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# Interpretation and Recall of Proverbs in Three School-age Populations

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## Abstract

The study investigates schoolchildren's command of proverbs as a facet of figurative language, testing their ability to go beyond the referential content of the linguistic message and their familiarity with established non-literal sayings as indicative of lexical development. The tasks involved (1) interpretation of unfamiliar proverbial sayings that are non-conventionalized in Hebrew – in context-free and contextualized conditions – and (2) recall of established traditional Hebrew proverbs. Participants were 4th- and 8th-graders from three populations: typically developing children of high and low SES backgrounds respectively and a group of high SES language-impaired children. Results show a clear rise in performance with age and schooling on both tasks, with greater success in interpreting novel sayings than in recalling traditional proverbs. The language-impaired group scored lowest on all tasks, with the low SES children doing less well than their high SES peers on interpretation but better on recall.

## Keywords

figurative language, Hebrew, language-impaired, proverbs, school-age, socioeconomic status

## Introduction

Our study considers children's command of proverbs as a particular facet of figurative language. Processing of figurative language is examined here as providing insight into children's ability to go beyond the referential content of the linguistic message, on the one hand, and their familiarity with non-literal sayings as shedding light on the mental lexicon, on the other. As such, proverbs constitute a means for investigating the interface of cognitively determined interpretive abilities with linguistic knowledge in later

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language development. Following Turner and Katz, figurative or non-literal language is defined as ‘discourse in which the intended message is different from that conveyed by the expressed message’ (1997, p. 200). Figurative usage thus reflects the inherent flexibility of language for conveying many possible shades of meaning (Fauconnier & Turner, 2002) by use of non-literal turns of phrase such as metaphors, jokes, riddles, irony, idioms, and proverbs. Common to these and other figures of speech or tropes is that they convey something other than the literal meaning of the words that they contain. By ‘literal meaning,’ we refer here to the reading most likely to be assigned to a word or phrase in the absence of context. This interpretation is consistent with research in cognitive science, which defines literal meaning as ‘the core properties that are activated regardless of contexts’ (Turner & Katz, 1997, p. 201).

Figurative language involves the ability to adopt a frame of mind that is capable of interpreting particular words or constructions beyond their initially available, basic or literal meaning. Developmentally, processing of figurative language has thus been described as acquiring the ability to distinguish between ‘what is said and what is meant’ or between the literal and the intended sense of an utterance (Lee, Torrance, & Olson, 2001; Levorato & Cacciari, 2002; Peskin & Olson, 2004). Relatedly, children need to be able to distinguish between verbatim and paraphrase interpretations of linguistic material (Yuill, 1998). Non-literal language thus imposes considerable interpretive demands, especially for schoolchildren, since different readings of a given statement may be plausible, as in different types of linguistic ambiguity (Lloyd, Mann, & Peers, 1998). For example, homonyms and garden-path phenomena pose interpretive difficulties for the hearer-reader addressee in general (Dor, forthcoming; Friedmann & Gvion, 2007).

From the psycholinguistic perspective adopted in the present study, processing of figurative language involves three cognitive demands. First, it means going beyond principles of transparency (one-form/one-meaning) that have been formulated for early lexical acquisition, such as Clark’s (1993) idea of contrast, to the effect that each lexical item is distinct from all others. That is, children need to learn that words – including set multi-lexemic expressions – can and often do have more than a single meaning. A second demand is being able to go beyond syntactically compositional processing to synergetic integration of linguistic constructions and the recognition that, conceptually, the semantics of the whole is more than and different from its parts. A third requirement is being able to bear in mind concurrently two distinct contexts and to recognize the common ground they share. For example, to understand what is meant by a saying like *Every cloud has a silver lining*, a person needs to know (1) that *cloud* is not referred to as an element of nature or *lining* as part of a coat; (2) that beyond their referential meaning, the words that make up this sentence combine to convey a special non-literal sense; and (3) that this special sense can be applied to a class of contexts that have nothing to do with either the weather or with clothing, but that nonetheless share some common ground. Taken together, these achievements involve a developmental shift from reliance on clarity and processibility in early child language to the mature communicative competence formulated in Slobin’s (1977) charges that language use be both ‘quick and easy’ to process in real time and also ‘rhetorically expressive.’

As a result, the ability to process figurative language constitutes a critical facet of the period of ‘later language development’ from middle childhood to late adolescence (Berman, 2004a, 2007; Nippold, 2007). Learning to distinguish between what is said and

what is meant is a key achievement during the school years (Honeck, Sowry, & Voegtle, 1978; Resnick, 1982). Directly related to development in different domains – linguistic, cognitive, and social – this ability is critical to literacy development and the understanding of written texts (Berman & Ravid, 2009; Yuill, 2009). Described as ‘a landmark in later language development’ during the school years, mastery of non-literal language forms part of a general cognitive shift to ‘beyond conventions’ in language usage, at the level of both lexicon and extended discourse (Tolchinsky, 2004, p. 238).<sup>1</sup> This includes recognizing different types and levels of linguistic ambiguity; getting the point of a joke or riddle; and understanding what is meant when someone says *he’s warm-hearted, we’re between the devil and the deep blue sea* or *beggars can’t be choosers*.

Appropriate construal of these and other kinds of non-literal usages ability emerges as early as around age 4;0–5;0, once theory of mind is well enough established for children to take into account the state of both their own knowledge and that of their interlocutor(s) (Astington, Harris, & Olson, 1988; Kuhn, 2000; Wellman, 2002). On the other hand, even schoolchildren tend to process language in a largely literal sense. True, children in 2nd and 3rd grade can differentiate what is said from what is meant. But current research shows that even school-age children still have difficulty when this involves more complex tasks such as identifying inferences as part of the understanding of extended texts (Kaplan, submitted). Similar findings emerge from developmental research on a range of topics in non-literal pragmatics, including: indirect requests (from Ervin-Tripp, 1976, up to recent work by Bernicot, Laval, & Chaminaud, 2007), idioms (Cacciari & Levorato, 1989; Crutchley, 2007; Nippold & Duthie, 2003; Nippold & Taylor, 2002), metaphors (Gentner, 1988; Nippold, 1998, pp. 84–102; Vosniadou, 1989), and different types of linguistic humor (Ashkenazi & Ravid, 1998; Bernstein, 1986; Nippold, 1998, pp. 139–155). Moreover, young school-age children are still in the early stages of being able to say precisely what they mean in their speech production, and even more so in their writing (Peskin & Olson, 2004, p. 226). Besides, as in other areas of language development, linguistic knowledge may emerge early on, but the path from emergence via acquisition to mastery has a long developmental history (Berman, 2004b). This has been shown, for example, for understanding of homonymy (Doherty, 2000, 2004) as well as for linguistic humor and jokes (Ravid & Geiger, 2009; Yuill, 1998), and for textual inferencing (Cain & Oakhill, 1999; Oakhill, Yuill, & Donaldson, 1990). In sum, research shows that it takes until well beyond the early school years, in some domains such as irony even across adolescence, for children to assign appropriate interpretations to different kinds of non-literal language.

The present study focuses on schoolchildren’s interpretation and recall of proverbs as a specific type of figurative language. A proverb is defined as ‘a short, generally known sentence of the folk which contains wisdom, truth, morals, and traditional views in a metaphorical, fixed, and memorable form and which is handed down from generation to generation’ (Mieder, 1993, p. 24). These defining properties of proverbs and the folk wisdom that they express apply across cultures. However, like other lexical items, proverbs tend to be culture- and language-specific. For example, the English proverbs *As you make your bed so you must lie on it*, *The devil looks after his own*, *A stitch in time saves nine* do not have equivalents in Hebrew, whereas the idea of *Birds of a feather flock together* is expressed by the traditional Mishnaic saying *halax ha-zarzir etsel ha-orev* ‘Went the starling by (in the sense of French *chez*) the crow,’ that is, ‘starlings associate with crows.’

We selected proverbs as our domain of inquiry since they represent a type of figurative language that embodies all three cognitive demands noted earlier. Consider, for example, what is involved in interpreting the Biblical proverb *eyn xadash taxat ha-shemesh* '(there is) no(thing) new under the sun' (Ecclesiastes 1:9). The first requirement of non-literal processing is the understanding that this saying means something different than what it says, that is, it goes beyond one-to-one form/meaning transparency. Second, the meaning of the saying cannot be derived by simple syntactic parsing, since it involves a sense not yielded by straightforward compositional processing of the linguistic elements that it contains. Third, it requires relating this saying to a generic category of events applicable to specific instances, that is, it requires the concurrent manipulation of two distinct contexts. Typically, proverbs express common-sense beliefs but, since they are generally anchored in the practical experience of traditional folk wisdom, they may not be readily applicable to the world of contemporary life.

In addition to these general demands for the processing of figurative language, proverbs pose two further linguistic challenges relating to the mental lexicon. First, as set multi-lexemic expressions or lexicalized 'long words,' they need to be stored and retrieved in verbatim form with their conventionalized meaning. Second, in spite of their down-to-earth nature and the concrete imagery that they employ, proverbs are typically formulated as generically abstract propositions. Moreover, although they are generally popular, oft-repeated sayings, proverbs have usually come down over the centuries and so often use high register, even archaic, turns of phrase, for example, the word *broth* in *Too many cooks spoil the broth*. This range of conceptual and linguistic challenges is clearly illustrated by the traditional Hebrew saying mentioned earlier: *halax ha-zarzir etsel ha-orev* 'Went the starling *chez* the crow' for *Birds of a feather flock together* (as by the English genitive construction 'of a feather'). The Hebrew saying requires both that speakers recognize the rural agricultural connotations associated with starlings and crows as relevant to a specific instance of social behavior and that they are able to process the archaic Biblical VS syntax and the Mishnaic preposition *etsel* for contemporary 'at, to' (Waltke & O'Connor, 1990).

Proverbial sayings thus impose heavy cognitive and linguistic demands on learners both in comprehension and memory. The study presented in this article addresses these two facets of the complex assembly of abilities involved in processing proverbs: interpretation and recall. The first requires accessing the non-literal generic sense of a proverb-like piece of figurative language and applying it to a specific real-life situation. The second involves retrieving the verbatim form of traditional proverbs as long multi-lexemic words in the literate lexicon. We investigate the development of these abilities in three different monolingual Hebrew-speaking pre-adolescent groups: typically developing schoolchildren from middle to high socioeconomic status (SES) backgrounds compared with their low SES typically developing peers, as well as with their language-impaired peers from middle to high SES backgrounds.

Selection of these three groups aimed at addressing internally anchored clinical deficits (LI) as distinct from environmentally related language and learning difficulties (SES). Underlying our study is the assumption that children require adequate learning conditions for non-impaired language acquisition to take place. This means they need to have access to linguistic input that is quantitatively and qualitatively sufficient for forming

coherent categories necessary for knowledge generalization (Mayor & Plunkett, 2007). We propose that two major types of learning conditions may mitigate against optimal language development in general and at school age in particular: cognitive factors internal to the individual and socially determined factors deriving from the external environment.

The first group of factors relate to general processing systems and abilities of individual children which, when impaired, mitigate against optimal development of language mastery and language use. Research has shown that language-impaired children are slow in processing linguistic information, they are insensitive to derivational relationships (Moats & Smith, 1992), they tend to store elements in isolated rather than network forms (Carlisle, 1988), to take longer at tasks of lexical retrieval, and to have difficulty in applying morphological rules to unfamiliar words and in organizing and accessing words through morphological relations (Freyd & Baron, 1982; Nagy, Anderson, Scommer, Scott, & Stellmen, 1989). Language-impaired children also make less efficient use of sentence and discourse structure to identify the meaning of unfamiliar words and of referents in narrative contexts (de Weck, 1998; Stone & Connell, 1993), and they perform less well on metalinguistic tasks (Rubin, 1988; Swisher, Restrepo, Plante, & Lowell, 1995). Of particular relevance in the present context is research on non-verbal cognition in language-impaired children, indicating that they have problems with symbolic functions such as symbolic play, classification, figurative thinking, and hypothesis formation (Paul, 1995). Recent research on children suffering from different types of language impairment has extended beyond early preschool acquisition to school-age populations, on the assumption that language disorders underlie most learning disabilities (e.g., Goulandris, Snowling, & Walker, 2000; Greenhalgh & Strong, 2001; Nippold, 2007; Nippold, Schwarz, & Undlin, 1992; Scott & Windsor, 2000). Similar findings emerge from current Hebrew-based studies on school-age language-impaired children (Ravid, Avivi-Ben Zvi, & Levie, 1999; Ravid, Levie, & Avivi-Ben Zvi, 2002; Zarif, 2005). Our study thus assumes that such populations will encounter particular difficulty in comprehension and recall of proverbs.

We predict that proverbs will also constitute a challenging domain for children of low SES backgrounds, where environmentally engendered factors mitigate against the achievement of optimal linguistic proficiency. These take the shape of socially anchored features of home background and school settings which, when disadvantaged, constitute an obstacle to children's realizing their full potential in language- and literacy-related abilities (Hart & Risley, 1992, 1995, 2003; Kishiyama, Boyce, Jimenez, Perry, & Knight, 2009). For present purposes, we adopt Chiu and McBride-Chang's (2006) characterization of SES as a multidimensional concept of 'family capital' – financial (monetary and material resources), human (educational and cultural resources), and social (social connections of career, occupation, etc.). Research both in Israel and abroad shows that children from less-educated, lower SES backgrounds manifest poorer language skills in areas such as vocabulary and reading compared with their mainstream, middle-class peers (for example, in the USA, Au, 1998; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Teale, 1986; and in Israel, Aram, 2005; Aram & Levin, 2002; Minkovich, Davis, & Bashi, 1977; Ravid, 1995). The present study is based on the assumption that children reared in low SES families may thus lag behind those raised in more advantageous conditions in abilities that will be reflected in the target domain of proverb comprehension and recognition.

Our study thus has two main goals: (1) to probe developing abilities in interpretation of unfamiliar proverbs and recall of established proverbs, and (2) to examine the independent variables of the external environmental impact of SES background, on the one hand, and individual, internal developmental language difficulties, on the other.

## Method

The study reported here constitutes part of a larger project on developing language and discourse abilities in pre-adolescence comparing three groups in the domains of derivational morphology, composition writing, and figurative language.

### Research Population

Participants were children at two levels of age-schooling, grade-school 4th-graders aged 9–10 years and middle-school 8th-graders aged 13–14, in three groups: typically developing mid-high SES (henceforth HI), typically developing low SES (LO), and language-impaired children from mid to high SES backgrounds (LI).<sup>2</sup> Data for the HI group were collected from 287 children in six 4th-grade and four 8th-grade classes from two well-established schools in central Israel. For the LO group, data were collected from 225 children in two 4th-grade and five 8th-grade classes attending two schools in disadvantaged neighborhoods in central Israel that meet the criteria of the national Ministry of Education ‘Deprivation Measure’ (Olshtain & Zuzovsky, 2004). As noted, all children participated in a large-scale project testing a range of linguistic domains, one of which concerned the proverbs analyzed in the current article. The final test population in the two normally developing groups excluded students (1) whose parents had objected to their participating in the study, (2) who were not native speakers of Hebrew, that is, recent immigrants or bilinguals, and (3) who did not complete all of the research tasks included in the project.

The final normally developing population came to 169 in the HI group (88 in 4th grade, 81 in 8th grade) and 81 in the LO group (41 in 4th grade, 40 in 8th grade) divided fairly evenly between boys and girls. The drop-out rate was higher in the LO group mainly because more students in this group failed to complete the entire test battery. Both the HI and LO groups excluded children reported as having been diagnosed or currently being treated for language or learning disabilities. The LI group in the present study consists of language-disabled children from high SES backgrounds attending the same schools and in the same classes as the HI groups.

The following procedure was adopted for establishing the three research groups, HI, LO, and LI. To create two comparable groups of typically developing students differing only in SES, we screened out from the HI group alone a subgroup of 23 language-impaired (LI) children, 12 in 4th grade and 11 in 8th grade. This third, LI group was identified in our study by a specially devised *screening test* constructed in the framework of the broader project. This was necessary because in Israel, unlike the UK and the USA, there are no national standardized tests available that establish norms for both normally developing schoolchildren and for children diagnosed as being language-disabled in the target age groups of our study. This screening test was administered in writing, and

focused on independent processing abilities and Hebrew-specific syntactic skills known to be challenging to children with language disabilities.

## Materials

All participants in the study (HI, LO, and LI) were administered the same *research battery* consisting of tasks administered in writing in three domains: figurative language, derivational morphology, and text production. The present study concerns three tasks in the first of these domains – figurative language – dealing with comprehension and recall of proverbial sayings: two tasks on comprehension of what we term *pseudo-proverbs* and one task on recall of established *traditional proverbs*.

All participants were tested on the two types of proverbs. Comprehension of pseudo-proverbs and recall of established traditional proverbs both met all the criteria stipulated for proverbial usage as defined in the Introduction. Our study thus involves both types of stimuli analyzed by Turner and Katz (1997, pp. 229–230): what they define as unfamiliar proverbs (e.g., *Hard rocks are hollowed out by soft water*) as well as familiar proverbs (e.g., *Lightning never strikes the same place twice*).

**Pseudo-proverbs.** The pseudo-proverbs were translated from established English proverbial sayings that are not conventionalized in Hebrew and thus represent ‘unfamiliar proverbs’ for speakers of Hebrew.<sup>3</sup> Comprehension of the same 10 pseudo-proverbs was tested in two conditions: context-free and context-supported. In both conditions, participants were required to interpret non-literal sayings that were not familiar to them. For example, English *Every cloud has a silver lining* was rendered as *me’axorey kol anan shaxor mistateret ha-shemesh* ‘behind every black cloud hides the sun,’ and *Sleeping foxes catch no poultry* was changed to *ha-shu’al ha-nam lo yuxal litpos tarnegolot* ‘The slumbering fox will not be able to catch chickens.’

Each pseudo-proverb was followed by a response set of four alternative answers, with participants instructed to select the one that best explained the saying. All four answers were invariably worded in the generic, categorial, and atemporal format favored for encoding such ‘conventional truths.’ The three incorrect responses in each set were distracters ranged from a highly abstract and hence more feasibly proverb-like interpretation of the target saying to the most concrete and hence least appropriate alternative. The contents of this test, including feasibility and (un)familiarity of the target sayings and ranking distracters for level of abstractness, were constructed on the basis of lengthy discussions with the research group mentioned in the section on Procedures. Test items were revised and certain distracters were rejected as a result, following extensive piloting with individuals and groups of children in the age ranges targeted in the study. For example, for the Hebrew-language saying *Behind every black cloud hides the sun*, the correct response was ‘You can find something good in everything bad.’ The most abstract distracter was, in this case, ‘There are people that see only blackness’ (associated with the Hebrew idiom *ro’ey shxorot*, literally ‘seers of black = pessimists’); a less abstract distracter was ‘Wintry weather is not particularly well-liked,’ and the most concretely literal distracter was ‘Not every black cloud hides the sun.’

Comprehension in context was tested after an interval of two weeks, targeting the same 10 pseudo-proverbs, this time preceded by short simple narratives, describing concretely specific episodic situations familiar to pre-adolescents. These contextualizing narratives were worded in everyday language, and were intended to help participants in interpreting the pseudo-proverbs that typically used high register language and were formulated in generic, atemporal, and categorial terms. At the end of each short narrative, the target saying appeared in the form of an authentic coda or generalization articulated by a figure of authority – parent, teacher, coach or older sibling. For example, the following short story, translated here into English, was used to contextualize the Hebrew pseudo-proverb *Behind every black cloud hides the sun*:

One day, Shelli fell off her bike and hurt her leg. Her father took her to the clinic, where she met another girl who had sprained her ankle during a class trip. The two got talking and became good friends. Seeing what good friends they had become, Shelli's father smiled and said: *Behind every black cloud hides the sun*.

What did Shelli's father mean when he said: *Behind every black cloud hides the sun*?

The same multiple-choice response set provided for the context-free task was used for the contextualized pseudo-proverbs as well. However, the 10 target sayings and also the four responses were given in different randomized orders under each condition. Like the context-free condition, these 10 items formed part of a longer battery of tests in which participants also answered questions on derivational morphology and wrote a composition.

**Traditional, established proverbs.** Participants were also tested on knowledge of 10 traditional proverbs taken mainly from classical scriptural sources that form part of Hebrew-language usage to this day and can thus be classed as 'familiar proverbs' in the sense of Turner and Katz (1997). Responses to all items on this sentence-completion task were in multiple-choice form (one out of four), with participants required to select the correct word to complete the proverb. For example, given the Mishnaic string *mi še-\_\_\_\_\_ be'erev shabat, yoxal be-shabat* 'He who \_\_\_\_\_ on Sabbath eve, will eat on the Sabbath,' the correct answer was the verb *tarax* 'took pains.' The three distracters were designed for (1) phonological similarity – in this case, the verb *barax* 'fled,' (2) semantic similarity – the verb *amal* 'toiled,' and (3) pragmatic feasibility – the verb *bishel* 'cooked.' Another traditional proverb was *eyn kemax, eyn \_\_\_\_\_* 'no flour, no \_\_\_\_\_' = 'without flour, there is no \_\_\_\_\_.' The correct answer was the noun *torah* 'learning, lore,' a phonologically similar word was *shira* 'poetry,' a semantically similar word was *xoxma* 'wisdom,' while pragmatic feasibility was represented by the noun *uga* 'cake.' Responses (1), (2), and (3) were pooled for statistical analysis, as all indicated some familiarity with the original saying.

## Procedures

The three proverb tasks were interspersed with seven derivational morphology tasks. The context-free pseudo-proverbs were tested in one session, and the contextualized pseudo-proverbs and traditional proverbs in another session two weeks later. All tasks

**Table 1.** Mean percentages and standard deviations of success on comprehension of pseudo-proverbs by grade, group, and condition

Group	Context-free		With context	
	G4	G8	G4	G8
HI	70.35 (20.55)	87.56 (11.39)	84.47 (16.29)	93.66 (12.62)
LO	57.69 (17.24)	81.75 (18.93)	73.33 (20.04)	93.25 (10.23)
LI	40.83 (23.91)	80.91 (15.78)	53.33 (34.73)	81.82 (22.72)

were administered in a classroom setting, in writing, in the presence of the class teacher and at least two investigators – members of a research group of some 10 graduate or postgraduate, highly experienced speech-language pathologists who cooperated on test construction, data collection, and analysis. Participants were met with in three sessions for the HI group (one for screening and two for the research battery) and in two sessions for the LO group (for the research battery alone).

## Results

Findings were analyzed for the independent variables of development (4th vs 8th grade) and group (HI, LO, LI) for two types of tasks: comprehension of pseudo-proverbs and recall of traditional proverbs.

### *Comprehension of Pseudo-proverbs*

We conducted a three-way analysis of variance on correct responses (Grade: 2 × Group: 3 × Condition: 2) on the data in Table 1. All three main effects emerged: Grade,  $F(1, 263) = 96.1, p < .001$  – 4th-graders scored lower ( $M = 69.85\%$ ) than 8th-graders ( $M = 79.98\%$ ); Group,  $F(2, 263) = 23.19, p < .001$  – all three groups differed significantly: HI ( $M = 84.01\%$ ) > LO ( $M = 76.51\%$ ) > LI ( $M = 64.22\%$ ); Condition  $F(1, 263) = 41.61, p < .001$  – the contextualized condition yielded higher scores ( $M = 79.98\%$ ) than the context-free condition ( $M = 69.85\%$ ). These results were mitigated by two interactions. First, a Grade × Group interaction,  $F(2, 263) = 6.9, p < .002$ , as shown in Figure 1; and a Grade × Context interaction  $F(1, 263) = 6.36, p < .02$ , as shown in Figure 2.

To determine the sources of both interactions (at the .05 level), we conducted a Bonferroni procedure, using the mean square error from the ANOVA, and taking into account the number of comparisons done. For Figure 1, simple effects of group showed that in 4th grade, the three groups differed, whereas in 8th grade, there was a difference only between the HI group and the LI group. For Figure 2, simple effects of context showed, first of all, that for both grade levels, the contextualized condition yielded higher scores than the non-contextualized condition. However, the difference between the two conditions was larger for 4th grade ( $M = 14.09, SD = 20.54$ ) than for 8th grade ( $M = 5.17, SD = 17.02$ ).

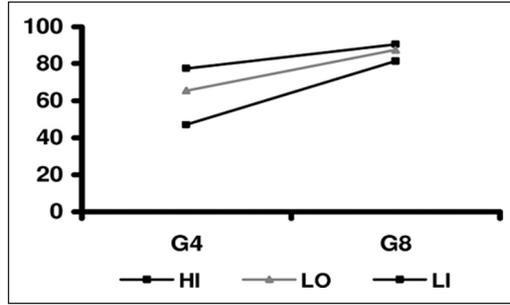


Figure 1. Interaction of grade and group on comprehension of pseudo-proverbs

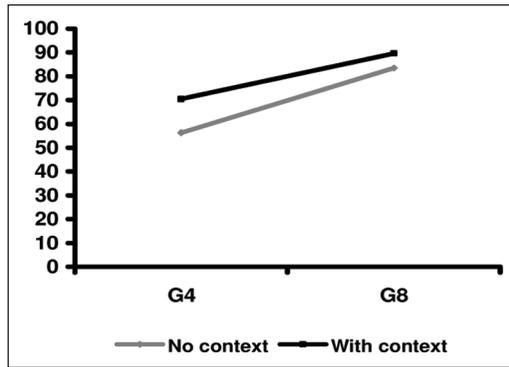


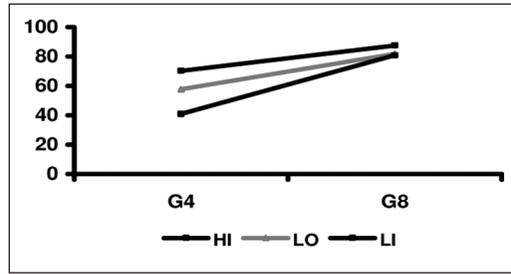
Figure 2. Interaction of grade and condition on comprehension of pseudo-proverbs

Since our rationale led us to expect different patterns of results for the context-free versus the contextualized conditions, we also examined the Group  $\times$  Grade interactions within each condition.

*The context-free condition.* A two-way analysis of variance on correct responses (Grade: 2  $\times$  Group: 3) on the data in Table 1 revealed both main effects: Grade,  $F(1, 263) = 87.35, p < .001$  – 4th-graders scored lower ( $M = 56.29\%$ ) than 8th-graders ( $M = 83.41\%$ ); and Group,  $F(2, 263) = 15.4, p < .001$ : the HI group scored significantly higher ( $M = 78.96\%$ ) than the other two groups, which did not differ from each other – LO ( $M = 69.72\%$ ), and LI ( $M = 60.87\%$ ). These results were mitigated by a Grade  $\times$  Group interaction,  $F(2, 263) = 4.72, p < .02$ , as shown in Figure 3.

Figure 3 indicates that all three groups show higher performance with age and schooling. The interaction is due to the fact that all three groups differ in 4th but not in 8th grade.

*The contextualized condition.* A two-way analysis of variance on the correct contextualized responses in Table 1 (Grade: 2  $\times$  Group: 3) again showed that both main effects



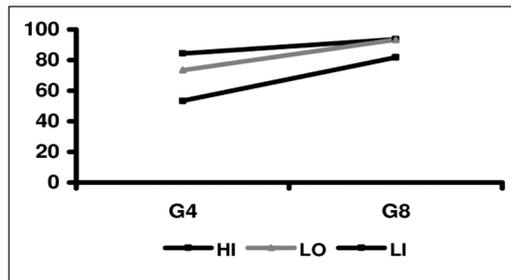
**Figure 3.** Interaction of grade and group on comprehension of pseudo-proverbs in the context-free condition

emerged: Grade,  $F(1, 263) = 48.03, p < .001$  – 4th-graders scored lower ( $M = 70.38\%$ ) than 8th-graders ( $M = 89.58\%$ ); and Group,  $F(2, 263) = 17.81, p < .001$  – all three groups differed significantly: HI ( $M = 89.07\%$ ) > LO ( $M = 83.29\%$ ) > LI ( $M = 67.58\%$ ). These results were mitigated by a Grade  $\times$  Group interaction,  $F(2, 263) = 5.16, p < .007$ , as shown in Figure 4.

Figure 4 indicates that all three groups show higher performance with age and schooling. The interaction is due to the fact that all three groups differ in 4th grade; however, by 8th grade both the HI and LO groups score higher than the LI group, but they no longer differ from each other.

**Error analysis.** Recall that each item had three distracters: going from the most abstract proverb-like response to the most concretely literal. Patterns of errors are also indicative of different levels and types of understanding of non-literal language. Accordingly, we analyzed the most abstract response out of all incorrect responses by grade, group, and condition, as shown in Table 2.

The three-way analysis revealed two main effects: one for Age-schooling,  $F(1, 148) = 5.09, p < .03$  – 4th-graders selected fewer abstract distracters ( $M = 73.88\%$ ) than 8th-graders



**Figure 4.** Interaction of grade and group on comprehension of pseudo-proverbs in the contextualized condition

**Table 2.** Mean percentages and standard deviations on selection of abstract distracters to pseudo-proverbs out of all incorrect responses, by grade, group, and condition

Group	Context-free		With context	
	G4	G8	G4	G8
HI	87.50 (19.62)	97.13 (10.97)	77.29 (33.15)	79.31 (39.00)
LO	68.03 (32.06)	92.50 (15.78)	66.18 (35.05)	72.62 (37.9)
LI	70.93 (25.62)	86.11 (22.15)	73.34 (31.27)	83.33 (21.08)

( $M = 85.17\%$ ) – and another for Condition,  $F(1, 148) = 5.17, p < .03$  – the context-free condition entailed more abstract distracters ( $M = 82.7\%$ ) than the contextualized condition ( $M = 75.35\%$ ). No other effects or interactions emerged.

### Recall of Traditional Proverbs

We conducted a two-way analysis of variance on correct responses (Grade:  $2 \times$  Group) on the data in Table 3.

Both main effects emerged: Grade,  $F(1, 263) = 35.71, p < .001$  – 4th-graders scored lower ( $M = 46.42\%$ ) than 8th-graders ( $M = 60.63\%$ ); Group,  $F(2, 263) = 6.09, p < .004$ . Here, the LO group did significantly better ( $M = 58.66\%$ ) than both the HI ( $M = 52.79\%$ ) and the LI ( $M = 49.13\%$ ) groups. No interaction emerged.

### Discussion

The first two tasks involved proverbial sayings that are not part of the established word-stock of Hebrew. School-age children proved on the whole well able to interpret unfamiliar proverbial sayings, starting with around 70% correct responses in 4th grade and going up to as high as 90% in the two typically developing 8th-grade groups, while LI children start with less than 50% in 4th grade and reach around 80% in 8th grade. A clear and consistent age-related development thus emerged in children's ability to interpret unfamiliar pseudo-proverbs across the three groups. These results demonstrate development of an essentially *interpretive* process, the ability to go beyond the most obvious, 'default'

**Table 3.** Mean percentages and standard deviations of success on recall of traditional proverbs by grade and group

Group	Grade	
	G4	G8
HI	47.53 (13.79)	58.05 (14.35)
LO	52.56 (14.46)	64.75 (15.02)
LI	39.17 (17.82)	59.09 (9.44)

or literal denotation and compositional content of a given expression, so as to provide an interpretation that is semantically meaningful and pragmatically appropriate. This requires that speakers recognize the 'genre' of the conventionalized linguistic form used for framing such statements and that they are able to create a mental representation of the conventional truth or 'truism' ('a self-evident truth') encoded by each such statement.

Developmentally, making sense of figurative language involves both linguistic flexibility – going beyond the surface forms of words and accepted form–meaning mappings – and the cognitive flexibility of mapping specific concrete imagery into generic terms of diverse situations abstracted away from specific instances. In our study, even 4th-graders were able to do so quite well, although the target expressions were worded in non-everyday, high register language, and encoded in generic, atemporal, and categorial terms. In other words, by middle childhood, children are able to go beyond what is said to what is meant when encountering unfamiliar generalizations in figurative language.

We further found that participants in all groups were considerably aided in this by *context*, in the form of short, simple narratives about situations familiar to schoolchildren from everyday life – more in the younger age group of 4th-graders than among the older 8th-grade participants. The contextualized condition provided specific, episodic, and more concrete content to anchor the sayings, in the form of an authentic coda or generalization articulated by a figure of authority, hence providing clues as to possible interpretations. This type of contextual 'scaffolding' was less helpful to 8th-graders. And it proved totally unnecessary to a pilot group of 17-year-old high school juniors, who demonstrated high level powers of abstract inferencing from isolated propositions, along lines suggested by findings for comprehension of texts at this age and level of schooling (Kaplan, submitted). We take this as evidence for a quite general developmental pattern, to the effect that once knowledge is established and consolidated, it becomes autonomous and self-contained.

Analysis of the types of erroneous distracters selected by respondents revealed all groups to rely significantly more on the abstract rather than the concrete distracters, a trend that was more pronounced with age. This across-the-board preference for abstract distracters was not affected by group, but was shared by typically developing children of both HI and LO backgrounds and by the atypical group of LI children. Moreover, reliance on abstract distracters was more prevalent in the context-free, hence the less concretely anchored, condition. These findings converge to show that even 10-year-olds are capable of processing non-concrete verbal information, as independently evidenced by the types of nominal expressions they are able to deploy in texts which they construct – in English (Nir-Sagiv, Bar-Ilan, & Berman, 2008) as in Hebrew (Ravid, 2006).

As for differences between groups, all three groups performed better with age and schooling in interpreting non-literal language in the form of an unfamiliar proverb. However, developmental and educational factors have more of an impact on normally developing children of low SES background than on their language-impaired peers. Thus, in 4th grade, all three analyses (combined, context-free, and contextualized) reveal the same hierarchy, with the HI group doing better than the LO group, and the LO doing better than the LI group. At 8th grade, however, along with overall improvement in performance by all three groups, there is a different patterning in the two conditions. In the context-free condition, all three groups attain the same success rate of around 80%. In

contrast, the typically developing 8th-graders from both HI and LO backgrounds attain the same high score of around 90%, whereas the LI group remain at the 80% level of success that they obtained in the context-free condition – confirming Nippold's (2007) findings for the generally low performance of LI groups in other areas of later language development. We interpret this difference between language-impaired 8th-graders of HI SES backgrounds compared with their peers as reflecting their inability to integrate the information provided by supporting narrative context as an instantiation of the target saying. In this, these children may well be hampered by lower reading abilities, which makes it difficult for them to process even short, quite simple written texts as aids to comprehension of language content. We suggest that further studies of this kind should design separate tasks to assess the reading and spelling abilities of the target population, so as to isolate these domains as possible interfering factors.

A rather different picture emerged from the second task presented to the same three groups, requiring retrieval of the exact wordings of conventional, traditionally established Hebrew proverbs rather than interpretation of novel sayings. In this recall task, performance was across the board lower than in the interpretation task, reaching between only 40% and 50% in 4th grade, up to only two-thirds at most in 8th grade. The poor results on this task suggest that contemporary school goers may have only limited access to more traditional language use, and that they are not well versed in the classical texts in which these proverbs are anchored. We propose that traditional proverbs constitute part of the 'literate lexicon,' and as such of an established cultural repertoire. From this perspective, knowledge of established proverbs might be associated with older, relatively highly educated members of the society who are more familiar with the literate and literary sources of Hebrew language and culture (Ravid & Berman, 2009).

Our finding is consistent with general trends in current educational policy in Israel, and possibly elsewhere. First, today, officially approved school texts are deliberately based on contemporary Hebrew writing – both fiction and non-fiction – whereas formerly, the bulk of school reading consisted of Biblical and Mishnaic Hebrew sources. A second general trend is the western repudiation of rote-learning as the hallmark of the well-educated individual. Rather than encouraging students to learn whole poems, scenes from Shakespeare's plays, or verses and chapters of the Bible by heart, current educational practices emphasize processes of comprehension rather than of retrieval. This is quite generally reflected in current studies on school-age knowledge of idioms and proverbs, two types of language use that are regrettably often intermixed in research in the domain. Contemporary literacy-related practice and research concerning figurative language typically focus on the cognitive-linguistic underpinnings of comprehension, with less concern for developing knowledge of traditional turns of phrase, once the hallmark of the educated speaker-writer of Hebrew.

Age and schooling thus affect recall of established proverbs, as was found for the interpretation task as well. So, too, does group, but in a different direction: here, both the typically developing and the language-impaired high SES groups perform worse (around 40% in 4th grade and under 60% in 8th grade) than the typically developing low SES group (ranging from over 50% in 4th to 65% in 8th grade). This unexpected finding cannot be explained in terms of the particular educational background of our LO versus HI groups, since our study deliberately excluded children that attend schools belonging

to the state religious system, where relatively more emphasis is placed on formal study of the scriptures. Rather, we attribute this finding to the more traditionally observant sociocultural home background of the low SES children, one that renders them more familiar with oral as well as written Hebrew lore. This could well be because these children often participate in family-based religiously oriented ceremonies (including blessings before and after meals, Sabbath rituals, etc.) and are exposed to orally transmitted, intergenerational set formulaic sayings, typically in an extended-family context. Their families are also often involved in synagogue-related rituals, where children are extensively exposed to scriptural usages of a kind not accessible to the typically non-orthodox children of well-established SES background in Israel.

In sum, our study reaffirms the combined impact of increased maturation and schooling on the general cognitive ability to interpret figurative language at school age. And it indicates that proverbs constitute an important facet of later language learning, suggesting that they might usefully be (re)introduced into language arts curricula, suitably adapted to students' sociocultural background as well as their age-schooling level. The study also points to the need for further Hebrew-based investigation, from preschool age across the school years, of children's command of different types of figurative language, as a domain largely neglected to date in research on language development in Hebrew.

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### Notes

- 1 In this connection, it is worth bearing in mind Turner and Katz's (1997, p. 201) caution that 'figurativeness, literalness, and conventionality of use is confounded in much of the literature' since, as they point out, 'sentence conventionality and literalness are separable from one another and dependent upon one's familiarity with the trope' (p. 203).
- 2 Our research design deliberately excluded from the LO SES group children diagnosed clinically or reported by their home-room teachers as suffering from language disorders. This process of exclusion from the LO SES group was taken further in the HI SES group, by means of a screening test administered to all, but only, HI SES children. This screening test was on lexical retrieval and syntactic structures (comprehensions and production), so unrelated to the three research domains of figurative language, derivational morphology, and composition writing. The LI group were selected taking into account a combination of three factors: (1) a cut-off point of the lowest one-third in scores on all four tasks in the screening test, (2) having been referred for clinical diagnosis and treatment, and (3) teacher reports of learning difficulties.
- 3 The authors are grateful to Dr Nippold for making available the English proverbs that formed the basis for the Hebrew comprehension task and also for suggesting the idea of testing comprehension of these sayings with and without supporting context.

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