Speech and language impairments in children: Causes, characteristics, intervention and outcome

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Pragmatic language impairment: A correlate of SLI, a distinct subgroup, or part of the autistic continuum?

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Specific language impairment (SLI) is diagnosed when a child has selective difficulties in mastering language, but is developing normally in other respects. Most accounts of SLI stress the disproportionate difficulties seen with specific aspects of language structure, but some children have a rather different clinical picture. Communication may be impaired because of pragmatic difficulties, i.e. problems in using language appropriately in a given context. Such children typically evoke one of two reactions from professionals. One response is to regard the pragmatic difficulties as secondary to the structural language difficulties: thus if a child cannot speak intelligibly, find the right words, or formulate a coherent sentence, communication with others breaks down, and a negative spiral ensues whereby people become reluctant to communicate with the child, and attempts at interaction are unrewarding. An alternative response is to regard pragmatic difficulties as an indication that the child has autism or an autistic spectrum disorder, and should therefore properly be classified as a case of pervasive rather than specific developmental disorder. In this chapter, I suggest that, in our current state of knowledge, it may be sterile to debate whether language-impaired children with pragmatic difficulties should be categorised with SLI or autistic disorder: truly intermediate cases may exist. We should be alert to the possibility that a child who

presents with language difficulties may have problems that extend beyond the traditional boundaries of SLI, and resemble those seen in autism. Although additional problems can arise as a consequence of oral language difficulties, we should beware of automatically assuming that pragmatic difficulties are secondary problems. Assessment of nonverbal communication can provide valuable information in making diagnostic distinctions.

INTRODUCTION

Accounts of specific language impairment (SLI) emphasise the difficulties that affected children have with mastering the medium of communication: Grammar, vocabulary and, frequently, phonology are learned with difficulty, so the child has to struggle to express what he or she wants to say. Comprehension is often also impaired, such that the child may focus on a few content words and deduce the meaning from these, but make errors in understanding spoken language if this requires complex vocabulary or syntax. It is typically assumed that the affected child has a normal desire to communicate and is developing unremarkably in other respects. As Miller (1991) put it:

> "Children with language disorders evidence strengths in conversation skills. They are purposeful and responsive; however communication is limited by their mastery of grammatical form." (p. 6)

However, not all cases of SLI fit this description. Occasionally one sees children whose problems are not confined to language form: content and use of language are also abnormal. Pragmatic difficulties are communicative problems that have to do with the appropriate use of language in a given context. Typically what one sees is a child using utterances that are syntactically well-formed and complex, but which don't appear appropriate in the conversational context in which they occur (see Bishop, 1997, for a fuller account). In addition, such children may display social and behavioural deficits that resemble those seen in autistic disorder. Strictly speaking, then, they don't seem to fit the category of *specific* language impairment. Most experts will agree that such children exist (although I shall argue that their numbers may be underestimated), but they disagree as to how to respond to them.

A common reaction is to regard the pragmatic difficulties and nonverbal impairments in social or imaginative behaviours that are seen in SLI as secondary to the oral language difficulties. For instance, Brinton and Fujiki (1993) point out that: "Because language skills play a critical role in social interaction, it seems likely that children with language difficulties would be at particular risk for social failure" (p. 195). These authors argue that the traditional diagnosis of SLI by exclusion, with its emphasis on the *specificity* of the impairments in language structure, is misleading and unrealistic. Impairments in language do not occur in a vacuum, but rather have impacts on many aspects of development. According to this viewpoint, associated impairments are to be expected.

A contrasting view points to the central place that pragmatic deficits play in autistic disorder, and proposes that children with serious pragmatic impairments should be regarded as cases of autism, or at least be categorised as having a pervasive developmental disorder, rather than a specific developmental disorder. Of course, both views might be valid in different cases. The problem is that, unless we are able to specify just how and when a language disorder can lead to secondary problems, we confront major diagnostic difficulties every time we see a child who presents with a clinical picture intermediate between autistic disorder and SLI. Furthermore, as Craig (1993) pointed out, until we establish whether social–interactional difficulties in SLI represent a primary deficit in social knowledge or a secondary

consequence of poor language skills, our attempts at intervention will be inadequate.

In this chapter, first I review studies that look at social and pragmatic impairments in children with SLI, considering how frequent these are, and how far they can be regarded as secondary consequences of structural language limitations. I then move on to cases of pragmatic language impairment that are more difficult to explain in this way, because the child's use of language is disproportionately poor in relation to structural language skills. For such children, a critical question is whether a diagnosis of autism or autistic spectrum disorder would be appropriate. My conclusion is that there are many children who fall between the diagnostic options of SLI or autism: their developmental difficulties are not restricted to structural aspects of language but, on the other hand, they do not have the full range of pervasive impairments that would warrant a diagnosis of autism.

SOCIAL AND PRAGMATIC DEFICITS AS SECONDARY CONSEQUENCES OF SLI

Several studies of SLI have documented problems with peer relationships and social interaction. For instance, Paul, Spangle Looney and Dahm (1991) found that late-talking 2- and 3-year-olds were impaired on the Socialization Scale of the Vineland Adaptive Behavior Schedule, even if items involving language were excluded from consideration. Nonverbal items included playing social games, imitating complex motor routines in play, using household objects in play, and smiling appropriately. Around one third of the late talkers had receptive language deficits at age 3 years, and all but one of these children was also impaired on the Socialization Scale. Such a study tells us that problems exist, but does not help us sort out cause and effect. Do the language problems lead to poor peer relations, or does the child have a more basic deficit in social cognition or emotional relations?

Empirical evidence to show that a child's language level affects peer relationships was provided in a series of studies by Rice and her colleagues. Rice, Sell and Hadley (1991) assessed social interactions in a preschool playgroup for four groups of children: those with SLI, those with speech disorders, those with English as a second language (ESL), and a control group of normally-developing children. They found close similarities between the SLI and ESL groups: both were less likely to initiate interactions, and when they did so, they were more likely to communicate with an adult rather than another child. In a related study, Hadley and Rice (1991) found that children with language or speech impairments were half as likely to be addressed by their peers as children with age-appropriate language. When addressed by other children, they were less likely to respond. It is sometimes assumed that children are largely insensitive to the characteristics of their playmates before the age of 7 or 8 years. This study contradicts that view, and shows that even by 3 or 4 years of age, children are aware of the communicative level of others, and prefer to interact with peers who have age-appropriate language skills. These authors concluded that there is a negative interactive spiral, whereby a child becomes increasingly unwilling to engage in interactions with peers after experiencing lack of success.

Gertner, Rice and Hadley (1994) went on to measure children's peer relations more directly, using a sociometric method in which children were asked to nominate which of their classmates they would like to play with, and which they would prefer not to play with. Children with age-appropriate language were by far the most popular group, and level of receptive language was a strong predictor of children's popularity. These authors note that children with English as a second language, like children with SLI, receive fewer positive and more negative nominations from other children. They argued, therefore, that the social difficulties of the SLI group are a direct consequence of their limited language skills, rather than reflecting some constitutional limitation of social cognition that co-occurs with the language impairment. More recently, Redmond and Rice (1998) showed that teachers rated children with SLI as having more social problems than controls whereas parents did not, and concluded that this

was further evidence that social impairments were situationally dependent, and not an intrinsic characteristic of the child. Viewed in this light, abnormal use of language by some children with SLI could be a secondary consequence of lack of social experience, which arises as a result of unsuccessful attempts at communication in the early years of life.

PRAGMATIC DIFFICULTIES THAT ARE HARD TO EXPLAIN AS SECONDARY CONSEQUENCES

There is, however, reason to believe that this is not the whole story. I shall focus on three lines of evidence that favour the view that, in at least some children, there are pragmatic and social difficulties that cannot be explained away as direct or indirect effects of poor mastery of structural aspects of language.

1. Children with disproportionate pragmatic difficulties: "semantic–pragmatic disorder"

Perhaps the greatest difficulty for any theory that attempts to explain away pragmatic problems in SLI as consequences of oral language limitations is the heterogeneity of SLI. Some children who present with SLI appear to have particular difficulties with the pragmatic aspects of communication. Their deficits are similar in kind, though typically milder in degree, than those described in high-functioning autism. However, there is no positive correlation between severity of expressive or receptive language limitations and extent of pragmatic difficulties. Problems in the appropriate use of language can co-occur with relatively good mastery of language form.

In the mid 1980s, two descriptive taxonomies of developmental language disorders were published, one (Rapin & Allen, 1983) in the USA, and the other (Bishop & Rosenbloom, 1987) in the UK. Both described a subtype of language impairment in which structural aspects of language (phonology and grammar) were relatively intact, but use of language was abnormal. Rapin and Allen coined the term "semantic pragmatic deficit syndrome" to describe this subtype. Bishop and Rosenbloom described a similar clinical picture and, following Rapin and Allen, termed this "semantic–pragmatic disorder". The most recent clinical account by Rapin (1996) lists the clinical characteristics shown in Table 6.1. Although the UK and US accounts have close similarities, there is an important difference in how they use diagnostic labels. Rapin's classification is not designed simply to subtype SLI, but rather to characterise communicative problems arising from any cause. Thus the term "semantic pragmatic deficit disorder" may be applied to children with known organic etiologies, such as those with hydrocephalus or Williams syndrome, and to those with autistic disorder, as well as to a minority of those with SLI. In the UK, "semantic–pragmatic disorder" has been regarded as a subtype of SLI, and typically incorporates the implicit notion that nonverbal IQ is normal, there is no known organic etiology, and the child does not meet diagnostic criteria for autism.

TABLE 6.1

Rapin's 1996 characterisation of semantic pragmatic deficit disorder

Verbosity
Comprehension deficits for connected speech
Word finding deficits
Atypical word choices
Phonology and syntax unimpaired
Inadequate conversational skills
Speaking aloud to no one in particular
Poor maintenance of topic
Answering besides the point of a question

Conti-Ramsden, Crutchley and Botting (1997) assessed a random sample of all 7-year-old children attending language units (special classes for children with SLI) in England, using both teacher report and standardised tests. On cluster analysis, they identified a subgroup of children (cluster 6) whose language profile closely matched Rapin and Allen's "semantic pragmatic deficit syndrome". However, the difficulties of these children only

became evident when teacher ratings were taken into account. If reliance were placed solely on standardised test scores, children in this subgroup looked relatively unimpaired, despite the fact that the teachers regarded their communicative difficulties as severe. This study emphasises on the one hand that pragmatic difficulties can be seen in the context of adequate structural language skills, and on the other that there is a lack of assessments that pinpoint pragmatic difficulties.

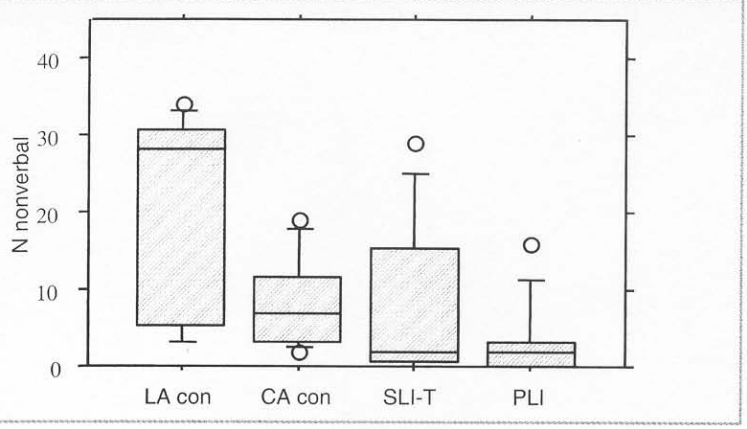
2. Microanalysis of conversational glitches

Another approach to understanding pragmatic impairments is to look in detail at the communicative behaviours that lead to a child being regarded as a case of "semantic pragmatic disorder". This approach was adopted by Bishop and Adams (1989), who undertook a classification of children's conversational utterances that had been judged "inappropriate". Although some cases could be accounted for by difficulties in sentence formulation, semantic selection, or comprehension of the partner's talk, others were less easy to explain this way. For instance, some children would provide far too little or far too much information to the conversational partner, or would use stereotyped utterances, sometimes with abnormal prosody. More recently, Bishop et al. (2000) have extended this approach, focusing specifically on the extent to which children's conversational responses mesh with an adult's prior solicitation. An attempt was made to subdivide responses into those judged to be adequate (meeting expectations), inadequate (not meeting expectations, but plausibly accounted for by limitations of language expression or comprehension), and pragmatically inappropriate (not meeting expectations, but not readily explained by limitations of language expression or comprehension). After training, raters achieved reasonable agreement in independently coding children's responses in this way, and the method received some validation from the finding that younger normally-developing children made a relatively high rate of inadequate responses, but relatively few pragmatically inappropriate responses. Children with SLI showed wide individual variation in their performance, but on average made a higher rate of both pragmatically inappropriate and inadequate responses compared to age-matched controls. This study, then, represented a direct attempt to distinguish pragmatic problems that could be secondary to structural language limitations from those that could not, and concluded that for some language-impaired children, the latter type of response was relatively common.

3. Impairments of nonverbal communication

Of particular interest is nonverbal communication. It is sometimes assumed that children with SLI will compensate for their oral language deficits by using nonverbal communication. This is exactly what is seen in children with severe hearing impairments. Even if not exposed to a natural sign language, most hearing-impaired children will make heavy use of gesture and facial expression to communicate, and will, if given the opportunity to interact with other hearing-impaired children, develop a sign language *de novo* (Goldin-Meadow & Mylander, 1998). Use of nonverbal communication in children with SLI is much less well documented, though an early study by Bartak, Rutter and Cox (1975) reported that just over 40% of a sample with receptive language impairments did not use gesture. Several clinical accounts have remarked on difficulties experienced by children with SLI in the use of gesture and facial expression, and difficulties in interpreting nonverbal cues emitted by others (see Goldman, 1987, for a brief review). In the recent study described above, Bishop et al. (2000) analysed conversations between language-impaired children and unfamiliar adults, and compared these with adult–child conversations with normally developing children. The language-impaired children had been selected to include some thought to have disproportionate pragmatic problems, and others with more typical SLI. The surprising finding was that *both* these groups made less use of nonverbal responses (e.g. head nodding) than normally developing children. This could not be regarded as communicative immaturity, because younger language-matched control children made

FIGURE 6.1



Boxplot showing distribution of nonverbal responses (absolute number per conversation) for four groups of children: Language matched controls (LA con), age matched controls (CA con), typical SLI (SLI-T) and pragmatic language impaired (PLI). The top and bottom of the shaded bar show the 25th and 75th centiles respectively, with the central line indicating the median. The error bars show 10th and 90th centiles, with the range being represented by circular points. See Bishop et al. (2000) for further data.

the highest use of nonverbal responses (see Fig. 6.1).

Overall then, there are several lines of evidence to support the view that some children have pragmatic difficulties that are disproportionate and not readily explained as secondary consequences of SLI. How, then, should we classify such children? One view is that they belong more naturally within the autistic spectrum rather than with SLI. This view needs to be given serious consideration, given that pragmatic difficulties are a hallmark of autistic disorder.

PRAGMATIC PROBLEMS AS SYMPTOMATIC OF AUTISM

The relationship between autism and developmental language disorder was a topic that was much discussed in the 1960s and 1970s. At that time, several experts had suggested that autism was, fundamentally, a form of language disorder, and that the abnormal nonverbal behaviours that are part of the autistic syndrome might simply be secondary consequences of poor communication skills. However, this view was gradually abandoned as research evidence mounted showing that children with autism had distinctive communicative, social and behavioural difficulties not seen in other conditions that affected language development. As our understanding of autistic disorder increased, a consensus developed that autism and developmental language disorder are qualitatively distinct, a position which is reflected in contemporary diagnostic systems.

The Diagnostic and Statistical Manual (DSM) of the American Psychiatric Association is a case in point. In DSM–IV (American Psychiatric Association, 1994), autistic disorder is identified as a pervasive developmental disorder (PDD), which means that it has two salient characteristics. First, the disorder affects several areas of functioning. In autistic disorder, there is a triad of impairments in language, social relationships and behavioural and imaginative repertoire. Second, the impairments in these domains go beyond simple immaturities, with children showing behaviours that would be abnormal at any age. In contrast, specific language impairment (SLI)

TABLE 6.2

Percentages of children in Bartak et al. (1975) study showing specific behaviours

	Autistic	*Receptive SLI*
Nonverbal		
difficult adaptation to new situations	74	4
quasi-obsessional activities	84	26
ritualistic activities	68	13
resistance to change	42	13
attachment to odd objects	53	22
lacks imaginative play	79	26
Language structure		
no single words by 24 months	58	65
no phrase speech by 30 months	89	83
diminished or abnormal babble	42	65
ever thought deaf	84	65
defects of articulation	53	91
Language use		
pronoun reversal (ever)	58	17
echolalia (ever)	100	26
stereotyped utterances (ever)	63	9
metaphorical language (ever)	37	0
inappropriate remarks	32	0
no spontaneous chat	74	26
fails to respond to questions	63	22
never used gesture	89	43

is a paradigmatic example of a specific developmental disorder. This is diagnosed when there is impairment in a single domain of functioning (in this case language), and the development in this domain is delayed rather than qualitatively abnormal.

The distinction between specific and pervasive developmental disorders was supported by a seminal early study by Bartak et al. (1975). These researchers explicitly compared children with autistic disorder and those with receptive developmental language disorder on both quantitative and qualitative measures of communication and behaviour. The initial goal was to identify children with severe comprehension problems in the context of normal nonverbal ability. Boys aged 5–10 years, with nonverbal IQ of 70 or above, were recruited from specialist centres for children with autism and/or language disorders. Once suitable children had been found, information from case records was used to subdivide them into those with autistic disorder and those with receptive language disorder. A small proportion of children did not fall clearly into either category and were kept separate. Table 6.2 shows some of the findings of the study. In terms of communication there were some points of similarity between children with autism and those with language disorder, but also clear qualitative differences. Two features in particular stand out: first, almost all the children with autism were reported as not using gesture, whereas this was true for only half of the language-impaired children. Second, in the children with language impairment, the communication difficulties could be described in terms of immaturity and/or lack of communicative skills. In those with

autism, there were more qualitative oddities in the use of language that are not normal at any age. For instance, children would use words and phrases with a private, individualised meaning based on their own personal experiences, such that the listener who had not shared the child's experience would have difficulty making sense of the utterance. Kanner (1946), who used the term "metaphorical language" to describe such instances, gave an example of a child who referred to himself as "Blum" whenever his parents questioned whether he was telling the truth. This apparently irrelevant utterance assumed meaning once the parents realised that the child had been reading a large advertising sign which stated "Blum tells the truth". In the study by Bartak et al., cryptic utterances such as these, which become comprehensible only when related to the child's personal experiences, as well as stereotyped use of language, were much more common in children with autism as compared to those with language impairments. The results may be summarised by saying that whereas both groups had major difficulties in mastering language form (syntax and semantics), plus limitations in vocabulary comprehension and understanding of complex sentences, the autistic group had additional impairments in the appropriate use of language, i.e. pragmatics.

The study by Bartak et al. (1975) was important in establishing that the profile of impairments in autism cannot simply be reduced to consequences of poor language comprehension. Over the past two decades, the conceptualism of autistic disorder has changed, with greater emphasis being placed on impairments of joint attention, social interaction, and social cognition. These are all areas where children with autism can be shown to be deficient, even when compared with control groups matched on mental age and/or language level. Furthermore, it is now recognised that pragmatic difficulties are a hallmark of autistic communication, and that other language difficulties are a more variable correlate (Frith, 1989).

Bartak et al. (1977) carried out a series of discriminant function analyses on data from the same sample. Discriminant function analysis is a statistical method that assesses how accurately a set of measures can be used to assign an individual to a specific group. First, the two groups (in this case those with autism or SLI) are compared on a set of variables, and each measure is assigned a weighting which reflects how well it discriminates between the groups. The weighted measures are then summed for each child; those scoring above a cutoff are allocated to category A, and those below the cutoff to category B. If there is little overlap between the groups on the measured characteristics, then there should be close agreement between this categorical assignment and the original allocation of cases to groups. That is exactly what was found by Bartak et al. (1977). Very few children had scores that were at all ambiguous. Overall then, the study by Bartak et al. (1975) was seen as supporting the distinction between autistic disorder and SLI, with pragmatic difficulties being a characteristic difficulty of the former group, but not the latter.

Does this mean, then, that all children with autistic-like pragmatic difficulties should be regarded as autistic? There are two lines of evidence that caution against leaping to that conclusion. First, the studies concerned with differential diagnosis of autism and SLI, while noting the different clinical pictures of these disorders, also reveal cases that are hard to categorise as one or the other. Second, studies of children who are identified as having semantic–pragmatic disorder reveal that only a subset of them appear to have significant autistic features in nonlinguistic domains.

STUDIES CONTRASTING AUTISTIC DISORDER AND SLI: EVIDENCE FOR INTERMEDIATE CASES

Bartak et al. (1975) noted that while the data showed a clear differentiation between autism and developmental language impairment, five "mixed" cases were important in demonstrating an area of overlap containing children who show some features of both conditions. On the discriminant function analysis, about one fifth of the children could not be unequivocally classified, usually

because data from the child's clinical history told a different story than the contemporary information. Some children had moved from an autistic profile to a language-impaired one, whereas others changed in the opposite direction.

Cantwell, Baker, Rutter and Mawhood (1989) carried out a follow-up in middle childhood of 29 of these children. These investigators found that the earlier, clear differentiation between the groups became somewhat blurred at the later age. Although many aspects of communication and behaviour tended to improve in the language-impaired group, there was a subset of children for whom peer relations deteriorated notably. Cantwell et al. commented: "the finding of marked difficulties in friendships in some children whose language was improving raises questions regarding the traditional view that the socioemotional problems are just secondary features that have developed as a response to . . . having a language handicap" (p. 29). Furthermore, at follow-up, 28% of the language-impaired group showed ritualistic behaviour, 36% had stereotyped mannerisms, 21% used metaphorical language, and 31% produced stereotyped utterances. All of these are behaviours that are not typically regarded as part of the clinical picture of SLI but are seen in autism. Mawhood (1995) studied the same sample in adulthood and found that several cases who had been regarded as having a receptive language disorder continued to show evidence of social impairment and restricted interests. Overall, then, both the original study by Bartak et al., and subsequent follow-ups of this sample confirmed that, even when the most detailed and careful diagnostic process is applied, there are children who are difficult to categorise unambiguously as cases of autistic disorder or SLI.

In recent years, the notion of a sharp boundary between autistic disorder and language impairment has come under increasing pressure. In a study of preschool children with mental handicap and very limited language skills, Lord and Pickles (1996) contrasted social behaviour, nonverbal communication, and repetitive behaviours in autistic vs nonautistic cases. They concluded that, although none of the nonautistic group had ever been thought to have a pervasive developmental disorder, they nevertheless had difficulties in social behaviour that were similar to those of the autistic children. They commented on the artificiality of absolute diagnostic distinctions within a population of cognitively delayed, language-impaired young children. The existence of intermediate cases has been emphasised further in studies of parents and siblings of people with autism, which find that although core autism is rare in these relatives, milder difficulties, often involving only one or two of the elements of the autistic triad, are common (Bolton et al., 1994). This has led to the notion of a "lesser variant" of autism being employed in genetic studies.

AUTISTIC FEATURES IN CHILDREN WITH SEMANTIC–PRAGMATIC DISORDER

Although there has been much debate as to whether "semantic–pragmatic disorder" is part of the autistic continuum (e.g. Lister Brook & Bowler, 1992; Boucher, 1998, and associated commentaries on Boucher's paper), there has been little hard evidence on which to base an argument. A recent study using neuropsychological tests and measures of social cognition showed close overlap in test profile between a group with "semantic–pragmatic disorder" and children with high-functioning autism, both of whom contrasted with children with a more typical form of SLI (Shields, Varley, Broks, & Simpson, 1996a, b). However, other studies, including those reviewed above, show that many children with pragmatic difficulties fall short of meeting diagnostic criteria for autistic disorder. So we are left with the question of how to categorise language-impaired children who have pragmatic difficulties which sometimes, but not always, occur in association with mild abnormalities of social interaction or restricted interests.

Part of the problem confronting researchers who wish to address this issue is the lack of clear criteria for defining "semantic–pragmatic disorder", coupled with lack of suitable diagnostic instruments for objectively documenting pragmatic difficulties. With most forms of SLI it is possible

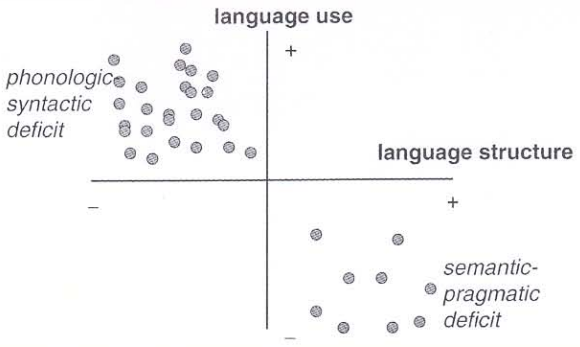
to devise operational definitions, selecting children, for instance, whose standardised scores on language tests fall below some specified level. However, the clinical features shown in Table 6.1 are not easy to assess by available tests. As noted above, Conti-Ramsden et al. (1997) found that language tests did not reveal a distinctive pattern of deficits in children who were thought to have semantic–pragmatic disorder: it was only when teacher impression was taken into account that the difficulties of these children could be characterised.

One way of responding to this situation is to make teacher ratings more objective. This approach was adopted by Bishop (1998) in developing the children's communication checklist (CCC). This study had two related goals. On the one hand, it aimed to develop a more objective way of assessing children's pragmatic impairments using ratings by teachers or other professionals who knew the child well. The rationale for adopting this approach was that many pragmatic deficits are rare in occurrence, and/or difficult to elicit in a clinical assessment because they are contextually dependent. A person who interacts with the child regularly might, therefore, be in a better position to evaluate these aspects of behaviour than a professional who sees the child for a single assessment. A second goal of this study was to consider how strongly pragmatic impairments were associated with impairments in other domains, especially problems with social interaction and restricted interests of the kind that are characteristic of autism. In this study, a subset of children from the survey by Conti-Ramsden et al. (1997) were assessed on a checklist that included scales assessing aspects of structural language, pragmatic skills, social interaction, and restricted interests. Items were retained in the checklist if they showed acceptable levels of agreement between independent raters. Diagnostic information from school records was compared with checklist results. Children whose records indicated a definite or possible diagnosis of "semantic–pragmatic disorder" did, as expected, obtain lower scores on the pragmatic scales. None of these children had a diagnosis of autism, but a subset was thought to have possible or definite autistic features or Asperger syndrome. The latter group showed some impairments on the social and interests scales. However, another subset of the semantic–pragmatic group had never been given any autistic spectrum diagnosis. These children did not differ from a "typical SLI" group in terms of their scores on the social and interests scales. This study, then, supported the view that, while pragmatic impairments and other autistic features tend to co-occur, there are children with significant pragmatic difficulties who do not have any marked difficulties in the domains of peer relations or interests. The checklist gives only a cursory examination of these areas, and in future work it is planned to do a much more detailed analysis of autistic features in language-impaired children with pragmatic problems, using instruments developed for the diagnosis of autism. For the present, though, our data are consistent with those of other studies in suggesting that there is wide variation in the specific clinical profiles shown by children with pragmatic difficulties, and it would be premature to conclude that all of them have a mild form of autistic disorder.

IS THERE A SEPARATE SYNDROME OF SEMANTIC–PRAGMATIC DISORDER?

I have argued that one sees children with pragmatic difficulties that are not just secondary to structural language problems, yet who do not appear to meet criteria for autism either. So where should they be classified? One solution would be to propose "semantic–pragmatic disorder" as a separate diagnostic entity, distinguished from both SLI and autistic disorder. I shall argue that this is not a satisfactory solution, because there is little evidence that the features described in Table 6.1 form a coherent syndrome. Rather, it seems as though pragmatic difficulties are a variable correlate of SLI: they can be found in children who meet the clinical descriptions of semantic–pragmatic disorder and who use fluent, complex language, but they can also be found in other children who have more typical structural language problems. They may be associated with semantic

FIGURE 6.2



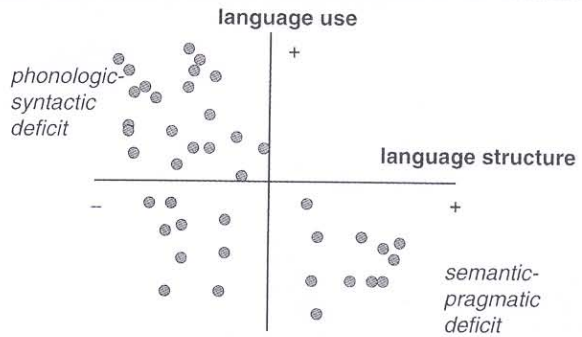
Notional distribution of impairments in language structure and language use, according to a model that allows for opposite profiles in those with phonologic-syntactic deficit and those with semantic–pragmatic deficit. Good skills are shown as +, and deficits as –.

difficulties, but can also be found in children who do not appear to have either word-finding problems or unusual vocabulary.

What is the evidence to support these assertions? One source of data comes from studies I conducted in the 1980s, using experimental methods to assess aspects of pragmatic functioning in language-impaired children. The goal was to contrast children who had the clinical features of semantic pragmatic disorder with other children with more typical SLI. To this end, I developed various tasks that were designed to pinpoint cognitive processes thought to underlie pragmatic problems, anticipating that these would clearly differentiate typical SLI from "semantic–pragmatic disorder". However, assessments that were devised to be sensitive to deficits in cases of semantic–pragmatic disorder typically revealed unexpected deficits in some children with more typical SLI. This proved to be the case with tests of referential communication skill (Bishop & Adams, 1991) and story comprehension (Bishop & Adams, 1992). In the study already described by Bishop et al. (2000), which used detailed analysis of more naturalistic conversational data, the same picture emerged. There was a subset of children who were prone to make pragmatically inappropriate responses, and who were also abnormally restricted in their use of nonverbal responding. However, these children are not necessarily the ones identified by teachers as having characteristics of semantic–pragmatic disorder. Some of them had structural language limitations as well.

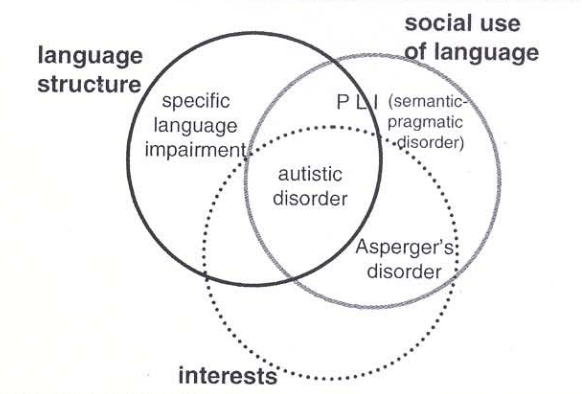
Clinical classifications have stressed the contrast between semantic–pragmatic disorder and more typical SLI, which typically corresponds to what Rapin (1996) would term phonologic–syntactic deficit disorder. On this basis, one anticipates a double dissociation between the two kinds of impairment, as shown in Fig. 6.2. However, in a study using an earlier version of a teacher checklist, Bishop (2000) found results more consistent with the scenario shown in Fig. 6.3. Rather than the predicted inverse relationship between impairments of language form and pragmatic difficulties shown in Fig. 6.2, there was a small *positive* correlation between the two domains. Although there were many children who did resemble the profile in Table 6.1, with relatively good mastery of syntax and phonology and poor pragmatics, and others who showed the opposite picture, there were yet other cases who had a "double deficit", with poor ratings on language form and language use. Taken together, such results begin to question the notion of semantic–pragmatic disorder as a separate syndrome of language impairment. Pragmatic difficulties are a common, though by no means universal, correlate of language impairment. A further result from this study was that there was no positive correlation between semantic and pragmatic difficulties, semantic impairments being common in all language-impaired children.

FIGURE 6.3



Alternative model of distribution of impairments, showing additional subgroup with impairment in both language structure and language use.

FIGURE 6.4



Model depicting dissociable impairments in language structure, social use of language, and interests, and how particular profiles map onto existing clinical categories.

Bishop (1998, 2000) suggested that the notion of a distinct syndrome of semantic–pragmatic disorder may have come about just because pragmatic problems are much more obvious and hard to explain away when they occur in the context of good formal language skills. Quite simply, children who speak clearly and in complex sentences but who use strange language draw attention to themselves, because on the one hand we can understand what they are saying, and on the other hand we don't expect odd utterances from a child with apparently mature language skills. Data from both conversational analysis and from teacher checklists, however, suggest that there is a wide range of pragmatic competence in children with more limited mastery of language form. However, we automatically tend to make allowance for pragmatic difficulties in such a child, assuming that this is a secondary consequence of limited powers of expression and comprehension.

Findings such as these do raise questions about a term such as "semantic pragmatic deficit syndrome". The label "pragmatic language impairment" seems preferable. It does not imply that semantic and pragmatic problems will necessarily co-occur, and it is easier to accommodate to a more dimensional view of language impairment, which treats pragmatics as one domain in which communication may be impaired.

The set diagram shown in Fig. 6.4 illustrates this more dimensional view of communication disorders. The three sets have some correspondence

with the traditional triad of autistic impairments, but are shown as frequently being dissociated. Different children will have different combinations of symptoms, varying in severity. Autistic disorder is diagnosed when a child has major impairments in all three domains. Asperger's disorder, defined in DSM–IV as a pervasive developmental disorder in which structural language skills develop normally, is shown as involving a combined deficit in the social use of language and restricted interests. Children who have pragmatic problems in the context of relatively good language form would, in this diagram, fit in the area in the top right of the figure, where only the "social/pragmatic" circle is involved. However, as the diagram emphasises, there are no clear boundaries between this disorder and autistic disorder, on the one hand, and SLI on the other. Furthermore, there are children who have a mixed picture of problems with language structure and pragmatics.

PRAGMATIC DIFFICULTIES AND PDDNOS

A dimensional view may be useful in capturing the full range of clinical phenomena, but it can create problems in practice. Quite simply, diagnostic labels are important in ensuring that children obtain access to suitable education and intervention. All too often, the clinical reality is that many children have complex constellations of developmental difficulties, but provision tends to be directed towards the textbook categories. Thus one may be confronted with a stark choice between an educational placement for children with autism, which is geared mainly to the needs of low-functioning children with difficult-to-manage behaviour, or one for children with SLI, where the emphasis is on conventional speech–language therapy.

One diagnosis that is increasingly being adopted in such complex cases is Pervasive Developmental Disorder Not Otherwise Specified, or PDDNOS (see, e.g. O'Hare, Quew, & Aitkin, 1998). This category was introduced in DSM–IV to be used for cases where there is subthreshold symptomatology, or where there is significant impairment in only one or two of the domains of the autistic triad. However, there are problems with this label. PDDNOS was originally intended as a default diagnosis to be used in rare instances when a child just fell short of diagnostic criteria for autism. It is vaguely described with no clear defining criteria, and potentially incorporates a huge range of clinical profiles. It is too nonspecific a diagnosis to be useful for identifying the kinds of services a child requires (though the label itself may serve a function in ensuring that the child obtains access to *some* kind of services). It may be that, as PDDNOS becomes an increasingly popular diagnosis, better services will be developed for high-functioning children who do not have major behaviour problems but who do have complex difficulties. Some speech-language therapists have developed considerable expertise in working with such cases (e.g. Brinton & Fujiki, 1989; Gallagher, 1991), but many professionals still are seriously challenged by their complex deficits. Although there is some work concerned with facilitating nonverbal communication in children (e.g. Nowicki & Duke, 1992), this has been developed independently by clinical psychologists and there has been little application to language-impaired children.

My own view is that it would be premature to conclude that children with PLI either do or do not properly belong in the autistic spectrum in our current state of knowledge. Future research on etiology or underlying cognitive processes may give clearer answers. Meanwhile, an important message from the research to date is that we need to look carefully at pragmatics when assessing a child with language impairment, and not automatically assume that poor use of communication is a secondary symptom. To date we have been seriously limited by the lack of reliable and practical assessment tools. Methods such as the checklist described by Bishop (1998) may provide a start in alerting practitioners to cases where the child has a wider range of communicative difficulties. In addition, video analysis of nonverbal communication looks like a promising method for identifying the child whose communication difficulties extend beyond oral language. I suspect that ultimately we may need to abandon the sharp

distinction between autism and SLI, and move to a more quantitative approach, which depicts PLI as literally intermediate between autistic disorder and SLI, rather than belonging with one or the other. One challenge for the future is to devise more appropriate provision for children with such complex problems.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders, 4th edition. (DSM–IV)*. Washington, DC: American Psychiatric Association.

Bartak, L., Rutter, M., & Cox, A. (1975). A comparative study of infantile autism and specific developmental receptive language disorder: I. The children. *British Journal of Psychiatry, 126*, 127–145.

Bartak, L., Rutter, M., & Cox, A. (1977). A comparative study of infantile autism and specific developmental receptive language disorders. III. Discriminant function analysis. *Journal of Autism and Childhood Schizophrenia, 7*, 383–396.

Bishop, D.V.M. (1997). *Uncommon understanding: Development and disorders of language comprehension in children*. Hove, UK: Psychology Press.

Bishop, D.V.M. (1998). Development of the children's communication checklist (CCC): A method for assessing qualitative aspects of communicative impairment in children. *Journal of Child Psychology and Psychiatry, 39*, 879–892.

Bishop, D.V.M. (2000). What's so special about Asperger syndrome? The need for further exploration of the borderlands of autism. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds), *Asperger syndrome* (pp. 254–277). New York: Guilford Press.

Bishop, D.V.M., & Adams, C. (1989). Conversational characteristics of children with semantic–pragmatic disorder. II. What features lead to a judgement of inappropriacy? *British Journal of Disorders of Communication, 24*, 241–263.

Bishop, D.V.M., & Adams, C. (1991). What do referential communication tasks measure? A study of children with specific language impairment. *Applied Psycholinguistics, 12*, 199–215.

Bishop, D.V.M., & Adams, C. (1992). Comprehension problems in children with specific language impairment: Literal and inferential meaning. *Journal of Speech and Hearing Research, 35*, 119–129.

Bishop, D.V.M., Chan, J., Hartley, J., Adams, C., & Weir, F. (2000). Conversational responsiveness in specific language impairment: Evidence of disproportionate pragmatic difficulties in a subset of children. *Development and Psychopathology, 12*, 177–199.

Bishop, D.V.M., & Rosenbloom, L. (1987). Classification of childhood language disorders. In W. Yule & M. Rutter (Eds), *Language development and disorders: Clinics in Developmental Medicine* [double issue]. London: MacKeith Press.

Bolton, P., MacDonald, H., Pickles, A., Rios, P., Goode, S., Crowson, M., Bailey, A., & Rutter, M. (1994). A case-control family history study of autism. *Journal of Child Psychology and Psychiatry, 35*, 877–900.

Boucher, J. (1998). SPD as a distinct diagnostic entity: Logical considerations and directions for future research. *International Journal of Language and Communication Disorders, 33*, 71–81.

Brinton, B., & Fujiki, M. (1989). *Conversational management with language-impaired children: Pragmatic assessment and intervention*. Rockville, MD: Aspen Publishers.

Brinton, B., & Fujiki, M. (1993). Language, social skills, and socioemotional behavior. *Language, Speech, and Hearing Services in Schools, 24*, 194–198.

Cantwell, D., Baker, L., Rutter, M., & Mawhood, L. (1989). Infantile autism and developmental receptive dysphasia: A comparative follow-up into middle childhood. *Journal of Autism and Developmental Disorders, 19*, 19–31.

Conti-Ramsden, G., Crutchley, A., & Botting, N. (1997). The extent to which psychometric tests differentiate subgroups of children with SLI. *Journal of Speech, Language, and Hearing Research, 40*, 765–777.

Craig, H.K. (1993). Social skills of children with specific language impairment: Peer relationships. *Language, Speech, and Hearing Services in Schools, 24*, 206–215.

Frith, U. (1989). A new look at language and communication in autism. *British Journal of Disorders of Communication, 24*, 123–150.

Gallagher, T. (Ed.). (1991). *Pragmatics of language: Clinical practice issues*. San Diego: Singular Publishing Group.

Gertner, B.L., Rice, M.L., & Hadley, P.A. (1994). Influence of communicative competence on peer preferences in a preschool classroom. *Journal of Speech and Hearing Research, 37*, 913–923.

Goldin-Meadow, S., & Mylander, C. (1998). Spontaneous sign systems created by deaf children in two cultures. *Nature, 391*, 279–281.

Goldman, L.G. (1987). Social implications of language disorders. *Reading, Writing and Learning Disabilities, 3*, 119–130.

Hadley, P.A., & Rice, M.L. (1991). Conversational responsiveness of speech and language impaired preschoolers. *Journal of Speech and Hearing Research, 34*, 1308–1317.

Kanner, L. (1946). Irrelevant and metaphorical language in early infantile autism. *American Journal of Psychiatry, 103*, 242–246.

Lister Brook, S., & Bowler, D. (1992). Autism by another name? Semantic and pragmatic impairments in children. *Journal of Autism and Developmental Disorders, 22*, 61–82.

Lord, C., & Pickles, A. (1996). Language level and nonverbal social-communicative behaviors in autistic and language-delayed children. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*, 1542–1550.

Mawhood, L. (1995). Autism and developmental language disorder: Implications from a follow-up in early adult life. Unpublished Ph.D. thesis, University of London, UK.

Miller, J. (1991). Research on language disorders in children: A progress report. In J. Miller (Ed.). *Research on child language disorders* (pp. 3–22). Austin, TX: Pro-Ed.

Nowicki, S., & Duke, M.P. (1992). *Helping the child who doesn't fit in*. Atlanta: Peachtree Publishers.

O'Hare, A.E., Quew, R., & Aitken, K. (1998). The identification of autism in children referred to a tertiary speech and language clinic and the implications for service delivery. *Autism, 2*, 171–180.

Paul, R., Spangle Looney, S., & Dahm, P.S. (1991). Communication and socialization skills at ages 2 and 3 in "late-talking" young children. *Journal of Speech and Hearing Research, 34*, 858–865.

Rapin, I. (1996). Developmental language disorders: A clinical update. *Journal of Child Psychology and Psychiatry, 37*, 643–655.

Rapin, I., & Allen, D. (1983). Developmental language disorders: Nosologic considerations. In U. Kirk (Ed.), *Neuropsychology of language, reading, and spelling* (pp. 155–184). New York: Academic Press.

Redmond, S.M., & Rice, M.L. (1998). The socioemotional behaviors of children with SLI: Social adaptation or social deviance? *Journal of Speech, Language, and Hearing Research, 41*, 688–700.

Rice, M.L., Sell, M.A., & Hadley, P.A. (1991). Social interactions of speech and language impaired children. *Journal of Speech and Hearing Research, 34*, 1299–1307.

Shields, J., Varley, R., Broks, P., & Simpson, A. (1996a). Hemispheric function in developmental language disorders and high-level autism. *Developmental Medicine and Child Neurology, 38*, 473–486.

Shields, J., Varley, R., Broks, P., & Simpson, A. (1996b). Social cognition in developmental language disorders and high-level autism. *Developmental Medicine and Child Neurology, 38*, 487–495.