C	and I had two Toy Story ones/	C
A	you had ---?/	R/IS
C	two Toy Story ones/	RE

Problem

An utterance which is problematic to code - usually because there does not appear to be a suitable code or because there is some ambiguity as regards the most appropriate code - is marked with a P.

A	so what does she find in the bin?/	IS
C	nothing/	RE
	she has a dream about a tug in it/	C
	(sounded like "she had a dream about him tugging it")	
A	a dream with what in it?/	R/IS
C	the man tugs the bag and the cat tugs the bag/	P

A	to follow Mog so that he can get Mog's food?/	R/IS
	(3 secs)	
	is that how it finishes?/	C
C	they eat some (..) things (the) thrown out/	P

In the first of these examples it is not clear whether the child's final utterance is a continuation of his previous contribution or whether it represents an effort to respond to the adult's intervening initiation. The second example prompts a similar debate, but this time the ambiguity is between initiation and response. In each case, the problem utterance is coded with P.

Turn-taking

Turn-taking was observed during a second pass through the transcript. Turn-taking codes were only allocated when gaps or violations of exchange structure occurred. For the most-part, the criteria described by Adams & Bishop (and presented below) were followed, without modification although with additional specification in some cases.

Gap (G)

"Coded when there [is] a noticeable interval between the completion of the adult's utterance and the start of the child's: the interval is arbitrarily fixed at --- or longer from the transcript. ... A gap [is] not coded when there [is] a pause in the middle of an utterance as the child groped for a word ... Nor [is] one coded if an interval persist[s] for so long that the adult resume[s] the conversation, without the child saying anything (not even er ---')."

Overlap

Inadvertent Overlap (I)

This is "coded when the child's utterance occur[s] ... at a point when the child had legitimate reason to predict, on syntactic or prosodic grounds, that the adult completed her turn, but then continued with a tag question or a fresh clause." In cases in which both interlocutors make simultaneous contributions both utterances are coded as Inadvertent Overlap.

Rule-Violating Overlap (V)

Coded when the child interrupts the adult's utterance at a point at which there is no reason to predict that she may have finished.

Adult Interrupt (A)

"This code [is] used to mark instances in which the adult interrupts the child with an initiation, continuation or response. If, however, an adult follow-up overlap[s] with the child's utterance, no code [is] given because it [is] seen to be normal conversational behaviour of an adult encouraging a child to converse."

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Transfer of information

The coding category of *Transfer of Information* is intended to replace the "Repairs" category used by Adams & Bishop (1989), in view of the comments made on page x. It is coded on a third pass through the transcript. Two broad categories of information transfer are delineated. The first concerns requests for information on the part of the adult and the second, requests for clarification (RQCLs). The primary focus of the latter is child responses to adult RQCLs but child RQCLs are also given some attention. Further sub-divisions are made with regard to each of these request types, as detailed below. Both super-ordinate categories are viewed with regard to the adequacy of the child's responses to the adult's requests. Codes are allocated to all soliciting initiations[2] made by the adult and the adequacy of the child's responses to those initiations then noted in accordance to the criteria detailed below.

Examples:

C	I watched Toy Story/		
A	Toy Story?/		(F)
	is that the film with Buzz Light Year in it?/		RIO

C	I watched Toy Story/	
A	did you?/	(F)

Requests for Information

The dichotomy outlined below was considered sufficiently sensitive for the purpose of this investigation but is not exhaustive.

Open Request for Information (RIO)

A request for new information which requires the listener to provide a response other than confirmation, denial, or indication of an inability to respond. It is recognised that some open requests allow the listener more freedom with regard to the content of their response than others. For example, the question "where did you go on holiday?" is less 'open' than "can you tell me about your house?" because the response options are more limited. However, both are coded as Open Requests for Information for the purpose of this investigation. Wh-questions, forced alternatives, sentence closure and "I wonder whether ..." type constructions are all included in this coding category.

Examples:

where did you go on holiday?

what is your favourite story?

what do you like to do when you're not at school?

---

[2] It was recognised that follow-ups may also serve to seek clarification in as much as they provide a means of checking that the message has been interpreted as was intended. However, only explicit requests for information or clarification were included in the analysis of information transfer.

Request for Information - Confirmation (RIC)

A request for new information which requires a yes/no response.

Examples:

> do you like sport?
>
> are you going on holiday this year?
>
> do you do swimming in school?

Requests for Clarification

For the purpose of this investigation requests for clarification are defined as a request for information that is essential for the correct interpretation of the speaker's intended message. That is, they seek to clarify that which has already been asserted; if the information that they seek is not provided, interpretation is precluded. There are other instances in which the adult requests additional information from the child which are not coded as requests for clarification because the information that is being sought will add to that which has already been provided but is not *essential* to interpretation. These are coded as simple *Requests for Information..*

Examples:

C	and Mr (?) he said next door to em (.) next door to our (.) our (...) we had a crash	
A	uh-huh/	
C	with a man/	
	he stop in the road/	
A	when?/	RIO

C	and Mr (?) he said next door to em (.) next door to our (.) our (...) we had a crash	
A	uh-huh/	
C	with a man/	
	he stop in the road/	
A	he stopped where?/	RCS

Request for Clarification - Confirmation (RCC)

A request for confirmation or denial to clarify information that has already been provided. Generally, these involve the repetition or paraphrasing of part or all of the previous speaker's utterance in order to check that the message has been understood as it was intended.

A	what's Aladdin about?/	RIO
C	it about a street boy called Aladdin (? long stretch of unintelligible speech) and in the end they go on a carpet ride/	
A	they go on a carpet ride?/	RCC
C	yeah/	

Neutral Request for Clarification (RCN)

A request for repetition or revision of the previous speaker's last utterance, usually made because little or none of the message has been understood.

Examples:

C	I went (?) on (?)/
A	what?/ RCN
C	I went to the park on Saturday/

Specific Request for Clarification (RCS)

A request for the repetition or revision of a specific part of the previous speaker's last utterance.

Examples:

C   and I (..) I (.) I hope my friend's going to
get a video from the shop and hire it/
I like to play with him/³

↓

A   what (..) you said you can get what from the
video shop?/   RCS

C   computer games/
            computer games, you know/

A   what like Sonic you mean?/   RCC

C   yeah/

Child Request for Clarification (CRC-x)[4]

Any attempt made by the child to request clarification is also coded. As with the adult RQCLs, the type of request is noted.

A	I'm going on a train later/	
C	what?/	CRC-N

Responses to Requests for Information

For each of the above sub-categories of *Requests for Information* responses are coded as either *Adequate* (AR) or *Inadequate* (IR). The former code is allocated if the child's response provides the information that has been sought by the adult and does not create confusion or the need for clarification of any sort. It should be noted that, in some instances, a *Request for Information - Confirmation* can be appropriately met with a response other than affirmation or denial because the required confirmation is implicit in the

---

³ The arrow indicates an intervening stretch of discourse
[4] The x symbolises the fact that the type of child RQCL should be documented in the same way that it is for adult RQCLs.

information that is given in its place (see example below). For this reason, a response of this kind is judged adequate. As
the central concern is the transfer of information a response is judged to be adequate even if it is anomalous in form, as long as the above criteria are fulfilled.

A	do you do swimming in school?/
C	on a Monday/

Responses are judged *inadequate* if (i) the information provided by the child is not that which was sought by the adult; (ii) the response creates confusion on the part of the adult; (iii) the child responds with a "don't know" response to a question to which he would be expected to know the answer or to hold an opinion, given his chronological age and/or experience; (iv) the child fails to respond or ignores the request for information, instead pursuing a continuation or making an initiation; and (5) the information given is either too specific or too vague.

A	what did you do?/	RIO
C	what did we do?/	IR
	can't remember now/	

C	this week we're going to make fortune cookies/	
A	fortune cookies?/	
C	yeah/	
A	what are they?/	RIO
C	where you get a little message/	IR

A	what is your favourite programme?/	RIO
C	I don't know/	IR

C	I watched Toy Story/	
A	on video?/	RIO
C	and I ate some pop-corn/	IR

A	what is did you do at the weekend?/	RIO
C	did some things/	IR
A	what sort of things?/	RIO
C	went swimming/	AR
A	did you?/	
	where did you go?/	RIO
C	in the swimming pool/	IR

Responses to Requests for Clarification

As for the categories of *Requests for Information,* responses to requests for clarification are coded as adequate or inadequate. In order to be coded as adequate the information that is provided must be sufficient in detail to resolve the

confusion. The same reasons for allocating the code of inadequate as those described for *Requests for Information* apply.

Examples:

A	do you like sport?/	RIC
C	yeah/	AR
	football is my favourite/	

A	do you like sport?/	RIC
C	I don't' know/	IR

A	are you going on holiday this year?/	RIC
C	went to Majorca last year/	IR

Potential Coding Problems Explored

For the most part *Additional Problems with Coding* involved instances when there was some sort of disruption to the conversational flow which, in turn, interfered with the coding process. This section aims to indicate of how to deal with such instances.

Side Sequences

As a basic rule of thumb, the "interfering" contributions, which more often than not are initiations, are best dealt with as separate entities and then coding pursued as normal. Consider the following examples.

C	another of the games I've got on the CDI is Asterix/	IN
A	mmm/	F
	you're doing very well /	IN
	I've got some more [pictures] up there /	IN
C	(?1 syllable) I think um Rise of the Robots/	C

A	so can you remember any of the things that you did at Butlins?/	IS
	where's the missing piece? /	IN
	I've been to somewhere like Butlins before/	C
	it was good fun/	C

A	what does she like to do?/	IS
	what's her name? /	IS
C	*Amy /*	RE
A	*Amy /*	F
	what does Amy like to do?/	R-IS
	tell me about Amy/	C
C	watches TV/	RE

Sometimes side-sequences can result in a response being delayed, as in the example below. Again, the intervening contribution is coded independently of those which surround it and, when the response is eventually given, a response code allocated as normal.

A	do you go swimming?/	IS
C	*hey look! /* [points to something in the picture]	IN
	yeah/	RE
	I do go swimming/	C

Non-Verbal Contributions

The presence of non-verbal contributions also confused the coding process. In the example below, the adult's *"thank-you"* is prompted by the fact that she has been presented with a completed picture by the child. By definition, then, it is *directly related to the initiation that immediately precedes it* and so should be treated as a response. However, to view it as such in the absence of a verbal initiation could lead to confusion on the part of the coder and with regard to the interpretation of results. It was therefore decided to treat responses to non-verbal initiations as initiations for the purpose of this investigation.

C	I had (..) I was (..) I was going (..) I does (..) I	
	didn't wanted to wear one because I thought it	
	was very strange/	C
A	right/	F
	[*C passes A a completed picture*]	
	thank you/	IN
	that's another one done/	
	can you (..) do you mind doing a few more?/	
C	no/	

Repetitions

In cases in which a speaker repeats an initiation or response directly, in the absence of an intervening contribution from their interlocutor, only the first initiation or response is coded; the repetition is ignored. This is illustrated in the examples below.

A	why don't you like her sometimes?/	IS
C	*'cause I don't know why /*	RMv
	don't know why /	

A	why don't you like her sometimes?/	IS
	why don't you like her ?	---
C	'cause I don't know why /	RMv

The same applies to situations in which the speaker offers a second (novel) contribution before repeating his initial one, as in the following examples.

A	why don't you like her sometimes?/	IS
C	*'cause I don't know why /*	RMv
	because sometimes she (2.36) --- /	X
	don't know why /	---

A	why don't you like her sometimes?/	IS
C	*'cause she annoys me /*	RE
	she always takes my things /	C
	she annoys me /	---

In such cases, the intervening response is coded as normal. Note that this only applies when it is the same speaker's contribution that intervenes. When the intervening response is made by the other interlocutor the repeated contribution is more appropriately coded as a continuation.

Ambiguities and the Absence of an Appropriate Code

If there is any confusion with regard to which category a contribution should be assigned, either because of ambiguity between two seemingly appropriate codes or because of the absence of an appropriate code, then the problem code (P) should be allocated.

Word-Finding Difficulty

On occasions, coding was confused by the presence of word-finding difficulties because the behaviours that it can invoke in both adult and child can be troublesome to code. The two examples below are cases in point. In the first, coding is confused by the adult's attempt to help the child by providing him with a phonic cue. As far as possible, such cases are treated as forms of side-sequences and coding is pursued as usual. In the second example, it is the child's repetition of the adult's initiation to himself that is at issue. Such instances are coded as problems (P).

C	and over there there's a /s/ (..) there's	
	a (..)what's that called?	IS
A	can you remember? /	R/IS
C	no /	RMv
A	Worzel Gummidge was one /	IN
C	mmm /	F
A	it's a sc --- /	IS
C	sc --- /	RE
A	scare-cr --- /	R/I
C	scarecrow /	RE
A	well done! /	F

A	what did you do?/	IS
C	what did we do?/ [to self]	P
	I can't remember now/	RE

Double Coding

On the odd occasions in which two codes seem equally suitable and it is feasible for both two apply simultaneously, both are allocated. Consider the example below in which the adult is forced to re-iterate a response/initiation.

A	tugs a bag?/	IS
C	pulls it/	RE
A	what bag?/	R/IS
C	the green one/	RE

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A	*but what green bag? /*	R-R/IS
C	(4 secs)	
	one they put rubbish in/	RE

System II: The classification of inadequate utterances

On a fourth pass through the transcript, all those child contributions that are considered inadequate in some way are marked and then allocated to one or more of the following coding categories, based heavily on the Bishop & Adams system.

<u>Unusual syntax/semantics</u>

"Utterances where the sense of inappropriacy seemed to arise because of unusual syntax and/or semantics" (Bishop & Adams, 1989) such that if substituted by a similar word or construction, the problem resolved.   Once an inadequate contribution is coded as a problem with *Expressive Syntax/Semantics* it is then sub-categorised according to the categories outlined by Adams & Bishop's for illustrative purposes and shown below. With the exception of 'noun' and 'other' (which were not included in Bishop & Adams' system) the examples below have been taken directly from Bishop & Adams (1989).

Connective

    C   we went on the bus because Lee was sick out of the window/

Preposition

A	have you ever had a birthday party?/
C	yeah/
A	can you tell me about it?/
C	cos my birthday's in November/
A	uhuh/
C	<u>cos</u> mine's really *on* night /

Pronoun

A	and what do you think the man will do next?/
C	they can't go *everywhere* cos cos cos they need help/
	(where the intended meaning was *anywhere*)

Noun

A	she's reading a book/
C	yeah/
	and he's reading a newsagent/

Verb

A	what were you doing/
C	er - going in paddling pool/
A	uh-huh/
C	and playing out and we <u>are</u> *finding* to see who won the race /

Tense

A	why did you have to go to the doctor?/
C	I used to have a headache/

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Adverbial

    C   but the driver of the red car only had to bleed
               here - but he was *still* all right/

Discourse Devices

    A   so you usually go to France by boat/
               do you take your car on the boat?/
    C   yes/
               of course, we went from Dover/

Formulation Errors

In accordance with the original system (Bishop & Adams, 1989) included in this category are word order errors, problems with negation and post-modification.

    A   do you ever go on holiday in your car?/
    C   oh once I did but not in an aeroplane/
               (meaning "I did, but in an aeroplane, not in the car")

Immaturity

When the syntactic or semantic error appears to reflect immaturity as opposed to atypicality, this code is used. No further specification is given to the type of problem.

Other

This category is reserved for problems of expressive syntax/semantics which do not easily fall into any of the other available sub-categories.

Pragmatic Problems I: Violation of Exchange Structure

This category, divided into three sub-categories, concerns a failure to observe rules of exchange structure. That is, the rules, which determine what sort of utterances can logically follow one another.

Nil Response

"Coded when there is an interval in which the adult waits for a response but the child fails to produce one, not even an hesitation marker or a non-verbal response."

Ignores Initiation

Coded when the child fails to respond to an initiation, instead pursuing his previous contribution with a continuation or, himself, making an initiation. The original authors give the following example:

    A   where did you go on holiday?/
    C   Scotland/
    A   oh/
               how did you get there?/
    C   and we went to Spain as well/

Mismatch

The inclusion of this category has been prompted by the observation of cases in which the child's response does not match the form expected on the basis of the initiation but when it appears that the child is trying to respond to the adult's initiation. This is distinct from cases in which the child has clearly responded with an initiation or a continuation.

A	so what does she find in the bin?/
C	nothing/
	she had a dream about him tugging it/
	[sounds like "she has a dream about a tug in it"]
A	a dream with what in it?/
C	the man tugs the bag and the cat tugs the bag/

A	where have you been on holiday?/
C	yeah/

A	and how often do you get the Beano?/
C	on Wednesday/

Pragmatic Problems II: Failure to Use Context in Comprehension

On occasions, the child may misinterpret the adult's request because he has failed to take the linguistic, environmental and/or social context in which that request occurs has not been taken into account. This may result in him imposing a literal interpretation on a non-literal request. It may also cause him to provide an unexpectedly (and inappropriately) specific response or, conversely, one that is too vague. The following categories have been devised to accommodate responses like these.

Literal Interpretation

Failures to take the illocutionary force of the previous speaker's last utterance into account when it is contrary to syntactic form.

A	can you pass me the blu-tack?/
C	yeah/
	(without doing so)

Scope

Failures to review the context of the adult interlocutors request sufficiently to ensure that the response is neither too broad nor too narrow. The first of the examples below has been taken directly from Bishop & Adams (1989).

A	so what happens to people who get very ill?/
C	they won't be able to go downstairs and watch their favourite television programme/

A	where do you swim?/
C	in a swimming pool/

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A   who gives you birthday presents?/
                         people do/

Pragmatic Problems III: Too Little Information

One or other of the codes below is allocated when the child fails to provide sufficient information for his conversational partner.

Inappropriate Presupposition

"Coded when the child's response omits one or more elements, apparently wrongly pre-supposing that the listener had knowledge of the 'elided' words", as in the following example (taken from Bishop & Adams, 1989).

                A   so what did you do when you were sick?/
                C   I can't remember/
                         I *did* though when I was run over by a car/

"It is important to note that this code is only used if the examiner is confident, on the basis of the rest of the transcript, that the child is capable of producing the complete sentence form that should have been used."

Unestablished Referent

"Coded when the child introduces a term without having sufficiently established its referent for the listener thus creating a sense of confusion."

                A   what's Dennis The Menace's dog called?/
                C   Gnasher/
                A   yeah/
                C   sometimes there's Gnasher and Gripper?/
                A   who's Gripper?/
                C   *his other one/*

Logical Step Omitted

"Where a logical step of the argument or a critical step in the sequence which the child is producing is omitted, the effect is bizarre, and the natural flow of the conversation is interrupted. The listener is left without a crucial piece of information which would link the now inappropriate utterance to those that have gone before".

                A   what will happen if he doesn't get better?/
                C   he -- get some medicine -- and make -- and make --/
                         my brother was feeling sick on Monday/
                A   right/
                C   - and I took my trouser off/
                A   uhuh/
                         - why did you take your trousers off?/
                C   he was sick on my trouser/

                                              (from Bishop & Adams, 1989).

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Other

This category has been included in response to the observation that there are other ways in which the child may fail to provide sufficient information for the listener. For example, he may be unexpectedly and inappropriately vague or minimal in his responses.

Pragmatic Problems IV: Too Much Information

Unnecessary Assertion/Denial

"This was coded when a fact was unnecessarily asserted or denied, where the converse would not normally have been assumed." The first of the examples below was given by Bishop & Adams (1989)

C	now the new exhaust wasn't rusty/
A	mhm/
C	and the silencer hadn't dropped off/

A	does your Dad watch football?/
C	sometimes but not all the time/

Excessive Elaboration

Coded when a child says "more in response to a question than was necessary" or when he pursues a topic for longer than that which would usually be considered acceptable. Again, the first example below is taken from the original text.

A	is that a good place to break down?/
C	the answer whether it's a good place to break down is no, because if see if anybody broke down, cos there's no telephone to telephone, there's no telephone for the breakdown/

C	and when I was .. and then I bought .. at dinner time I .. I had to wear an apron and I didn't wanted to because I thought it was quite odd/
A	when?/
C	/t/ /t/ when I was when it was dinner time to wear an apron and I thought it was very odd/
A	today?/
C	no .. no/ in [name of old school]/
A	right
C	but I had to wear an apron but I didn't want it because I thought it was very odd/
A	did all the children wear aprons?/
C	yeah/ except me/ I had .. I was .. I was going .. I does .. I didn't wanted to wear one because I thought it was very strange/

In the case of the latter, a code is allocated on the first instance in which the child is considered to be pursuing the topic at length and each instance thereafter.

Unnecessary Reiteration

This category concerns "utterances where the child attempted to reiterate or to confirm a piece of information that has already been successfully established when no request for confirmation or repetition have been made."

C	you been there?/
A	yes/
C	yeah/
	I been there to have my operation/
A	uhuh/
C	had my operation there/

Ellipsis Not Used

This is coded when the child fails to use an elliptical form when to do so would be most appropriate.

A	what's the doctor doing?/
C	the doctor is looking at the boy/

Other

This category has been included in case there are other ways in which the child may provide too much information for the listener.

Pragmatic Problems V: Violations of Quality

This category has been devised to accommodate some of the conversational behaviours that were identified in preliminary analysis but which were not recognised in Bishop & Adams' (1989) system. Namely, the provision of contradictory information, non co-operation and the tendency to be inappropriately brief or unusually vague.

Consistency

Coded when a given proposition appears to contradict one which has been previously asserted, as in the examples below:

A	do you like swimming?/
C	don't know/
	but I do[5]/

---

[5] As the subsequent exchange clarified the unestablished referent in this utterance as swimming, coding of consistency is appropriate. Otherwise inappopriate pre-supposition could have been considered equally appropriate and the resulting ambiguity would have prompted use of the *Problem* code.

C	there's sometimes in the Beano sometimes sweet on it/
A	what do you mean?/
C	sweets on it/

↓

A	on the front?/
C	yes/

↓

C	not all the time they give you one/
A	just sometimes/
C	just the cover/
A	right/
C	no sweet on it/

Co-operation

Coded when a the child professes a lack of knowledge or fails to express an opinion when one would be expected given his chronological age. Examples are given below:

A	which games did you play?/
C	don't know/

A	how do you play it?/
C	I don't know/

A	did you have chips for lunch?/
C	I don't know/

Vague

Coded when a contribution - or part of a contribution - is inappropriately vague to the extent that it fails to provide any useful information, as in the example below.

A	what do you do in music?/
C	lots of things/

Minimal

Coded when a single piece of information is provided when more (usually some sort of list) was expected on the basis of the preceding initiation.

A	what do you do in music?/
C	listen to the CD/

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A	which sports to you do at school?/
C	cricket/

Unusual of Socially Inappropriate Content or Style

This category is intended for contributions for which the sense of oddity stems from the message itself rather than the way in which the message has been conveyed. Regardless of clarity of expression, utterances that are given this coding simply come across as a or bizarre thing to say either - in their own right or in the context in which they occur. One additional sub-category (rigidity) has been added to the five identified by Bishop & Adams (1989). With the exception of those that relate to the category of rigidity all of the examples below have been copied directly from Bishop & Adams (1989).

Topic Drift

Topic drift is coded when an utterance is "connected to the original subject, but not really relevant to the discussion" and does not represent a naturally acceptable progression in the conversation.

A	what's going on there?/
C	it's someone's birthday/
	something could be dangerous you
	know like a fire from candles/

Unmarked Topic Shift

Unmarked topic shift is coded when a child's contribution indicates a sudden movement away from the topic under discussion without any indication that such a change was imminent. As such the sudden change stands out "as being quite bizarre and abrupt."

A	are you too old then to have parties?/
C	I don't know/
	I had a party /
	I got three sisters and one brother and it's
	me the one brother/

Stereotyped 'learned' language

Utterances that have "a stereotyped quality, as if a repetition of learnt information or a learnt construction."

A	have you ever been to the doctor?/
C	I had an apple a day/
	(no evidence that the child was being humorous)

This category is also used when words are used stereotypically. It is important to note that the stereotypical use of words may only become apparent once the coder has worked through the entire transcript. As such, this code may have to be allocated retrospectively.

Inappropriate Questioning

An child's question fell into this category "if the adult could not possibly know the answer, if the child already knew the answer, or if the question asked was not the sort of question ordinarily asked about the topic at issue."

C	do you like candy floss?/
A	no/
C	do you hate it?/
A	I think it's all horrible and sticky/
C	why?/

A	you used to like measles?/
C	no, I didn't/
A	I bet you didn't, no/
	it's horrible isn't it/
C	what colour were they?/
A	what colour were the measles?/
	I don't know/

Socially Inappropriate Remarks

Utterances which are over-friendly or over-personal. The two examples below were taken from Bishop & Adams (1989). The first, is from the transcript of an 8-year-old child having been unsuccessful in explaining what his maze is like to an unfamiliar adult; and the second from the transcript of a 12-year-old in conversation with an authority figure whom he has not met before.

C	you could come to my house and see what it's like/

A	right, let's sit over here/
C	you've got purple socks on/

Rigidity

Coded when a contribution creates a sense of rigidity of thought or interpretation, as in the following examples.

A	can you swim?/
C	of course I can/
	I'm ten/

A	so do you usually go to France on holiday then?/
C	well no-one usually goes on holiday do they/

Other

Other is coded when an inadequate contribution has been identified which does not appear to fit into any of the available categories. In some cases, the behaviour does not interfere with the flow of conversation in the first instance but it is the frequency with which it occurs that causes disruption. Examples of behaviours which might be included in this category include persistent and

frequent re-formulations, overt word-finding behaviours, or apparent memory difficulties.

> C   and we saw (.) we um (.) we went to Kent to see
> um (.) and er (.) we went with Mummy, John and my Mum/

↓

> and Mr (?) he said next door to em (.) next door to
> our (.) our (...) we had a crash/

> C   and the man who was driving the (.) ((what's it
> called now?)) the (.) the tractor (.) prinched it and
> he had a mo (.) bone (.) 'phone/

> A   have you been in a boat?/
> C   I don't know/
> A   have you been in a plane?/
> C   no/
> A   would you like to?/
> C   oh no/
>   yeah I have/
> A   you have what?/
> C   I have been in a plane/

Problem

This category is used when the coder is unable to decide between two possible categories.

Adams & Bishop's (1989) data for exchange-structure, turn-taking and repair

Approximations of the distribution of exchange structure codes allocated in Adams & Bishop's (1989) study

Group*	Percentage of Codes Allocated to Each of the Exchange Structure Types				
	Initiation	Response	Continuation	Follow-Up	Unanalysed
SPD	12	56	23	4	4
SLI	9	64	18	3	3
12	3	75	16	2	3
10	5	65	19	1	3
8	4	67	20	1	4
6	8	65	21	2	3
5	7	76	10	1	4
4	7	74	9	4	2

* Adams & Bishop subdivided the normal control group in their study according to chronological age. The figures in this column indicate the ages of each of these groups.

Table 4.41   Incidence of the turn-taking codes allocated in Adams & Bishop's (1989) study.

Number of Instances	Inadvertent Overlap				Violating Overlap				Adult Interrupt				Gap			
	S	O	Y	C*	S	O	Y	C	S	O	Y	C	S	O	Y	C
0	43	55	56	68	36	48	50	65	29	55	75	84	43	56	47	61
1	43	17	28	26	29	21	31	19	36	33	14	13	7	19	22	29
2	7	21	14	6	14	21	6	16	29	10	8	3	14	14	14	3
3	7	7	0	0	0	5	8	0	7	2	0	0	0	5	6	0
4/more	0	0	3	0	21	5	6	0	0	0	3	0	36	7	11	6

* S = semantic-pragmatic disorder ; O = other language-impaired; Y = younger normal controls; C = age-equivalent normal controls.

Proportion of participants prompting adult requests for clarification in Adams & Bishop's (1989) Study
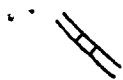
Number of Clarification Requests	Group			
	S	O	Y	C
0	21	47	53	81
1	14	21	19	16
2	14	5	3	3
3	7	12	11	0
4 or more	43	16	14	0

* S = semantic-pragmatic disorder ; O = other language-impaired;
Y = younger normal controls; C = age-equivalent normal controls.

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Appendix III
Examples of acceptable and perseverative responses
on the design fluency task

<u>**Acceptable designs**</u>   <u>**Perseverative designs**</u>

Appendix IV

Possibilities for estimated scores on the Tower of London task

There were seven options for dealing with the missing data (see page 295), as follows:

1. Credit the missing value with the maximum number of extra moves specified for that set. That is, 5 for the 4-move items and 7 for the 5-move items;

2. Credit the missing value with the mean score for those items which had been completed in that particular sub-set (the 4-move items, say);

3. Attribute the mean score for those items which had been completed in the difficult set as a whole;

4. Credit the missing value with the median score for those items which had been completed in that particular sub-set;

5. Attribute the median score for those items which had been completed in the difficult set as a whole;

6. Exclude the missing values and undertake the analysis of the mean number of extra moves on the basis of the completed items alone;

7. Exclude the cases in question from the analysis altogether.

Each of these alternatives transforms the data set in a different way (see Tables 6.11 to 6.16, in which the relevant cells have been shaded). None is ideal. Option (1) risks inflating the scores (especially if co-operation was withdrawn when the solution was still attainable within criterion). Conversely, options (2) to (5) risk under-estimating difficulty levels, especially if they resulted in missing values being replaced with zero scores. Excluding the missing values (option 6) or the entire cases (option 7) would have a similar effect.

Table 6.11 The attribution of the arbitrary 'maximum' number of extra moves.

Case	4 Move Items						5 Move Items					
	1	2	3	4	T*	M*	1	2	3	4	T	M
1	5	0	0	5	10	2.5	4	3	0	0	7	1.75
2	4	0	0	0	4	1	0	0	7	7	14	3.5
3	5	0	1	5	11	2.75	7	7	6	0	20	5
4	0	0	5	0	5	1.25	0	0	0	7	7	1.75

* T = total number of extra moves made for all four trials in the set
  M = mean number of extra moves for the set

Table 6.12 The attribution of the mean score from completed trials for the single set.

Case	4 Move Items						5 Move Items					
	1	2	3	4	T	M	1	2	3	4	T	M
1	5	0	0	1.7	6.7	1.7	4	3	0	0	7	1.75
2	4	0	0	0	4	1	0	0	0	0	0	0
3	2	0	1	5	8	2	3	3	6	0	12	3
4	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.13 The attribution of the mean score from completed trials for the collapsed set.

Case	4 Move Items						5 Move Items					
	1	2	3	4	T	M	1	2	3	4	T	M
1	5	0	0	1.7	6.7	1.7	4	3	0	0	7	1.75
2	4	0	0	0	4	1	0	0	0.7	0.7	1.3	0.3
3	2.4	0	1	5	8.4	2.1	2.4	2.4	6	0	10.8	2.7
4	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.14 The attribution of the median value from the completed trials for the single set.

Case	4 Move Items						5 Move Items					
	1	2	3	4	T	M	1	2	3	4	T	M
1	5	0	0	0	5	1.25	4	3	0	0	7	1.75
2	4	0	0	0	4	1	0	0	0	0	0	0
3	1	0	1	5	7	1.75	3	3	6	0	12	3
4	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.15 The attribution of the median value from completed trials for the collapsed set.

Case	4 Move Items						5 Move Items					
	1	2	3	4	T	M	1	2	3	4	T	M
1	5	0	0	0	5	1.25	4	3	0	0	7	1.75
2	4	0	0	0	4	1	0	0	0	0	0	0
3	1	0	1	5	7	1.75	1	1	6	0	8	2
4	0	0	0	0	0	0	0	0	0	0	0	0

Table 6.16 Overall mean scores calculated on the basis of completed trials

Case	4 Move Items	5 Move Items
1	1.67	1.75
2	1	0
3	1.5	1.5
4	0	0

Since this tendency for withdrawing co-operation was specific to the normally developing control group option (1) was considered the most conservative of the seven alternatives and, for this reason, was adopted in the analysis of the results.

Appendix V
Information concerning the tasks employed in the assessment of world knowledge

Details of the scoring procedure for event recall

Information score

In each condition every piece of novel, relevant and instructive piece of information that the child offered was credited with a point. When more than one piece of information was offered within a single utterance the appropriate number of points were awarded. Information that was incidental to was not scored (contrast examples 5 and 7 below); information that was vague (contrast examples 5 and 6) was treated awarded a single point; and information that was repeated was only scored once.

1	we line up	[1 point]
2	the teacher tells us to line up	[2 points]
3	we go to the hall	[2 points]
4	we go to assembly	[1 point]
5	head-teacher tells us things	[2 points]
6	the head-teacher tells us about the fete	[3 points]
7	the teacher tells us things and we listen	[2 points]
8	we lead out	[1 point]
9	we lead out in our form groups	[2 points]

Finally, information that was peripheral or irrelevant to the event in question (see below) was not scored.

Peripheral	Irrelevant
be good	if there's a fire alarm you line up
work hard	in cooking we bake cakes
do what you're told	I like drawing
be quiet	

Organisation score

The three component acts for assembly and PE recall are shown in Tables 1 and 2, overleaf.

Table 1.   Component acts for assembly recall

Component	Boundaries	Examples
Entering	This component is concerned with the sequence of events that arise from the point at which the bell goes[1] up to (and including) that at which the children are sitting down in the assembly location waiting for it to commence.	The bell goes. The teacher says to line up. Go to the assembly hall. Wait outside until it. Go in and stand in line. Sit down when the whole class is present.
Doing	This component focuses on the assembly itself. It includes information about setting and frequency together with examples of content from the point after which the children have all sat down up to (but excluding) the point at which they are told to stand up in preparation for leaving the assembly location.	[Teacher's name] does assembly. Teacher tells us about the bible. Teacher makes announcements. Sing songs. Teacher gives out certificates. The teachers sit on chairs around the hall. There's a piano.
Exiting	This component concerns the sequence of events that arise after (but including) the point at which the children are told to stand up in preparation for leaving the assembly location up to the point at which their next activity commences.	Teacher says to stand up. Lead out row by row. Go back to our classroom. Get ready for the next lesson.

Table 2.   Component acts for PE recall

Component	Boundaries	Examples
Entering	This component is concerned with the sequence of events that arise from the point at which the bell goes[1] up to (and including) that at which the children are changed and in the PE location awaiting instruction from their PE teacher.	The bell goes. The teacher says to line up. Get PE kit/bag. Go to changing location. Change into PE kit (shorts, t-shirt, plimsolls) Go to hall/gym. Sit in space. Wait for teacher to tell you what to do.
Doing	This component focuses on PE itself. It includes information about setting and frequency together with examples of content from the point after which the children have entered the PE location up to (but excluding) the point at which they go off to change into their school clothes again.	Get equipment out. Warm up. Teacher tells you what to do. Play tennis. Play rounders. Play rugby. Teacher says when to stop/to go and get changed.
Exiting	This component concerns the sequence of events that arise after (and including) the point at which the children leave the PE location to go and get changed up to the point at which their next activity commences.	Go to changing location. Wash. Get changed out of PE kit. Put school clothes on. Go back to classroom. Get ready for next lesson/go out to play.

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[1] In some schools there is no bell to signal that it is time for assembly/PE. Instead, the children are simply informed that it is by their teacher. In such cases, the teacher's instructions are taken as the start point of the "entering"/"preparation" component.

Additional stories used in the event recognition task

Assembly Story

It was Friday. It was time for assembly. Class 8 were told to line up by the door. When they were quiet their teacher told them to go. The headmaster was taking assembly that day. He talked to the children about the school fête that they had at the weekend. They had made £360. Then the headmaster gave out some certificates. Two children from class 8 got certificates. Danny got one for working hard and Simon got one for helping people. When assembly had finished the children walked back to their classroom and got ready for the next lesson.

Actual Statements

The headmaster was taking assembly.
The headmaster gave out some certificates.
Danny got a certificate for working hard.
The headmaster talked about the fête.

Inferred Statements

The children walked to the hall.
The children sat down.
The teachers sat on chairs around the hall.
When assembly had finished, the teacher told the children when to go.
Some of the children helped to put the chairs away.

Distractor Statements

The children went out into the playground.
Class 8 got their English books out.
Class 8 went out in the bus.
The children got ready to go home.
The children changed into their PE kits.

Dinner Story

It was dinner-time. The teacher told the children to put their work away. Johnny had been looking forward to dinner-time because he wanted to play football with his friends. But first it was time for dinner. Johnny joined the queue for school dinners. His friend, Sam, had a packed lunch so he went and sat down. Johnny chose pizza, chips, and salad. Pizza was his favourite food. Johnny went and sat down next to Sam. They ate their dinner and talked about the TV programmes they had watched the night before. When they had finished, they went outside. There was still enough time for a game of football.

Actual Statements

Johnny chose pizza, chips and salad.
The teacher told the children to put their work away.
Johnny went and sat down.
Johnny's friend, Sam, had a packed lunch.
Johnny and Sam talked about TV programmes.

Inferred Statements

Johnny carried his food to the table on a tray.
Johnny got himself a knife and fork.
When he had finished, Johnny put his tray on the rack.
Johnny paid for his food.
Johnny put on his coat before he went out to play.

Distractor Statements

Johnny ate his dinner in the class-room.
The dinner-lady took Johnny his food.
Johnny got changed into his PE kit.
Johnny got his coat before he went out to play.