

# THE PHONOLOGY OF NOUNS AND VERBS IN EARLY HEBREW SPEECH

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## 1 Introduction

Most Hebrew stems are comprised of two syllables and contain final codas. These prosodic properties characterize both nouns and verbs, which are sometimes homonymous (e.g. *katáv* ‘a reporter’ and ‘to write 3.MS.SG.PAST’; *gamál* ‘a camel’ and ‘to reward 3.MS.SG.PAST’). The structural contrast between nouns and verbs emerges in the morphological paradigm (Bat-El 2008), which minimizes the similarity between the categories with different inflectional suffixes and morphophonological alternations. For example, the feminine suffix in the noun *sapaḥ-ít* ‘hairstylist FM’ is *-it*, and in the verb *sipḥ-á* ‘to cut hair 3.FM.SG.PAST’ it is *-a*. In addition, vowel deletion in nouns affects the stem penultimate syllable (e.g. /*gamal-im*/ → *gmalím* ‘camel PL’), while in verbs it affects the stem final syllable (e.g. /*gamal-u*/ → *gamlú* ‘to reward 3.MS.PL.PAST’).

With such a system in mind, consider the challenge faced by Hebrew-acquiring children during their early speech. The first forms children produce are stem-like (Levy 1983, Armon-Lotem and Berman 2003, Adam and Bat-El 2009a), i.e. without the morphology and morphophonology that distinguishes between nouns and verbs in the adults’ system. These stem-like productions persist during the period when both nouns and verbs are part of the children’s active vocabulary. That is, the children do not yet have the system that allows them to contrast between nouns and verbs in their productions.

As children produce nouns before verbs, it is reasonable to assume that conceptually and grammatically, they distinguish between nouns and verbs (Lany and Saffran 2010). However, *do*

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*they exhibit this category contrast in their productions, prior to the emergence of morphology? And if so, how?*

In this study, we provide evidence that even before the emergence of morphology, children manifest the contrast between nouns and verbs. They do it via prosodic contrast, with a strategy developed for this particular purpose. This early distinction between nouns and verbs supports the important role of the universal contrast between lexical categories (Chomsky 1970, Baker 2003).

The evidence is based on data drawn from the natural speech of three monolingual Hebrew-acquiring boys, focusing on the phase during which they produce nouns and verbs, but prior to the emergence of the inflectional paradigm, which allows the overt contrast between nouns and verbs.

The paper is organized as follows: We review the relevant background in §2, addressing nouns and verbs in Hebrew and during acquisition. We then proceed to present our study, starting with the methodology in §3. The findings are provided in §4, with respect to lexical and phonological development, where the latter includes the development of the prosodic word and the codas. Here we argue that while the development of the prosodic word is category-specific, that of the codas is a by-product of restrictions that are not sensitive to lexical categories. Concluding remarks are given in §5.

## 2 Background

In this section we provide the relevant background on nouns and verbs; first their similarities and differences in Hebrew and then their status during language acquisition.

### 2.1 Nouns and Verbs in Hebrew

Native Hebrew stems are prosodically similar, regardless of lexical category; the majority of noun and verb stems are polysyllabic, with disyllabic stems being the most common ones, and they often end with codas (Asherov and Bat-El 2019). These shared prosodic properties may lead to homonymy, such as *katáv*, which refers to both ‘a reporter’ and ‘to write 3.MS.SG.PAST’, and *ganáv*, which refers to both ‘a thief’ and ‘to steal 3.MS.SG.PAST’.

The contrast between nouns and verbs is drawn by morphology (different suffixes) and morpho-phonology (different types of vowel alternation). With respect to morphology, nouns and verbs have different inflectional suffixes. For example, the plural suffixes *-im* and *-ot* may be attached to nouns, adjectives and participles; however, the plural suffixes *-tem* ‘2.MS.PL.PAST’, and *-u* ‘3.PL.PAST’ attach only to verbs (1).

## (1) Noun and verb plural suffixes

Category	Singular	Plural	
Noun	katáv	katav-ím	‘reporter’
Participle <sup>1</sup>		kotv-ím	‘to write PL.PART’
Verb		katáv-tem	‘to write 2.MS.PL.PAST’
		katv-ú	‘to write 3.PL.PAST’

With respect to morpho-phonology, inflected nouns and verbs are distinguished by the site of vowel deletion (Bat-El 2008). When a vowel initial suffix is added to a CVCVC stem, vowel deletion applies in all verbs (unless blocked by independently motivated constraints) and in some lexically selected nouns. In verbs, the vowel is deleted in the final syllable while in nouns it is deleted in the penultimate syllable (2).

## (2) Noun and verb inflected forms

Noun	gamál	gmal-ím	‘camel SG-PL’	Alternation in both nouns and verbs
Verb	gamál	gaml-ú	‘to reward 3.SG-PL.PAST’	
Noun	ganáv	ganav-á	‘thief MS-FM’	Alternation in verbs only
Verb	ganáv	ganv-á	‘to steal 3.MS-FM.PAST’	

During early speech, before the emergence of the inflectional paradigm, and thus before morphology and morpho-phonology are apparent in the children’s productions, the above-mentioned properties that distinguish between nouns and verbs are not yet available, and thus cannot be manifested in the children’s productions.

## 1.2 Nouns and Verbs during Acquisition

When embarking on the process of language acquisition, one of the children’s tasks is to learn the lexical categories and their use, with reference to (i) the position of a word in a sentence; (ii) the word’s morphological form; and (iii) the word’s syntactic function (Labelle 2005). Crucially, all of the above are distinct for nouns and verbs.

In most languages, nouns precede verbs in acquisition (Waxman and Markow 1995, Gentner 2006, Imai et al. 2008); this is referred to as the “noun bias” – the precedence of nouns over verbs during the early phase of acquisition. The bias is manifested both in terms of order of production – nouns are produced prior to verbs; and in terms of quantity – the majority of children’s early productions are nouns.

In addition, children exhibit no morphology during early speech, as shown for English (Radford 1990) and Sesotho (Demuth 1994). Hebrew-acquiring children are not different; they have no suffixes in their noun outputs (Levy 1983), and produce stem-like productions in their verb outputs, i.e. verbs without inflectional suffixes (Armon-Lotem and Berman 2003, Adam and Bat-El 2009a). These morphology-free productions persist when verbs start appearing in the

<sup>1</sup> Participles in Hebrew can be nouns, adjectives, or verbs in the present tense, aka *beinoni* (Bat-El 2008); e.g. *meamén* ‘trainer / he trains’, *tsolélet* ‘submarine / she dives’, *moséx* ‘attractive / to draw, pull’. However, during early speech, participles serve as a bridge from nouns and verbs (Lustigman 2013), without the categorial ambiguity.

children's speech, and thus, there is a phase during which verbs and nouns are all stem-like. This is illustrated in Figure 1 below, where the phase of interest is shaded.

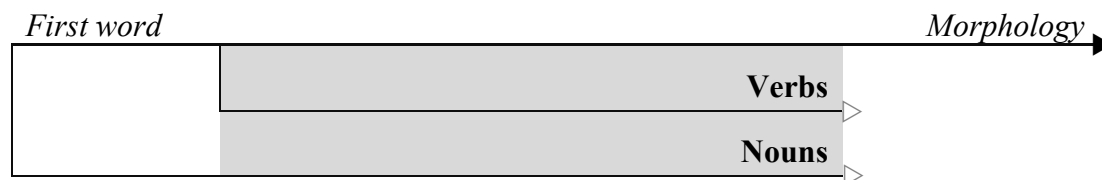


Figure 1: Time phase of the current study

The question addressed in this study is whether children manifest a contrast between nouns and verbs during this phase. The null hypothesis is that since there is no morphology, verbs would be produced with the same phonology as nouns, and no contrast between nouns and verbs will be manifested. However, we show that this is not the case. Our findings indicate that there is a contrast between nouns and verbs prior to the emergence of morphology, and that the contrast is manifested in terms of prosodic development – nouns and verbs take different paths during this developmental phase.

### 3 Methodology

The data in this study are obtained from three monolingual, typically developing Hebrew-acquiring boys – SR, IM and SM. The children's spontaneous speech (including naming) was recorded in their natural environment, starting at the onset of speech (see (3) for first recording).<sup>2</sup> The data were transcribed according to the International Phonetic Alphabet (IPA) by trained phoneticians and were analyzed with Child Phonology Analyzer (Gafni 2015).

A database of all outputs was constructed for each of the children separately, containing over 20,000 tokens for each child (3). Outputs with an unknown target (i.e. it is not clear what the child was trying to say) were excluded, and so were disrupted utterances (i.e. speaking while crying, singing or speaking with a pacifier).

#### (3) Database

<i>Child</i>	<i>Age of first recording</i>	<i>Age of last recording</i>	<i># of tokens</i>
IM	0;11:28	2;11:24	27778
SM	1;00:29	2;11:24	20878
SR	1;02:00	2;04:03	24479

Age key: years;months:days

Being a longitudinal study, our data are divided into periods, based on lexical development, because phonological development is linked to the lexical development; words which are not uttered accurately in terms of phonology, are produced later than words which are uttered accurately (Stoel-Gammon 2011). In this sense, there is a correlation between phonological and lexical development.

<sup>2</sup> Two of the boys, IM and SM, are dizygotic twins. However, this is irrelevant to our study, as it was found that they differ from each other in many aspects of their phonological development, as much as non-siblings (see Bat-El 2017).

We organized the data into periods of lexical development, defined by the number of new targets (lemmas) attempted by the child (Adam and Bat-El 2009b). The 1<sup>st</sup> period corresponds to 10 new lemmas, the 2<sup>nd</sup> period corresponds to 50 new lemmas, and every following period corresponds to additional 50 new lemmas. The lexical periods of the three children studied here are provided below, with reference to the age at which each child reached the period, and the range of cumulative attempted lemmas per period.

(4) Lexical periods: Cumulative lemmas and age

Period	<i>Cumulative Lemmas</i>	<i>IM</i>	<i>SM</i>	<i>SR</i>
1	10	1;01:08	1;01:08	1;02:24
2	50	1;04:01	1;04:12	1;04:10
3	100	1;05:07	1;05:23	1;05:04
4	150	1;06:04	1;06:23	1;05:15
5	200	1;07:01	1;07:04	1;06:02
6	250	1;08:04	1;08:04	1;06:20
7	300	1;08:18	1;08:19	1;06:26
8	350	1;09:03	1;09:15	1;07:09
9	400	1;09:17	1;09:18	1;07:23
10	450	1;10:12	1;10:15	1;08:17
11	500	1;10:22	1;11:07	1;09:09
12	550	1;10:27	1;11:18	1;09:27
13	...	...	...	...

Note that the periods do not indicate stages of development, but rather serve as a methodological tool to evaluate the children's phonological development and to draw a qualitative comparison among them.

## 4 The Noun-Verb Contrast during Early Speech

The data provided in this section highlight the differences between nouns and verbs in early speech, in terms of lexical and phonological development.

### 4.1 Lexical Development

As expected, there was strong evidence for the noun bias (§1.2) in our data, in both precedence and quantity; nouns were produced before verbs and there were more nouns than verbs in the overall data.

With reference to precedence, all three children produced nouns before verbs. As shown below, during the 1<sup>st</sup> period (first 10 lemmas), SM and SR did not produce any verbs, and IM produced only one verb (shaded below).

## (5) First 10 attempted words

	IM		SM		SR	
1.	ába	'dad'	ken	'yes'	ába	'dad'
2.	íma	'mom'	etzé	'this (ACC)'	íma	'mom'
3.	etzé	'this (ACC)'	báit	'house'	sávta	'grandma'
4.	ze	'this'	glída	'ice cream'	dási	(name)
5.	todá	'thank you'	kadúð	'ball'	ze	'this'
6.	jalát	'remote'	nadnedá	'swing'	todá	'thank you'
7.	nadnedá	'swing'	dúbi	'teddy bear'	motséts	'pacifier'
8.	banána	'banana'	kafkáf	'flip flop'	tapúax	'apple'
9.	máim	'water'	mitá	'bed'	paɣpáɣ	'butterfly'
10.	ba	'to come'	taɣnegól	'rooster'	bakbúk	'bottle'

Given the small number of verbs during the first few periods, the comparison between nouns and verbs starts at the point where the child produces 10 verb types (Figure 2). The children reach this point at different lexical periods: the 6<sup>th</sup> period for IM (1;08:04); the 7<sup>th</sup> period for SM (1;08:19); and the 3<sup>rd</sup> period for SR (1;05:04).

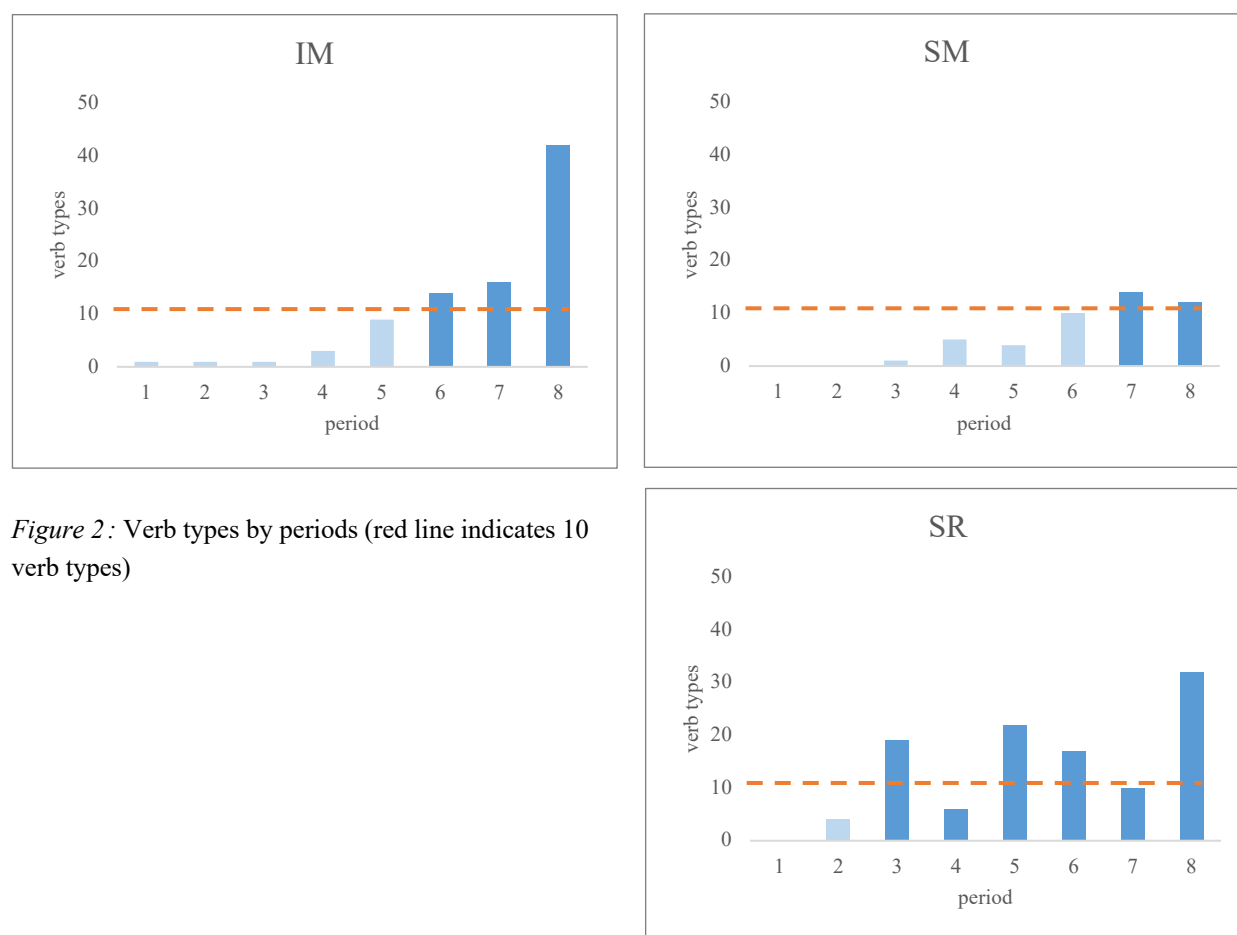


Figure 2: Verb types by periods (red line indicates 10 verb types)

In terms of quantity, the lexicons of all children demonstrated a majority of nouns over verbs throughout the entire corpus. As shown in Figure 3, this quantitative difference was found in terms of both tokens and types.

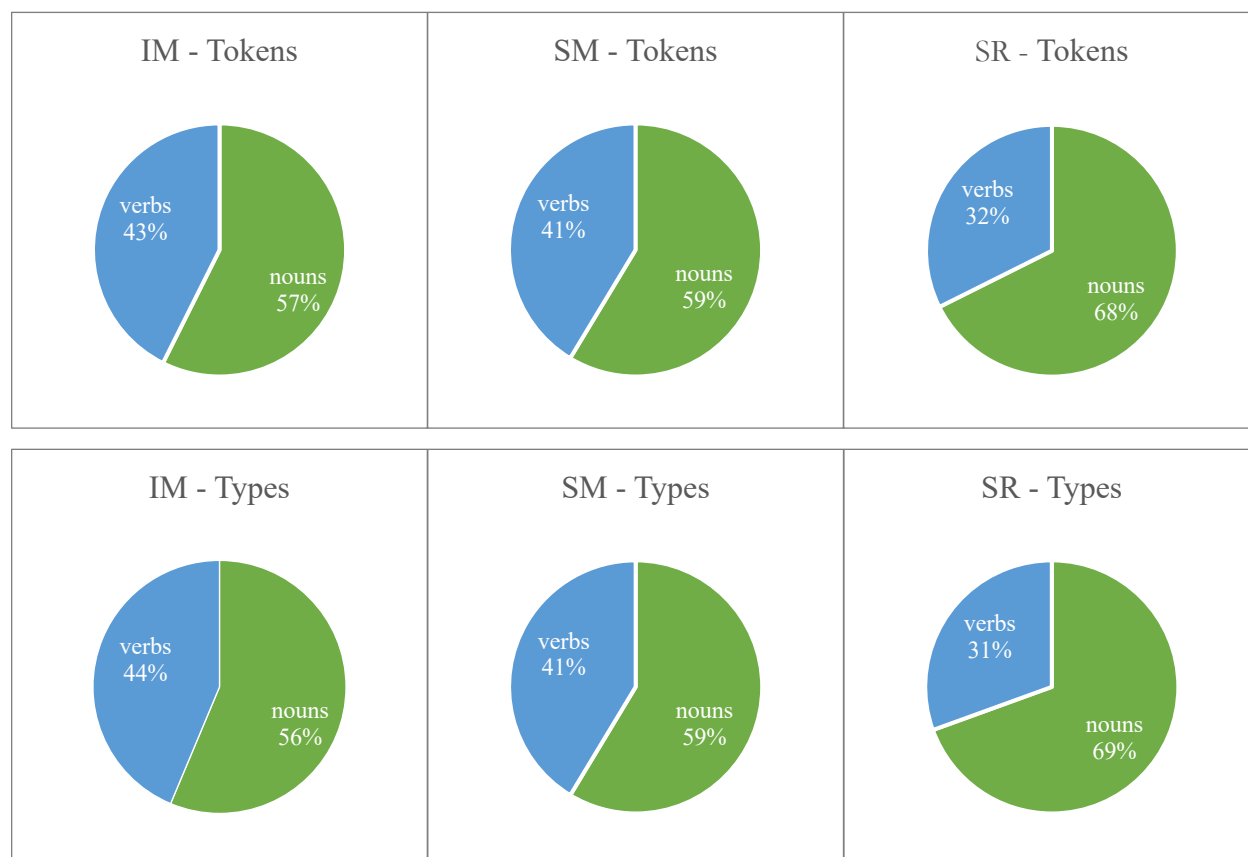


Figure 3: Percentages of nouns and verbs – types and tokens (entire corpus); more nouns than verbs

In what follows, we compare the prosodic development of nouns and verbs across the periods in which the children produced both nouns and verbs, but morphology was not yet reflected in their productions (the shaded area in Figure 1 above).

## 4.2 Phonological Development

Two phonological units were examined with reference to the prosodic contrast between nouns and verbs during early speech: the prosodic word (i.e. the development of the children's productions in terms of number of syllables) and the final codas.

### 4.2.1 Prosodic Word

In this section, we focus on the first two stages in the development of the prosodic word – the sub-minimal word stage and the minimal word stage (Demuth and Fee 1995, Ben-David 2001, Adam 2002, Ben-David and Bat-El 2016). During the sub-minimal word (sub-MW) stage, children

produce mostly monosyllabic outputs, regardless of the number of syllables in the target word. This phase is rich in syllable truncation, as there is only a small number of monosyllabic content words in Hebrew (5% of the nouns and 3% of the verbs). During the minimal-word (MW) stage, the maximal size of the children's productions is disyllabic; monosyllabic targets remain monosyllabic in the children's outputs (Ben-David 2001, 2012).

(6) The development of the prosodic word

	Stage	Output	Target
1	Sub-MW stage	ka	} maká 'a bump'
2	MW stage	maká	

We focus on the transition between these two phases, i.e. from monosyllabic to disyllabic productions, which takes place during the period when the children produce both nouns and verbs, but without overt morphological structure.

We found that for all children, there was a phase during which nouns were produced mostly as disyllabic while verbs were truncated to monosyllabic forms. That is, when nouns were already in the MW phase, verbs were still in the sub-MW phase. Figure 4 provides the percentages of monosyllabic productions corresponding to polysyllabic targets during the first 6 periods, after 10 verb types were produced.

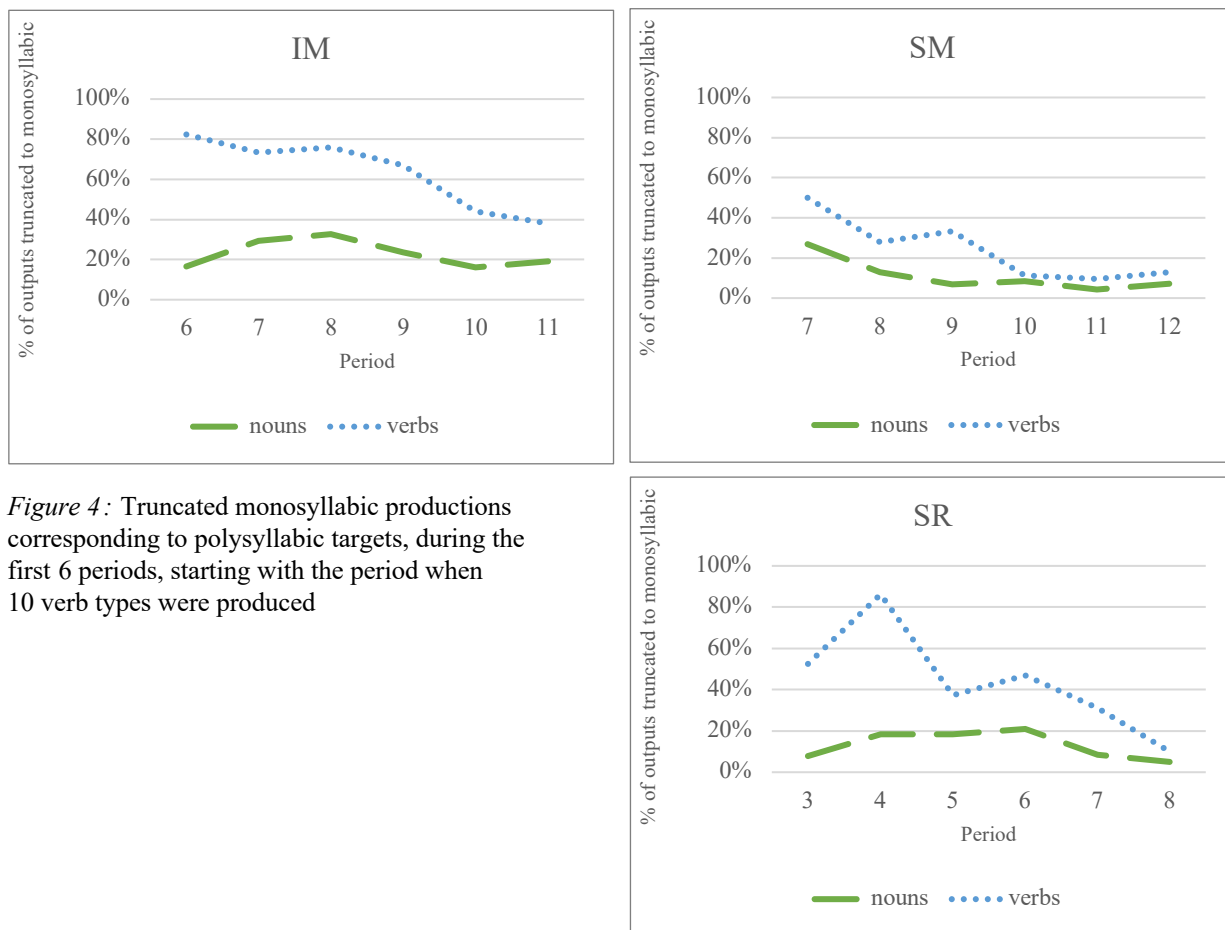


Figure 4: Truncated monosyllabic productions corresponding to polysyllabic targets, during the first 6 periods, starting with the period when 10 verb types were produced



One may argue that the difference between truncated nouns and truncated verbs could be attributed to a difference in the children's noun and verb targets, i.e. the distribution of monosyllabic words in the two categories. However, as noted above, there are very few monosyllabic content words in Hebrew, regardless of the category, and as shown in Figure 5, this is also manifested in the children's targets; the vast majority of both noun targets and verb targets were polysyllabic for all children.



Figure 5: The number of mono- and polysyllabic targets in the corpus

Also the stress patterns in nouns and verbs cannot explain the results in Figure 4. Indeed, there are more final-stress targets in verbs than in nouns, and targets with final-stress are truncated to monosyllabic for a much longer period than targets with penultimate stress (Ben-David 2001, Adam 2002, Adam and Bat-El 2009b). However, as shown in Figure 6, during the periods when nouns and verbs contrasted in the size of the prosodic word (the periods in Figure 4), the children selected polysyllabic targets with final stress for both nouns and verbs.

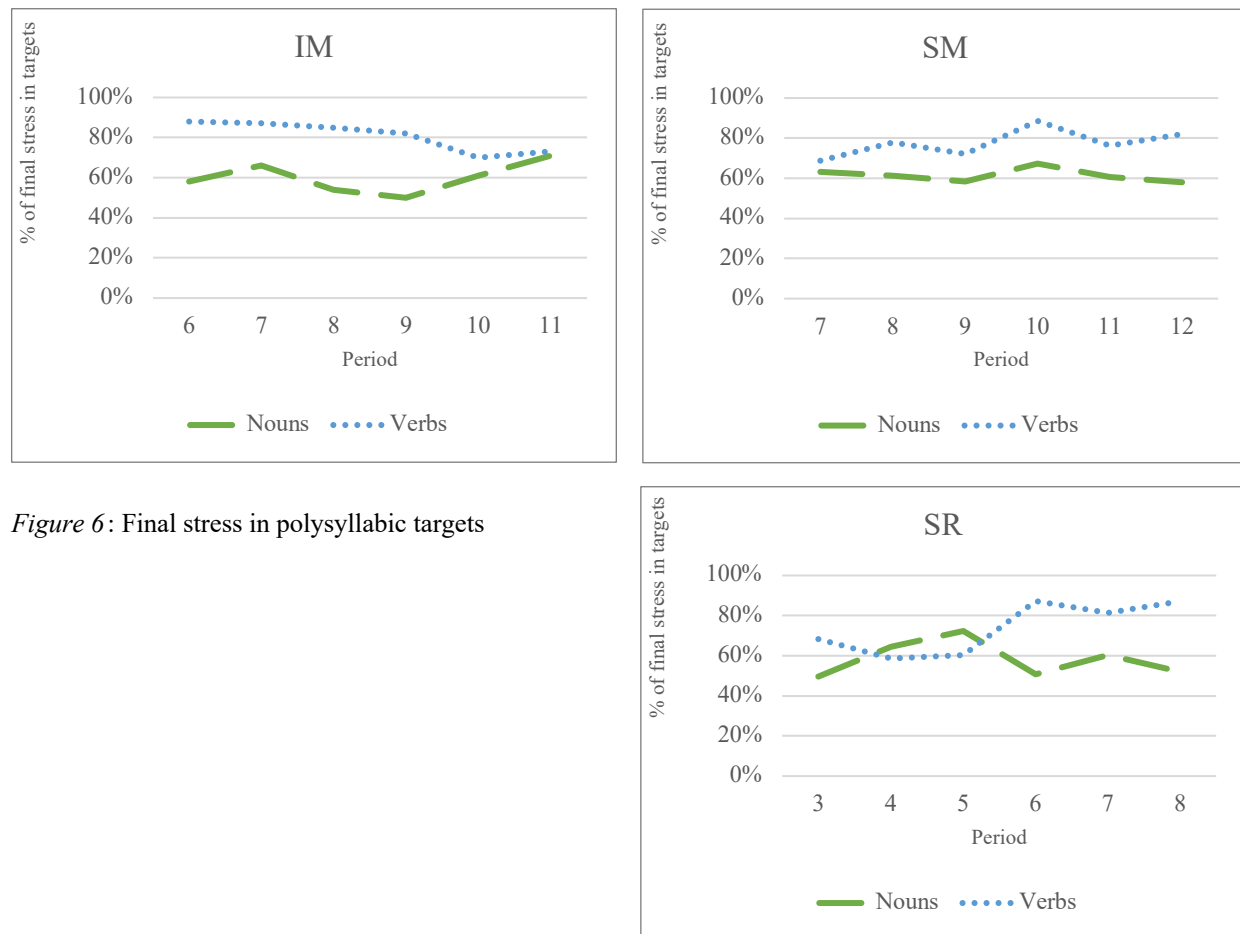


Figure 6: Final stress in polysyllabic targets

Figure 6 shows that the majority of verb targets bore final stress, but the majority of noun targets also bore final stress. For each of the children, there were at least 2 lexical periods during which there was no significant difference between nouns/verbs in terms of final stress: periods 10 ( $X^2(1, N = 215) = 1.4712, p = .225149$ ) and 11 ( $X^2(1, N = 235) = 0.1105, p = .739523$ ) for IM, periods 7 ( $X^2(1, N = 176) = 0.1989, p = .655623$ ), 8 ( $X^2(1, N = 157) = 1.8912, p = .169067$ ), 9 ( $X^2(1, N = 165) = 1.2576, p = .262114$ ) and 11 ( $X^2(1, N = 159) = 3.2572, p = .07111$ ) for SM, and periods 3 ( $X^2(1, N = 148) = 2.3473, p = .125499$ ), 4 ( $X^2(1, N = 170) = 0.3636, p = .546530$ ), 5 ( $X^2(1, N = 242) = 3.6719, p = .055338$ ) and 7 ( $X^2(1, N = 122) = 2.6016, p = .106757$ ) for SR ( $p > 0.5$  according to a chi square test of independence). In other words, there were periods during which verbs were produced as monosyllabic and nouns were produced as polysyllabic (Figure 4), but there was no difference in terms of stress pattern between noun targets and verb targets.

The findings indicate that for all three children, there was a period of time during which most verbs were produced as monosyllabic (the sub-MW stage), while most nouns were produced as polysyllabic (Figure 7). Importantly, as emphasized above, this cannot be attributed to the number of syllables (Figure 5) or stress patterns (Figure 6) in the children's targets.

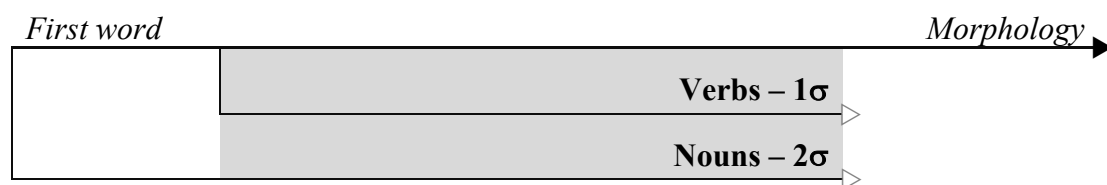


Figure 7: The development of the prosodic word: nouns and verbs

The findings presented above are in accordance with Bat-El's (2007) observation that the prosodic development of Hebrew verbs in terms of number of syllables lags behind that of nouns. Indeed, verbs are acquired after nouns (§4.1), but there is no obvious reason why they should not adopt the phonology of nouns at the moment they start appearing in the children's productions. We adopt here Bat-El's (2007) claim that this category-specific phonology is a strategy used to compensate for the not-yet-acquired morphological tools used by adults to distinguish between nouns and verbs.

Our findings so far reflect the well-known noun bias in acquisition (§1.2), with reference to a correlation between lexical and prosodic development; with respect to the lexicon, nouns are produced before verbs, and with respect to prosodic development, nouns grow faster than verbs in terms of number of syllables.

#### 4.2.2 Final Codas

In this section, we focus on the first two stages in the development of Hebrew final codas (Ben-David 2001, Ben-David and Bat-El 2016). During the first stage, children do not produce codas; that is, all target codas are deleted regardless of their position in the word. During the second stage, final codas appear in the children's productions.<sup>3</sup>

##### (7) Final codas – stages of development

	<i>Stage</i>	<i>Output</i>	<i>Target</i>
1	No coda	babú	bakbúk 'bottle'
2	Final coda	babúk	

We examine the transition from the first to the second stage of coda development, i.e. from codaless productions to productions with final codas, which correlates with the period during which children produce both nouns and verbs, but without overt morphological structure.

Our findings show that for two out of the three children (the twins), there was a phase during which the faithful production of final codas was higher in verbs than in nouns. Figure 8 presents the percentage of productions with final codas out of all targets with final codas, during the first 6 periods after 10 verb types were produced.

<sup>3</sup> Medial codas are acquired at a later stage, and are not relevant here. We also ignore the segmental effects on the gradual development of codas, in particular sonority (Bat-El 2012).

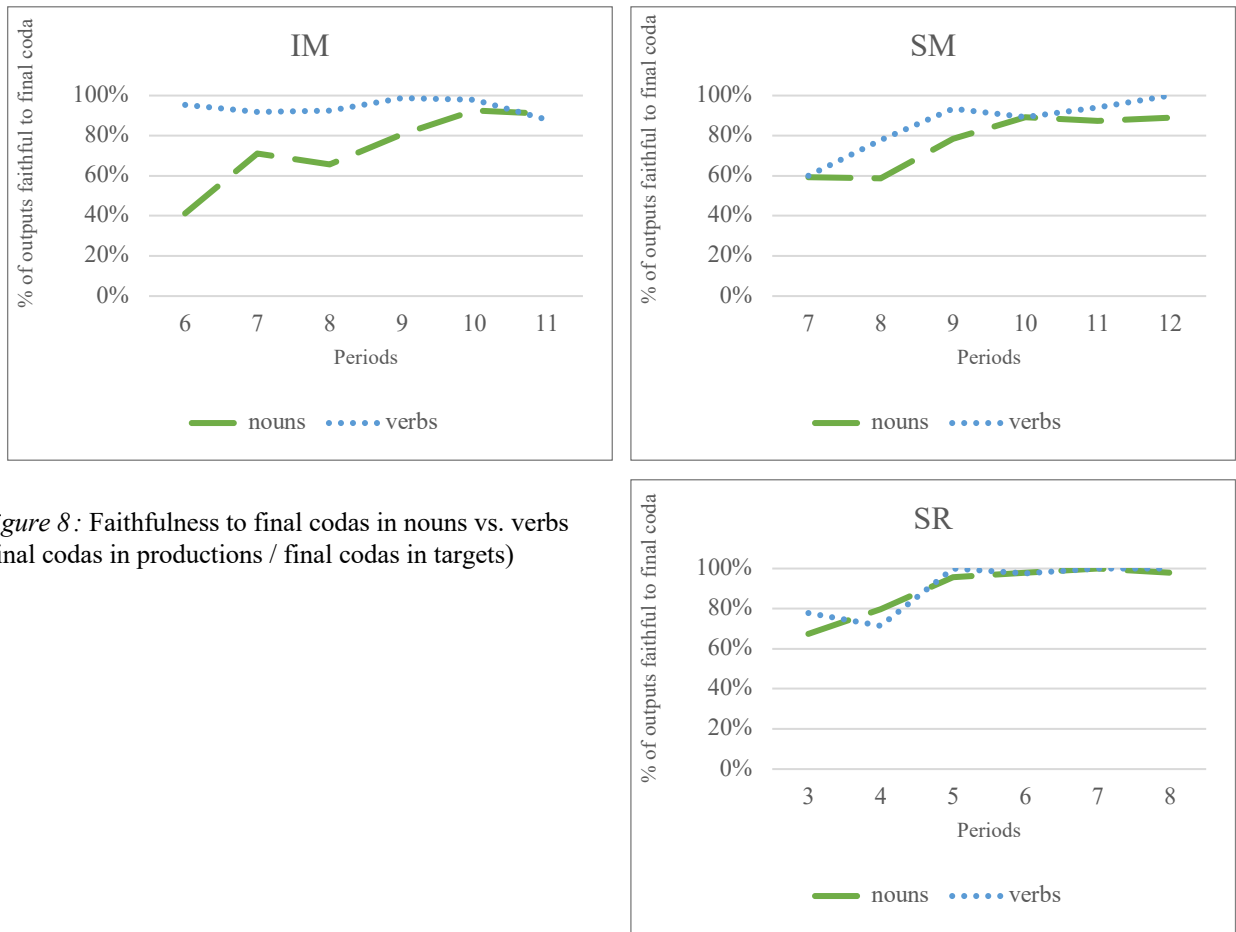


Figure 8: Faithfulness to final codas in nouns vs. verbs (final codas in productions / final codas in targets)

The findings indicate that SR did not show much contrast between nouns and verbs with respect to final codas. However, SM, and more so IM, went through several lexical periods right after the emergence of verbs, during which they were faithful to codas in verbs more than in nouns. This category contrast is illustrated below.

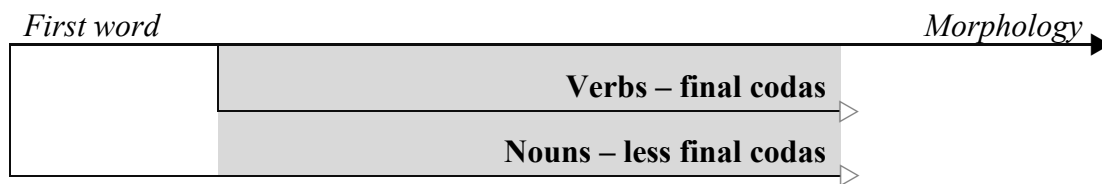


Figure 9: Final coda development – verbs before nouns

Examples of noun and verb productions during the time period of the study are provided in (8).

## (8) Noun and verb outputs

	MW	Final coda	Child	period	Age	Output	Target	
Nouns	Polysyllabic	No	IM	11	1:10;22	χalá	χaláv	‘milk’
				11	1:10;14	kadú	kadúʁ	‘ball’
			SM	8	1:09;01	tatú	χatúl	‘cat’
				9	1:09;18	tané	tanúʁ	‘oven’
			SR	4	1:05;08	kuká	koχáv	‘star’
				6	1:06;12	tadú	kadúʁ	‘ball’
Verbs	Monosyllabic	yes	IM	7	1:09;01	ʃen	jaʃén	‘he sleeps’
				6	1:08;04	ik	ʃadlík	‘to turn on light’ <sup>4</sup>
			SM	9	1:09;17	keʃ	ʃkaʃkéʃ	‘to chat’
				8	1:09;03	gen	ʃnagén	‘to play an instrument’
			SR	5	1:05;21	fets	koféts	‘he jumps’
				6	1:06;20	paχ	niʃpáχ	‘is/was spilled’

The findings presented in this section regarding final codas do not accord with the findings provided in the previous section regarding the prosodic word. In the development of the prosodic word (§4.2.1), as in the development of the lexicon (§4.1), nouns precede verbs, i.e. nouns grow faster than verbs in terms of number of syllables. However, with respect to codas, verbs grow faster than nouns. We address this puzzle in the following sub-section.

## 4.2.3 Resolving the Puzzle: Why are Verbs Faithful to Final Codas?

Our findings suggest that the development of the prosodic word reflects that nouns precede verbs, as nouns are polysyllabic and verbs are monosyllabic, while the development of the codas reflects that verbs precede nouns, as verbs have codas and nouns do not. This may suggest that there is no precedence relation between nouns and verbs in terms of prosodic development.

However, we argue that while the difference in number of syllables indicates noun bias, the development of codas in verbs is not related to precedence relation. We attribute codas in verbs to the fact that verbs are mostly monosyllabic, and to prosodic restrictions and lexical enhancement effects, that apply on monosyllabic outputs. In other words, we claim that the codas in verbs are not sensitive to lexical category but rather to size, and therefore do not indicate any categorial bias.

Recall that the majority of verbs, unlike nouns, are monosyllabic, as shown in Figure 4. As claimed in Ben-David (2001) with respect to Hebrew, and in Demuth, Culbertson and Alter (2006) with respect to English, codas appear in monosyllabic outputs before they appear in polysyllabic outputs. In line with these previous studies, the findings presented in Figure 10 show that all three

<sup>4</sup> The \$ sign in the gloss indicates the ambiguity among forms in the verb paradigm, which does not allow to determine the exact target word. For example, the child’s production *gen* can correspond to several forms in the paradigm of ‘to play an instrument’, most likely to *lenagén* ‘INFIN’ and *menagén* ‘MS.SG.PRES’, because these are the first categories that appear in children’s speech, but also a future form like *jenagén* ‘3.MS.SG.FUT’ can fit in. Similarly, the child’s production *ik* can correspond to several forms in the paradigm of ‘to turn on light’, most likely to *leadlík* ‘INFIN’, *madlík* ‘MS.SG.PRES’, or *idlík* ‘3.MS.SG.PAST’, but also a future form like *jadlík* ‘3.MS.SG.FUT’ can fit it.

children preserved final codas in their monosyllabic productions more so than in polysyllabic productions.

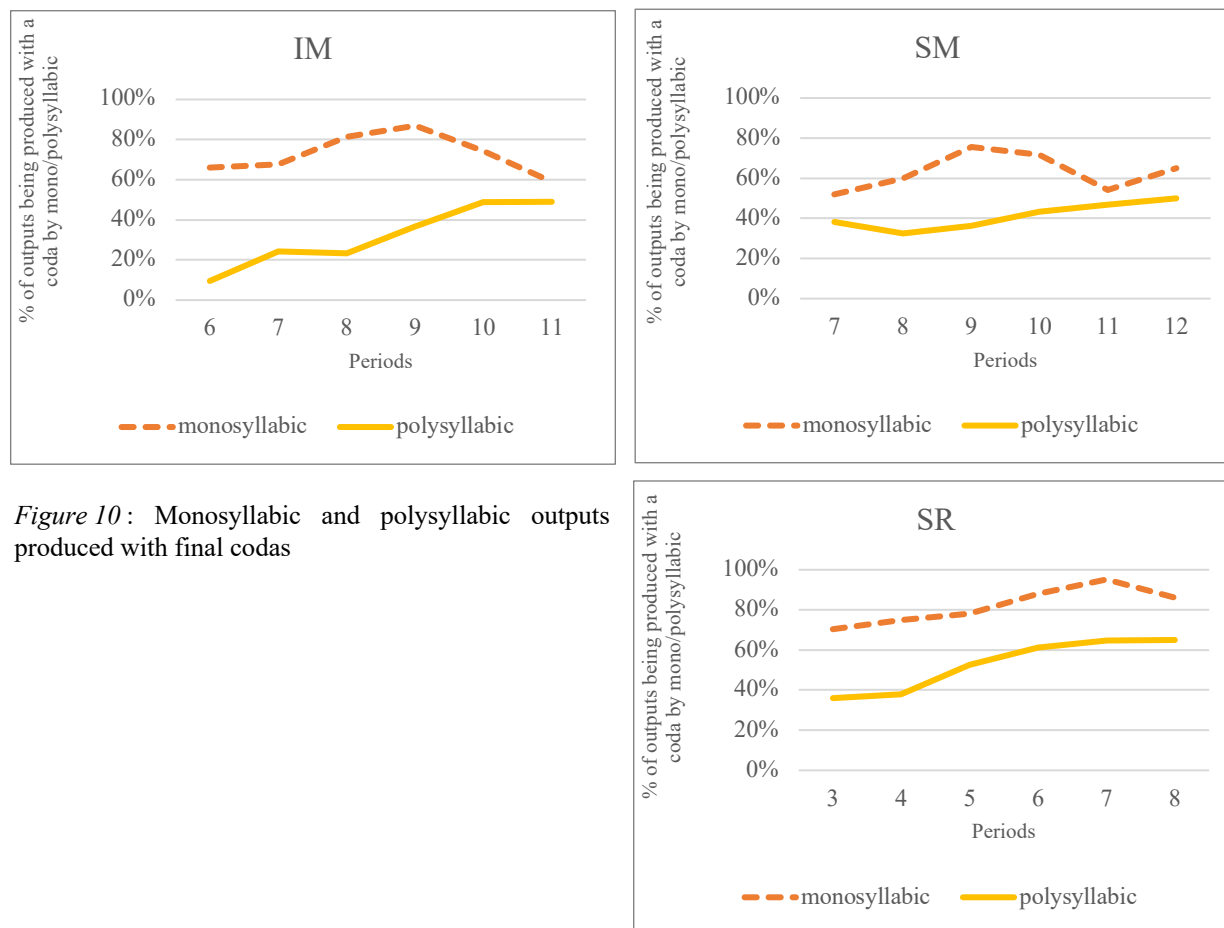


Figure 10: Monosyllabic and polysyllabic outputs produced with final codas

These findings imply that the preservation of codas in verbs is a by-product of the verbs being monosyllabic, and that monosyllabic outputs preserve codas. We attribute the preservation of codas in monosyllabic outputs to two factors: the minimal word restriction and to lexical enhancement.

During acquisition, the minimal word restriction imposes a minimal word-size of a binary foot, which is comprised of either (i) two syllables or (ii) two moras. The Hebrew lexicon does not support moraic codas, as there is no contrast between CV and CVC syllables (Asherov and Bat-El 2019); feet are arguably syllabic. However, Yariv et al. (2020) provide evidence that Hebrew-acquiring children assume moraic codas during early speech (as do adults in nonce-word tasks; Bat-El 2018). This explains why monosyllabic outputs preserve codas; codas allow monosyllabic outputs to meet the minimal word restriction, i.e. to comprise of a binary moraic foot.

The preservation of final codas in monosyllabic outputs can also be attributed to the important role of consonants as carriers of lexical content (Nespor, Peña and Mehler 2003, Poltrock and Nazi 2015). Recall that most monosyllabic productions in early Hebrew speech are in fact truncated polysyllabic targets (Figure 4). As truncation results in the loss of lexical information, the preservation of codas in monosyllabic productions contributes to the preservation of some lexical information; that is, CVC carries more lexical information than CV.

Also in English codas are first produced in monosyllabic productions, and as argued in Demuth et al. (2006), this is due to the minimal word restriction. However, as English distinguishes between short and long vowels, the minimal word restriction could as well be met with CVV productions. However, the preference of a consonant (coda) rather than a vowel suggests that both the minimal word restriction and lexical enhancement are responsible for the codas in monosyllabic productions in Hebrew.

The puzzle is thus resolved. Codas appear first in verbs not because they are verbs but because they are mostly monosyllabic. The categorial contrast between nouns and verbs is thus maintained due to the development of the prosodic word, whereby verbs lag behind nouns. The codas in verbs, however, are not category sensitive.

## 5 Conclusions

In this paper, we have shown that children contrast between nouns and verbs during early speech, before they have an overt morphological structure, and thus before they can use the morphology and morphophonology that distinguish between verbs and nouns in adults' speech. In order to express the difference between these two categories, children use prosodic contrast, producing verbs mostly as monosyllabic and nouns mostly as disyllabic. As a by-product of the category-specific contrast in number of syllables, verbs, but not nouns, are produced with codas, in order to meet the minimal word restriction (a bi-moraic syllable) and enhance the lexical information of the verb.

Our findings provide further evidence for category-specific phonology (McCarthy and Prince 1995, Smith 1999, Smith 2001, Itô and Metser 1999, Itô and Metser 2003, Bat-El 2008, Jesney and Tessier 2008), in this case, that nouns and verbs employ different phonologies. Our findings also highlight the importance of categorial contrast, as the strategy used by the children to contrast nouns and verbs is unique to their development and not found in the ambient language. This contrast indicates that their lexicon is organized into lexical categories (Di Sciullo and Williams 1987, Chomsky 1995, Baker 2003), starting at the onset of speech.

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