

THE SPONTANEOUS USE OF HEBREW VERB FORMS BY
ISRAELI PRESCHOOL CHILDREN WITH AND
WITHOUT SLI

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Abstract

In this article we present findings on the spontaneous use of verb forms by preschool Hebrew speaking children who were diagnosed as SLI (Specific Language Impairment) and by younger normally developing (ND - L) children who were matched by language level to the SLI group. We evaluate the spontaneous use of verb forms in obligatory contexts and compare it with previous results on the morphological abilities of SLI and ND-L children in elicitation tasks. This article reviews previous published findings on verb elicitation tasks and report new data on the use of Hebrew verb forms in spontaneous language samples. Results indicate that HSLI (High Specific Language Impairment) children produce verb forms as successfully as their utterance length in morphemes lead to expect. This is especially true when the verb forms they use belong to simple verb patterns. The difficulty HSLI children face with respect to verb morphology is selective rather than sweeping, and it is not evident in the spontaneous speech samples because in this context children avoid producing morphologically complex verb forms. The article highlights the position that in languages with rich inflectional morphology it is always useful to combine elicited and spontaneous research methods for studying the productive morphological abilities of young children. Key Words: Inflectional Morphology, Hebrew, SLI, Verbs.

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Introduction

Many studies have reported that English-speaking children with SLI (Specific Language Impairment) use grammatical morphemes with significantly lower percentages than typically developing children matched by language level as measured by mean length of utterance (MLU) (e.g. Leonard, 1998; Loeb & Leonard, 1991; Rice, Wexler & Cleave, 1995; Cleave & Rice, 1997; Oetting & Horohov, 1997). During the last decade, the use of inflectional morphology by children with SLI who are acquiring Hebrew – a Semitic language with rich inflectional morphology was studied by Leonard and Dromi in a long term research program. Our research indicated that the differences between HSLI (High Specific Language Impairment) and younger normally developing children seem not to follow the pattern described for English. The use of grammatical morphemes by HSLI children in elicited tasks resembles that of younger normally developing controls and their morphological abilities look much stronger than that of English-speaking SLI children at similar ages.

In our first collaborative study Dromi, Leonard and Shteiman (1993) examined the use of a wide range of morphological inflections in obligatory contexts by three groups of participants. A group of 15 Hebrew speaking children with SLI (HSLI) and two comparison groups of 15 normally developing Hebrew speaking children at the same chronological age (HND-A) and 15 normally developing much younger children matched with the HSLI group by language level (ND-L). A measure for calculating MLU in Hebrew that is termed MPU (Dromi & Berman, 1982), was utilized for matching the HSLI and the ND-L groups.

No significant differences were found between the HSLI and the ND-L children in the use of verb and noun-related morphemes that were tested. The overall use of inflectional morphology in Hebrew was much higher than was reported for English and it ranged between 70% to 90% correct depending on the specific morpheme that were elicited.

On the basis of these results we argued that in Hebrew, unlike in English, inflectional morphology does not represent an area of extraordinary difficulty for SLI children.

Moreover, we proposed that there is a correspondence between the structure of the input language and the degree and pattern of morphological difficulty that children with SLI experience. The following theoretical hypothesis that later was termed “the rich morphology account” was proposed: *When grammatical morphology is pervasive and its use is mandatory in a language, children with SLI devote their limited processing resources to this aspect of the language and therefore their use of inflectional morphemes in obligatory contexts is relatively high* (see Leonard & Dromi, 1994).

In a follow-up study the hypothesis that there is a limit to the advantages that a language with rich morphology offers to HSLI children was tested. In this study we contrasted the use of present tense and past tense agreement markings in verbs belonging to four different verb patterns (B1, B3, B4, and B5). Hebrew has five productive verb patterns (i.e., BINYANIM). B1 is the most common pattern, and verbs in this template emerge early in children’s speech and are used most frequently by adults too (Berman, 1985; Berman & Armon-Lotem, 1997). However, most new verb forms that appear in the language employ the template of B4 which also conveys basic meanings. B3 and B5 are mostly used to convey more complex meanings. B3 is used for causative meanings and it also accommodates verbs that convey the notion of inchoativeness (e.g., mashmin ‘has gotten fat’). In the same way, B5 is mostly associated with the semantic notion of reflexivity or reciprocity (e.g., mitraxets ‘washes oneself’, mitstalev ‘cross each other’), but also has some verbs that convey basic meanings (e.g., mitstalem ‘takes a picture’, mitgalesh ‘slides’) (see more on Hebrew verb patterns in Berman, 1978; Blass, 2000; Dromi, Leonard & Blass, 2002).

Two types of elicitation tasks were used in the agreement study: a) story books and b) a series of enactments. Story books with drawings were only created to elicit target verb forms in each of the four verb

pattern in present tense as well as third person forms in past tense. Participants were asked to jointly tell the story together with the experimenter who paused at certain pictures and waited until the child would complete the sentence by providing a target verb form. Enactments were utilized as a guessing/description games for the elicitation of first and second person singular and plural forms in past tense. In this task several activities were performed by the child and one experimenter while a second experimenter was outside the room. When the second experimenter returned to the room the child was asked to tell him what was happening in the room while she was absent. In the description of the activities the child had to use specific target forms in 1st and 2nd person in past tense. For example: ani kafacti ve ata cilamta oti 'I jumped and you took my picture' (see Dromi, Leonard & Blass, 2002 for a more detailed description of the two elicitation tasks).

The results indicated that in present tense HSLI children were less accurate than the ND-L controls only in verbs of B5, which has the most complex phonological template and also often conveys complex semantic notions. In B5 tasks, HSLI children often produced basic verb forms with no agreement inflection. In past tense elicited tasks, the differences between HSLI and the ND-L controls were more obvious and mostly appeared in the second person categories that involved the simultaneous consideration of three morphological distinctions: person, number and gender. At the same time, first person and third person forms involving the simultaneous consideration of only two distinctions (number and gender) were much less difficult and generated fewer errors (Dromi, Leonard, Adam & Zadunaisky – Ehrlich, 1999). These results convinced us that the relative complexity of a target form is determined by the number of underlying abstract notions that it encodes. We claimed that in complex morphological paradigms even in Hebrew – a language rich in morphology, SLI children do not always use grammatical morphology as accurately as would be expected.

In our third study (Leonard, Dromi, Adam & Zadunaiski - Ehrlich, 2000), we investigated how HSLI children manipulated tense when

there was no requirement to simultaneously change agreement. The same five story books that were used in our agreement study were used for eliciting basic present, basic past and infinitive forms. The verb forms produced by the experimenter in the preceding sentence differed from the target in tense or finiteness, to ensure that the child's selection of the appropriate verb form could not involve imitation of tense or finiteness features just heard. For example, "... Yoav went to the pool because he wanted to swim (lischot [infinitive]). He entered the pool and _____ (saxa [past, third person singular])".

The results of this study indicated that across all target types and patterns, the mean percentages for the HSLI (82%) and ND-L (86%) children were quite high. For three of the four patterns (B1, B4, and B5), the HSLI and ND-L participants did not differ significantly in the use of basic present tense, basic past tense and infinitive forms. However, the HSLI had more difficulty than the ND-L children in the production of all target forms in pattern B3. This pattern is the one that most typically (though not always) conveys the notion of causality in Hebrew.

To sum up, the results from several studies in which we utilized experimental probes for the elicitation of target morphological forms convinced us that morphological problems of HSLI children become evident only when paradigms are highly complex. Of course, these studies involved probes requiring specific verbs in specific patterns, with a particular tense and with particular agreement features. We did not know whether HSLI children's processing limitations may be reflected in their everyday natural speech. For this reason, we undertook the present study in which we examined the use of grammatical morphemes in spontaneous speech samples.

Method

Participants

Fifteen HSLI children who were previously diagnosed as children with SLI and were already enrolled in intensive language preschool

programs in Tel Aviv participated in the study. These were the same participants that we experimentally tested in 1999 and in 2000. Their ages when data was collected were 4; 2 to 6; 1. All of them scored more than 1.25 standard deviations below the mean for their chronological age and socioeconomic status (SES) on a language screening test (Guralnik, 1995). Their Performance IQs (Wechsler, 1989) were within the normal range. Their MLUs in words ranged from 2.25 to 3.90 ($M=3.02$ $S.D.=.56$) and MPUs in morphemes ranged from 2.87 to 5.42 ($M=4.03$ $S.D.=.87$). The language matched comparison group (ND-L) consisted of 15 children who ranged in age from 2; 8 to 3; 11. Their MLU scores in words were from 2.0 to 4.0 ($M=3.06$ $S.D.=.58$), and their MPUs in morphemes very closely approximated those of the children with SLI, showing a range of 2.80 to 5.41 ($M=4.0$ $S.D.=.81$). The ND-L children were pair-matched with the HSLI children on the basis of MLU, MPU, Sex and SES.

Procedure

A spontaneous language sample was recorded from each participant while he/she was engaged in playing or in a conversation with an experienced experimenter in a quiet room in the preschool. In all cases the language sample was recorded prior to the elicitation of the probed data. Books, toys, and several sets of pictures were used to scaffold the speech of all children as minimally as possible, and yet to support a flow of connected speech. Detailed contextual notes were taken during the recording. Language samples were phonetically transcribed as shortly as possible following the recording while incorporating the contextual notes which were then used for the identification of obligatory contexts for using each grammatical morpheme.

Results

A total of 200 to 300 spontaneous, non-repetitive utterances were recorded from each child and resulted in an overall sample of 3,683 utterances from the HSLI and 3,269 utterances from the matched ND-L participants. As a first step in the analysis, all constituents containing lexical verbs were identified. The two groups did not differ significantly

in the number of constituents containing verbs that they used. As a second step, each verb form that was identified in the sample went through an identical descriptive procedure of its form. The following characteristics were noted for each verb: root, tense, pattern, number, gender, person, and the context for its use. We marked down whether the grammatical context for each verb was determined on the basis of the linguistic frame in which it appeared, the preceding question/comment provided by the experimenter, or an event or action that was performed when the verb was uttered. A total of 2,141 different verb productions from the Hebrew speaking children with SLI and 2,168 verb productions from the ND-L group of children were included in our computerized database.

Analysis of variance was performed on the number of verb forms produced, using subject group as a between factor and verb pattern as a within factor. A main effect for pattern

((4,112)=1232.22 $P < .01$) along with a significant subject group by pattern interaction (($F(4,1120)=3.83$ $p < .01$) was found. The relative distribution of the different verb patterns by the HSLI and ND-L groups is presented in figure 1.

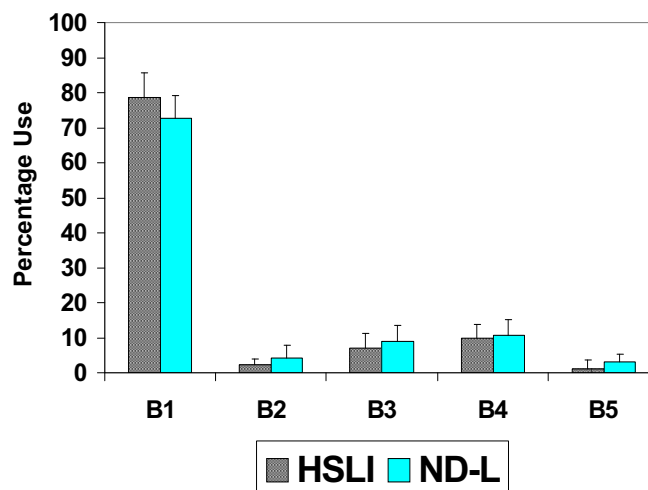


Figure 1: The relative distribution of the different verb patterns in HSLI and ND-L groups.

As can be seen in Figure 1, 78.6% of all verbs produced by the HSLI and 72.7% of all verbs produced by the ND-L children belonged to pattern B1. This pattern is the simplest in structure and the pattern most frequently used by Hebrew speaking children as well as adults (Berman, 1997). Post Hoc comparisons revealed that the HSLI participants produced B1 verbs significantly more than the ND-L participants. No significant differences were found between the two groups with respect to the use of other verb patterns, which were scarcely used by either of the two groups of children.

Inspection of the non-finite verb forms in the samples revealed that the HSLI as well as ND-L participants did not differ significantly in their relative use of infinitives in B1. Only about 6% infinitive verb forms were identified in B1 the most commonly used verb pattern in our sample. 94% of the verb forms in B1 that HSLI and ND-L children produced appeared as finite forms marked for tense and agreement. In the other three patterns no infinitives were identified.

28 different verb inflection categories can appear in each of the Hebrew verb patterns. Figure 2 presents the distribution of all B1 finite verb forms that we identified in the sample collapsed for the two groups which did not differ significantly from each other.

Figure 2 about here

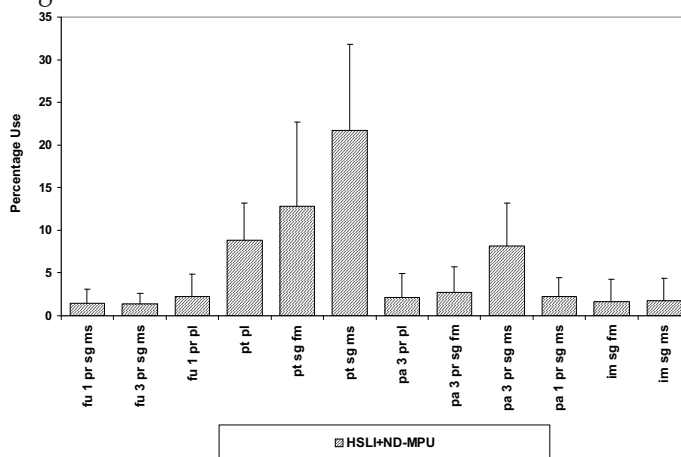


Figure 2: The distribution of the different inflection categories of pattern 1 collapsed for the two groups.

As can be seen in figure 2, only 12 out of all the 28 agreement categories in B1 were produced by the HSLI and the ND-L participants. Verbs in present tense were recorded much more frequently than verbs in past or in future. In present tense, the basic (masculine, singular) form was most frequently recorded for boys and for girls. In past tense, the only category that exceeded 5% of all finite occurrences was again the simplest basic verb form (third person, masculine, and singular) that has no overt agreement marker. As can be recalled, second person verb forms in past tense are among the most complex past tense forms in Hebrew as they simultaneously encode tense, person, number, and gender. These categories were completely absent in our samples.

An interesting significant difference between the HSLI and the ND-L groups was identified with respect to the occurrence of "stripped" verb forms. Stripped verb forms are immature verb forms that are not grammatical in the language because they lack overt morphological marking that can assist in identifying their precise grammatical category. For example, if a child says saper it is impossible to determine whether he tried to say lesaper 'to tell' [infinitive], mesaper 'he tells' [present masculine singular], or mesaperet 'she tells' [present feminine singular]. Yet, it is clear that the root is s-p-r. And the target pattern is B4. So much morphological information is missing in "stripped forms" that only by contextual information one may decide what the child's intention was. "Stripped" forms are often recorded in very young Hebrew speaking children, and they almost disappear in ND children when their lexicons exceed 20 different verbs (Armon-Lotem, 1996; Berman & Armon-Lotem, 1997). Even though stripped forms were not frequent in the data, our HSLI participants produced such forms almost three times more frequently than the much younger ND-L participants (i.e. 22 occurrences were noted for the HSLI; 8 occurrences were noted for the ND-L). This difference was statistically significant ($t(28) = 2.00$, $p < .05$).

Discussion

The Hebrew speaking children with SLI and the typically developing much younger ND-L children used inflected verb forms in spontaneous speech very similarly. The two groups used a limited set of morphological categories, with the greatest use concentrating on the simplest verb pattern B1 in Hebrew. The use B1 verb forms by all children overrode their use of the other three verb patterns including B4, which is regarded as simple as B1 in terms of its semantics. B3 and B5 patterns are regarded as more complex than B1 and B4 both in terms of phonology and semantics. It is interesting to note that HSLI children uttered verbs belonging to B1 even more often than the younger ND-L participants.

The two groups used a range of finite forms. Verbs in present tense that are regarded the simplest in the paradigm as they appear with no suffixes (i.e., masculine, singular) were produced in many more contexts than the other finite forms in present. Basic forms in past tense (i.e., third person, masculine, singular) were the most recurrent forms, with a complete absence of second person productions. Participants in the two groups used finite forms much more than infinitives. Infinitives in verb patterns other than B1 were rarely used by all subjects and were recorded much more in the samples of ND-L children than in the samples of HSLI. Finally, HSLI children used immature “stripped” forms, which are ungrammatical and usually disappear by the age of two years in typically developing Hebrew-speaking children, much more than much younger ND-L children with comparable MPU levels.

In the spontaneous speech as well as in the elicited tasks verb agreement in present tense did not represent a special difficulty for HSLI children. At the same time, agreement in past tense that was problematic for HSLI children in the elicited tasks, were rarely recorded in the spontaneous speech samples of the same participants. The preference observed for the use of B1 in the spontaneous data corresponds with our earlier finding that in the elicited tasks HSLI children did not differ in the use of agreement in three out of four

patterns, including B1. Indeed, the HSLI children were most accurate on B1. In elicited tasks HSLI children often failed to provide correct agreement in B5, which has a complex phonological template and often conveys more complex meanings. Verbs in B5 were not recorded in the naturalistic data at all. The predominance of simple agreement categories and the absence of complex agreement categories in the spontaneous data convince us that HSLI as well as ND-L children use simple verb inflections in spontaneous speech and avoid more complex verb forms. Infinitives were used correctly in the speech samples but in very low frequencies by the HSLI children as well as by ND-L controls. This finding leads to the conclusion that infinitives do not constitute a default morphological form in Hebrew.

The higher incidence of “stripped” forms in the spontaneous speech of the HSLI children relative to that observed in younger ND-L controls is mostly interesting. In the analysis of errors in agreement (see Dromi et. al., 1999) stripped forms appeared at a low rate in the HSLI data (occurring 17 times), and they were nearly nonexistent in the ND-L control children’s data (occurring only twice). The finding that such forms which are typical to verb usage of young toddlers at the beginning of the one word stage (Berman & Armon-Lotem, 1997) are still recorded in children who are 5 to 7 years old reflect the specific challenge that inflectional morphology pose to SLI children. This finding illustrates the claim that children with SLI show not only a delay in language learning but also a unique profile of language use in each developmental level (Rice, 2002).

As we have shown in this article, various methodologies generate different results. While in experimental elicitations children often fail to produce targets that pose difficulty, in naturalistic conversations children may simply avoid verb forms that require too much processing. Researchers as well as language clinicians need to be aware that the non-constraining method of recording spontaneous speech is not too efficient for the elicitation of linguistic forms that are relatively complex and therefore pose difficulty to children with SLI. At the same time, naturalistic evidence is crucial for supporting hypotheses, which

sometimes are tentative because they were formulated on the basis of a small set of findings that were obtained during a constraining elicitation task.

On the basis of our previous experimental studies on the use of Hebrew verb morphology by children with SLI, and from the current analysis of Hebrew naturalistic data we conclude that the difficulty Hebrew speaking children with SLI face with respect to verb morphology is selective rather than sweeping. In many cases, these children produce verb forms as successfully as their utterance length in morphemes lead us to expect. This is especially true when the verb forms they use are relatively simple. At the same time, our convergence evidence from elicited as well as spontaneous speech have convinced us that some morphological forms are too difficult for Hebrew speaking children with SLI, and therefore they hardly produce them in spontaneous speech. In languages with rich morphology that concurrently encode several grammatical notions (e.g., tense, person, number and gender), it is always useful to combine elicited and spontaneous research methods for studying the productive morphological abilities of young children with or without SLI.

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