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4 HARSP: A Developmental Language Profile for Hebrew[1]

Ruth A. Berman and Lyle Lustigman

Introduction

This section outlines the history of the study from which the present chapter is derived and describes its database, and it also provides a brief introduction to relevant features of the structure of Israeli Hebrew. The original study was conducted over a period of several years in the late 1970s and early 1980s by the first author in cooperation with Anita Rom, a senior lecturer and researcher on speech pathology and atypical language development, and Myrna Hirsch, a speech clinician then living on Kibbutz Yizrael where she collected much of the data on which the study is based. This is a revised and updated version of an unpublished booklet produced by Berman *et al.*, entitled *Working with HARSP: Hebrew Adaptation of the LARSP Language Assessment Remediation and Screening Procedure* (February 1982) and presented to the Israel Association of Speech Clinicians during a visit to Israel in 1981 by Michael Garman from the University of Reading. Since that time, the language of Hebrew-acquiring children with both normal and atypical development has been the topic of extensive research, part of which is referenced below. However, while the analyses presented below are considerably modified from the 1982 version of HARSP, our presentation adheres to the format stipulated in Crystal *et al.* (1989), combined with the 2005 updated manual, in order to be consistent with the overall goals of this volume.

Database

The materials underlying the original HARSP analyses derive from nearly 150 transcripts of adult-child conversations with normally developing Hebrew-speaking children. The interviews conducted by Myrna Hirsch were extended by materials collected under the auspices of Ruth Berman and Anita Rom (by graduate students of Tel Aviv University's departments of Linguistics and of Communications Disorders respectively), and were subsequently checked, revised and edited in standardized format by Ruth Berman. This yielded a set of computerized transcripts available on CHILDES (MacWhinney, 2000), based on adult-child conversational interchanges of

100 Hebrew-speaking pre-schoolers, 20 at each of the following age-groups (in years;months): 1;0–1;11, 2;0–2;11, 3;0–3;11, 4;0- 4;11 and 5;0–5;11.[2] These cross-sectional materials were supplemented for present purposes by longitudinal samples of Hebrew child speech recorded and transcribed in the Berman lab at Tel Aviv University for four children between ages 1;3 to 3;6 in interaction with their mothers and other caretakers

Brief outline of Hebrew grammar

This section focuses on features of Hebrew that are most relevant to the language of children in the age-range dealt with in this chapter (0;9–4;0), relying largely on studies by child language researchers dealing with relevant domains. Brief English-language overviews of the historical development and structure of Modern Hebrew are available in Berman (1985: 257–63; 1997), Berman and Neeman (1994), Ravid (1995a: 3–36) and Schwarzwald (2001).

A major task for Hebrew-acquiring children is mastery of the rich inflectional systems of their language: animate nouns alternate morphologically for gender (compare *iš ~ iša* 'man ~ woman', *xayal ~ xayélet* 'soldier ~ female soldier', *par ~ para* 'bull ~ cow', *tarnegol ~ tarnególet* 'cock ~ hen'), while inanimate nouns are inherently marked for gender as either masculine or feminine (compare masculine *šulxan* 'table' ~ feminine *mita* 'bed', *séfer* 'book' ~ *xovéret* 'notebook').[3] Count nouns can be either singular or masculine in number, with masculine nouns typically taking the suffix *–im* and feminine nouns ending in *–ot* (e.g. *talmidim* 'schoolboys' ~ *talmidot* 'schoolgirls', *parim* 'bulls' ~ *parot* 'cows'). The system is replete with lexical exceptions (including idiosyncratic structural alternations such as *iš ~ anašim* 'man ~ people', *iša ~ našim* 'woman ~ women') and, as the last example shows, cases where a masculine noun takes a feminine plural ending in *–ot* and vice versa (e.g. *šulxan ~ šulxanot* 'table-s', *kir ~ kirot* 'wall-s', and *beyca ~ beycim* 'egg-s', *mila ~ milim* 'word-s' respectively). Different morphological subclasses also entail various stem-changes when a suffix is attached to mark gender or number shifts, and also possessive case (e.g. *yéled ~ yalda ~ yeladim* 'boy ~ girl ~ children', *báyit ~ batim ~ beyti* 'house - houses ~ house-my' > 'my house'). Thus, while children acquire the basic systems of number and gender by around the age of three years, it takes them well into school age and sometimes beyond before they master all the different morphophonological alternations and lexical exceptions that these involve in Hebrew.

Moreover, these systems play an important role in the rich array of grammatical agreement in the language – from subject nouns to verbs and predicative adjectives, and from head nouns to their associated adjectives and determiners – as illustrated in (1) and (2).[4]

(1) a. *xaruz gadol nafal* 'bead big fell' > 'A big bead fell'
    b. *ha-xaruz ha-gadol ha-ze nafal* 'the-bead the-big the-that fell' > 'That big bead fell'

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c. *(ha)xaruzim (ha)gdolim (ha)eyle naflu* 'beads big + Pl these fell + Pl'
    > 'These big beads fell'
(2) a. *kubiya gdola nafla* 'block + Fm big + Fm fell + Fm' > 'A big block
        fell'
    b. *ha-kubiya ha-gdola ha-zot nafla* 'the-block + Fm the-big + Fm the-
        this + Fm fell' > 'That big block fell'
    c. *ha-kubiyot ha-gdolot ha-eylu naflu* 'the-block + FmPl the-big + FmPl
        the-this + FmPl fell + FmPl = those big blocks fell'

These sentences show that agreement cuts across a range of syntactic
and lexical categories in Hebrew, and that adjectives are inflected like the
nouns they modify in number, gender and definiteness. The latter is marked
by the unvarying prefixal clitic *ha-* 'the', while indefinite count nouns, both
specific and non-specific, are marked by zero (e.g. *kadur ~ ha-kadur* 'a ball ~
the ball'). The 3rd person masculine singular represents the basic, morpho-
logically unmarked form of open class items (nouns, verbs and adjectives),
and children typically acquire marking of plural before gender alternations,
and of subject-verb agreement before NP-internal agreement.

Verbs also agree with their subject nouns in number and gender and, in
past and future tense, in person, cf. singular *nafál-ti* 'fell + 1st' > 'I fell',
nafál-ta 'fell + 2nd Ms', *nafal-t* 'fell + 2nd Fm', *nafal* 'fell + 3rd Ms', *nafl-a*
'fell + 3rd Fm', plural *nafal-nu* 'fell + 1st' > 'we fell', *nafál-tem* 'fell + 2nd' >
'you (all) fell', *nafl-u* 'fell + 3rd Pl' > 'they fell'. Verbs are inflected for five
categories of mood / tense (infinitive, imperative, present, past, future),
while aspect is not marked grammatically in Hebrew. All verbs occur in
one or more of seven morphological patterns, termed *binyanim*, literally
'buildings', constructed out of consonantal roots plus stem-internal vowels
and external affixes. These roots are either full, in which case all three (some-
times four) radical consonants occur in all words constructed out of them,
or else defective, containing one or more 'weak' radicals like the glides *y, w,*
or low consonants like historical glottals and pharyngeals – in which case,
the surface form of verbs (and also nouns and adjectives) that are based
on these roots show various and quite complex morphophonological alter-
nations.[5] The sets in (3) show various such possibilities, listing examples
from the three patterns with highest (type and token) frequency. It thus
excludes the P2 *nif'al* and P4 *hitpa'el* patterns, used mainly for intransitive,
change-of-state, or 'unaccusative' verbs, and the two typically passive
patterns, which are rare in children's speech. Illustrated in (3) are four
different inflectional categories – infinitive, present, past and future (based
on four different verb roots), the full, non-defective roots *r-q-d* 'dance', *g-d-l*
'grow', and the defective or weak roots *y-c-'* 'go out, exit', *b-w-'* 'come'.
Tense-marked items are listed in the morphologically simplest form of 3rd
masculine singular.

(3) Examples of tense / mood forms in three verb *binyan* patterns

Pattern	Root	Gloss	Infinitive	Present	Past	Future
P1 *pa'al*	r-q-d	dance (intr)	*li-rkod*	*roked*	*rakad*	*yi-rkod*
	g-d-l	grow (intr)	*li-gdol*	*@godel*	*gadal*	*yi-gdal*
	y-c-'	go out	*la-cet*	*yoce*	*yaca*	*ye-ce*
	b-w-'	come	*la-vo*	*ba*	*ba*	*ya-vo*
P3 *pi'el*	r-q-d	skip	*le-raked*	*me-raked*	*riked*	*ye-raked*
	g-d-l	raise	*le-gadel*	*me-gadel*	*gidel*	*ye-gadel*
	y-c-'	export	*le-yace*	*me-yace*	*yice*	*ye-yace*
	b-w-'	import	*le-yave*	*me-yave*	*@ yive*	*ye-yave*
P5 *hif'il*	r-q-d	make-dance	*le-harkid*	*ma-rkid*	*hi-rkid*	*ya-rkid*
	g-d-l	enlarge	*le-hagdil*	*ma-gdil*	*hi-gdil*	*ya-gdil*
	y-c-'	take out	*le-hoci*	*mo-ci*	*ho-ci*	*yo-ci*
	b-w-'	bring	*le-havi*	*me-vi*	*he-vi*	*ya-vi*

Note: Items marked with @ indicate forms that are non-normative in prescriptive terms, but are accepted in everyday Hebrew usage, including child input and output.

The syntax of simple clauses is relatively straightforward in Hebrew, with transitive verbs typically occurring in the surface pattern of {NVPrepN}, as illustrated in (4), where *et* indicates the accusative marker (labeled *et* at phrase level) occurring before all and only definite direct objects. For example:

(4 a. *ha-iš ra'a et ha-iša* 'The man saw *et* the woman'
    b. *ha-iš histakel ba-iša* 'The man looked at the woman'
    c. *ha-iš azar la-iša* 'The man helped to-the woman'
    d. *ha-iš paxad me-ha-iša* 'The man feared from > was afraid of the woman'

As the examples in (4b) and (4c) show, definiteness marking is incorporated into the basic prepositions *be-* 'in, at' and *le-* 'to' (and also *k-* 'like'), but is marked separately by *ha-* (typically pronounced without an initial *h*) before other prepositions (e.g. *me-ha-báyit* 'from the-house, *im ha-kélev* 'with the-dog', *al ha-šulxan* 'on the-table'). Hebrew has numerous predicate-initial constructions, of two main types. (i) Existential and possessive constructions with the verb *haya* in past and future and the invariable existential particle *yesh* (or its negative counterpart *eyn*) in the present tense. For example, *yeš óxel ba-mitbax* 'Be food in-the-kitchen' > 'There's food in the kitchen'; *yeš lanu óxel* 'Be to-us food' > 'We have food'; *haya hamon ra'aš* 'Was much noise' > 'It was very noisy'; *hayta 'e-Ron be'aya* 'Was+Fm to-Ron problem+Fm' > 'Ron had a problem'. These examples also show that Hebrew is a non-*habere* language, having no special verb for 'have'.

Present	Past	Future
roked	rakad	yi-rkod
@godel	gadal	yi-gdal
yoce	yaca	ye-ce
ba	ba	ya-vo
me-raked	riked	ye-raked
me-gadel	gidel	ye-gadel
me-yace	yice	ye-yace
me-yave	@ yive	ye-yave
ma-rkid	hi-rkid	ya-rkid
ma-gdil	hi-gdil	ya-gdil
mo-ci	ho-ci	yo-ci
me-vi	he-vi	ya-vi

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(ii) VS order with a lexical verb preceding a lexical subject noun is another, less common type of predicate-initial construction, favoured mainly by change-of-state or unaccusative verbs. For example, *nišpax (li) ha-xalav* 'Spilt (to-me) the-milk' > 'The milk got-spilt (on me)'; *nišbera*+Fm *le-Ron ha-yad*+Fm 'Was-broken to-Ron the-hand' > 'Ron's hand broke / got broken'; *hofia pit'om dmut* 'Appeared suddenly figure' > 'A figure suddenly appeared'.

Hebrew also has a range of subjectless constructions, so that it is basically an (S)VO language. Two such constructions are particularly relevant to early child grammars: person-marked verbs in 1st and 2nd person, past and future tense (e.g. *gamár-ti* 'Finished+1st' > 'I (have) finished'; *ni-gmor* '1st+Pl–finish' > 'We'll finish'); and impersonal constructions with 3rd person plural verbs (e.g. *oxlim et ze im kapit* 'Eat+Pl it with (a) teaspoon' > 'We /you / people eat it / it is eaten with a spoon'; *eyx osim et ze¿* 'How do+Pl that¿' > 'How do you / does one make that / how is that made¿'). This last example also demonstrates that question-formation is quite straightforward, since Hebrew has no structures corresponding to the auxiliary systems of English and other European languages: information questions are formed by placing the question-word initially, and *yes/ no*-questions are marked merely by intonation, not syntactically. Relatedly, negation does not involve special syntactic operations, but is nearly always marked by the negative particle *lo* 'no, not' in preverbal position (e.g. *hu lo ohev léxem* 'He not likes bread' > 'He doesn't like bread'; *mi lo ohev shokolad* 'Who not like chocolate' > 'Who doesn't like chocolate¿', *hem lo ra'u oto* 'They not saw' > 'They didn't see him'). Since negation by *lo* involves no more than an optional addition to the indicative clause structure, Neg is indicated throughout the chart in parentheses, to show that it may but need not occur.

As indicated by several of these examples, past and future tense verbs are marked not only for number and gender but also for person – by suffixes in the past and by prefixes in the future tense. In contrast, present tense (both immediate or progressive and habitual) is expressed by the so-called *beynoni* 'intermediate' forms that are inflected like nouns and adjectives for number and gender, but not for person.[6] Use of the present tense also differs from past and future in copular constructions, where tense is marked either by zero or by a pronominal copy of the subject rather than, as in past or future, by some form of the verb *haya* 'be' (e.g. *Ron (hu) ba-báyit* 'Ron (he) at-home' > 'Ron is at home' ~ *Ron haya ba-báyit* 'Ron was at-home' ~ *Ron yiheye ba-báyit* 'Ron will-be at-home'; *ha-aruxa*+Fm *(hi) te'ima*+Fm 'The-meal (she) tasty' > 'The meal is tasty' ~ *ha-aruxa hayta te'ima* 'The meal was tasty'). Moreover, as reflected in the preceding examples, a special existential particle is used in existential and possessive constructions in the present, as against past and future tense.

As these examples indicate, word order is quite straightforward, since it is mainly subject-initial, except for the predicate-initial constructions noted earlier. Word order is also relatively flexible, since non-subject nouns are typically marked by prepositions, and the rich system of agreement also provides cues to grammatical relations, with the subject noun, as noted, controlling predicate agreement for number, gender, and person. Internal noun-phrase ordering is consistently post-nominal or right-headed: except for quantifiers, all modifying elements occur after the head noun (e.g. *šney ha-yeladim ha-ktanim ha-éyle im se'ar šaxor še-ra'ínu šam* 'Two the-children the-little the-those with hair black that-saw+1stP there' > 'Those two little boys with black hair that we saw there'). This example also shows that complex syntax is relatively straightforward as well: relative clauses are marked invariably by the same general subordinating conjunction *še-*'that'. This same basic element is also used to mark complement clauses (e.g. *hu ra'a še-ha-yéled boxe* 'He saw that-the-boy cries' > 'He saw that the boy was crying') as well as – following a prepositional – in most adverbial clauses (e.g. *biglal še-ha-yéled baxa* 'Because (that) the boy was-crying'; *lamrot še-ha-yeled baxa* 'Even that > although the-boy was-crying').

Finally, personal pronouns manifest a complex interplay between inflectional morphology and syntactic function. Pronouns in the nominative case (i.e. surface subjects) occur in the free form, while all other pronouns are suffixed to case-marking or adverbial-marking prepositions (e.g. *hu diber ito alav bil'aday* 'He spoke with-him about-him without-me' vs. *ani dibárti ita aléha bil'adav* 'I spoke with-her about-her without-him').

Terminological notes

The term *sentence*, as an abstract theoretical construct, is often inapplicable to units of speech in general and to early child language in particular. Consequently, throughout this chapter, the term *utterance* is used to refer to segments of children's speech output in preference to sentence. Here, an utterance refers to a piece of verbal output that can be defined behaviourally by its intonational contours irrespective of whether it is grammatically well formed or syntactically complete. The term *construction* refers to grammatical units such as phrase, clause, or sentence. Following the definition of a clause as 'any unit that contains a unified predicate ... expressing a single situation – activity, event, state' (Berman & Slobin, 1994: 660–62), we adopt this term for any utterance that contains a predication, whether or not it can be grammatically defined as a 'sentence' in normative or model-theoretic terms. The proportion of utterances other than those that can be defined as clauses (that is, as containing predications) increases significantly as a function of age in children's interactive speech output (Dromi & Berman, 1986), as does the proportion of clauses with lexical verbs rather than with copular or existential-possessive verbs (Berman & Slobin, 1994: 137n).

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Design of the profile chart (see Appendix A)

The chart is divided into two main parts: *Types of Utterances* – relating to Sections A to D in the profile chart (see below) – and *Grammatical Analyses* (described at Clause-, Phrase-, and Word-Level, divided developmentally between Stages I through VI). The blocs headed A to D (Part One) in general correspond closely to the LARSP conventions specified in Crystal *et al.* (1989) and the Users' Manual of Boehm *et al.* (2005), while other levels of analysis are adapted to suit Hebrew morpho-syntax.

At the top of the second part of the chart, preceding detailing of the developmental stages, is a bar headed *Minor* that specifies the following types of non-expandable utterances: *Responses* – typically single-element responses to input (e.g. *ken* 'yes', *káxa* 'just so' in response to the query *láma?* 'why?'); *Vocatives* – addressing or calling a person or animal by name; *Other* – routine elements, as in counting or saying the letters of the alphabet; and *Problems* – cases where it is unclear whether the utterance is minor or grammatically analysable. Utterances defined as *Major* form the bulk of the chart, divided into stages from I to VI.

Types of Utterances: Child and/or Adult[7]

This heading refers to types of children's responses in relation to surrounding discourse. As detailed in Sections A to D of the original LARSP chart in *Working with LARSP* (Crystal, 1979) and further elaborated by Crystal in the present volume, these types of speech output are not language-specific, but apply to the pragmatics of adult-child conversational interchanges in general (at least in Western-type industrialized societies), and so are only briefly illustrated below for Hebrew.

Bloc A includes utterances that are not fully grammatically analysable, of two kinds – unanalysed strings and ones characterized as problematic. As examples of unanalysed strings, *ababu* could stand for a meaningful string like *ába bakbuk* 'Daddy bottle' or *ába šabur* 'Daddy broken', but is uninterpretable as it stands; and *a da še a ze* 'xxx that this one' – where the string *áda* could, but need not, stand for the girl's name *Ada*. The string *ni yaxol lex im ze yuxal* 'I can go with this will-be-able' is not analysed since it is *Unintelligible*, being uninterpretable because it contains recognizable words but with no identifiable syntactic structure.

Child output characterized as *Problematic* includes utterances that are only partially compositional (cf. the analysis in Berman & Slobin of children's narratives, dividing data in five different languages into 'uncoded versus coded clauses' (1994: 26, 658–9)). Child utterances that are unanalysed because they are *Incomplete* are illustrated in (5):

(5) a. Ad: *le'an haláxtem* 'Where-to you went' > 'Where did you-all go to?'
   Ch: *ani lo* 'I not' > 'I don't, didn't …'

b. Ad: *hine macat ugiya kazot* 'Look, you-found (a) cookie like that'
    Ch: *po etmol* 'Here yesterday'

Note: The HARSP Section A differs from the original LARSP profile in that it does not include the category *Deviant*. We have also done away with the Error Box that appears as part of Stage VI in LARSP. Instead, we introduce an *Error Line* that applies to each stage from Stage III on.

Blocs B and C refer to the relationship, if any, between adult input and child output, divided between elicited and spontaneous child responses, while *Stimulus Type* records the total number of adult input utterances in the form of questions and other types of stimuli (e.g. utterance-initiation, shaping utterances) that the adult provides as prompts for the child.

−   *Elicited Responses* include direct or partial repetitions of an utterance just produced by the adult, as in (6):

(6) a. Ad: *ze lo tov* 'It not good' > 'That's no good'
         Ch: *ze lo tov* [parroting, with same intonation]
     b. Ad: *éyfo Xananἰ* 'Where (is) Chananἰ'
         Ch: *Xananἰ* 'Chananἰ' [again, no change in intonation]

−   *Elliptical responses* are grammatically analysable utterances that omit information available from the input (e.g. the adult asks *éyfo ha-xatulἰ* 'Where('s) the-catἰ' and the child responds with *ba-sal* 'In-the-basket').
−   *Reduced responses* omit clausal elements that are not retrievable from the preceding input (e.g. Adult: *ma koreἰ* 'What's happeningἰ', Child: *yalda ba-xanut* '(A) child (is) in-the-store').
−   *Minor Responses* are single-unit utterances, occurring usually but not only in Stage I (e.g. *lo* 'No', *uwa* 'Wow!').
−   *Abnormal Responses* are unexpected or inappropriate given the input stimulus (e.g. to the question *ma ose ha-xatul* 'What does the-cat' > 'What is the cat doing / What noise does a cat makeἰ' the child responds with *ken* 'Yes'. *ni yaxol lex im ze yuxal* 'I can go with this will-be-able').
−   *Zero Responses* are indicated when the child fails to provide a response to a question or some other elicitation on the part of the adult.

Bloc D Reactions relate to the impact of the adult's reactions on the child's speech output.

Note: Importantly, many early child utterances that would be defined as elliptical, incomplete, or telegraphic in English in fact constitute complete or well-formed clauses in Hebrew. For example, the two strings *hine mazleg* 'Here (is a) fork' and *ze adom ve ze adom* 'This (is) red and this

'ou-found (a) cookie like that'

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(is) red' would be analysed as non-elliptical, hence analysable at clause level since Hebrew copular sentences in the present tense do not have an overt verb, nor does Hebrew have a morpheme corresponding to the indefinite article of English or Romance languages. Items given in parentheses (...) in the English glosses stand for elements that have no surface form in Hebrew; in representing children's speech output, they stand here for elements that occur in adult usage but were omitted or not pronounced by the child.

Grammatical Analyses

This heading refers to constructions that are treated as analysable at three main levels of lexico-grammatical structure – Clause, Phrase and Word (as summarized below) – corresponding to what were termed *major categories* in the original HARSP chart. From Stage IV, complex syntax is dealt with at the additional level of Connectivity.

Categories and levels of analysis

Analysis is confined to grammar in the narrow sense of morpho-syntax (i.e. the focus is on morphology and syntax as grammatical domains that in Hebrew are closely interconnected). In general, morphology refers to two main types of word-internal structure – grammatical inflections and derivational word-formation processes. In the present context, the concern is mainly with inflectional morphology as relevant to different aspects of early grammar, rather than with derivational processes that apply mainly to the developing lexicon. Syntax relates to structural processes of combining words into phrases and clauses, focusing mainly on the simple-clause level. Complex syntax is dealt with under the heading of Connectivity in combining clauses by processes of coordination, complementation and subordination at clause level (Diessel, 2004) from Stage IV, and in combining phrases – mainly by coordination – at phrase level from Stage V. Grammatical analysis is conducted at three main levels for Stages I through III – Clause, Phrase and Word – as defined below for Hebrew – with clause-combining Connectivity added from Stage IV.

As noted earlier, there is no equivalent to the LARSP Error Box in the HARSP chart. The Error Line that appears from Stage III serves for deviations from grammatical usages that are expected to be acquired by the relevant stage – and so corresponds to the LARSP category of Deviant. The variety of Hebrew serving as our target language is the colloquial spoken usage of adult speakers of standard Hebrew (Ben-David & Berman, 2007), so that we do not count as errors usages that are typical of the adult input to normally developing Hebrew-acquiring children, even if they violate normative prescriptions of the Hebrew language establishment. These include: (i) non-observation of subject-verb agreement in verb-initial contexts (e.g. *koev*

li ha-bēten 'Hurts+Ms to-me the-stomach+Fm' > 'My tummy hurts, I have a tummy-ache'; *haya šam hamon anašim* 'Was there many people' > 'There were lots of people there'); (ii) levelling of the distinction between prepositions marking comitative and instrumental case in the form of *im* 'with' and *be-* 'in, at' respectively (e.g. *oxlim et ze im kapit* '(You / people) eat it with (a) teaspoon' vs. normative *be-kapit* 'in (a) spoon'); and (iii) levelling of the 1st person and 3rd person masculine prefix in future tense (e.g. *ani ya'ase et ze* 'I-3rd-Ms will-do it' > 'I will do it').

For Hebrew, usages counted as grammatical errors are marked for each level (Connectivity, Clause, Phrase, Word). These involve mainly: (i) non-congruent agreement (e.g. plural subject with singular verb, feminine noun with masculine adjective, with special treatment of errors that over-extend feminine gender on numbers), and (ii) omission of grammatical items (e.g. definite marker, preposition). Imprecise or incomplete use of morpho-phonological processes like stem-changes (e.g. *simlot* for *smalot* 'dresses', *kélevim* for *klavim* 'dogs') are counted as errors only from Stage VI, and so are other 'creative errors' like mixing of *binyan* verb patterns (e.g. *nifrak* for *hitparek* 'fell apart' or *mizaher* for *nizhar* 'take care' are not treated as errors if they occur before Stage VI). The criterion here for not indicating an error is that children show productive use of grammatical rules (for, say, adding agreement- marking inflections) or derivational morphology (such as an alternation between transitive and intransitive verbs). Errors of this kind are only indicated if they occur at a stage beyond when the target adult forms are described as already acquired (as discussed subsequently).

Clause-level categories

Clause level refers to how major constituents are organized inside (not between) clauses in terms of different types of grammatical relations: predicates and the syntactic constituents associated with them – typically in the form of noun phrases and prepositional phrases. Predicates take the form of verb phrases headed by: (i) a lexical verb [V] that can be identified as made up of a combination of consonantal root and one out of the seven morphological *binyan* verb patterns; (ii) by the copular verb *haya* alternating in the present tense with the existential particle *yeš* in existential and possessive constructions; or (iii) in copular constructions by the same verb *haya* alternating in the present tense with zero or a pronoun [Cop]. Other syntactic constituents include grammatical subjects and different types of objects associated with particular types of predicates. Subjects [S] alternate between: (i) lexical noun phrases (e.g. *yeladim* 'children', *ha-kadur* 'the-ball'; *kol ha-yeladim ha-ktanim ha-éyle* 'all those little children'), (ii) pronouns in the nominative case (e.g. *ata* 'you MsSg', *hu* 'he', *hem* 'they'), or (iii) zero – in impersonal or verb-inflected subjectless constructions.

Objects take the form of: (i) direct objects [O] marked by the accusative preposition *et* when the object NP is definite; (ii) oblique objects [Obl], when the verb governs a preposition (e.g. *histakel be-* 'look at'; *hirbic le* 'hit to

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= hit'; *ka'as al* 'angered on' > 'was angry with'); or (iii) indirect [dative] objects [IO] in the case of three-place predicates (e.g. *Ron natan et ha-séfer le-Rina* 'Ron gave *et* the-book to-Rina'). Other clause-level constituents cover a range of adverbial constructions, typically in the form of preposi- tional phrases. These are associated with the predicate in expressing rela- tions such as manner (e.g. *bi-mhirut* 'with quickness' > 'quickly'), time (e.g. *lifney ša'a* 'before hour' > 'an hour ago'), place – location or direction, source (e.g. *me-ha-báyit* 'from the house'), and goal, and they may be more or less obligatory, depending on the particular verb that serves as the predicate.

Phrase-level categories

Phrase level refers to the internal structure of clause-level constituents consisting minimally of a head, often with associated modifying elements. Thus, a noun phrase (NP) consists minimally of a pronoun or a lexical noun (e.g. *yéled* '(a) boy') expandable by different types of modifiers which in Hebrew typically follow the head noun (e.g. *ha-yéled ha-katan ha-ze* 'that little boy'). NPs can function either as subject (e.g. *ha-yéled ha-katan ha-ze hirbic li* 'that little boy hit me'), as direct object (e.g. *ra'íti et ha-yéled ha-katan ha-ze* 'I-saw that little boy'), as indirect object (e.g. *natáti et ha-séfer la-yéled-katan ha-ze* 'I gave the-book to that little boy'), or as oblique object (e.g. *ha-iš histakel al ha-yéled ha-katan ha-ze* 'the-man looked at that little boy').

A Verb Phrase (VP) functioning as predicate can be realized: (i) as a lexi- cal verb in intransitive clauses (e.g. *ha-yéled boxe* 'the-boy cries' > 'is crying'; *ha-yéled nafal* 'the boy fell (down)') and with an object in transitive clauses (e.g. *ha-yéled maca séfer* 'the-boy found (a) book'; *ha-yéled histakel ba-séfer* 'the-boy looked in-the-book'; *ha-yéled natan et ha-séfer la-axot šelo* 'the boy gave *et* the book to sister-his' > 'his sister'); (ii) as an 'extended predicate' with modal and aspectual verbs (e.g. *ha-yéled yaxol la-vo* 'the-boy can to- come'; *yodéa lisxot* 'knows (how) to-swim'; *hitxil le-daber* 'began to-talk'); and (iii) in copular sentences, as zero or a pronoun in the present tense and as a form of the verb *haya* 'be' in the past and future, followed by a comple- ment in the form of an NP (e.g. *ha-yéled 0 ~ hu / haya talmid tov* 'the-boy is / was (a) good student'), an adjective or adjective phrase (e.g. *ha-sipur haya acuv me'od* 'the-story was very sad'), or a locative expression, often in the form of a prepositional phrase (e.g. *kulam ba-báyit* 'everyone (is) at home').

Prepositional phrases (PPs) consist of a preposition + NP (e.g. *al ha-šulxan* 'on the-table'; *le-xeyfa* 'to Haifa'; *im ha-xaver šeli* 'with my friend'; *bli ezra mi-af exad* 'without help from anybody'). These typically function as oblique or dative objects and as various kinds of adverbials.

Word-level categories

Word level analyses refer to how words are grammatically modified by a range of inflectional categories, as outlined earlier. These include: number and gender marked by suffixes on nouns and their associated verbs and

adjectives; person marked on verbs in the 1st and 2nd person by suffixes in the past tense and prefixes in the future tense (e.g. *halá:-ti* 'went-1stSg' > 'I went' ~ *ne-lex* '1stPl+will-go' > 'We'll go'); and mood/tense marking on verbs as differentiating between the five categories of infinitive, imperative, present, past and future number – by internal vowel alternations (e.g. *halax* 'went' vs. *holex* 'goes') and suffixes and/or prefixes (e.g. *medaber* 'talks, is-talking', *diber* 'talked', *yedaber* 'will-talk'). Pronouns are inflected as suffixes on their associated (case- and adverbial-marking) prepositions except when they are nominative, that is, functioning as grammatical subjects (e.g. *ha-yéled diber im axiv al ha-séfer* 'The boy talked with his-brother about the-book' ~ *hu diber ito alav* 'he talked to-him on-him = about-it'; *ha-séfer nafal me-ha-madaf al ha-roš šel ha-yéled* 'The-book fell from-the-shelf on(to) the-head of the-boy' ~ *hu nafal miménu alav ·· al ha-roš šelo* 'it fell from-it onto-him ' ~ 'onto head his' > 'onto his head')

The varied word-formation devices represented by the rich derivational morphology of Hebrew are considered here only in relation to the *binyan* verb-pattern conjugations, since these go beyond the means for extending vocabulary, and are criterial for evaluating clause-grammatical development (e.g. compare *ha-yéled šavar et ha-xalon* 'The-boy broke the-window' ~ *ha-xalon nišbar* 'The-window broke' from the shared root *š-b-r*, *ha-yéled raxac et ha-dúbi* 'The-boy washed the-teddy' ~ *ha-yéled hitraxec* 'The-boy washed (himself)' from the root *r-x-c*).

Speech act categories

Each utterance that is analysed can be assigned to one of three main classes of grammatical constructions: imperative, interrogative, indicative. In pragmatic terms, these serve to express different types of speech acts: requests or commands, queries and questions, or statements and propositions respectively.

Imperatives express three main kinds of acts: requests, commands and, in the negative, prohibitions. In colloquial Hebrew these take the same inflected form as verbs in the future tense, 2nd person (singular or plural, masculine or feminine) either: (i) consisting of the verb stem alone (e.g. *zuz* 'Move!', feminine *zúzi*, plural *zúzu; lex* 'Go (away)!, feminine *léxi*, plural *léxu)*; or (ii) with a person-marking prefix (e.g. *te-sapri li* 'Tell+Fm me!'; *ta-vi lánu* 'Bring to-us!'). (For details of these alternations, see Berman, 1985: 288–90). In the usage of younger children and their caretakers, commands and prohibitions may also take the form of the infinitive (e.g. *axšav kulam la-ševet* 'Now everyone to-sit' > 'Now everyone sit down!'), or in the negative (e.g. *lo le-daber axšav* 'Not to talk now' > 'No talking now!'). Negative commands expressing prohibitions and using future rather than infinitive forms of the verb take a special imperative negator in the form of *al* (e.g. *al ta-zúzu* 'Not-2nd move+2ndPl' > 'Don't move ; *al te-daber* 'Not-2nd

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Interrogatives in Hebrew as in other languages express two types of question: *yea/no* and information.

– *Yes/no questions* do not have a special grammatical construction or lexical marker in colloquial Hebrew, but are realized in speech by a rising intonation on statements (e.g. *ata roce glídaɬ* '(Do) you want ice-creamɁ' ~ *ken, ani roce (glida)* 'Yes, I want (ice-cream)'). As these examples show, Hebrew has nothing corresponding to the dummy auxiliary *do* of English short answers. Nor does Hebrew have auxiliaries marking aspectual categories corresponding to progressive or perfect in English or Spanish, so there is no room for inversion either. Thus *yes/no*-questions have the same surface form as statements in Hebrew (e.g. *ha-tinok boxeɬ* 'The-baby cries' > 'is crying' ~ 'Is the baby crying'; *ába kvar halaxɬ* 'Daddy already went' > 'Has Daddy gone alreadyɁ', 'Did Daddy go alreadyɁ' – except, as noted, for being marked by intonation).

– *Information questions* are formed by fronting a question word (e.g. [Q S] *éyfo ha-séfer* 'Where (is) the-bookɁ'; [Q V Obl] *ma kara le-Ronɬ* 'What happened to-RonɁ'; *le-an hu halaxɬ* 'To-where he went' > 'Where did he go toɁ'; [Q S V] *láma ha-tinok boxe'* 'Why the-baby cries' > 'Why is the baby cryingɁ'). As these examples show, question-formation in Hebrew does not require any inversion operations, although information questions may but need not trigger VS order (e.g. [Q V S] *le-an halax ha-yéledɬ* 'To-where went the-boy' > 'Where did the boy goɁ; *eyx nigmar ha-sipur* 'How ended the-storyɁ' > 'How did the story endɁ'). Note, too, that Hebrew does not have a set of grammaticized WH-operators like English, such as *who, what, why, where,* and so on, but a group of morphologically unrelated question words (e.g. *éyfo* 'where', *le-an* 'to-where', *lama* 'why', *eyx* 'how').

Statements are propositions constructed in the basic or unmarked indicative mood, serving to describe situations or to express ideas. They are either affirmative or negative, in the latter case marked simply by the general negating morpheme *lo* 'no, not' (e.g. *Dani halax ha-báyta* 'Danny went home' ~ *Dani lo halax ha-báyta* 'Danny not went home' > 'didn't go home'; *haya hamon rá'aš ba-xéder* '(There) was lots-of noise in-the-room' ~ *lo haya šam rá'aš bixlal* 'Not was there noise at-all' > 'There wasn't any noise there at all'). In existential and possessive constructions in the present tense, the general existential particle *yeš* alternates with the negator *eyn*. For example, *yeš šam rá'aš* '(There) be noise there' ~ *eyn šam rá'aš* '(There) not-be noise there'; *yeš li na'aláyim xadašot* 'Be to-me new shoes' > 'I have new shoes' ~ *eyn li na'aláyim xadašot* 'Not to-me new shoes' > 'I don't have new shoes').

Note: Since Hebrew does not have syntactic operations such as auxiliary inversion differentiating these three types of constructions, we eliminate these categories except for Stage I. Instead, Questions are marked [Q] if and only if they contain an overt question-word, and imperatives are marked morphologically at Word level.

Developmental Analyses

Six developmental stages are specified below, defined in age-related terms so as to accord with the overall approach of LARSP-based analyses. Each type of structure is entered at the levels of Clause, Phrase and/or Word (from Stage IV, also at the level of inter-clausal Connectivity), by the developmental stage at which it typically emerges in the language of normally developing Hebrew-acquiring children. The stages specified below derive from three main sources: preliminary analyses undertaken for the original 1982 HARSP study of Berman *et al.*; analysis of materials collected subsequently by the authors and their associates in the Berman lab; and findings of other research on Hebrew child language. These yielded the following broad stages of morpho-syntactic development characterizing early Hebrew child grammar defined, as noted, by chronological age, from one to four years of age.

(8)   Stage I – Single-unit utterances [c. 0;9–1;6]
      Stage II – Early combinations [c. 1;6–2;0]
      Stage III – Early clause structure [c. 2;0–2;6]
      Stage IV – Extended modification [c. 2;6–3;0]
      Stage V – Complex syntax [c. 3;0–3;6]
      Stage VI – Early grammar consolidation [c.3;6–4;0]

It must be borne in mind that age ranges are essentially approximate in relation to language as to other developmental domains.[8] While the same overall progression tends to be shared by most normally developing children, there is bound to be great individual variation from one child to the next, and from one linguistic domain to another. Thus, different children will demonstrate different developmental patterns: some may start late and then catch up rapidly with their peers; some children may move gradually from one 'stage' to the next, while others may appear to skip a stage; and transitions from one stage to the next may be clearly demarcated by some children, while being blurred in the case of others.

Stage I [c. 0;9–1;6]

Under this heading, we refer to what appears to be a universal stage in children's initial pairing of strings of sounds with semantic content.

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Following Peters (1983), the term 'single-unit' is preferred to the more familiar 'one-word stage', since at this developmental phase children may combine into single, unanalysed strings elements that constitute two or more words in the target language. Examples in Hebrew are: (i) the string pronounced something like *eze* standing for target *et ze* – the accusative or direct object [Acc] marking preposition *et* plus the deictic pronoun *ze* 'it, that' – when pointing to an object; or (ii), *máze* 'wazzit' from the question word *ma* 'what' plus the deictic *pronoun ze* 'it, that' representing the question *ma zeẻ* 'What's that' common in adult input as well as children's output for the purpose of labelling objects; (iii) the string *ápam* from target *od* 'another' + *pa'ám* 'time' > 'again', when a child wants to repeat an activity; (iv) common 'multi-word' requests like *níli* or *víli* from *tni* 'give+Fm!' + *li* ' to-me' for 'give (it) to me' or *tavíli* 'bring (it) to-me' analogously to English *gimme*; and (v) lexicalized compounds that children typically treat as single words (e.g. *yəmulédet* for *yom hulédet* 'day birth' > 'birthday' or *becéfer* for *bet séfer* 'house (of) book' > 'school').

Following research on developmental phases in Hebrew, the type of knowledge represented by such usages is analysed as 'pre-grammatical' in the following sense. Although in using them, children are attributing appropriate (quite restricted) senses to given strings of sound, they fail to reflect any structure-dependent analysis. Relatedly, words that may consist of more than a single morpheme in the target language are not yet analysed for inflectional categories such as number, gender, or (pronominal) case₂ marking. Common examples are words that (for pragmatic reasons) typically occur in early child Hebrew only in the more marked forms of plural number (e.g. *na'al-áyim* 'shoe-s'; *ca'acu-im* 'toy-s'; *kubiy-ot* 'block-s') or feminine gender (e.g. *par-a* 'cow'; *tarnegól-et* 'hen'). Further, at this stage the child cannot be said to have grammatical, structure-based knowledge of part-of-speech categories. This is reflected by the use of single quotes for categories listed for Stage I (e.g. 'V' stands for verb-like element in the child's initial use, 'N' stands for something like a noun, and so on).

Working across the Profile Chart in Appendix I, the following three types of utterances are identified: Command-Type, Question-Type and Statement-Type. Categories identified specifically for this initial stage by single quotes include: 'V' for an utterance with a verb-like or predicating function; 'N' for one with a labelling function or to refer to a person or object; 'D' for deictic, pointing elements; 'F' for elements resembling closed-class function items like pronouns or prepositions; and 'Other' for situational or evaluative elements that are hard to classify.

Command-Type. 'V': any verb-like utterance the child uses in making a request or giving an order. These may take one of three forms, often only distinguished by the extralinguistic situation: (i) 'V-Imp': an imperative or truncated 'bare-stem' form. For example, *zuz* 'move!', *kax*

'take', *šev!* 'sit (down)', *ten(li)* 'give (me)' – or their feminine alternants of such forms, often favoured by girl-children (*zúzi, kxi, švi, tni* respectively) – *stalek* 'go away', *bo-héna* 'come here' (unless the child also produces *bo* 'come' alone, in which case it counts as a two-element structure); (ii) 'V-Fut': future-tense forms with 2nd person *t-* prefixes. For example, *tir'e* 'look!', *tavi* 'bring' (me)!', *tafsik* 'stop!', again sometimes used with a feminine suffix, especially by girls (*tir'i, tni, tafsíki* respectively); (iii) 'V-Inf': a truncated form of the infinitive, grammatically marked by an initial *l* + vowel meaning 'to' that is typically omitted at this initial stage. For example, *éde* '(I want to) get down' (cf. infinitive *larédet*), *xol* 'eat!' (cf. infinitive *le'exol*), *šen* '(go to) sleep!', 'lie down!' (cf. *lišon*).

– *Question-Type.* 'Q': any single-element utterance with the force of a question, typically one-word information questions (e.g. *éyfo* 'where', *ma* 'what', *máze* 'what's that' and occasional *yes/no*-questions).

– *Statement-Type.* 'V': a single-element utterance that is verb-like in form and content, making a statement about an activity or situation (e.g. *halax* 'went, has-gone, has left', *roce/roca* 'want Ms/Fm'; *(ya)šen* 'sleep, is-sleeping', *boxe* 'cry, is-crying', *(na)fal* '(it) fell', *(ni)bar* 'broke, got broken', *(hit)pocec* 'burst'); 'N': a single-element utterance that is noun-like, referring to people or objects (e.g. *ába* 'daddy (for any man)', *ima* 'mommy', *(ti)nok* 'baby', *may(im)* 'water', *buba* 'doll', *(ci)por* 'bird', *(mixna)-sáyim* 'pants', *(ka)dur* 'ball'); 'D': a deictic element, typically some form of *ze* 'it, this, that', (e.g. *eze, edze, etze* or *hine* 'here('s), lookit'); 'F': an element resembling function words or closed-class items (e.g. *eyn* 'not, none, allgone' to express absence or disappearance, *day* 'enough' to protest or reject, *od* 'more, another' for addition or recurrence); 'O': all other single-element utterances that cannot be classified as one of the above, including 'situational' and nursery terms (e.g. *am* for 'food, eating, meal', *áyta* 'go out, take a walk, buggy', *pipi* 'wet, diaper, urine', *yófi* 'great!, nice', *tov* 'good, okay, alright').

Stage II [c. 1;6 – 2;0]

This stage takes the form of initial combining of two or three elements, without as yet involving fully grammaticized syntactic relations or lexical categories. These elements are combined at clause level to serve generalized syntactic functions (in subject- or predicate-like roles) and are not as yet specified for part-of-speech categories. Hebrew Stage II does not as yet involve phrase-level expansions, although it can include some initial word-level combinations of stem plus inflection or an adjective in a non-syntactically specifiable position. Note, again, that many Stage II utterances are grammatically well-formed in Hebrew, which does not have an indefinite article or a present tense form of the copular *is, are.*

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:m of the infinitive, grammati-
ning 'to' that is typically omit-
le '(I want to) get down' (cf.
le'exol), *šon* '(go to) sleep!', 'lie

itterance with the force of a
in questions (e.g. *éyfo* 'where',
inal *yes/no*-questions).
erance that is verb-like in form
t an activity or situation (e.g.
: 'want Ms/Fm'; *(ya)šen* 'sleep,
it) fell', *(niš)bar* 'broke, got bro-
ent utterance that is noun-like,
iddy (for any man)', *ima* 'mom-
'a 'doll', *(ci)por* 'bird', *(mixna)-*
c element, typically some form
r *híne* 'here('s), lookit'); 'F': an
losed-class items (e.g. *eyn* 'not,
isappearance, *day* 'enough' to
r addition or recurrence); 'O':
 cannot be classified as one of
irsery terms (e.g. *am* for 'food,
iuggy', *pípi* 'wet, diaper, urine',
').

ining of two or three elements,
ed syntactic relations or lexical
clause level to serve generalized
e-like roles) and are not as yet
ew Stage II does not as yet in-
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: an adjective in a non-syntacti-
: many Stage II utterances are
ch does not have an indefinite
r *is, are.*

Clause-level combinations

– *Stage I expansions*: use of elements labeled 'D', 'F', or 'O' at Stage I, in combination with another element (labelled X, as non-specified for lexical class) plays a critical role in the transition to Stage II (e.g. [D X] *híne kadur* 'Here ('s a) ball'; *ze dúbi* 'It ~ that's (a) teddy'; [F X] *eyn xalav* 'Not ~ none ~ allgone milk'; *od kúku* 'More, another peekaboo').

– *Transitional copular constructions*: the general deictic or demonstrative pronoun *ze* 'it, this, that' with a noun used in a labelling function, specified as [*ze* 'N'] to indicate that *ze* serves as precursor of a grammatical subject (e.g. *ze sus* 'It (is a) horse'; *ze ába* 'That (is) Daddy'; *ze cipor* 'It ('s a) bird'; *ze kos* 'It('s) a cup'). Note that these are grammatically well-formed strings in Hebrew.

– *Q-word + X*: interrogatives functioning as information questions, often also using elements from Stage I (e.g. [Q V] *ma kara૮* 'What happened૮'; *mi ba* 'Who('s) coming/came૮'; [Q X] *éyfo ába Tali* 'Where ('s) Daddy Talli' > 'Where's Tally's Daddy૮').

– *'N' + C*: 'N' here is a lexical noun in subject position in present-tense copular constructions (so-called 'nominal sentences') with different types of complements – labelled C (with the label Comp used for complement clauses under Connectivity). These include mainly labelling constructions in the form [*ze* 'N'] as above, and also [N C] lexical N + locative (e.g. *ába avoda* 'Daddy's (at) work ~ went to work'; *tinok agala* '(The) baby (is in the) buggy').

– *'V' Constructions*: combinations of a verb or verb-like element either before or after some other element (e.g. [X 'V'] *lo roca ~ roce* 'Not want+Fm ~ Ms' > 'I don't want to'); or ['V' X] (e.g. *ába ba* 'Daddy is-coming ~ came'; *halax (ha)báyta* 'Went ~ gone home'). These also include commands, requests and prohibitions (e.g. [X 'V'] *lo (laš)évet* 'Not (to) sit' > 'Don't sit down'; ['V' X] *sími po* 'Put (it) here'; *Od (li)rkod* 'More to-dance' > 'I want to dance some more').

Word-level combinations

These refer to the first instances of stem + inflection, or inflection + stem combinations, showing a clear expansion from Stage I usages.

In verbs. A child who formerly used only a bare-stem form of a verb now adds the infinitive-marking *l-* [Inf], as in *lašévet* 'to-sit', *lirkod* 'to-dance'; the imperative-marking prefix *t-* [Imp] in *tatxil* 'you-will-start' > 'begin!'; *torídi (li)* 'you-will-take-down+Fm' > 'take (something) down ~ off (for me)!' when asking to have clothing removed; or a person- or gender-marking suffix as in past tense [1stPa] *nafál+ti* 'fell+1stSg' > 'I fell' or present tense *oxél-et* 'eat+FmSg' > 'eats / is eating' when talking about something done by a girl or woman.

- *In nouns*. Here we see marking of the (masculine) plural suffix [Pl] on a noun the child also uses in the singular (e.g. *kadur-in* 'ball-s', *xatul-im* 'cat-s'); initial alternations of pronominal suffixes on the possessive marker [Poss+1stSg ~ 2ndSg], (e.g. *šeli* ~ *šelxa* 'of-me' > 'my' ~ 'of-you' > 'your'); or on prepositions [Prep + 1st ~ 3rd] (e.g. *tni li* ~ *tni lo* 'give to-me' ~ 'give to-him / it').

- *In adjectives*. This stage reflects the emergence of the two distinct syntactic positions (predicative and attributive), with predicative adjectives occurring mainly in subjectless clauses, and attribute adjectives in headless constructions such as *ani roce et ha-gadol* (I want Acc the-big (one)).

Stage III [c. 2;0 – 2;6]

At this stage, children can be credited with at least partially grammaticized syntactic relations (subject, predicate, adverbial, etc.) and lexical categories (noun, verb, etc.). Accordingly, from Stage III on, errors are entered in a special line at the end of each stage, as specified earlier.

Clause-level structure

Importantly, by Stage III, Hebrew clause-level structures cannot be evaluated by counting, because the number of surface elements is often not indicative of increased grammatical complexity – particularly since grammatically well-formed clauses may lack a surface subject or verb. Instead, the grammatical structures that occur at this stage are indicated as such, ranging from one to three and occasionally even four surface elements. Note further that, at this stage, the negating element *lo* [Neg] 'no, not' may be added to any or all of the clause-level structures listed below.

- *Subjectless clauses*: grammatically well-formed clauses may lack a surface subject in cases of: (i) verbs inflected for person (e.g. [V] *hitraxácti* 'Washed+1stSg' > 'I washed (myself)'; [V O] *ra'ínu oto* 'Saw+1stPl 'We saw him'; [V A] *haláxti habáyta* 'Went+Past 2ndMsSg to-home' > 'You went home'); (ii) impersonal constructions with a verb in 3rd person masculine plural (e.g. [V O] *šavru et ze* 'Broke+Pl it' > 'It got-broken, someone broke it'; [Q V A] *ma ro'im po?* 'What see+Pl here' > 'What do we / people see here?'); (iii) commands, requests and prohibitions (e.g. [NegV O] *lo leharbic la-kélev* 'Not to-hit the-dog' > 'Don't hit the dog'); (iv) weather expressions (e.g. [Adj A] *Xam po* '(It's) hot here'); and sensations with a dative experiencer (e.g. [V Dat] *ko'ev li* 'Hurts to-me' > 'I hurt'; [Adj Dat] *kaše lánu* 'Hard to-us' > 'It's hard for us'). (Subjectless constructions with a modal or evaluative operator plus complement occur later, in Stage IV).

  Note: Further grammatical complexity of the V element from Stage III on is marked at Word level (e.g. past tense + 1st person *baxíti* 'I

isculine) plural suffix [Pl] on a
(e.g. *kadur-im* 'ball-s', *xatul-im*
ial suffixes on the possessive
li ~ šelxa 'of-me' > 'my' ~
:p + 1st ~ 3rd] (e.g. *tni li ~ tni*

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ative operator plus complement

y of the V element from Stage
st tense + 1st person *baxíti* 'I

cried'; *rác-nu* past tense + 1st person plural 'we ran'; *yašan-tem* past tense + 2nd person plural 'you slept'; *yavo* 3rd person singular + future 'I'll come'; *nistader* 1st person plural + future 'we'll manage').

– *Copular constructions* [S (Cop) C (X)]: these are clauses with the copular verb *haya* in the past and future tense or with a zero surface form of the verb in the present tense ('nominal sentences'), sometimes realized by a pronoun linking subject and complement (e.g. [S Cop C] *hu haya ba-báyit* 'He was at-home'; *ha-mic ze šeli* 'The-juice it (is) mine' – most typically at this stage [S C] as in *ha-tinok ra'ev* 'The-baby (is) hungry'; *aba ba-avoda* 'Daddy's at-work'). These may also include an adverbial, as in [S C A] *Ze adom po* 'It (is) red here'; *ha-kadur šavur axšav* 'The-ball (is) broken now' or [S A C] *éyle kvar beséder* 'These (are) already okay'.

– *Existential and possessive constructions* [Ex (Dat) $S_{ex \sim poss}$]: clauses with the existential operator *yeš* '(there) be' or its negative counterpart *eyn* 'not (be)' in the present tense, or a form of the copular verb *haya* 'be' in the past and future are used to express: (i) existence [Ex S_{ex} A] as in *yeš xol bifnim* 'Be > There is sand inside', or non-existence [(Neg)Ex S_{ex} A] as in *eyn oxel hayom* 'None food today' > 'There's no food today'; and (ii) possession – with the dative marker *le-* indicating the possessor [(Neg)Ex Dat S_{poss}] as in *Yeš lo kadur* 'Be to-him ball' > 'He has a ball'; *Lo haya li sefer* 'Not was to-me (a) book' > 'I didn't have a book'. In order to differentiate these two constructions from languages with: (a) a surface marker of existence like English *there*, or (b) a special verb of possession like English *have*, pronouns and NPs that follow the existential markers, are specified as special kinds of subjects: S_{ex} for existential and S_{poss} for possession. When S_{poss} is definite, the accusative object-marker *et* may be added (e.g. [Ex Dat S_{poss}] *haya lo et ha-séfer* 'Be to-him *et* the-book' > 'He had the book'). This is not counted as an error, since it is common in colloquial adult usage.

Verb-initial utterances, with a lexical (not existential or possessive copula) are also possible in Hebrew, mainly with verbs that are semantically change-of-state, syntactically unaccusative, as in [V S] *nafal kise* 'Fell (a) chair'; *nišpax xalav* 'Got-spilt (the)-milk'. Children sometimes overuse this construction inappropriately (often with a definite subject NP). For example, [V S] *halax ába* 'Went daddy', *boxe ha-tinok* '(Is)-crying the baby', and these may be marked as errors. Another common deviation from normative forms is the use of the basic masculine singular form of the verb when the subject N that follows is feminine or plural (e.g. [V Dat S] *ko'ev li ha-béten* 'Hurts+Ms to-me the tummy+Fm' > 'I've got a tummy ache'; *nafal lo pit'om kol ha-kubiyot* 'fell+Sg to-him suddenly all the-blocks+Pl' > 'All his blocks fell down suddenly'). These neutralizations in verb-initial constructions occur in adult Hebrew as well, so should not be marked as errors.

- *Intransitive clauses* [S (Neg)V (X)]: most typically at this stage these are bare subject + verb [S V], as in *ába ba* 'Daddy comes ~ is-coming ~ has come'; *(ha-)tinok yašen* '(The-)baby sleeps' > 'is-sleeping'; *ani (lo) baxíti* 'I cried ~ was-crying ~ didn't cry, wasn't crying'; *aba šeli yix'as* 'My daddy will-be-angry', also sometimes expanded to [S V A] as in *ha-yeladim barxu mi-šam* 'The-children ran-away from-there'. As noted above, some intransitive verbs also occur in [(Neg)V S] verb-initial constructions.
- *Transitive clauses* [(S) (Neg)V O (X)]: verbs in transitive clauses take three main types of objects: (i) a non-definite direct object, [S V O] *ani roce kadur* 'I want (a) ball'; *hu (lo) šata xalav* 'He drank ~ didn't drink milk'; *tecayri praxim* '(You) will draw+2ndFm flowers'; (ii) a definite direct object taking the accusative case-marking preposition *et* [S V AccO], as in *ani roce et ha-kadur* 'I want *et* the-ball'; *ha-yeladim yecayru et ha- praxim* 'The children will-draw *et* the-flowers'; and (iii) an oblique object that governs another preposition [S V Obl], as in *hi mistakélet alav ~ al ha-tmuna* 'She is-looking at him ~ at the-picture'; *hu hirbic li ~ la-xaver šelo* 'He hit to-me ~ to-his friend'.
- *Bi-transitive clauses* [(S) V O IO]: these require two objects, a direct object and a dative-marked indirect object [IO], not necessarily in that order, in the construction [S V IO O], as in *ába natan ~ kana li matana* 'Daddy gave to-me ~ bought for-me (a) book'; *heví'u lánu et ha- séfer* '(They ~ someone) brought to-us *et* the-book'. The indirect object is always marked by *le-* standing for both English 'to' or 'for', in constructions with verbs of transferring to or producing for someone, and it is typically a pronoun, certainly at this developmental stage. Ordering of the direct and indirect objects is flexible, but the *le-* prepositional marker is always retained on the indirect object in Hebrew.
- *Question clauses* [Q (S) X Y]: all of the above five constructions can occur with an initial question-word (e.g. [Q S (Neg) V] as in *láma ába lo ba*ʔ 'Why Daddy not came?' > 'Why didn't Daddy come?'; [Q S V O] as in *éyfo hu sam et ze*ʔ 'Where (did) he put *et* it?').

Clause-level agreement

Initial Stage-III marking of grammatical agreement between subject and predicate is marked both at the clause (constituent) level and at the word (inflection) level: masculine 3rd person singular present tense is taken as neutral and unmarked; any other marking of agreement (plural number, feminine gender, 1st or 2nd person) is marked at the clause level by a subscript on the predicate (e.g. *yeladim boxim* 'Children are-crying' [S V_{agr}]; *ha-iša yafa* 'The-woman (is) pretty' [S C_{agr}]; *hu axal* 'He ate' [S V_{agr}]; *ani lakáxti* 'I took+1st' [S V_{agr}]). Each instance of correct agreement marking (for plural number, feminine gender, 1st or 2nd person) is entered as a separate clause-level value for SV or SC from Stage III on. Incorrect marking

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of agreement is indicated in the Error Line. The specific inflections that mark clause-level agreement are listed in the word-level column.

Phrase-level constructions

Stage III Phrase-level expansions in Hebrew include the following.

– In *lexical noun phrases* (subject or object), we find the addition of quantifiers (before the head noun) and/or of the definite marker *ha-* 'the' and/or possessive and/or demonstrative modifying elements (after the head noun). Relative constructions include [Quant N] as in *harbe yeladim* 'many children'; [Det-N] as in *ha-yeladim* 'the-boys', *ha-yéled ha-ze* [Det-N Dem], *ha-kadur šeli* [Det-N Poss] 'the-ball of-me ' > 'my ball', and *ha-kadur šel Dani* 'the-ball of Danny' > 'Danny's ball'. Omission of definite marking in grammatical or extralinguistic contexts where it is required should be marked in the Error Line from Stage III.
– *Prepositional marking* includes different kinds of objects and adverbial relations: (i) with lexical nouns (e.g. [Pr Det N] *(ka'as) al ha-yeled* '(was-angry) at the-boy'; *(šaxav) ba-mita* [Pr N] 'lay in-the-bed'; *nasa li-rushayalim* 'went to-Jerusalem'); and (ii) suffixed to pronouns (e.g. *(sixáknu) ito* [Pr P]'(we-played) with-him'; *(yašávti) alav* 'I sat on-it').

Word level

From Stage III on, some inflections are assumed to be productively used. This is shown, for example, when the same noun is used in both singular and plural or with both masculine and feminine gender, or the same verb is used in more than one tense-mood form (e.g. both infinitive and present, both present and past) or more than one person (e.g. both 1st and 3rd). Some of these may appear only in Stage IV, and can be transferred to the Stage IV section on the chart. Stage III inflections are as listed:

– *Nouns:* (i) Masculine plural – *im appears* on regular nouns, including those with no stem change (e.g. *kadur-im* 'ball-s', *kélev-im* 'dog-s') and also on masculine nouns that take the feminine plural *-ot* (e.g. *kir-im, xalon-im*). These are evidence of initial productive use of inflections and should not be marked in the Error Line before Stage V. (ii) Gender alternations appear on a few high-frequency animate nouns (e.g. *iš ~ iša* 'man ~ woman', *yéled ~ yalda* 'boy ~ girl', *tarnególet ~ tarnegol* 'hen ~ cock'). *Verbs:* (iii) We find the use of infinitival and imperative forms (e.g. *šev ~ švi ~ laševet* 'sit!+Ms' ~ 'sit +Fm' ~ 'to-sit'); (iv) plural number or feminine gender in the present tense (e.g. *holex ~ holxim ~ holéxet* 'go+3rd Sg ~ go+Ms Pl ~ go+Sg Fm'); (v) alternations of present and past tense (e.g. *holex ~ halax* 'goes ~ went', *oxlim ~ axlu* 'eat+Pl ~ ate + Pl'); (vi) partial marking of person in the past tense (e.g. *halax ~ halxa ~ haláxti ~* 'went+3rd Ms ~ went+3rd Fm ~ went+1st Sg')

- *Adjectives*: (vii) Plural and feminine agreement markers on adjectives are used predicatively in copular constructions, e.g. *Ha-praxim yafim* 'The-flowers (are) pretty+Pl'; *Ha-yalda hayta aciva* 'The-girl was sad+Fm'.
- *Pronouns*: (viii) There is transitional non-inflected marking of non-subject pronouns (e.g. *al hu* 'on he' in place of grammatical *alav* 'on-him'; *im at* 'with you+Fem' in place of inflected *itax* 'with you'); and also (ix) inflected marking of a few non-subject pronouns (e.g. alternation of a rote-learned form like *li* 'to-me' ~ *lexa* 'to-you'; *šeli* ~ *šelxa* ~ *šelo* 'of-me ~ of-you ~ of-him' > 'my ~ your ~ his') – including ungrammatical combinations (e.g. *alo* for *alav* 'on-him, on-it').

Stage IV [c. 2;6 – 3;0]

This stage represents consolidation of early grammar en route to the acquisition of complex syntax in Stage V. The main advances at this stage for Hebrew are at clause-level – initial marking of clause-combining connectivity; at clause-and phrase-level – addition of modifying elements; and at word-level – a fuller set of inflectional affixes.

Connectivity

Two main types of constructions indicate that children at this stage are en route to the acquisition of complex syntax, combining two clauses in a single utterance.

- *Truncated coordinate or subordinate clauses*: these are utterances beginning with a conjunction – *ve-* 'and', *še-* 'that', or *ki* 'because' – without being combined with another clause in the same utterance, typically in response to relevant input in an adjacency pair (e.g. [ve PP V A S_{ex}] *ve le-Uri yeš gam caláxat gdola* 'And to-Uri also is (a) big plate' > 'Uri also has a big plate', in response to an adult's query if the child wants some cake; [še- V A A] as in *še-haláxnu im banot la-hagai ša'ašuim* 'That [= where/when] we-went with the girls to-the playground' in response to her mother's query 'What else do you want to tel me?'; and [ki V] *ki nafal* 'Cos (he) fell' in response to the question asking why the teddy was crying).
- *Restricted indirect questions*: indirect questions with set, attention-getting opening clauses (e.g. [V [Q V]] *tir'i ma asíti* 'See+m [what I-did]'; [V [Q S V]] *stakel eyx hu holex* 'Look how he walks').

Clause level
- *Adverbial constituents*: (i) We find more varied types of adverbial modifiers [A], in addition to time (e.g. *axšav* 'now', *etmol* 'yesterday') and place (*po* 'here', *šam* 'there'): expressions of manner (e.g. *maher* 'quickly',

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ə *hayta acuva* 'The-girl was

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w', *etmol* 'yesterday') and place
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be-kalut 'with ease = easily'), goal (e.g. *le-Ruti* 'to Ruthy'), and amount (e.g. *harbe* 'a lot', *kcat* 'a little'). (ii) More than one adverbial modifier is used in the same utterance, [SVAA] as in *hu rac maher ha-báyta* 'He ran quickly home'; *ani bone po axšav* 'I'm building here now'. (iii) Adverbials are used in transitive clauses, [SVAO] as in *ani oxel kol yom marak* 'I eat every day soup'. *Note*: Adverbial position is flexible in Hebrew.

– *Bi-transitive clauses* are used with lexical indirect objects, not only pronouns, [(S)V O IO] as in *natáti le-Ruti et ha-séfer* 'I-gave to Ruthy *et* the-book'

Clause-level agreement marking

These are as for Stage III.

Phrase level

– *Extended predicates* [VV]: modal and aspectual verbs modify the main verb in the infinitive form (e.g. [VV] *yaxol le'exol* 'able to-eat' > 'can eat'; *cerixa la-azor* 'has-to help' > 'must help'; *hitxil livkot* 'began to-cry' > 'began crying'). These may also occur as modal operators in subjectless constructions (e.g. [VV] *carix le-maher* 'must to-hurry' > 'we / they need to hurry'; *efšar lakáxatέ* 'possible to-take?' > 'can I ~ may we take it?'; *asur leharbic* 'forbidden to-hit' > 'don't hit, you mustn't hit').

– *Noun phrase expansions*: this is where all modifiers follow the head noun, except for quantifiers. We find: (i) Noun + adjective [NAdj] in attributive function (in addition to the predicative function as a complement in Stage II), with adjectives – like all noun modifiers except for quantifiers – following the head noun (e.g. *kadur agol* 'ball round' > 'a round ball'; *séfer gadol* 'book big' > 'a big book'); (ii) Noun + Possessive [NPoss(N)] (e.g. *kadur šeli* 'ball of-me' > 'my ball'; *séfer šelo* 'book of-him' > 'his book'; *bakbuk šel tinok* 'bottle of baby' > 'baby's bottle', *na'aláyim šel ima* 'shoes of mommy' > 'mommy's shoes' (typically with an animate possessor)); (iii) Quantifier + Noun [QuantN] (e.g. *harbe šókolad* 'much > lots of chocolate'; *štey yeladot* 'two girls'); (iv) Incipient compounding (so-called *smixut* 'construct-state' constructions) by combining two nouns without overt grammatical marking (e.g. [NN] *madafim sfarim* 'shelves books') (cf. grammatical *madafey sfarim* 'shelves-Gen books' > 'bookshelves'; *mišpaxa pilpilon* 'family baby-elephants') (cf. *mišpáxat pilpilon* 'family-Gen baby-elephants', marked in the Error Line); (v) Definiteness agreement (e.g. [DetN DetAdj] as in *ha-yeled ha-katan* 'the-boy the-small' > 'the little boy') and use of the definite marker with object noun phrases marked with the accusative preposition *et* [*et* Det N], *(e.g. (ra'a) et ha-yeled* 'saw *et* the-boy').

– *Prepositional phrases* [Prep NP]: increased use of modifying adverbials (clause-level A constituents) in Stage IV is typically in the form of prepositional phrases (e.g. *oxlim et ze **be/im kapit*** 'eat+Pl it with (a)

spoon'; *Íma sáma oto **ba-agala*** 'Mommy put it in-the-buggy'; *ani roca lašévet **alex*** [adult form = *aláyix*] 'I want to-sit on you').

Examples of longer and more complexly expanded sentences at this stage include [S NegV O A] *ani lo yilbaš et ha-mixnasayim ha-éle yoter* 'I not wear+Fu *et* the-pants the-those more' > 'I won't wear those pants any more'; [S A V O] *ába bétax natan la óxel* 'Daddy sure gave to-her food' > 'Daddy gave her food for sure'; [V IO O A] *natnu li et ze la-yomuledet* 'Gave+Pl me *et* it for (my) birthday' > 'They gave it to me ~ I got it for my birthday'; [A A NegV O] *axšav kvar lo crixim oto* 'Now already no need it' > 'We don't need it any more by now').

Phrase-level agreement marking

Initial Stage-III marking of grammatical agreement between subject and predicate is extended here to phrase level, inside noun phrases, to agreement between the head noun and its associated modifiers (e.g. [NA$_{agr}$] as in *yalda yafa* 'girl pretty+Fm' > 'a pretty girl'; [ND$_{agr}$] as in *ha-anašim ha-éle* 'the-people the-those' > 'those people', *šaloš tmunot* 'three+Fm pictures+Fm' [Quant$_{agr}$ N]). Categories of agreement-marking appear at word level, as for Stage III. Normative use of gender marking on numbers in current Hebrew is often violated, including by adult speakers (Ravid, 1995b). Errors in the number system (e.g. *shalosh shkalim* 'three+Fm shekels+Ms') should be marked separately as [Agr-nr] in the Error Line from Stage IV, since they are not only juvenile developmental 'errors'.

Word level
- *Nouns*: (i) The feminine plural suffix *-ot* (e.g. *kubiy-ot* 'block-s', *xatul-ot* 'cat-s+Fm') is used at this stage, often without required changes in the stem (e.g. *simla ~ simlot* 'dress(es)' instead of required *smalot*). This also includes some high-frequency masculine nouns that take the irregular forms of feminine plural *-ot* (e.g. *kir-ot* 'wall-s', *xalon-ot* 'window-s').
- *Verbs*: (ii) Plural past tense suffixes are used (e.g. *patax-tem* '(you) opened+2ndPl'; *sixák-nu* '(we) played+1stPl').[9] (iii) Future tense inflections (e.g. *te-lx-i* 'will-go+2ndFmSg'; *ti-lbesh-u* 'will-wear+2ndPl') are used to express future tense and not imperative mood.
- *Pronouns*: (iv) Additional non-subject pronouns are suffixed to additional prepositions, not necessarily with the correct inflected form: *la-xem* 'to-you+Pl'; *šel-ánu* 'of-us = our(s)'; *al-o* 'on-it/him [correct adult form: *alav*]'.
- *Adjectives*: (v) Agreement markers of agreement are used on predicative adjectives and their subject nouns in copular constructions (e.g. feminine plural *-ot* in *ha-yeladot hayu acuvot* 'the-girls were sad+Pl') and on attributive adjectives and their head nouns in noun phrases (e.g. *yalda ktana nafla* '(a) girl small+Fm (fell+Fm)' > 'a little girl fell').

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Stage V [c 3;0 – 3;6]

This is a stage of increased grammatical complexity both within and between clauses. Between clauses, complex syntax takes the form of advances in clause-combining connectivity; within clauses, word-level verb morphology is used to alternate transitivity and valence relations to expression causativity, reflexivity and so on (specified below at word level for this stage).

Clause-combining connectivity

Autonomous clause-combining is self-initiated and involves at least two consecutive clauses, either coordinate or subordinate. Coordinate clauses at this stage are combined with *ve-* 'and' in the form [Cl ve- Cl] (e.g. *maxar ani avo ve- ani yagid la* 'Tomorrow I will-come and I will-tell her') – most typically with an overt subject in the second clause – with same-subject ellipsis in the second, coordinated clause appearing from Stage VI. Three main types of clauses are traditionally identified as subordinate: complements, adverbials and relative clauses, all usually marked at this stage by the invariant subordinating conjunction *še-* 'that'.

– *Complement clauses*: [Cl še Comp] (e.g. *ra'íti še- hu nafal* 'I-saw that it fell'; *ani roce še- yihye músika,* 'I want that there will-be music > to have music').
– *Adverbial clauses*: marked by *še-*'that' in a lexically unspecified way, including for time and purpose, instead of required *kše-* 'when', *kdey\ še-* 'so that', in the form [Cl še- Adv] (e.g. *tikra la **še- sába yavo** 'Call her that > when Grampa comes'; *axárkax **še- kulam yoc'ím** az ha-galgal ha-anak ole od pá'am* 'Afterwards that > when everyone goes out, so the big wheel goes up again'; *asáfnu **še- yihye mesudar** 'we put together (the blocks) that > so that, in order that it would-be tidy').
– *Reason adverbials*: marked by *ki* 'because': [Cl ki Adv] (e.g. *ha-yéled nafal **ki ha-yanšuf hipil oto*** 'The-boy fell because the owl pushed him down').
– *Relative clauses*: also marked by the invariant subordinator *še-*, [Cl še- Rel] (e.g. *tadlik or menora **še- lemá'la*** 'Put on the lamp that's on-top'; *ani roca léxem **še- ába marax lax*,** 'I want bread that Daddy spread for-you'). An example of more than two clauses combined together is this [Cl ve- Cl še- Rel] construction produced by a 3–year-old boy: *laxácti kol ha-zman **ve- hayíti ba- rakévet ha- zot še- raíti šam anašim gdolim*** 'I pressed all the time and I was on that train that I saw there [> where] big people'.

Note: (a) At clause-level, each clause in clause-combining constructions is separately analysed for its internal structure (e.g. in a complex sentence like [Cl *še-* Comp] *hu yada še-hi tavo* 'He knew that-she would-come', the main clause is analysed as [S V Comp] and the complement

clause is analysed as [*še-* S V]); (*b*) These different types of coordinate and subordinate clauses tend to appear more or less at the same developmental stage, and development concerns the type of coordinate or subordinate clauses that are used (e.g. with or without same-subject ellipsis in coordination, complement clauses with more complex introducing clauses, relative clauses with resumptive pronouns standing for oblique objects as well as with subjects and direct objects). However, some children may reveal more clearly staggered acquisition of clause-combining, so that some coordinate and only complement clauses occur in Stage V or even Stage IV, while other children use a range of such constructions.

Clause level

- *Questions on prepositional phrases* (typically adverbial): [PrepQ (S) V X] (e.g. in addition to lexical *me-éyfo* 'from where' as in *me-éyfo ze ba?* 'From where it came' > 'Where did it come from?', we have *im mi hu yašav* 'With who(m) he sat?' > 'Who did he sit with?'; *al ma sámta et ha-sir?* 'On what put+2nd *et* the-pot' > 'What did you put the pot on?') (Note that Hebrew does not allow 'dangling prepositions' at the end of question or relative clauses).
- *Comparatives within and between clauses* [Compar]: Note: Comparatives are constructed syntactically in Hebrew, where English may use morphology, by the quantifier / intensifier *yoter* 'more' plus the ablative preposition *mi ~ min* 'from' (e.g. [S V Compar PP] *Dan oxel yoter mi-méni* 'Dan eats more from-me' > 'Dan eats more than I (do)'; [S Compar-Adj PP] *ani yoter gadol mi-ménu* 'I (am) more big from-him' > 'I am bigger than he (is)'; [S V Compar-A PP] *hu rac yoter maher mi-Dan* 'He runs more fast from Dan' > 'He runs faster than Dan (does)'). Some initial, less syntactically complete forms of comparatives without the PP may occur in Stage IV (e.g. [S Compar Adj] *ze yoter yafe* 'That (is) more pretty' > 'That's prettier').

Phrase level

This includes initial, quite limited combining of members of the same grammatical category in a single phrase-level constituent, mainly by means of the coordinating conjunction *ve* 'and' — beyond the formulaic types of such constructions that may appear earlier (e.g. *ába ve- íma* 'Daddy and Mommy'; *Ami ve Tami* 'Hansel and Gretel'). These occur inside subject or object NPs, [N ve N V PP] as in *Roni ve Dana sixaku ba-argaz xol* 'Ronny and Dana played in-the-sandbox', or [S V N ve N] as in *ani roca sukarya ve- mastik* 'I want candy and chewing-gum' respectively.

Word level

A fuller range of inflections, including productive marking of noun compound relations, in the form of nonlexicalized *smixut* 'construct-state

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constructions' of head + modifier, where Ngen stands for a noun in genitive case in the context [Ngen N] (e.g. *tmunat parpar* 'picture-of butterfly', *bubat jiráfa* 'doll-gen giraffe' > 'a giraffe doll', *gurey klavim* 'puppies-gen dogs' > 'puppy dogs', including where no overt marking is required, e.g. *kadur cémer* 'ball wool' > 'a ball of wool'). If required, genitive marking is omitted and this should be indicated in the Error Line (e.g. [N N] *madafim sfarim* 'shelves books' in place of [Ngen N] *madafey sfarim* 'shelves+Gen books' > 'book-shelves'). In the verb system, alternations between the same verb root in different *binyan* conjugation patterns indicate changes in transitivity (e.g. not only basic *šaxav* 'lie (down)' but also causative *maškiv* 'lay down' > 'put to bed'), and, in the opposite direction, not only causative *hilbiš* 'dress (someone)' but also *lavaš* 'wear, put on (clothes)', intransitive reflexive *mitraxec* 'wash (oneself)' but also transitive *roxec* 'wash (someone or something)'. These are shown as follows: P1 ~ P2 = alternations between the basic *qal* conjugation and the intransitive *nif'al*, P1 ~ P5 = between basic *qal* and *hif'il* causative, P3 ~ P4 = between active transitive *pi'el* and intransitive reflexive *hitpa'el* and so on. Productive command of the system is manifested by unconventional alternations (e.g. *nifrak* 'fell apart' for normative *hitparek* in alternation with transitive *pirek* 'pull apart', reflexive *hitpagšu* 'met (each other)' for normative *nifgešu* alternating with basic *pagaš* 'met'). These are not counted as errors until Stage VI or even later. Use of the two passive *binyan* constructions *pu'al* and *hof'al* are later, Stage VII acquisitions.

These two examples (*smixut* noun compounds and *binyan* verb alterna-
tions) are marked at word level since they are realized by inflectional and derivational morphology respectively, but in fact they express phrase- or clause-level syntactic relations.

Stage VI [c. 3;6 – 4;0]

This stage sees considerable expansion in semantic and lexical specifica-
tion of syntactic relations that emerged in preceding stages, including: (i) more specific and more complex subordinating markers like *ad še-* 'till that' > 'until' and *lamrot še-* 'although'; (ii) a wider variety of cognitive and other verbs introducing complement clauses in addition to basic verbs of saying; and (iii) a wider range of prepositions with pronominal suffixes, including *bli* 'without' and *al ydey* 'by (means of)'. Beyond this, the major advance at this stage is in clause-combining connectivity, as specified below.

Clause-combining connectivity
We find more complex inter-clausal relations, including:

Coordinate clauses with same-subject ellipsis, [Cl *ve-* ØCoord] (e.g. *az axarkax hu yaca ve hithapex* 'So afterwards he went-out and overturned';

ha-yeled tipes al ha-ec ve-xipes et ha-cfardea 'The-boy climbed the tree and looked for the-frog').

- Other coordinate conjunctions in addition to *ve-* 'and' (e.g. [Cl *aval* Cl] as in *ani raciti xalil aval ima sheli lo, hi nigna be- št:y xalilim aval hem lo hayu mangina* 'I wanted (a) recorder but my mother (did) not, she played two recorders, but they were not (a) tune > they didn't make a tune').

- Correlative markers of coordination, [corr CL corr CL] (e.g. *im ata roce še-ani etraxec az ten li et ha-balon* 'If you want that I will wash [> me to wash], then give me the balloon').

- A wider range of complement clauses in the form of embedded or indirect questions, e.g. [Cl Q Comp] (e.g. *hem lo hevínu láma hi ka'asa* 'They didn't understand why he was-angry'; *hi ša'ala oto éyfo sámu et ha-sfarim* 'She asked him where they put the books').

- Clauses embedded inside one another, marked by curly brackets, [NP { *še-* Rel} VP] (e.g. *ha-yéled {še-ra'ínu sham} raca lavo itánu* 'The boy that we saw there wanted to come with us'), [Cl {Apposl} *še-* Comp] (e.g. *hu amar lánu, {káxa nidme li}, še- yavo maxar)*.

- Inter-dependencies of two or more clauses to a single main clause, including complements on coordinate clauses, [Cl *še-* Comp ve Coord *še-* Comp im Adv] (e.g. *hu amar še- yavo ve- še- gam ani yaxol lavo im erce* 'He said that (he) would-come and that I could also come if I wanted'). This example shows that adverbial clauses also include conditional relations at this stage, while relative clauses are used with oblique objects as well as with subjects and direct objects, that is, constructions that require resumptive pronouns in Hebrew (e.g. *lo ra'íti et ha-yeladim še- hu sixek itam ~ še- dibárta aleyhem* 'I did not see the children that he played with them ~ that you-talked about-them').

Clause and phrase level

At this stage, syntactic development is reflected mainly by additional modification at both clause and phrase level simultaneously. At clause level, this typically takes the form of stringing together several expanded phrases in a single clause (e.g. [S VV O A] as in *íma šeli halxa liknot sfarim la-bet-séfer šelánu* 'My mother went to-buy books for my school'). Adverbial modifiers, including manner adverbs, are mainly in the form of a prepositional phrase (PP) (e.g. [S V IO AA A] as in *hu nixnas lo be-šéket be-šéket la-máyim* 'He went-in by-himself with-quiet with-quiet to-the-water' > 'He went into the water very quietly'). As an example of how increased Stage VI syntactic complexity is reflected at one and the same time in clause-combining, internal clause level *and* phrase level, consider the following utterance of a girl aged 3;7 talking to her younger brother, in a construction [V A *še-* Cl = S V IO DO = N PP *ve-* NP *ve-* PP *ve-* PP] realized as: *nesaper gam še-íma sipra lánu sipur al tipot ve-ha-rúax ve-al ha-gešem ve-al ha-stav* 'We'll tell also that Mommy told us (a) story about drops and-the-wind and-about the-rain

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and-about-the-autumn'. An additional phrase-level feature at Stage VI is use
of negative indefinite pronouns, as in strings like [NegIndef Neg V] *af exad
lo ba* 'No one not came' > 'Nobody came'; [Neg V NegIndef], *lo ra'íti šum
davar* 'Not saw=1st no thing' > I didn't see anything'.

Word level

Here we mainly find the lexically conventional use of morphological af-
fixation, including the introduction of the appropriate stem changes before
inflectional affixes (e.g. *péca ~ pca'im* 'sore-s'; *simla ~ smal-ot* 'dress-es'), the
non-regularization of affixes on verbs with defective roots (e.g. *baníti*
'built+1st' in place of juvenile *baná-ti*; *nizhar* 'be careful' in place of *mizaher*),
and the appropriate use of *binyan* verb patterns (e.g. *hitparek* 'fell apart' and
not juvenile *nifrak; mexuse* 'covered' and not childish *kasuy*).

Later Acquisition (Beyond Age 4)

These involve mainly morpho-syntactic constructions that have been
studied under the heading of 'later language development', mastered only at
late pre-school and even at school age. They include: (i) syntactic passive
constructions by means of the two passive *binyan* patterns *pu'al* and *hof'al*
as well as the earlier acquired *nif'al* used in a clearly passive construction –
typically in past or future tense; (ii) the extension of conditional clauses to
unreal conditionals, typically by the use of a special conjunction *lu* in place
of the general *im* 'if' combined with a complex verb construction of *haya +
benoni* 'was ~ were + Participle' for marking hypothetical clauses (e.g. the
use of the *benoni* participles in non-finite adverbial clauses); (iii) *smixut*
construct-state compounds (e.g. *yaldéy ha-kita* 'children+Gen the-class' >
'the class children'; *kitat ha-mexunanim* 'class+Gen the-gifted" > 'the class of
the gifted (students)'); (iv) nominalizations (e.g. *lemida* 'studying, learning'
and *meni'a* 'prevention'), used typically in forming complex NPs, often as
heads of *smixut* constructions; and (v) denominal adjectives (e.g. *ta'asiyat-i*
'industrial' and *yecirat-i* 'creative'), used in attributive NA constructions to
create the heavy noun phrases typical of more complex Hebrew syntax.
These examples demonstrate that increased grammatical complexity in
Hebrew is typically reflected by the interplay between morphology and
syntax.

Notes

(3) Hebrew items are transcribed as follows. Hebrew forms are given in broad phonemic transcription intended to represent how target items are pronounced in the ambient language. Word-stress is on the final syllable unless otherwise indicated by an *accent aigu* on the (pen)ultimate syllable. Hyphens between parts of words are used for morphemes that in English and other European languages are represented by separate words, but in Hebrew are written as part of the next orthographic word: the definite article *ha-* 'the', basic prepositions meaning 'to', 'at', 'in', 'from', 'like' (which may incorporate definiteness marking), the coordinating conjunction *ve-* 'and' and the subordinator *še-* 'that'. Elements that are required in English but are not realized in Hebrew are given in parentheses in the gloss, e.g. *ima ba-báyit* "mommy (is) in-the-house', *iša ba'a le-vaker* '(a) woman came to-visit'. Square brackets are used to explain un-English sounding usages, e.g. in response to the question *Eyfo haya ha-xatul?* 'Where was the-cat?', the response *hu haya ba-báyit* 'He [=it] was at-home' indicates that animals and humans are referred to by the same pronouns, in this case 'he'.

(4) The following is a list of notational abbreviations to specify Hebrew inflectional categories, marked by a plus sign + and separated by a comma if they co-occur: 1st, 2nd, 3rd = Person categories, Fu = Future, Imp = Imperative, Inf = Infinitive, Ms = Masculine, Fm = Feminine, Pa = Past, Pr = Present, Pl = Plural. Labels of other grammatical categories follow the conventions of LARSP (e.g. A = adverb, Adj = adjective, N = noun, Q = question (word).

(5) Many of these alternations are due to historical processes that are no longer realized in current Hebrew pronunciation, including: consonant gemination and the alternation between long and short vowels, the distinction between pharyngeal and velar consonants, where the former but not the latter entail vowel lowering, and the fact that glottal consonants are currently not pronounced in many environments. Despite the lack of phonetic realization, these historical distinctions still have a major impact on morphophonological processes in the language (e.g. vowel lowering), and hence on children's pattern-detection abilities and their acquisition of morphological alternations.

(6) The same forms also serve as non-finite participles. They are used to express habitual past tense or unreal conditionals following past tense forms of the verb *haya* 'be' (e.g. *hayínu* **holxim** *le-sham ba'avar* 'Were+1stPl go+Pl there in-the-past' > 'We used to go there' or *hayíti ose zot im / lu yaxolti* 'Was+1stSg do that if could+1stSg' > 'I would do / would have done that if I could'). And they also serve as non-finite verbs in complement clauses (e.g. *šamáti otam šarim* 'heard+1stSg them sing+Pl' > 'I heard them singing'). These are both late acquisitions in children's language.

(7) The terms 'child' and 'adult' are used here in preference to 'patient' and 'adult' in order to suit the materials to non-clinical situations and the normal language development charted here.

(8) In the work of the first author, following Karmiloff-Smith s (1986, 1992) developmental models, the term *phases* is used to characterize recurrent cycles consisting of initial data-based rote learning followed by structure-dependent acquisition and eventually discursively appropriate mastery of different systems and subsystems of Hebrew grammar from early childhood (Berman, 1986) across school-age later language development (Berman, 2004) in a range of domains. These include morphological marking of transitivity and voice (Berman, 993a, 1993b); syntactic constructions such as complex noun phrases, word classes, null subjects, and nominalizations (Berman, 1987, 1988, 1990, 1993b); and narrative text construction (Berman, 1988, 1993).

(9) Plural inflections in past and future 2nd and 3rd person typically neutralize gender distinctions, and are confined to masculine forms (e.g. *halaxtem* 'went+2ndPl'; *kol ha-yeldadot yelxu* 'all the-girls will+3rd Masc-go' prefixes), so should not be marked as errors.

v forms are given in broad phonemic
tems are pronounced in the ambient
less otherwise indicated by an *accent*
etween parts of words are used for
anguages are represented by separate
next orthographic word: the definite
', 'at', 'in', 'from', 'like' (which may
ating conjunction *ve-* 'and' and the
ired in English but are not realized
s, e.g. *ima ba-báyit* "mommy (is) in-
o-visit'. Square brackets are used to
esponse to the question *Eyfo haya*
haya ba-báyit 'He [=it] was at-home'
:o by the same pronouns, in this case

ions to specify Hebrew inflectional
ed by a comma if they co-occur: 1st,
= Imperative, Inf = Infinitive, Ms =
'resent, Pl = Plural. Labels of other
of LARSP (e.g. A = adverb, Adj =

processes that are no longer realized
nsonant gemination and the alterna-
ction between pharyngeal and velar
r entail vowel lowering, and the fact
:onounced in many environments.
e historical distinctions still have a
s in the language (e.g. vowel lower-
)n abilities and their acquisition of

·ticiples. They are used to express
·ing past tense forms of the verb *haya*
lstPl go+Pl there in-the-past' > 'We
Vas+1stSg do that if could+1stSg' >
'). And they also serve as non-finite
rim 'heard+1stSg them sing+Pl' > 'I
:itions in children's language.
ι preference to 'patient' and 'adult'
situations and the normal language

niloff-Smith's (1986, 1992) develop-
·racterize recurrent cycles consisting
by structure-dependent acquisition
ery of different systems and sub-
)od (Berman, 1986) across school-age
. a range of domains. These include
:e (Berman, 1993a, 1993b); syntactic
/ord classes, null subjects, and nomi-
ɔ); and narrative text construction

:d person typically neutralize gender
ms (e.g. *halaxtem* 'went+2ndPl'; *kol*
ɔ' prefixes), so should not be marked

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HARSP PROFILE CHART

Name   Age   Sample Date   Type

A Unanalyzed		Partially Compositional						
Unt Sym		**Incomplete** **Ambiguous** Stereotype **Social**						

B Responses			Repetitions	Normal Responses				Abnormal		Problems
				Major			Minor	Structural	Ø	
	Stimulus type	Totals		Elliptical	Reduced	Full				
	Question									
	Others									
C Spontaneous										
D Reaction				General	Structural	Ø	Other	Problems		

Minor	Responses	Vocatives	Other	Problems

Stage I	Command-type 'V'		Question-type 'Q'	Statement-type				
	'V-Imp'	'V-Fut'	'V-Inf'		'V'	'N'	'D'	'F'	'O'

	Connectivity	Clause	Phrase	Word

Stage II		D X
		F X
		Q X
		
		N C
		'V' X
		ze X
				V: Inf *l-*
				       Imp *t-*
				       Pa 1st Sg *-ti*
				       Pr Fm Sg *-et, -a*
				
				N: Ms Pl *-im*
				
				Pron: Poss + 1st Sg, 2nd Sg
				         Prep + 1st, 3rd

Minor	Responses		Vocatives	Other	Problems				
Stage I	Command-type 'V'			Question-type 'Q'	Statement-type				
	'V-Imp'	'V-Fut'	'V-Inf'		'V'	'N'	'D'	'F'	'O'
	Connectivity	Clause		Phrase	Word				
Stage II		D X F X Q X N C 'V' X ze X			V: Inf l- Imp t- Pa 1st Sg -ti Pr Fm Sg -et, -a N: Ms Pl -im Pron: Poss + 1st Sg, 2nd Sg Prep + 1st, 3rd				

Stage III	Connectivity	Clause		Phrase	Word

Stage III		(Neg)V (Neg)V_{agr}O
		 (Neg)V O
		 (Neg)V A (Neg)V_{agr}A
		 Q (Neg)V A Q (Neg)V_{agr}A
		 Adj A
		 V Dat (Neg)V_{agr} Dat
		 V Dat S (Neg)V_{agr} Dat S
		 Adj Dat
		 (Neg)Ex S_{ex} A
		 (Neg)Ex Dat S_{poss}
		
		 S (Neg)V S V_{agr}
		 S (Neg)V A S $V_{agr\Lambda}$
		 V S V_{agr}S
		
		 S (Neg)V O S (Neg)V_{agr} O
		 S (Neg)V etO S (Neg)V_{agr} etO
		 S (Neg)V Obl S (Neg)V_{agr} Obl
		 S (Neg)V O IO S V_{agr}O IO
		 (S)(Neg) O X
		
		 S C S C_{agr}
		 S Cop C S Cop C_{agr}
		 S C A S C_{agr} A
		
		 Q S (Neg)V O Q S (Neg)V
		 , O
				Det-N
				 Quant N
				 Det-N Dem
				 Det-N Poss
				
				 AccDetN
				 PrDetN
				 PrN
				 PrP
					N: Pl Ms -im
					      Fm Sg -et, -a
					
					 V: Inf
					      Imp
					      Suffixes:
					       Pr Ms Pl -im, Fm Pl -ot
					       Pa 1st Pl -nu,
					         2nd Pl -tem,
					         3rd Fm Sg -a,
					         1st Sg -ti
					      Prefixes:
					       Fu 3rd Sg y-, 1st Pl n-
					
					 A: Fm Sg -a
					      Ms Pl -im
					
					 Pron: Prep + 1st ~ 2nd ~ 3rd
					      Non-inflected non-subject [$al\ hu$]
					      Poss + 2nd ~ 3rd

Errors		Agreement error		Omission of grammatical item (definite marker or preposition)	

Stage IV	ve PP (Neg)V A S_{ex}
	 $še$- (Neg)V A A
	 ki V
	 V [Q V]
	 V [Q S V]
		A
		 NegA (Neg)V (O) NegA (Neg)V_{agr} (O)
		 S (Neg)V A A S (Neg)V_{agr} A A
		 S (Neg)V A O S (Neg)V_{agr} A O
		 (S) (Neg)V O IO (S) (Neg)V_{agr} O IO
				VV
				 NAdj NAdj$_{agr}$
				 NPoss(N)
				 QuantN Quant$_{agr}$N
				 NN
				 DetN DetAdj
				 et Det N
				 PrepNP
				      Det-NDem$_{agr}$
					N: Pl Fm -ot
					 V: Suffixes
					      Fu 2nd Fm. Sg -i
					      Fu 2nd Pl -u
					      Fu 3rd Pl -u
					      Prefixes
					      Fu 2nd Sg t-
					      Fu 2nd Pl t-
					      Fu 3rd Pl y-
					 A: Pl Fm -ot
					 Pron: Additional non-subject pronouns suffixed to additional prepositions

Errors		Agreement error (Person, Number, Gender) Agr-nr (in number system)		Omission of grammatical item (definite marker or preposition)	

Stage V	Cl *ve-* Cl Cl *še* Comp Cl *še-* Comp Cl *še-* Adv Cl *ki* Adv Cl *še-* Rel Cl *ve-* Cl *še-* Rel	PrepQ(S)VX S V-Compar PP S Compar-Adj PP S (Neg)V Compar-A PP S Compar Adj	N *ve* N Adj *ve* Adj	N: Ngen N V: **P1 ~ P2** (alternations between the basic *qal* conjugation and the intransitive *nif'al*) **P1 ~ P5** (alternations between basic *qal* and *hif'il* causative) **P1 ~ P5** (alternations between basic *qal* and *hif'il* causative) Unconventional alternations (e.g., *nifrak* 'fell apart' in alternation with *pirek* 'pull apart', reflexive *hitpagšu* 'met (each other)' for normative *nifgešu* alternating with basic *pagaš* 'met').
Errors		Agreement error (Person, Number, Gender) Agr-nr (in number system) Omission of definite marking	Omission of grammatical item (definite marker or preposition)	Error in stem change Plural suffix error Incorrect or omission of required Genitive marker

Stage VI	Cl *ve-* ØCoord
	Cl *aval* Cl
	corr CL corr CL
	NP { *še-* Rel} VP
	Cl {Apposl} *še*-Comp
	Cl *še-* Comp *ve-*
	    Coord *še-*
	    Comp *im* Adv
	Cl Q Comp
	Cl Q Comp
		<u>Clause and Phrase level</u>:
		stringing together several expanded phrases in a single clause
			NegIndef	N: appropriate stem changes before inflectional affixes
				
				V: non-regularization of affixes on verbs with defective roots
				appropriate use of *binyan* verb patterns

Errors		Agreement error (Person, Number, Gender) Agr-nr (in number system)	Omission of grammatical item (definite marker or preposition)	Error in stem change Plural suffix error Incorrect or omission of required Genitive marker

Note: At Word-Level, a comma between forms means that they co-occur; a tilde ~ between forms means that they alternate.

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