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Development of Verb Inflections among Bangla-speaking Children with Language Disorder[1]

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Running head: Bangla-speaking children with language disorder

Keywords: language development in Bangla, verb inflections, language disorder, CATALISE consortium.

[1] The language analysed in this paper is the Standard Bangla spoken in Dhaka, Bangladesh.

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Abstract

Background. Children with language disorder across languages have problems with verb morphology. The nature of these problems varies according to the typology of the language. Bangla, spoken by more than 200 million people, is an under-explored language with agglutinative features in its verb inflections. Some information on the acquisition of the language by typically developing children is available, but to date we have no information on the nature of atypical language development. As in many places in the developing world, the circumstances for research into language disorder are challenging, as there is no well-ordered infrastructure for the identification of these children and approaches to intervention are not evidence-based. This study represents the first attempt to characterize the nature of morphosyntactic limitations in standard Bangla-speaking children with language disorder.

Aims. To describe the performance of a group of children with language disorder on elicitation procedures for three Bangla verb inflections of increasing structural complexity – Present Simple, Present Progressive and Past Progressive – and to compare their abilities on these forms to those of a group of typically developing Bangla-speaking children.

Methods & Procedures. Nine children with language disorder (mean age 88.11 months) were recruited from a special school in Dhaka, Bangladesh. Eight of the children also had a differentiating or co-occurring condition. They responded to three tasks – a semi-structured conversation to elicit Present Simple, and two picture-based tasks to elicit Present Progressive and Past Progressive. Their performance was compared to data available from a large group of younger typically developing children.

Outcomes and Results. Group data indicated a comparable trajectory of performance by the children with language disorder to the typically developing children (Present Simple>Present Progressive>Past Progressive) but with significantly lower mean scores. Standard deviations suggested considerable individual variation and individual profiles were constructed for each child, revealing varying patterns of ability, some of which did not accord with the typical developmental trajectory and/or substitution patterns.

What this paper adds.

What is already known on the subject

To date there is limited information on typical language development in standard Bangla, and no research on language disorder in Bangla children. This initial study provides the first data on verb morphology in Bangla-speaking children with language disorder.

What this paper adds to existing knowledge

It demonstrates that there is a considerable divergence between the abilities of Bangla-speaking children with language disorder and their typically developing peers. It also makes clear that there is a range of individual variation in the language disordered group.

What are the potential or actual clinical implications of this work?

The gap between typically developing children and those with language disorder indicates that this is an area of the grammar which requires attention by clinicians and educators. And the varied individual profiles of verb inflection performance and substitution suggest targeted intervention according to the pattern of provision and substitution revealed.

Introduction

Comparative linguistic studies of atypical language development (ALD) have underlined the role of typological properties in influencing the interaction between an inefficient learning mechanism and language structure. Studies on both typical and atypical language development indicate that the form in which grammatical information is represented in inflections often defines the developmental patterns of the markers (e. g. Leonard, 2014; Xanthos et al., 2010). The acquisition patterns exhibited in languages with fusional properties in the morphological paradigm (e.g., English and German), where each morpheme represents more than one grammatical property, are distinct from those found in languages with agglutinative features (e.g., Hungarian and Turkish) where there is a one-to-one relationship between the morphemes and functions. Research involving fusional languages suggests that children developing language atypically have difficulty marking verb finiteness, resulting in production of bare verb stems (Leonard, McGregor, and Allen, 1992; Rice, Noll, and Grimm, 1997; Rice, Wexler, and Cleave, 1995). In Chinese, an isolating language, where tense is not overtly marked, language disorder in morphosyntax is characterised by the omission of aspect markers (Fletcher et al., 2005). But children learning agglutinative languages produce alternative, non-target inflections as errors (Acarlar and Johnston, 2011; Lukács et al., 2009).

Bangla

The language of interest here, Standard Bangla spoken in Dhaka, has agglutinative characteristics in its verb paradigms. Bangla is the official language of Bangladesh, of the neighbouring Indian states of West Bengal and Tripura, and of the Bengali diaspora. With over

200 million native speakers, Bangla is now estimated to be the seventh most widely spoken language of the world (Ethnologue, 2018). Bangla is a null-subject language, and inflections are suffixed sequentially to verbs, with each morpheme having a distinct significance (Kar, 2009). Table 1 shows verb inflection patterns for present, present progressive and past progressive forms. Bangla verbs are marked for aspect, tense and person, with the person marker the only obligatory suffix. In present tense contexts, tense marking is not overtly realized on verbs. Aspect marking on Bangla verbs is realized through two aspect markers: progressive and perfective. There are three distinct person markers indicating first, secondand third person agents. Inflections are attached in a fixed order: verb stem–aspect–tense–person. A Present Simple verb form

Table 1 about here

contains the verb stem and a person marker, while the Past Progressive form contains the verb stem, the progressive aspect marker, the past tense marker and a person marker (see Table 1). For example, the inflected verb form *pore* 'reads' contains the verb stem/por-/ and the third person marker/-e/, while the form porch^{h}ilo 'was reading' contains the verb stem/por-/, the progressive aspect marker/-ch^{h}i/, the past tense marker/-l-/ and the third person marker/-o/. The verbal system is linear and transparent to a great extent. There are phonological variations among the aspect markers that are determined by whether or not the verb stem ends in a vowel. The progressive aspect markers contain geminated forms (/-chch^{h} -/and/chch^{h}i-/) when the stems end in vowels (e.g., /k^{h}a-/).

Typical development (TD) in Bangla

Studies of typical development of Bangla are limited. Stokes (2012) explored syntactic development in 30 speakers of the Sylheti dialect of Bangla aged 18-48 months living in London, using an adapted LARSP-type framework (Crystal et al., 1989). In the area of morphology, Chakraborty and Leonard (2012) reported on verb inflections in 19 Bangla-speaking preschool children (2;0 – 4;0 years) in Kolkata, India. The children provided responses to elicitation probes for first, second and third person Present Progressive and Past Progressive. High accuracy rates were achieved by the children, with group means ranging from 70.21% for 2nd person past progressive, to 95.21% for 3rd person present progressive. In an effort to reveal the developmental trends that underlie these group findings with a larger sample, Sultana et al. (2016) conducted a study of the development of third person present tense, present progressive and past progressive forms in a group of 64 children, aged between of 23 and 51 months. These children were speakers of standard Bangla in Dhaka, Bangladesh. As well as reporting accuracy scores, Sultana et al. (2016) also examined substitution patterns in the data. A more detailed developmental picture of Bangla verb morphology development emerges from this research.

The study identified an order of acquisition where the present simple emerged first, followed by present progressive and then and past progressives. Consistent with findings from other agglutinative languages (e.g., Acarlar and Johnston, 2011, on Turkish), error patterns showed that the non-target productions of TD children were typically other inflected forms. Also, as children's accuracy level increased, their errors became more sophisticated; children

with lower accuracy rates produced errors that differed from the target forms by multiple features, whereas errors associated with high accuracy rates missed the target forms by a single feature. The analysis of individual markers revealed that children appeared to have more difficulty with tense markers than with aspect markers, while person markers posed no significant challenges. The apparent hierarchy among the tense, aspect, and person markers was interpreted with reference to the distributional patterns of these markers in Bangla; unlike the other two markers, person markers almost always appear with the base forms. However, the tasks elicited only 3rd person forms which have often been reported to be the preferred form for children (e.g., Chakraborty & Leonard, 2012). Children's mastery of the person markers, therefore, needs to be separately examined through a set of contrastive tasks employing all person forms.

Based on accuracy rates and error patterns, three stages were identified for typical development of the Bangla verb forms studied, reflecting their structural and cognitive complexity: stage 1 -- Present Simple only; stage 2 -- Present Simple plus Present Progressive; stage 3 -- Present Simple, Present Progressive and Past Progressive.

Atypical language development (ALD) in Bangla

To date there are no published data on ALD in Bangla. Research to fill this gap faces immediate practical difficulties. The situation on the ground is very different to that in the developed West. Speech and Language Therapy services are fragmentary; standardized language assessments are not available; and children identified in special schools by the educators tasked with their rehabilitation, often present with developmental difficulties other

than language. Similar issues are reported by Acarlar and Johnston in the Turkish context (2011: 731). As we shall see, the sample of Bangla-speaking children identified as developing language atypically and reported on here is a heterogeneous group in terms of diagnostic categories: there are children identified with autistic spectrum disorder, with Down syndrome, with developmental delay, as well as with speech and language problems only. A question that arises is the extent to which morphosyntax generally, and verb inflection in particular, is differentially affected in children whose problems extend beyond ALD.

The literature comparing language deficits in children in different diagnostic categories is not extensive, and primarily confined to English. Laws and Bishop (2004) draw on the then available literature to compare deficits in Down syndrome and specific language impairment (SLI). It is worth quoting their conclusion:

> Despite very different backgrounds to language development in terms of general cognitive ability, the main features of impairment in both populations are more severe expressive language deficits relative to levels of language comprehension, dissociation between grammatical and lexical components of the language system, and difficulties in the acquisition of morphology (Laws and Bishop, 2004: 438).

Further support for this view, particularly in relation to morphosyntax, is provided by Rice et al. (2005), who reviewed evidence for finiteness deficits – the omission of past tense and third person singular markers -- in children with SLI, children with autistic spectrum disorder (ASD), and children with Down syndrome (DS). They reinforce the view of Laws and Bishop (2004) that patterns of deficit in Down syndrome and SLI are similar, and they also

identify similar morphosyntactic problems in those children with ASD who are identified with language impairment.

There is one study of a language other than English which incorporates a sample of children with ALD from a range of diagnostic categories, and who are learning an agglutinative language. In a sample of ten children with ALD, Acarlar and Johnston (2011) included individuals identified with pervasive developmental disorder, cognitive deficits, Down syndrome, ASD and SLI. They examined spontaneous speech samples for noun case suffixes. They found that "the data from the ALD group regarding use of noun suffixes suggest the same late mastery and protracted course of learning that has been reported for children learning English grammatical morphemes." (Acarlar and Johnston, 2011: 736). The study does not however provide any information about any differences in performance across diagnostic categories.

With this background information on typical morphosyntactic development in Bangla, and with what evidence there is suggesting there may well be similar morphosyntactic profiles across children with ALD who belong to distinct diagnostic categories, our primary aim in this preliminary study is to document the competence of Bangla-speaking children with ALD on selected verb inflections. We will compare these children with their TD counterparts, and explore any individual differences in performance. In accord with findings on morphosyntax in ALD generally, we would anticipate acquisition in these children to lag behind their peers but to reflect a similar order of development and error patterning. But in view of the range of conditions language disorder in the children in our study we will also be alert to the potential for deviation from expected patterns.

Methodology

Approval to conduct the study was obtained from the Human Ethics Committee of the University of Canterbury, New Zealand (Ref. no. HEC 2012/166).

For the purposes of labelling participants in this study we make use of the framework arising from the Delphi procedure conducted by the CATALISE consortium (Bishop et al., 2016, 2017), to characterize the children in our sample. Bishop et al. (2016) propose the term 'language disorder' (LD) be applied to children who have language problems which are likely to continue into middle childhood and beyond, irrespective of any other diagnostic label that may be applied to them. Language disorder can co-occur with impairments in 'cognitive, sensori-motor or behavioural domains'. Examples of co-occurring disorders are ADHD, developmental coordination disorder or developmental dyslexia. In these cases the causal relationship between the language problem and the co-occurring difficulty is unclear. Where there is a clear association between a biomedical condition and language disorder, as in Down Syndrome, ASD or epileptic aphasia, Bishop et al. (2017:1071) refer to the associated and potentially causal condition as 'differentiating'. The term 'developmental language disorder' is reserved for those children, previously referred to as SLI, for whom no co-occuring or differentiating condition is identified. The diagnostic labels in Table 2 reflect the CATALISE framework.

Participants

Nine monolingual standard Bangla-speaking children with language disorder (7 boys and 2 girls) from 3;11 to 9;4 years (M= 88.11 months, SD= 21.05 months) were recruited from a special school in Dhaka, Bangladesh. They were all clinically diagnosed as having either a language disorder, all but one of them in association with a co-occuring or differentiating condition (Table 2). For recruitment, the researchers relied on the assessments made by the experts in the Special School, and on reports from their clinical practitioners, as no formal language assessment procedures currently exist for Bangla. Details of the assessment procedures to identify co-occurring and differentiating conditions in the children were not made available to the researchers. As the children with LD were considerably older than the typical age of acquisition of the markers tested (Sultana et al., 2016), a TD group with chronological age match were not included, given the likely ceiling effect.

Table 2 about here

Tasks

Three elicitation tasks were designed and administered to assess children's development of three inflections: present simple, present progressive, and past progressive. The tasks focused on third parties in structured conversation, or in photos or drawings, and so targeted third person singular verb forms.

Structured conversation: The first author engaged in a conversation with each child about the daily activities of family members. The goal was to elicit the present simple form from children. One of the stimuli used is presented below:

(1)	Ammu	shokal-e	ki	kor-e?
	mummy	morning-Time	what	do-PresSimp.3sing

What does mummy do in the morning?

Since the task was part of a semi-structured conversation, the verb stems produced by children were not controlled. The length of conversations varied across the participants (4:10 to 15:07 minutes), as did the number of utterances produced (7 to 37 utterances), and only children supplying at least six responses were entered into the analysis.

Picture book task: Present progressive forms were elicited using the picture book, *Let's Go to School* (Bernthal and Full, 2006). The book contained pictures where a cartoon character, Bop, was seen to engage in several activities (Figure 1). Children were asked to respond to ten questions designed to elicit present progressive forms. A sample stimulus is presented below.

(2)	Ekhane	Bop	ki	kor-chh-e?
	here	Bop	what	do-Pres.Prog-3sing

What is Bop doing here?

Figure 1 here

Paired picture task: An experimental task was designed using ten picture pairs to elicit past progressive forms. The first picture of each pair had a person or an animal sleeping in it and the other picture showed the same person or animal doing an action like eating, running, cooking etc. Showing the first picture the experimenter said to the child, 'Look, the boy is sleeping here. He is sleeping because he is very tired. Do you know why he is tired? Because he was doing something a while ago. Can you say what he was doing?' At this point the second picture was introduced. Looking at the picture, children were expected to say what the person was doing before (Figure 2).

Figure 2 here

The selection of the pictures in the present and the past progressive tasks required the target verbs to be early emerging in children's lexicons. Since an inventory to ensure this was not available for Bangla, confirmation was obtained from findings on early vocabulary available for several languages through the website of Wordbank (wordbank.stanford.edu). In addition, the pictures were selected or constructed to represent those verb stems as unambiguously as possible. However, since the task assessed children's use of grammatical inflections, correct use of the markers with a non-target stem was also credited. All three elicitation tasks began with two trial model sentences in order to prepare the children for the tasks.

Procedure

Children were tested in a separate room at their school. Approval was first obtained from the school authority, and then from the children's parents. The sessions were video-recorded with a Canon Powershot S5IS camera. A specific sequence of tasks was maintained

across all testing sessions: the conversational task for present simple, and picture task for present progressive task, and then the paired picture procedure for past progressive.

Scoring

The scoring criteria used were determined by the nature of the task. For the present simple task, the number of opportunities was counted for each child, and the percentage of correct use was calculated. All utterances that were not produced in response to stimuli were excluded from analysis. For the present and the past progressive tasks, percentage correct scores were calculated. As the focus of the study was children's ability with grammatical inflections, correct use of a marker with a non-target stem was also credited. Markers realised by regular phonological substitutions were credited. For all three tasks, null responses, imitated responses, use of other markers, and 'verbless' utterances were considered as incorrect. Unclear and inaudible utterances were excluded from the analysis.

Analysis

All analyses were conducted using IBM SPSS Statistics 20.0 (IBM Corporation, 2011). Children's accuracy of each form was calculated in percentages instead of raw scores since the number of opportunities varied across tasks. Summary measures of the group's task performance appear in Table 3. Repeated Measures ANOVAs were calculated across the scores gathered from the three tasks to identify if there was any difference in children's level of performance across the tasks. The central research question, i.e. whether the performance of the children with language difficulty was significantly different from their younger typically-

developing peers, was answered using one-way ANOVAs with 'groups' as the independent variable, and the 'tasks scores' as dependent variables.

Accuracy and error rates of the children with language disorder were compared with a group of typically-developing children who were previously clustered in three developmental profiles based on the accuracy rates and error patterns exhibited in present simple, present progressive and past progressive tasks (Sultana et al., 2016).

Findings

Performance of the children with LD revealed moderate-to-low accuracy rates across the tasks (Table 3). Children's use of the present simple form was accurate on average about 53% of the time while present progressive and past progressive forms were accurate about 28% and 9% of the time.

Table 3 about here

The central research question of the study, whether the performance of children with LD was significantly different from those of typically-developing children, was answered through a comparison of descriptive measures as well as a series of one-way ANOVAs. (Values for the TD group in these analyses come from the performance of a group of Bangla-speaking TD children on the same tasks, as reported in Sultana et al., 2016. A significant difference in the degree of accuracy was observed for each form (Figure 3). A series of one-way ANOVAs, with Mann-Whitney U tests run for non-normal distributions, confirmed the group differences.

Although significantly older (U = 8, p < .001), the LD group of children scored significantly lower than the TD group on the Present Simple (U = 102.50, p = .001), Present Progressive ($F_{(1, 71)}$ = 12.94; p = .001) and Past Progressive tasks (U = 145.50, p = .013).

Figure 3 here

However, the groups were similar in that the Present Simple form was produced most accurately followed by the Present Progressive and the Past Progressive forms. The finding was tested with a repeated measure ANOVA which revealed that, within the LD group, there was a significant difference in the level of accuracy on the forms ($F_{(2,16)}$ = 11.27, p = .001, partial η^2 = .59). Pairwise comparisons revealed that children's accuracy on the Present Simple form was significantly higher than the Past Progressive form (p = .002). The differences of between children's performance on Present Simple and Present Progressive (p = .151), and between Present Progressive and Past Progressive were not statistically significant (p = .165). There was a significant correlation between age and performance and Present Simple (r = 0.75), but not between age and either of the other two inflections.

Profile Analysis

The error patterns of the children with LD were investigated and compared with those of the TD group in order to better understand the nature of atypical development. As identified in an investigation of typical development (Sultana et al., 2016), the errors of the LD group consisted of substitutions by non-target forms. Also, the error forms used were similar to those used by TD children. Both typically- and atypically-developing children substituted forms that matched the target forms with regard to grammatical features. For example, the Present

Progressive form was typically substituted with the Present Simple form, and the Past Progressive was replaced by Present Simple and Progressive forms. Note that the Present Simple form in Bangla matches the Present Progressive in terms of its person marker and the projection of a tense marker (null). Similarly, the absence of a tense marker, and both tense and aspect markers in the Past Progressive form result in production of the Present Progressive and the Present Simple forms respectively.

Therefore, a comparison between the performances of both groups showed that the levels of accuracy of the verb forms were significantly lower for the LD group (Figure 3). However, they were similar with regard to the order of acquiring the forms tested, and exhibited similar patterns of errors as the TD group.

Profile analysis.

In an effort to explore individual differences in this small cohort, and to identify any relationship between morphosyntactic ability and co-occurring or differentiating conditions, we constructed profiles for each of the children. These were based on both their percentage accuracy scores for each of the target verb forms, and on the degree of conformity between their error strategies and those of their TD counterparts. Sultana et al. (2016) had established that the TD children they tested fell into three groups. One group of children had mastery of the Present Simple form only, which they also used as a substitute for both Present Progressive and Past Progressive forms. A second group of children consisted of those who scored high in both Present Simple and Present Progressive forms; they used the Present Progressive for the

Past Progressive forms to a large extent. A third group of children had mastery of all three forms, and their substitution rates were very low.

As we have seen, accuracy rates for target verb inflections on the part of the children with LD as a group were low. No child achieved a perfect score on any form. In constructing a profile of a child's ability which acknowledged this but also reflected partial mastery, and so allowed profile differences among children with LD to appear, we established a criterion for 'emerging competence'. This was set at a score on any verb form category of 60%. This meant a minimum score of 4/6 instances on Present Simple, and 6/10 for each of Present Progressive and Past Progressive. Each child's profile included a plus sign if s/he reached the criterion, or a minus sign if not, on each of the target verb forms in Table 4. The profile was completed with two further measures, summarizing a child's error strategies. The column labelled 'TDSUBCON' in Table 4 indicates that a child's choice of substitute forms coincides with that of their TD peers. For example, when the task requires a Present Progressive form, the form that the child who has not mastered the Present Progressive tends to provide is the Present Simple. If however a child tends to supply a non-target form which does not conform with TD substitution strategy, this is indicated in the column 'TDSUBNONCON" in Table 4. An example of this would be a child with LD who does not even have emerging competence of the Present Progressive, nevertheless using the form 60% or more of the time as a substitute for the Past Progressive. Once again the criterion level, this time for what counts as a substitution strategy, is set at 60%. If a child substitutes one form for another on 60% of possible occasions, this tendency is marked with a plus sign; less than 60% of the time, a minus sign.

Table 4 about here

As we examine Table 4, the first and most obvious feature is the limited number of plus (+) signs in the verb form cells, indicating that the majority of the children with LD do not have even partial mastery – as we have defined it -- of most of these inflections. There is only one child, S4, who appears to be following the TD developmental trajectory. He has a score of 72% on the Present Simple, and uses this inflection in place of 100% of Present Progressive and Past Progressive targets. This pattern -- high scores on Present Simple, limited ability with the other two verb forms and substitution of the Present Simple for the other two inflections, is associated with TD children who are on average 30 months old. The second child in Table 4, S2, resembles S4 in having a high Present Simple Score (over 90%) and low scores on the other two inflections, and in addition he supplies Present Simple for Present Progressive targets on 7 out of 10 occasions. However the unusual feature of his profile is that for 8 out of 10 items designed to elicit the Past Progressive, S2 supplies the Present Progressive. This is despite his being well below criterion (30%) on the task designed for Present Progressive forms. Similarly, S7, despite a score of 10% in the Present Progressive task, manages to provide a Present Progressive form on 6 out of 10 items in the Past Progressive task. Neither of these patterns fits with profiles of typical development.

Other anomalies – deviations from the developmental picture derived from TD children -- can be seen in S3 and S8, with an unexpected pattern of emerging competence. S3 has a perfect score on Present Simple, and an emerging competence score on Past Progressive, but falls down on Present Progressive. S8 scores low on Present Simple but shows emerging

competence on Present Progressive. And S1, despite poor performance on the elicitation tasks for each of the verb inflections, including Present Simple, nevertheless is able to provide Present Simple substitutions for both Present and Past Progressive. The remaining three children do not achieve emerging competence on any verb form, nor do they reach criterion on either of the substitution strategies.

Finally, in relation to Table 4, it is difficult to see any clear relationship between language performance on the verb form tasks by the children with LD and the diagnostic labels applied to them. Even when two profiles look very similar, as for S5 and S9, both characterized as LD with ASD by the institution they attend, differences emerge on closer scrutiny. S5 has a score of 50% for both Present Simple and Present Progressive, while S9's scores for these forms are much lower (30% and 20% respectively). The third child with an all-minus sign profile, indicating limited ability with all three target verb forms, who has a diagnosis of Cognitive Disorder in addition to LD, has scores similar to those of S5.

Discussion

As expected, performance of the children with LD on the three target verb forms, in comparison with the TD group's scores on the same tasks (Sultana et al., 2016), revealed significantly lower scores across all forms (Figure 3), which was confirmed by one-way ANOVAs. The differences in performance between the two groups are consistent with cross-linguistic findings on language disorder that have revealed that children with language difficulties perform poorly on a range of morphosyntactic measures compared to older typically-

developing children (e.g., Acarlar and Johnston, 2011, on Turkish; Fletcher et al., 2005, on Cantonese; Leonard et al., 2004, on English and Swedish; Lukács et al., 2009, on Hungarian). In line with group scores on the same forms for the TD children, the mean score of the children with LD was highest for the Present Simple form (LD 53% -- TD 88%), followed by the Present Progressive and Past Progressive forms (LD 28% and 9%, TD 67% and 44%). There is correlational evidence of some improvement with age in the LD group in their performance on the Present Simple, but not on the other two forms. The stark discrepancies between TD and LD group mean scores point to significant deficits in verb morphosyntactic abilities in Bangla-speaking children with LD, especially in the light of the average ages of the groups – TD 39.96 months, LD, 88.11 months. The degree of deficit is underlined when we compare the performance of the Bangla-speaking children with LD to the Turkish-speaking children described in Acarlar and Johnston (2011). This group of children with LD were similar to the Bangla-speaking group in having associated conditions such as cognitive deficits, Down syndrome and ASD. While they continue to have problems with noun case markers, Acarlar and Johnston report that their children with LD make very few errors on verb suffixes in spontaneous speech – their mean error rate appears to be around 3% in spontaneous speech data (2016: 732). The average age of the Turkish-speaking children was 62 months – they were considerably younger overall than the Bangla-speaking children with LD. But they appear to master verb suffixes much earlier. Why might this be?

The morphological richness hypothesis predicts that children learning languages with a well-developed inflectional system, e.g., Turkish and Bangla, will make greater use of verb forms than their counterparts learning a language with sparse morphology, e.g., English. When

we encounter differences in acquisition among languages that may be said to be morphologically rich, it is claimed that the number of grammatical features expressed by inflections play a role (Leonard, 2014: 295). The more features that are coded, the more challenged the limited processing capacity of a child with LD is likely to be. As we have seen, in the Bangla verb forms of interest here, aspect, tense and person/number can be expressed in suffixes. But Turkish verb forms also code tense, aspect, person/number. So the apparent differences in difficulty cannot be attributed to the range of grammatical features represented in verb suffixes. One possible alternative explanation lies in the phonological realisations of the relevant forms in Turkish and Bangla. Both of the languages are agglutinative – each suffix codes for just a single grammatical feature. But an important difference between the languages emerges in the phonological shape of the suffixes. In Turkish, each one is syllabic, whereas this is not the case in Bangla. The examples in Table 1 make clear that both the progressive aspect marker (-ch^{h}-) and the tense marker (-l-) are realised by single (or - in the case of the progressive - geminate) consonants. Phonological salience may be one of the factors progressing the acquisition of Turkish verb suffixes as compared to Bangla. (For further evidence of the role of phonological salience in facilitating verb morphosyntax performance, in children with DLD in Greek, see Mastropavlou, Petinou, Tsimpli, & Georgiou, 2018). Also, discrepancy between performance obtained through spontaneous sampling and through targeted elicitation tasks is widely reported in the literature (e.g., Hesketh, 2004). Spontaneous sampling presents the freedom of choosing structures which may mask children's difficulty with specific forms. In a pro-drop language, such as Turkish (Haznedar, 2010), the optionality of the

agreement on verb forms allows for even greater success with forms. This methodological disparity between the two studies also may have led to the differences in their findings.

Individual differences.

Group scores do not however tell the full story. Individual variation is generally greater in groups of children with LD than it is in their TD peers. For example the standard deviation accompanying the mean score of 88.33 for Present Simple in the Bangla TD group is 19.96. The standard deviation for Present Simple in the children with LD, accompanying the mean of 53.29, is 30.63. (See also the ranges for the children with LD in Table 3). The individual differences lying behind that group variation are illuminated by the patterns revealed by the distinct profiles listed in Table 4. These present us with some divergences from the picture that emerges from the group findings. There the mean scores on the verb inflections appear to mirror, but at a distance, the scores achieved by the TD group. And in most cases the substitutes for target verb forms were simpler forms, such as Present Simple for Present Progressive or – more rarely, given the children's lack of control of the Present Progressive, Present Progressive for Past Progressive. So not only, it would appear, does the LD group score progression match that of the TD group, but the error patterns of the LD group match those of the TD group as well.

The profile analysis indicates that if we were to conclude from the group scores that the children with LD were simply delayed relative to the TD group, but nevertheless following the same trajectory, we would be missing significant anomalies. It is true that there are children with LD (S2 and S4) for whom in the main the delayed development cap fits. S2, like S4, fits the claim that in morphologically rich languages substitute inflections are so-called near-miss errors

– they most often miss their target by a single feature. S2 and S4 have high Present Simple scores, and both substitute this form for Present Progressive. Both to this point fit the typical development template. But it should not be overlooked that S4 also substitutes Present Progressive for Past Progressive -- in the context of a low score on the Present Progressive task. This profile does not conform to a typical development strategy, where substitution patterns seem to depend on demonstrated competence with the substituting form. Similarly, S1 manages to substitute Present Simple for both Present and Past Progressive at rates of 60% and above without achieving emerging competence criterion on either the Present Simple or Present Progressive Task. And S7, like S4 supplies Present Progressive for Past Progressive targets, despite a score of 20% on the Present Progressive task.

Clinical Implications

The group scores provide general guidance for clinicians and educators, primarily in identifying the magnitude of the difficulties these children have in a central area of the grammar, verb morphosyntax. When we go behind the group scores and establish profiles of emerging competence, differences between children in the LD group emerge. The profiles suggest approaches to intervention which are targeted to individuals or sub-groups, depending on the patterns identified. Particular attention would need to be paid to those profiles which contrast with the typical developmental path. Those profiles which show a strategy which uses as a substitute a form on which the child has not reached emerging competence raise questions. It is for example hard to see why S2 (identified as DD/ASD in addition to LD) could on 8/10 occasions produce Present Progressive when the task requires Past Progressive, while mostly failing to produce Present Progressive in the procedure expressly designed to elicit it.

Earlier we suggested that it was difficult – given the varied patterns in Table 4 – to link language performance in the children with LD to their associated condition. However these inconsistencies between task performance and substitution strategy do require us to consider as a possible explanation the interaction between the child's co-occurring or differentiating condition and the elicitation procedure. One possibility is that processing one or other of the elicitation procedures is causing problems for one or more of the children with LD (S1, S2 and S5) because of their cognitive difficulties. An alternative explanation could be one or more of these children has some knowledge of the various verb inflection forms but is uncertain about the contexts in which they are to be applied. Before embarking on an intervention schedule it would be important to determine which of these explanations is more likely.

Limitations and future directions

The limitations of the study are largely due to its location. The current status of infrastructure for the assessment of children with language disorder in Bangladesh, as in many parts of the developing world, presents considerable challenges. It was only possible to recruit a small convenience sample for this first exploration of language disorder in standard Bangla, and because of the nature of educational provision for children with LD, all but one of the sample had a co-occurring or differentiating condition. It will be important to identify and test larger samples of children with language disorder, and extend the database from elicitation procedures to dynamic assessment and to spontaneous speech data. It will also be necessary in future studies to recruit a control group matched on some language measure to the children with LD.

Conclusion

The results of this study concur with a range of cross-linguistic studies in identifying verb morphology as an area of challenge for Bangla-speaking children with language disorder. Taken as a group, these children are considerably delayed relative to their typically-developing counterparts. Seen as individuals, the small number of participants with LD shows a range of performance responses to a series of elicitation tasks designed to elicit verb forms. It is these individual profiles which are likely to be most informative in designing intervention.

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Table 1. **Examples of third person verb inflections in Bangla across two verbs where the general form is verb stem - aspect marker - tense marker – 3rd person marker**

Verb form	Verb stem 1: /por-/	Verb stem 2: /k^{h}a-/
Present Simple Verb root - Ø- Ø- e	She boi **pore** (S)he book(s) reads	She **k^{h}ae** (S)he eats
Present Progressive Verb root – (ch)ch^{h}- Ø- e	She boi **porch^{h}e** (S)he(a) book is reading	She **k^{h}achch^{h}e** (S)he is eating
Past Progressive Verb root – (ch)ch^{h}i - l- o	She boi **porch^{h}ilo** (S)he (a) book was reading	She **k^{h}achch^{h}ilo** (S)he was eating

Table 2. Details of the children with language disorder

Subject number	Age (y;m)	Sex	Diagnosis	Diagnosed by
S1	5;3	M	Developmental delay	School/ Child Psychologist
S2	8;4	M	Developmental delay/ Mild Autism Spectrum Disorder	School/ Child Neurologist
S3	8;6	F	Down Syndrome	Neonatologist
S4	8;5	M	Intellectual Disorder	School/ ChildPsychologist
S5	9;4	M	Autism Spectrum Disorder	ChiildNeurology Clinic
S6	8;1	M	Cognitive/ Developmental Delay	School/ Paediatric Neurologist
S7	3;11	M	Developmental Language Delay	School/ Paediatric Neurologist
S8	7;7	M	Attention deficit hyperactivity disorder / Autism Spectrum Disorder	School/ Paediatric Neurologist
S9	6;8	M	Mild Autism Spectrum Disorder	School/ Child Psychologist

Table 3. Accuracy of the LD Group on Three Tasks (N= 9)

	Mean	SD	Min- Max
Present Simple	53.29	30.63	6.25 - 100
Present Progressive	27.78	21.67	0 - 60
Past Progressive	8.89	20.28	0 - 60

Table 4. Individual profiles for Bangla-speaking children with LD.

Child ID	Age	Clinical Category*	Pres Simp	Pres Prog	Past Prog	TDSUB CON	TDSUB NONCON
S4	8;5	IntellD	+	-	-	+	-
S2	8;4	DD/ ASD	+	-	-	+	+
S3	8;6	DS	+	-	+	-	-
S8	7;7	ADHD/ ASD	-	+	-	-	-
S1	5;3	DD	-	-	-	+	-
S7	3;11	DLD	-	-	-	-	+
S5	9;4	ASD	-	-	-	-	-
S9	6;8	ASD	-	-	-	-	-
S6	8;1	CD	-	-	-	-	-

*see Table 2 for expansions of these acronyms

Figure 1: Sample picture used in the present progressive elicitation task

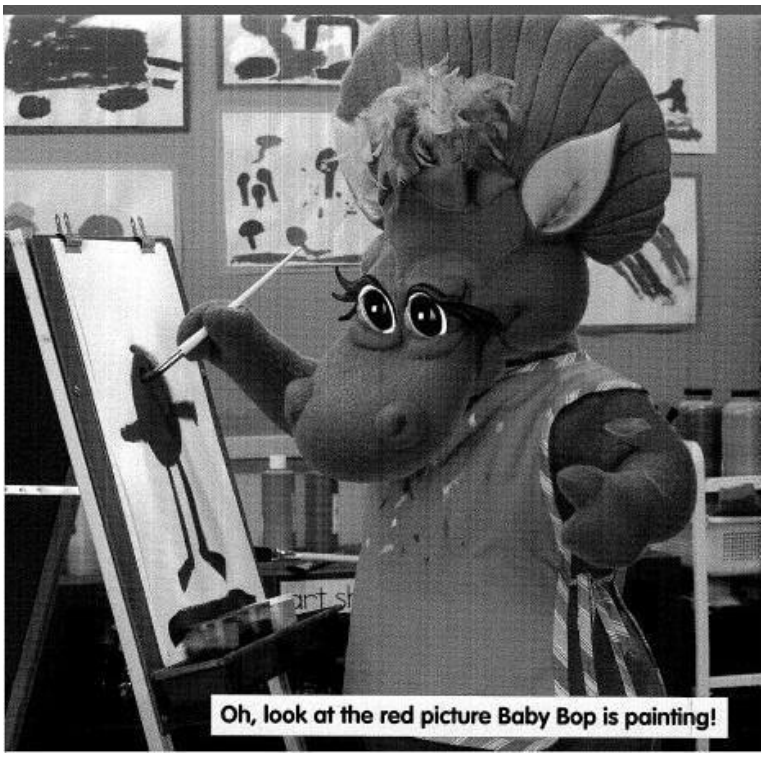


Figure 2: A Picture Pair Used in the Past Progressive Task

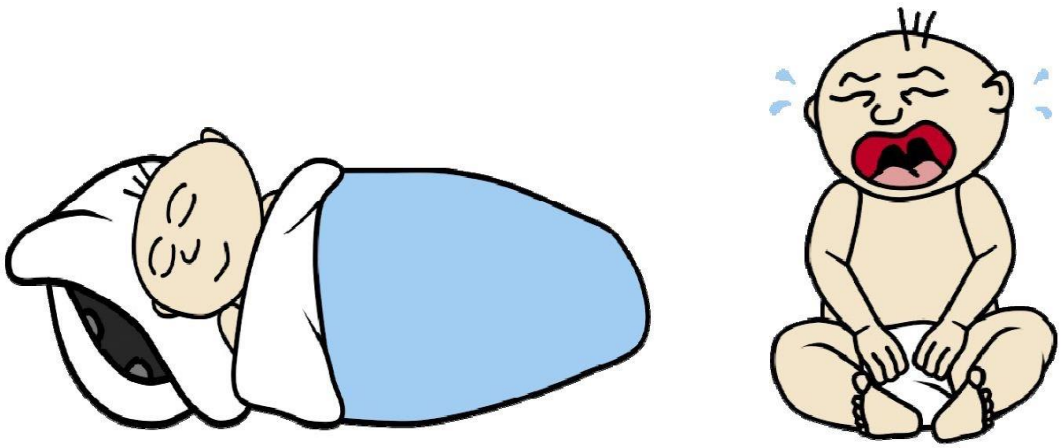


Figure 3.Mean scores (%) of the TD and LD groups on the elicitation tasks (TD scores, Sultana, 2015)

