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3 What Are the Building Blocks for Language Acquisition? Underlying Principles of Assessment for Language Impairment in the Bilingual Context

Carolyn Letts

This chapter considers the assessment of the acquisition of spoken language in young bilingual children within the context of potential language impairment. The main focus is on the use of assessment to identify language impairment, and in particular the use of formal test procedures. The difficulties surrounding such assessment are explored. This is followed by a discussion of the extent to which it is possible to develop assessments that reflect stages and skills that are of significance in the acquisition of any language. Linguistic features that have been associated with language impairment are also discussed, again against the backdrop of potential universality. Finally, suggestions are made regarding the development of assessment procedures for early language abilities in children acquiring language in a bi- or multilingual context.

Introduction

An important context in which it may be necessary to assess the language ability of a bilingual child is that of speech and language therapy (SLT, sometimes referred to as speech language pathology). In this context oral language ability is the main focus of attention, although written language

may be of interest where older children are concerned. One of the main requirements of such assessment is the identification of a potential underlying difficulty with language acquisition, that is to say, the presence of an overall language delay or impairment. Such a difficulty will have an impact on the child's acquisition of all the languages to which he or she is exposed and will not be limited to second language learning. Although conditions such as deafness, neurological damage or disorder, severe environmental deprivation, generalized learning disability and autistic spectrum disorder are known to impair language acquisition, in many cases in which the child is slow to acquire language skills the cause is unknown. This is captured in the defining features of *specific language impairment* (SLI) or *primary language impairment*, where the possible etiological factors listed above are all excluded from the child's diagnostic profile (Leonard, 1998). Identification in these instances depends on establishing that the child's language development is significantly behind, or significantly different from, that of age peers who share the same linguistic background. This chapter will focus on assessment for this purpose, concentrating on oral language abilities in young children (toddlers to early school years). In particular, issues concerning the adaptation of standardized and/or formal test procedures for use with children in bilingual contexts will be addressed. As there is considerable overlap between the linguistic characteristics of SLI and those of other language impairments that do not reach strict exclusion criteria (that is, there may be additional non-linguistic impairments involved), the preferred term for this sort of communication difficulty as used here will be *language impairment* (LI).

While the mere fact of being bilingual does not in itself impact negatively on language acquisition, bilingual children are as much at risk for LI as the monolingual population. The report produced by Bercow (2008), drawing on work published by Lindsay *et al.* in 2010, estimates that 7% of children in the UK have speech, language and communication needs (SLCN). In situations where significant proportions of children are living in bi- or multilingual communities, some children with SLCN will therefore inevitably be bilingual.

Professionals such as speech and language therapists (SLTs) have a number of specific aims they need to fulfil when assessing children. Crucially, they have to identify children who are at risk for communication impairment. This is done by comparing their communicative behaviour, including language comprehension and production, with that of their age peers: where they appear to be lagging behind significantly, this may indicate a problem requiring help and intervention if the child's educational, social and personal development is to remain uncompromised. Once an impairment is identified, further assessment is required to build up a profile of language ability, to identify aspects and areas that have the greatest developmental impact on the child, and to plan intervention and to measure progress (Cupples, 2011).

In the bilingual context, SLTs are faced with a number of issues that do not apply when working with monolingual children. Some of these are:

- (1) *Diversity within bilingual populations.* The ways in which children become bilingual and the degree of exposure they have had to each language vary enormously. The expectations regarding acquisition of each language for a child who has been exposed to two languages from birth, for example, will be very different from what might be expected if the child has only recently been exposed to a second language. When one language is clearly a second language (L2) for the child, the length of exposure and contexts in which s/he uses the language will have to be taken into account. This means that identifying an appropriate peer group for comparison is important, but can be difficult.
- (2) *Lack of norms.* The majority of normative information on language acquisition relates to English. Where information is available for other languages, this is most frequently within the context of monolingualism. Information is beginning to emerge regarding bilingual language acquisition, suggesting that there may be lags in comparison to monolingual acquisition in some areas (vocabulary, morphosyntax) when each language is viewed in isolation, with catch-up at a later point (see, for example, Gathercole & Thomas, 2009; Hoff *et al.*, 2012; Paradis, 2010). This suggests that direct comparison with monolingual norms is not advisable.
- (3) *Lack of knowledge.* Professionals are often not bilingual themselves and will in most instances not be speakers of one or more of the child's languages. It may be difficult to get information about characteristics of a child's home language(s), for example, if the variety spoken is low status and/or has no written form (see Pert & Letts, 2006, for an example of this). In addition, code-switching may be commonplace in the child's community, or may be a rare feature in a home where parents try to keep each language separate. Information will therefore be needed on whether code-switching should occur and what form this may take. This will help a professional assess whether switches on the child's part are a common element of that child's experience with the two languages or fall outside that experience, and therefore whether the child can be expected to display code-switching in their expressive language.
- (4) *Risk of confusion with characteristics of second language acquisition (SLA).* Practitioners will often be familiar with one of the languages that the child is acquiring (for example in the UK, English, if this is a language the child is acquiring in school). This will, however, often be a non-dominant second language for the child, who will understandably be behind his monolingual English-speaking age peers. Especially with very young children whose knowledge of one of their languages may be limited, it is always advisable to assess in all the languages to which the

child is exposed. De Jong and colleagues have done extensive work to disentangle features associated with SLA from those associated with SLI in children who are bilingual Turkish–Dutch speakers. However, they have found many areas of overlap between the two groups when looking at children’s second language (de Jong *et al.*, 2010; Orgassa, 2009).

In addition to all of the above issues, cultural differences between the professional and the child’s family may impose further barriers and increase the potential for misunderstandings and misinterpretation of assessment outcomes (see Isaac, 2002, for further information in this area).

The aim of this chapter is to take the reader through aspects and stages of language acquisition that should be worthy of assessment regardless of the linguistic background of the child, while keeping in mind all these issues. Strategies are offered that will aid in devising assessment procedures and materials.

Assessment Techniques

A number of different tools and techniques are used by SLTs for assessment, including observation, language sampling, informal probes and formal tests. The techniques of choice will vary according to the stage in the assessment and intervention cycle; specific criterion-referenced probes, for example, may be most useful after a period of intervention, in order to evaluate what the child has learned and how effective the intervention has been. When at the earlier stage of identifying the child who may be at risk, a range of tools are ideally used to build up a comprehensive picture (Cupples, 2011). Observation of children in different social settings will give a picture of their interaction with age peers and with adults, and of the impact of any communication impairment on educational and social activities. This initial impression will then be explored more thoroughly, often with formal testing. The formal test offers a structured framework that can be worked through systematically. At this stage, tests that sample a range of key language behaviours are useful, as too specific a focus on one level of language (e.g. vocabulary or morphology) may result in the missing of difficulties at other levels. Formal published tests may be available (in which case the materials will look professional and be durable) and, importantly, they will often be standardized on a normative sample. This provides ready comparison with age peers. Testers are encouraged to check standardized tests for a number of features before using them – for example, the representativeness of the normative sample; reliability and validity; and ability to discriminate between children who have language difficulty and those who do not (sensitivity and specificity). Lidz (2003) describes these features of standardized tests in the context of children with special educational needs, as well as

discussing other types of assessment procedure. (See also Chapter 6 by Peña *et al.*, this volume.)

While formal and standardized tests have a number of advantages, especially in terms of controlling the linguistic features that are sampled, they also have a number of inherent drawbacks. Children may be unfamiliar with the ‘test’ situation and unnerved by it and so may not perform well. Furthermore, tests are good for illustrating what children appear unable to do, but they do not address *why* they have failed certain items (i.e. is it because of genuine lack of language competence or the result of being bored or distracted?), nor do they reveal what children *can* do. For these reasons, it is recommended that test results be complemented both by language sampling and by further investigation of areas of language that seem problematic.

Testing Bilingual Children

Important features of tests: Standardization and theoretical basis

There are very few standardized tests that have been developed for children who are bilingual. Such development involves norming on a sufficiently large sample of typically developing bilingual children, who are grouped according to similar linguistic and social backgrounds. Large numbers may be difficult to locate and, because of the diversity of background mentioned above, the norming sample may differ in important ways from any individual child who is subsequently tested. Tests that have been developed in such a way include *Prawf Geirfa Cymraeg* (Welsh–English vocabulary; see Gathercole *et al.*, 2008), *Sandwell Bilingual Screening Assessment Scales for Expressive Punjabi and English* (Duncan *et al.*, 1988), and the *Test of Auditory Comprehension of Language. English/Spanish* (Carrow, 1973).

While standardization is the most obvious and most often mentioned problem around creating tests for the bilingual child population, a further issue relates to the theoretical premises on which the test is developed. The minimal requirement is that the test reflect important linguistic features that are associated with the target age group; for tests that cover a wide age range and a number of developmental stages, this will include a number of such features. Selection of these features will depend very much on the state of knowledge, both theoretical and empirical, at the time the test is developed. The *Reynell Developmental Language Scales* (RDLS), for example, which are used extensively in the UK, were developed in the 1960s and have since undergone a number of transformations with each new edition. Throughout, the target age group has been the preschool and early primary school population (between 18 months and 7 years 6 months, although there have been minor changes to the exact age range over time). Early editions were based on experience arising from clinical practice, and they featured aspects of

language that appeared to be important both for typical language acquisition and for impaired children who had language delays or disorders. Reynell (1977) incorporated a large normative sample of typically developing children, so that it was then possible to make confident predictions about normal stages of language acquisition *in English*; there was no consideration of developmental profiles in other languages, and the standardization sample consisted of children who were all monolingual English speakers.

Subsequent editions of RDLS (*RDLS-III*; Edwards *et al.*, 1997, and the *New RDLS (NRDLS)*; Edwards *et al.*, 2011) incorporated advances in knowledge in two areas, first, relative to stages of language acquisition, and second, with regard to key features of LI. These advances were fuelled, first, by the blossoming of research on child language acquisition from the 1970s onwards and the development of tools such as *LARSP (Linguistic Assessment, Remediation and Screening Procedure)*; Crystal *et al.*, 1976), which enabled comparison of a young child's language acquisition with specific age-related stages. The second major influence, more apparent in *NRDLS* (2011), was the search for linguistic 'markers' of child LI, and especially *specific* language impairment (SLI: see above). The earliest research in this area was conducted in the area of the acquisition of morphology, especially verb morphology, following seminal work by Rice and colleagues (Rice, 2003). Subsequent areas that have been considered have been complex sentences, object clitics, and pronouns (e.g. Van der Lely & Stollwerck, 1997), as well as processing skills reflected in non-word repetition (e.g. Archibald & Gathercole, 2006; Chiat & Roy, 2007) and sentence repetition tasks (e.g. Riches *et al.*, 2010).

While it can be argued that the theoretical rationale behind some formal test procedures is becoming increasingly sophisticated, there has been little consideration until comparatively recently of the universality of such rationales across different linguistic contexts. Indeed, there is a 'tradition' within test development to exclude children who are bilingual from any normative sample, because they will necessarily be different and, therefore, risk skewing results. Importantly, though, those aspects of language known to be difficult for LI children have increasingly been the subject of crosslinguistic studies of children with SLI, and so we have some information on the degree to which the difficulties are language-specific or might be common to SLI children from a range of language backgrounds. For example, studies have been conducted looking at verb morphology (e.g. Bortolini *et al.*, 2002; Dromi *et al.*, 1999; Hansson & Leonard, 2003; Roberts & Leonard, 1997), pronouns (e.g. Stavroulaki & Van der Lely, 2010), complex sentences (e.g. Novadgradsky & Friedmann, 2006), and passives (e.g. Leonard *et al.*, 2006).

Basis for bilingual assessment: Stages of language acquisition

As indicated in the previous section, a good formal assessment procedure will include tasks and sections that reflect key stages in the language

acquisition process and/or items that are known to be problematic for children with LI. While studies of language acquisition in a range of languages have been increasing, it is still the case that the overwhelming majority of work done in this area, and certainly the focus of the main textbooks (e.g. Berko-Gleason & Ratner, 2009; Hoff, 2005; Hulit & Howard, 2005), is based on acquisition of English. An important question then is to what extent these stages of language acquisition are ‘universal’, applying both to languages other than English in the monolingual context, and to bilingual acquisition. For individual languages and language combinations this question can be addressed by extensive data collection from young typically developing children, but this research takes considerable time; clinicians and other professionals working to identify LI children require something that is available currently on which to base their judgments. A common strategy is to translate (or better, adapt) a test or procedure that is already available, usually in English, while recognizing that the information gleaned in this way should be treated with caution because of issues related to the very different populations on which the test was standardized. This still leaves the problem of how universal the stages of language acquisition represented by the test might be.

Letts and Sinka (2011) have produced a *Multilingual Toolkit* to accompany *NRDLS*. This gives guidelines for those who are contemplating trying to adapt the test for use in languages other than English, and for use in bilingual contexts. In preparing this, an attempt has been made to indicate features of language acquisition that are arguably universal, and also features that are hard to learn and therefore potentially at risk when the child is language impaired. The following assumptions are made about universal sequences of language acquisition:

- (1) Comprehension and production of single words come before comprehension and production of multi-word utterances. Children who are late to acquire single words are at risk for LI.
- (2) Early sentences are simple and consist of verbs with accompanying argument structures. Where children are slow to move on to multi-word utterances and produce simple sentences, they are likely to be at risk for LI.
- (3) Comprehension and production of sentences that are complex in various ways (e.g. contain embedded clauses, or feature ‘movement’) develop later than comprehension and production of simple sentences. Older children who have LI are likely to have more difficulty with complex sentences, when compared to age peers.
- (4) The integrated skills required for inferential understanding and for making metalinguistic judgements are relatively late to develop. In children with LI, these skills will be particularly slow. While there is some evidence for different processing systems in bilingual children leading

at times to an advantage in metalinguistic tasks (see, for example, Bialystok, 1991), there have been no studies that indicate a corresponding mitigation of delay in the development of metalinguistic skills in bilingual children who have LI.

A comprehensive assessment of language acquisition would be expected to reflect these assumptions. Other aspects of acquisition that are undoubtedly important in many languages may not be universal in the same way. Verb morphology, for example, is present with varying degrees of richness in many languages in Europe, for example, but may be absent or all but absent elsewhere, such as in the languages of China. Locative marking, generally expressed through prepositional phrases in English, is known to be expressed by a variety of other linguistic devices in other languages; Dabrowska (2004) lists adpositions, nouns, adverbs, particles, verbs, adjectives, verb affixes and noun inflections as all potentially fulfilling this function. This means that linguistic complexity for expressing location will vary across languages, and children learning distinct languages may be at different ages/stages before they can understand and talk about location correctly.

The stages embodied in the assumptions listed above feel intuitively obvious, in that there is a development from comparatively simple structures (single words) to more complex ones (e.g. complex sentences). Further empirical support for this progression was provided during the trialling stage of *NRDLS*. A large number of test items, divided into appropriate sections, were trialled on a sample of 301 children in the age range of 18 months to 7 years 6 months. In order to maximize the number of items that could be trialled without exhausting the patience of the participants, children were divided into two groups, each of which took different versions of the test. Each section had a number of anchor items, common to both versions, plus items that were unique to the particular version. The anchor items served as common points to which the relative difficulty of non-anchor items could be compared. Sections and items could then be evaluated on a number of factors including internal reliability, ability to discriminate between children of different ages, and progressive development with age across the test. It was then possible to construct a test consisting of coherent sections ordered according to difficulty. The youngest children were quite successful in completing the sections involving selecting or naming objects (nouns) but were unable to score on other sections. The most difficult sections were those involving inferential meaning and grammaticality judgment (involving metalinguistic awareness), for which only the oldest children in the sample (around ages 5 years 6 months to 7 years) were successful. The resulting ordering of sections reflected the broad ordering suggested above, *for English*. Moreover, for English, sections are included that cover English verb morphology and prepositions expressing spatial relationships. For different languages and in the bilingual context, different ordering may be expected in terms of where such

sections would be placed, or indeed whole sections may be irrelevant. Even within the broadest stages listed above, there may also be variation in acquisition across languages. Early single word vocabulary for children speaking some languages may contain a relatively high proportion of verbs in comparison to English and other languages where there is an early 'noun bias' (see, for example, Choi & Gopnik, 1995; Kim *et al.*, 2000). This may affect the way early vocabulary is assessed for these languages.

When considering children who are developing language in a bilingual context, these broad stages would still be expected to apply; however, the possibility of a lag in development in any one language then needs to be considered. With vocabulary, for example, bilingual children may have a lower vocabulary than monolingual age peers for each language, but their total vocabulary or total conceptual vocabulary needs to be considered (Patterson, 1998; Peña *et al.*, 2002), as well as potential cognate or borrowed items across the two languages (Chapter 7 by Stadthagen-González *et al.*, this volume). A further consideration is intra-sentential code switching which may occur (Pert & Letts, 2006; Paradis *et al.*, 2000) in multiword utterances. Any assessment would need to allow for this and for mixed or code-switched utterances to be credited accordingly.

Basis for bilingual assessment: Indicators of language impairment

Besides drawing on developmental stages in acquisition, the other area that may drive language assessment is that of potential markers of LI. As indicated above, crosslinguistic studies have searched for these, for example, in the areas of verb morphology and complex sentences. English-speaking children with SLI are known to find tense marking difficult, specifically third person singular (present tense) *-s* and past tense *-ed*. Studies looking at how SLI children cope with verb inflections in different languages have indicated variation in the degree of difficulty with tense and person markers, which can often be plausibly explained by characteristics of the target language (see, for example, Bedore & Leonard, 2005; Kunnari *et al.*, 2011; Thordardottir, 2008). Where verb morphology is comparatively rich (i.e. all verb forms are inflected in some way, so the child does not have to remember which ones are affected) and also regular, children acquire the morphology earlier and these inflections are less problematic for children with SLI. The field cannot yet identify exactly which types of structures, under which circumstances, are particularly difficult for children with LI. Among the clear indicators of a problem that is unlikely to resolve are the severity of a delay and the presence of difficulty in comprehending language as well as producing it. Beyond this, however, with current knowledge, it would be wise to incorporate some of the aspects thought to be vulnerable into any assessment. There is evidence that intervention can be effective with young children (see review by Cable & Domsch, 2011), and also that LIs can have

long-lasting damaging effects on the child's later educational and social development. The arguments for identifying the problem and intervening as early as possible are therefore persuasive, although it has also been noted that a significant number of preschool children with expressive language delays may improve spontaneously (Law *et al.*, 2000).

It is important to bear in mind, however, that, while areas identified as potential markers of LI appear to be powerful indicators of LI, they also tend to be more complex, and therefore later developing, aspects of language structure. As part of the process of standardizing *NRDLS*, for example, a group of 35 LI children, as diagnosed by SLTs, aged between 4 years 6 months and 7 years 6 months, were compared with children matched for gender and age from the main normative sample. Significant differences in scores were found for both comprehension and production. LI children had particular difficulty with producing complex sentences. However, this was a section that even typically developing children found difficult – they were found to be able to perform competently only when they were around 5 years 6 months. (Note that they can produce some of these structures spontaneously before that age.) It is clear, then, that the use of complex sentences would not work as an indicator of impairment in younger children. Assessments that tap into earlier stages, including single word vocabulary, early two-word utterances and simple sentences are therefore required.

Adapting Tests

The following sections concern the development and/or adaptation of formal tests in line with different linguistic contexts, focusing on single words, simple sentences and complex sentences. It is assumed that these aspects of language acquisition would form the basic substance of a test that, like *NRDLS*, samples a variety of language behaviours and is developmental – that is to say, accommodates a range of ages. There are also procedures that focus on particular aspects of language (e.g. vocabulary or syntax), or particular age ranges, or both. These will be mentioned where relevant. For guidelines for adapting *NRDLS* specifically to non-English contexts, please refer to Letts and Sinka (2011).

In many ways, the ideal approach for developing tests in other languages is to use research evidence to develop items tailored for each language situation, without reference to test materials available for other languages. Evidence from the wider research literature on testing can be used to inform the framework for test construction (as is suggested above with reference to possible universal stages of development), but individual items can be constructed in line with the cultural and environmental experience of the target population and the linguistic characteristics of the target language(s). However, in clinical and educational situations, professionals often do not

have that luxury and need something that can be used immediately. So there may be a need to adapt materials and resources to which the assessing professional already has access. The following sections will aim to give suggestions for both these scenarios.

Early single words

The understanding and production of single words are the very earliest language skills that can be demonstrated through a formal procedure, usually through asking the child to choose a picture or object from a wider selection according to a word s/he hears (comprehension) or to name a picture or object. Care must be taken that the vocabulary sampled is likely to be within the young child's experience and that there is evidence that young children know these words and regularly use them. Where existing materials are adapted, translation equivalents may be problematic. There may be more than one lexical item available, so a choice must be made. For example, Latvian has a direct equivalent of the English word *pencil*, but a generic term *rakstāmais* (meaning 'writing instrument') is also widely used. Alternatively, a single lexical item may not exist that exactly captures the meaning of the item; for example, with Welsh-speaking children a phrase *codi llaw*, literally 'lift hand', is commonly used where English speakers would use the verb *wave*.

If the focus of assessment is exclusively on early vocabulary, there may be other resources that might give a clearer picture of the child's capacity in this area. A naturalistic language sample could yield a type-token ratio or 'D' measure of vocabulary diversity (Malvern & Richards, 2002). This gives an indication of the range of vocabulary used by the child in spontaneous language and of the degree to which the child can exploit different vocabulary items in the structures he or she produces. The McArthur–Bates Communicative Development Inventories (CDI) checklists completed by parents about their child's early language, especially early words, have been developed for a broad range of languages and linguistic contexts. An example developed in the bilingual context of Malta is that of Gatt (Gatt *et al.*, 2008; see also Chapter 4 by Ezeizabarrena *et al.*, this volume; Chapter 5 by O'Toole, this volume). For further examples, see the McArthur–Bates CDI website (http://www.sci.sdsu.edu/cdi/adaptations_ol.htm). Both language sampling and use of checklists have the advantage that bilingual situations can be easily accommodated. Since they tap into naturalistic use, whichever language is appropriate to the situation can be used, including code-switching and code-switched varieties. Alternatively, these resources may be used as sources for identifying suitable lexical items for an early vocabulary section on a broader test. Naturalistic language samples for a range of language situations can be found on the CHILDES website (<http://childes.psy.cmu.edu/>).

A further consideration arises if one wishes to tap into word classes beyond nouns. Noun vocabulary is relatively easy to elicit or test for

comprehension in the formal test situation, as concrete objects or pictures can be used. Verb vocabulary is rather more difficult, but it is possible to develop sections on verbs, as for *NRDLS*, by animating toys and by using pictures of activities. While other word classes do of course feature in the early vocabularies of children, there is evidence that, in many languages, nouns make up a large proportion of early words (the so-called 'noun-bias') and so sampling nouns should give an insight into the child's progress. The test developer needs to be sensitive, however, to the evidence (cited above) that, in some languages, verbs develop earlier than in languages such as English and other European languages and so the noun bias may be diminished or non-existent. Characteristics of the input to young children from caregivers seem to account for these differences. Where this is the case, care needs to be taken to sample early verbs as well as early nouns.

Simple sentences

In simple sentences words are combined to express propositions that go beyond simple identification or naming. Grammatically they contain minimally one verb. Verbs may be absent in early sentences, but sooner or later the child acquires the conventions for constructing a sentence around a verb. Arguments expressing thematic roles such as agent, patient, benefactive, locative, etc. will also minimally be present, but these may be implied and recoverable from the pragmatic context. Thematic roles may be expressed explicitly through noun phrases or prepositional phrases, as in English, or by means of inflection on the verb. Languages may rely on word order to make clear the thematic roles played by each element (so *John is hitting Mary* has a different meaning from *Mary is hitting John*), or word order may be comparatively free, with identification of thematic roles through grammatical inflections or case endings on nouns, determiners and/or prepositions. All of these possibilities have implications for the development of simple sentences and potentially facilitate or inhibit early acquisition. In *pro-drop* languages (e.g. Italian), subject pronouns are frequently omitted from sentences, with the verb inflection indicating who or what is carrying out the action. In some languages, 'radical *pro-drop*' occurs, with the omission of a range of sentence elements, whose reference is presumably recoverable from the context.

Spontaneous language samples may give an idea of the child's ability to get across the sort of information conveyed by simple sentences, but the implications for the acquisition of these different possibilities require further research. Relevant questions include, for example, whether sentences where *pro-drop* occurs are produced earlier than those where the subject of the verb must be expressed, albeit with a pronoun, and whether it takes longer to get to grips with sentence structures involving case endings than with those dependent on word order. Where formal testing is developed, or where an existing procedure is adapted to another language, contrasts may have to be

explored carefully. In the *NRDLS* Comprehension Scale, for example, reversible active sentences are used (where either of two noun phrases could be the agent of the action) and the child has to demonstrate knowledge of English word-order rules in order to respond correctly. In languages where the word order is freer, the key cues could be provided by case endings (e.g. Latvian); however, there may be word orders that occur more commonly and thus are more readily comprehended by the child. A decision will need to be made about how much word order is varied across items, as well as ensuring that the important case contrasts are also represented.

With children who are bilingual, a further possible complication is that intra-sentential code-switching may occur once the child has moved beyond the one word stage in the production of language. Pert and Letts (2006) report on the use of a sentence elicitation measure (asking the child to describe simple pictures) to gain information about a child's simple sentence construction in Mirpuri. The task was administered by a Mirpuri-speaking bilingual co-worker, but nevertheless typically developing children all produced some code-switched utterances in their responses. Examples include the following:

- (1) Target picture:
A man is throwing a ball

Child's sentence:

DADDY FOOTBALL *sat -an laga*

Daddy football throw -will about to

'daddy about to throw (the) ball.'

- (2) Target picture:
A man drying his hands

Child's sentence:

DADDY *tolija nal at WASH kar -na piya*

Daddy towel with hands wash do -ing + MALE is + MALE

'Daddy is doing washing (his) hands with (a) towel.' (Pert & Letts, 2006: 364, 366)

The original intention was to produce an assessment procedure that could be used in one language, and then an equivalent version to be used in the child's other language. The idea of using each language independently in this context (and therefore being able to test each language independently using a common set of materials) proved, however, to be too simplistic. It appeared that code-switched forms were used routinely throughout the child's community and therefore any assessment of language production had to take this into account. Furthermore, the children demonstrated sophisticated grammatical abilities in integrating English verbs into their

code-switched utterances in such a way that subject–verb agreement patterns were not violated. Issues of this sort that arise when assessing bilingual children are discussed further below.

Complex sentences

Sentences described as *complex* usually involve one of two features. First, canonical word order for simple sentences may be changed, as in questions and passive forms for English. These types of sentence are sometimes described as involving *movement*. For example, in the question, ‘Who did Tom criticize?’, the object of the verb moves from the postverbal position (‘Tom criticized Fred’) to the front of the clause. Passive structures in English involve the object of the verb moving to the preverbal position (e.g. ‘Fred was criticized by Tom’).

Second, one sentence (or clause) may be ‘embedded’ within another, as with subordinate clauses or relative clauses, e.g. ‘Tom criticized Fred because he was rude’ (subordinate clause beginning with *because*); ‘Tom criticized the man who was rude’ (relative clause modifying *the man*). Of course, complex sentences can also involve combinations of both of these features, as when a clause in the passive voice is embedded within a main clause, e.g. ‘Tom felt sorry for the man who was bitten by a dog’. Generally, the processing load involved to comprehend or produce complex sentences is considered to be greater than that required for simple sentences, and this type of structure is generally acquired later. Several studies have also found that complex sentences are difficult for children with LI (for example, Friedmann & Novogrodsky, 2004; Novogrodsky & Friedmann, 2006; Stavrakaki, 2001; Van der Lely & Battell, 2003; van der Lely *et al.*, 2010).

Assessment for complex sentences can pose problems in terms of setting up items that will examine comprehension or elicit forms in production. Picture selection can work well for relative clauses, since they function to define noun phrases within a sentence more precisely (for example, the child can be asked to choose a picture that goes with *The man who is wearing a hat is running*, or *The dog is chasing the cat that has a white foot*) (see Gathercole *et al.*, 2013). For production, sentence repetition and modelling tasks can be useful (*NRDLS* uses a modelling procedure for eliciting relative clauses), and role-play can be used, for example, to elicit questions (e.g. the child is asked to role play a character who is trying to find things out by asking questions).

As with other structures, ways in which complex sentences are formed in different languages will vary. For example, the position of the *WH* word in *wh*-questions may vary (Dryer, 2008), which in turn will have implications for whether movement is involved. A variety of ‘strategies’ are described by Comrie and Katava (2008) for forming relative clauses, including case-marked relative pronouns and repetition of the main clause noun phrase. Positioning of relative clauses in relation to the noun phrase can also vary

(Flynn *et al.*, 2005). Importantly, passives, which in languages such as English are frequently tested as representative of later language development, are not present in many languages (Siewierska [2008] gives 211 languages without passive forms out of a total of 373). In other languages, passives may occur but too infrequently to be likely to feature in informal child language.

These variations will have an influence on order of acquisition and may contribute to second-learner errors or unusual patterns in bilingual speakers.

Checking appropriateness of test items

The above paragraphs illustrate that, even if a basic developmental progression can be identified that applies to language acquisition for all languages, there may be variations in the timing and order of the surface manifestations of these stages: the single word stage may reflect a noun bias, or may be represented by verbs and nouns equally; the structures used in both simple and complex sentences (for example, verb morphology) may vary in terms of time of emergence and consolidation, again depending on characteristics of the language. Of course, individual languages may also contain structures that are unique to that language or language group (an example might be mutations in Welsh; see Ball & Müller [1992] for a description and Tallerman [2006] for a recent discussion of syntax), and for these, if acquisition research on these structures is absent, the developmental sequence can only be guessed at (Gathercole [2007] reports on acquisition of gender patterns as expressed through the Welsh soft mutation). So, while candidates may emerge for testing, reliable information on their acquisition may not be available until norming data have been collected and analysed. In the short term, though, a number of strategies are available to help in confirming whether a structure is 'important' and appropriate to use in formal testing. For one, a native-speaker adult informant who shares the linguistic and cultural background of the target group should ideally be used, and he or she can help confirm the appropriateness of the vocabulary and structures for children. Additionally, it may be possible to trial items on small numbers of typically developing children from the given background to gain some information as to what can be expected in terms of acquisition. Finally, in cases in which individual children are causing concern, asking adults from the community to compare aspects of their language with age peers may be helpful.

Testing bilinguals

For monolingual professionals, the immediate concern when assessing a bilingual child tends to be that of finding ways of working with an unknown language or languages, especially when good descriptions and developmental norms are not available. This very real concern tends to mask further issues

arising because of the unique linguistic profiles associated with bilingual language acquisition. The possibility of apparent 'delay' in one or both of the child's languages when compared to monolingual norms has already been mentioned. In order to get a full picture, assessment that allows the child to demonstrate his/her skills in all the languages s/he speaks is essential. However, this still raises questions about how to go about this. For example, does testing take place on two completely separate occasions, once exclusively in one language and once exclusively in the other? Or is the child presented with one set of procedures and encouraged to respond in whichever language s/he feels comfortable with? When looking at production of language, Pert and Letts (2003) reported on testing children from a Pakistani heritage background using a simple picture description task. The pictures were presented by a bilingual co-worker and in this situation a number of interesting factors emerged. First, the children did not necessarily respond in the language reported to be their home language, but responded instead in a different Pakistani heritage language (often Mirpuri, considered by speakers to be a low-status language and which does not have a written form). Second, as mentioned, the children used high numbers of code-switched utterances in which English lexical forms were inserted into matrix Mirpuri sentences. Restricting the children's responses to a predefined language would have resulted in an underestimate of their linguistic development in these cases.

Testing comprehension raises obvious problems as the tester will need to know which language it is appropriate to use. It may be possible to give an item again in the child's other language if the child fails to respond (or fails to respond correctly) in one language. Here it will be necessary to take into account that the child will likely already have gained some insight regarding the nature of the item from the first presentation, even if s/he has not fully understood it at that point. Deciding how to proceed here would very much depend on the purpose of assessment; in the context of potential LI, an overview of the child's ability to communicate, regardless of language, is likely to be required.

Integration of Testing with Other Assessments and Conclusions

When using formal testing procedures with children it is important to remember that these procedures are tools only and that the right questions must be asked in the first place. If the question concerns the extent to which a child may be at risk for LI, then a test procedure may indicate potential linguistic areas of difficulty, and supply a comparison with other children in the form of norms. The tester must always be mindful of the appropriateness or not of these norms to the target child, and to the appropriateness of using a procedure of this type with the child. Carter *et al.* (2005) illustrate how the

cultural and educational experiences of the child can strongly influence outcomes when formal test procedures are used. It is important to collect background information on the child and his or her context in order to take into account effects of this kind.

The formal test should never be the only assessment procedure used. The child's overall general ability to communicate, however this is done, is important, as is his/her use of language in spontaneous situations when not constrained by the testing situation. Above all, comparison must be made with a relevant peer group of children sharing the same linguistic background and experiences. Where such a peer group is not available, it is important to proceed with caution.

It can be seen that assessment of early comprehension and production of spoken language in a bilingual context is not straightforward. Lack of knowledge of acquisition norms for particular languages and for bilingual acquisition of these languages makes this particularly problematic. Nevertheless, there are strategies that the professional can use, and knowledge in this area is developing and is the focus of much current research interest.

Summary: Important Issues When Assessing the Language of Bilingual Children

- Being bilingual does not increase a child's risk for LI, but bilingual children are as much at risk as the monolingual population.
- In developing assessment procedures for use with bilingual children, finding appropriate peer groups for comparison is of crucial importance, but may be difficult.
- Direct comparison with monolingual norms for particular structures in a particular language is not appropriate.
- It may be normal for a bilingual child to use extensive intra-sentential code-switching.
- Typical features of SLA may look similar to those associated with SLI, but do not necessarily imply LI in L2 children.
- Formal test results should always be complemented by other measures.
- There is evidence for the effectiveness of intervention for language at an early age, but conclusive markers that indicate impairment may not be apparent early enough to distinguish typically developing from LI children.
- A number of factors should be taken into account when developing assessment procedures in a range of languages:
 - presence or absence of a noun bias in early words;
 - ways in which thematic role assignment is realized grammatically (e.g. word order/inflections);
 - whether *pro*-drop is a normal feature of the language;

- ways in which *wh*-questions and relative clauses are formed;
- structures that may be absent from a language (e.g. tense, passives) or unique to only a small number of languages.
- It may be useful to elicit information from adult informants who speak the relevant languages, and/or to recruit some of a child's peers for comparison purposes.
- The child's cultural background and experience must always be considered when making an assessment.

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