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THE ŠIF'EL BINYAN IN ISRAELI HEBREW: FICTION OR REALITY?

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Abstract

The verb system of Hebrew has been addressed in numerous publications over the years, most of them are diachronic studies, others are edited as textbooks, presenting a more traditional treatment. The descriptions of Hebrew verb system in the literature refer to all Hebrew layers, the main ones being Biblical Hebrew and Mishnaic Hebrew. The ones which claim to deal with Modern Hebrew suggest that the Hebrew verb system consists of seven verb patterns and some additional, minor ones, one of which is the *šif'el* pattern, which is discussed here. Modern Hebrew is referred to as Israeli Hebrew herein. The current study was performed on the basis of comprehension questionnaires. It was aimed at investigating the *šif'el* pattern in Israeli Hebrew. The results show that the *šif'el* pattern is not productive in Israeli Hebrew, and suggest that marking its forms as an independent pattern is redundant.

1   Introduction

Traditional, as well as Modern Hebrew grammarians, present the Hebrew verb system structured in seven fundamental patterns, known as *binyanim*. This classification is mainly morphologically motivated. Yet, frequency factors assign a certain measure of dominant semantic features to each of them (Berman 1978:84, Blau 1986, Schwarzwald 1981).

Aside from these universally recognized patterns, one may find occasionally additional (marginal) ones, presented by some Hebrew grammarians as sub-patterns or as independent patterns with high productivity potential. One of these is the commonly known *šif'el* (Gesenius 1910, Even-Shoshan 1974, Federbush 1929, Junger 1987).

Hebrew verbal forms are characterized formally by the combination of a root and a pattern (Blau 1967, 1975). The consonantal root is a building block of the verb and noun systems in Hebrew. It usually consists of three radicals, but in some cases can also consist of four, five or even six radicals. Five or six radicals in a root are relatively rare, and in many cases are limited in use to various professional jargons. But a four radical root is quite widespread in Israeli Hebrew. Some roots may seem to have only two radicals, but this mainly happens when one of the three radicals is a weak consonant, such as a semi-vowel, a duplicated root consonant or a glottal consonant, which tends to be dropped in most of the locations where it appears (Aronoff 1994:190). For the formal characterization, I will consider only triconsonantal roots here. There are two possible types of patterns in Israeli Hebrew:

a.   A pattern with a consonantal nucleus, such as *niCCaC*, *hitCaCCeC*.
b.   A solely vocalic pattern, such as *CaCaC*, *CiCCeC*.
(*C* stands for a root radical; Goshen-Gottstein 1969, Schwarzwald 1994:95).

Following these, *šif'el* might be formally described as belonging to the first class: *šiCCeC*.

2   Questions to be addressed

I will address four questions in this paper:
a. Can the history of the *šiCCeC* forms be traced? Are their origins genetic? Did they belong to a Proto-Semitic verbal system? If not – were they integrated into the language through borrowings or did they develop internally?
b. Can the existing *šiCCeC* forms be considered as constituting a category all by themselves? In other words, do the actual appearances / instances of this form justify assigning them a separate pattern?
c. Is this form productive in Israeli Hebrew? If so, what would be its main semantic function?
d. Is there any change along time in the way Israeli Hebrew native speakers perceive the *šiCCeC* pattern?

3   Research process

3.1   Isolation of forms

The first step was to take out of the Hebrew dictionary (Even-Shoshan 1970, 1988) all the quadri-consonantal verbal forms beginning with *š*[1]. Out of these, the following were excluded, since their initial *š* cannot be identified as having any grammatical function, i.e., it cannot be considered as a morpheme, since it is not grammatically motivated:
a. Onomatopaeic forms, such as *šifšef* 'rub'.
b. Expanded bi-consonantal roots, in forms such as *šinšen*, originating in *š-n* 'to speak with the *š* sound' (*šin* is the Hebrew letter for the sound *š*). These forms are syllabic-duplicated, i.e., the duplicated segment is the consonantal nucleus of a syllable.
c. Expanded, primae-*š* tri-consonantal roots, such as *šiqlel*, originating in *š-q-l* 'to calculate proportionally'. These forms are monophone-duplicated, i.e. the duplicated segment is the last consonant of their original root.
d. Obvious denominal forms, such as *širjen* 'armour', originating in the noun *širjon* 'armour'.

Table 1 shows the remaining forms. These were divided into two semantic classes, according to their meaning. There is one new form *šidreg* 'upgrade', which comes from the root *drg* 'step, grade', and has been lately created. This form did not exist in 1989 (see 4 below), when the first test was performed. It also does not appear in the older dictionaries which were issued before the 2000's (Even Shoshan 1988, Sapir 1997). The form appears in even Shoshan 2003. Therefore, this form is not on the list in Table 1.

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[1] All examples in this paper are transliterated, and not transcribed, as they were taken from a written source.

Table 1: Semantic classification of the remaining *šif'el* forms[2]

A. Causatives		B. Repetitives[3]	
ši<u>k</u>bed [1]	'burden'	*šizrea'*	're-seed'
ši<u>k</u>lel	'improve'	*šiħzer*	'reconstruct'
ši<u>k</u>nea'	'persuade'	*šiħlep*	're-exchange'
ši<u>k</u>pel [2]	'make copies'	*šit'en*	'reload'
šia'bed	'enslave, mortgage'	*ši<u>k</u>teb*	're-write'
šia'med [1]	'made X stand up'	*šintea'*	're-plant'
šia'mem	'bore'	*šia'rek*	're-evaluate'
širbe<u>b</u>	'prolong'	*šia'teq*	'reproduce'
šilheb [3]	'inflame, fire'	*širgen* [1]	're-arrange, re-organize'
šidreg	'upgrade'	*ši<u>k</u>pel* [2]	'make copies'
šiħrer	'set X free, released'	*šif'el*	're-operate'

[1] obsolete; the form *širgen* no longer appears in the dictionaries of the 2000's

[2] both causative and repetitive

[3] maybe denominal

3.1.1 Causative meaning

According to the literature, the main causative pattern in Israeli Hebrew is *hif'il* (pattern: $hiC_1C_2iC_3$; Berman 1982:171, Schwarzwald 1981:1, Ravid 2004:61). Taking this into account, it was assumed that *šif'el* forms survived wherever the root in the *hif'il* pattern had a separate meaning, for example:

(1) *ši<u>k</u>nea'* 'persuade' vs. *hi<u>k</u>nia'* 'humble'
(2) *šia'bed* 'enslave, mortgage' vs. *he'ebid* 'put to work'

Wherever the *hif'il* form had the same meaning, the *šif'el* form became obsolete, for example:

(3) *ši<u>k</u>bed* vs. *hikbid* 'burden'
(4) *šia'med* vs. *he'emid* 'cause to stand up'

There are three causative *šif'el* forms, which survived but could not be related to any *hif'il* form:

(5) *šia'mem* 'bore' vs. **he'emim*
(6) *širbe<u>b</u>* 'prolong' vs. **hirbi<u>b</u>*
(7) *šiħrer*[4] 'set X free, release' vs. **heħrir*

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[2] There are differences in pronunciation of these verbs compared with the written transliteration. For example, in all instances of a vowel followed by the 'patach furtivum' (e.g. *a'*) only the vowel is pronounced in speech.

[3] The term 'repetitive' is not satisfactory; its meaning includes either an action which repeats itself, such as *ši<u>k</u>pel* 'make copies', or a renewal of an action, such as *šinte'a* 're-plant, plant new'.

[4] the verb *šiħrer* originates in the Semitic root *ħrr*, which is absent in Hebrew as a tri-consonantal root

These forms were suspected as witnesses to a possible *šif'el* ancestry to the present *hif'il* forms.

It has been suggested that the *šif'el* pattern was a Proto-Semitic pattern (Czapkiewicz 1975), which did not survive in its original form, but developed into Classical Arabic causative *ʔaCCaCa* pattern and Hebrew causative *hif'il* pattern, after its *š* weakened (Bravmann 1977:201, Even-Shoshan 1974:24, O'Leary 1925, Wright 1967). Moreover, Akkadian shows *šiCCeC* forms as the only causative pattern in its verb system (Caplice 2004:46).

Even Shoshan (2003) classifies only four of the causative forms as originating in Aramaic. The forms are *šiklel* 'improve', *šia'mem* 'bore', *šiħrer* 'set X free, release' and *širbeb* 'prolong'. One form, *šia'med* 'made X stand up', is mentioned as originating in Syrian. All the other causative forms are classified as having a tri-consonantal Hebrew root, integrated into the *šif'el* pattern.

3.1.2 Repetitive meaning

These forms do not necessarily have to be analyzed as belonging to a separate pattern. Rather, based on the fact that most of the forms in this group are undoubtedly newly created (Even-Shoshan 1974:28), it is suggested that the *š* was interpreted as a prefix, parallel to English (and other European languages) re-, meaning repetition. Even-Shoshan (1974:29-31) attributes this to a process of analogy, based on Hebrew *šiħzer* 'reconstruct'. This claim is not very strong, since *šiħzer* carries the meaning of neither *ħazar* 'come back' nor *ħizzer* 'courtship' in a repetitive sense (or causative for that matter). I believe that the prefix might have been incorporated into the root, creating a quadri-consonantal root, which had only one pattern to fit into, and this is the *pi'el* (*CiCCeC*) pattern. It is thus suggested that the *š* entered the root level, rather than being a separate affix, and thus it is not a separate form, but rather a kind of a secondary root formation[5], not derived through nouns, like most of the other secondary roots in Hebrew, but rather through prefixation. Later, I will support this claim by means of empirical data. None of the repetitive forms is classified in Even Shoshan (2003) as originating in another language, and all the repetitive forms are classified as having a tri-consonantal Hebrew root, integrated into the *šif'el* pattern.

3.2 Data from other Semitic languages

Going back to my analysis in 3.1.1 above, I looked for data in other Semitic languages.

Rabin (1969) claims that *šif'el* appears in all North-Western Semitic languages, but in many cases the tri-consonantal base can be only traced in other languages, belonging to the same branch of the Semitic family, such as Amorite. In his analysis of all the available data for Hebrew and Aramaic (in all its varieties) he also claims that since only a very few of the forms can be attributed to an Akkadian origin, one

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[5] By secondary root formation I mean the process by which a verbal root takes an affix and generates a new root. In Hebrew affixes are usually the prefixes *t-*, *n-*, *m-* and the suffixes *-n*, *-t*, which are parts of nominal patterns. See later in this paper.

should not consider *šif'el* as derived from this language (p. 157). He suggests that it could have been borrowed from another North-Western Semitic language, geographically close to Aramaic, Hebrew and Arabic, such as Amorite. This claim is based on phonological sound changes (p. 157).

It is not easy to accept borrowing as an explanation for the existence of a major morphological category, such as a verbal pattern. However, I lack data both in Amorite as well as in other languages in the same geographical area in order to support or reject this thesis.

Other researchers mention the existence of *šif'el* in Hebrew as an independent verb pattern. Junger (1987) mentions *šif'el* as a minor verb pattern, together with some other minor verbal patterns. Coffin and Bolozky (2005:6-7) bring the form *šikteb* 're-write' as an example to new word formation in Modern Hebrew, and point out that this form is a combination of the root *ktb* 'write' with the *šif'el* pattern, considering it a separate verbal pattern.

Bravmann (1977:200) points at some parallelism between the causative *š* prefix and the personal pronouns. Pronouns in Semitic languages are characterized by either a sibilant or the glottal fricative *h*. Apart from one language, wherever the personal pronouns begin with a sibilant, the causative pattern also begins with a sibilant prefix. The same parallelism exists for personal pronouns and causative patterns beginning with *h*. Hebrew can be classified, in this regard, to the latter. Yet, in Israeli Hebrew, the glottal fricative is not pronounced in speech. Bravmann further presents that in languages, in which the causative pattern begins with *h*, the reflexive pattern contains a sibilant (p. 201). This sibilant is followed by *t*. In cases where this sibilant was not followed by t, the change of a sibilant to *h* was possible (p. 202). This parallelism does not exist in Israeli Hebrew, where neither the reflexive pattern, nor the causative pattern contain a sibilant, but rather both contain *h*, while this *h* is present only in the orthography, but not in speech. Bravmann suggests that the sibilant in the Semitic languages where it exists was formed, initially, by means of secondary root formation, and then continued being integrated into roots by a process of analogy (p. 202).

Another parallel characteristic is the phonological structure of the agentive and causative verb patterns in Semitic languages, which seems not to exist in Hebrew. Semitic languages show a direct relation between their agentive, geminated (D-stem) and causative patterns, where the vocalic distribution of these two patterns is identical. This way, the vocalic pattern of Akkadian D-stem forms is identical to its Š-stem (causative) forms: $uC_1aC_2C_2iC_3$ vs. $ušaC_1C_2iC_3$, respectively (Huber 2005:190). Aramaic shows a similar parallelism of an agentive (geminated) pattern $C_1aC_2C_2eC_3$ and a causative pattern with a Š-stem $šaC_1C_2eC_3$. Arabic also follows this consistency: $C_1aC_2C_2aC_3a$ vs. $?aC_1C_2aC_3a$, respectively, while in Arabic the causative prefix is a glottal stop and not a sibilant. The vocalic patterns of the D-stem and causative pattern (probably originally Š-stem) in Israeli Hebrew are different, though: $C_1iC_2C_2eC_3$ as opposed to $hiC_1C_2iC_3$, respectively, where the latter is sometimes also pronounced $heC_1C_2iC_3$. In this regard, Hebrew *šif'el* forms would fit into this parallelism.

4   Research method

In order to check whether the so-called pattern is recognized as such by native speakers of Israeli Hebrew, a comprehension test presented in a written questionnaire was designed and first applied to two groups of native speakers as follows:

a. Fifteen adults above 18, at least high school graduates, from both sexes;
b. A control group consisting of three professional teachers of Hebrew language and literature.

This test was held in 1989[6]. Then, sixteen years later, in 2005, the same test was applied to twenty native speakers of Hebrew distributed as follows:

a. Seventeen adults, out of which five participated also in the first test in 1989;
b. Three subjects younger than 15 years old.

The test included 16 new verbal forms, out of which eight were included as "placebo" items or camouflage forms, not having initial *š*. This was done so that the subjects would not get a hint of what was really being tested, and would not be guided by theoretical notions acquired in high school classes as much as possible. "Placebo" items, not taken into account in the results were: *tiflen* (< *teflon* 'teflon'), *mišqep* (< *mišqafajm* 'glasses, goggles), *girzen* (< *garzen* 'ax'), *nirgel* (< *nargila* 'narghile'), *?imbet* (< *?ambatja* 'bath'), *?irgez* (< *?argaz* 'carton, box'), *qirten* (< *qarton* 'carton'), *timnen* (< *tmanun* 'octopus'). *šif'el* forms in the test were:

šipteaħ	<	*š* + *p.t.ħ* 'open'
šidrek	<	*š* + *d.r.k* 'step'
šifleaħ	<	*š* + *f.l.ħ* 'steal'
šiqpes	<	*š* + *q.p.s* 'jump'
šinqeb	<	*š* + *n.q.b* 'punch'
šia'leb	<	*š* + *'.l.b* 'insult'
širgez	<	*š* + *r.g.z* 'be angry'
šiqreb	<	*š* + *q.r.b* 'be close'

All sixteen forms had the following in common:

a. Phonologically and morphologically possible and well formed in Israeli Hebrew
b. Quadri-consonantal skeleton
c. Identical vocalic distribution: *CiCCeC*
d. Non-exisitng in Israeli Hebrew lexicon

The subjects were asked to write down the most appropriate meaning for each one of the suggested items, according to their intuitions.

5   Results

The results of the two tests in both groups are presented in the tables below. The titles denote the following:

a. <u>Causative</u>: Causative meaning, for example *širgez* < *š* + *r.g.z* 'make someone angry'

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b. Repetitive: Repetitive meaning, for example *šinqeb* < š + *n.q.b* 're-punch'
c. Agentive: Agentive meaning, which is not causative, for example *šiqpes* < š + *q.f.s* 'jump'
d. Root extraction: Subjects could not assign meaning, but recognized the form: They took out the tri-consonantal skeleton, setting the *š* apart, for example: *šidrek* < 'from the word *derek* 'way', consonantal skeleton *d.r.k*'.
e. Blending: subjects did not recognize the *š* as separate from the root, but considered it as belonging to the first component in a blend, for example: *šiqreb* < *šiqer* 'lie' + *adam qarob* 'a close person', literally 'lie to a close person'. The first part *šiqer* 'lie' contains the first three consonants *š.q.r*, whereas the last part *qarob* 'close' contains the last three consonants *q.r.b*.
f. Other: Included irrelevant or difficult to categorize answers, for example *šidrek* < *tijel basdera* 'walk along the boulevard'[7].
g. NA: No answer.
h. Artificial prefix: One of the subjects in the control group of the first test, a teacher of Hebrew Literature, isolated the *š* in all the forms simply stating that it was 'an artificial prefix', whatever this means.

5.1   First test – 1989

The results of the first test in both groups are presented in Tables 2 and 3 below.

Table 2: First test – research group; distribution in percentage

Form	Causative	Repetitive	Agentive	Root-Ext.	Blend	Other	NA
šipteaħ	6.7%	13.3%	40.0%	0.0%	40.0%	0.0%	0.0%
šidrek	26.7%	26.7%	26.7%	6.7%	6.7%	6.7%	0.0%
šifleaħ	0.0%	6.7%	80.0%	0.0%	6.7%	0.0%	6.7%
šiqpes	40.0%	26.7%	6.7%	6.7%	13.3%	0.0%	6.7%
šinqeb	13.3%	26.7%	33.3%	20.0%	6.7%	0.0%	0.0%
šia'leb	40.0%	13.3%	6.7%	0.0%	6.7%	0.0%	33.3%
širgez	20.0%	20.0%	26.7%	0.0%	26.7%	0.0%	6.7%
šiqreb	13.3%	13.3%	40.0%	6.7%	13.3%	0.0%	13.3%

Table 3: first test – control group; distribution in percentage

Form	Repetitive	Artificial prefixation
šipteaħ	66.7%	33.3%
šidrek	66.7%	33.3%
šifleaħ	66.7%	33.3%
šiqpes	66.7%	33.3%
šinqeb	66.7%	33.3%

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[7] *tijel basdera* is always pronounced *tijel bašdera* in speech.

Form	Repetitive	Artificial prefixation
šia'leb	66.7%	33.3%
širgez	66.7%	33.3%
šiqreb	66.7%	33.3%

5.2   Second test - 2005

The results of the second test in both groups are presented in Tables 4 and 5 below.

Table 4: second test – research group; distribution in percentage

Form	Causative	Repetitive	Agentive	Root-Ext.	Blend	Other	NA
šipteaħ	29.4%	11.8%	11.8%	5.9%	29.4%	5.9%	5.9%
šidrek	17.6%	29.4%	11.8%	5.9%	23.5%	0.0%	11.8%
šifleaħ	17.6%	17.6%	47.1%	0.0%	0.0%	11.8%	5.9%
šiqpes	29.4%	23.5%	11.8%	0.0%	17.6%	0.0%	17.6%
šinqeb	29.4%	35.3%	23.5%	0.0%	5.9%	0.0%	5.9%
šia'leb	35.3%	23.5%	5.9%	0.0%	5.9%	5.9%	23.5%
širgez	47.1%	29.4%	0.0%	0.0%	11.8%	5.9%	5.9%
šiqreb	29.4%	5.9%	23.5%	0.0%	17.6%	0.0%	23.5%

Table 5: second test – young subjects; distribution in percentage

Form	Causative	Agentive	Root-Ext.	Other	NA
šipteaħ	33.3%	33.3%	33.3%	0.0%	0.0%
šidrek	33.3%	66.7%	0.0%	0.0%	0.0%
šifleaħ	33.3%	0.0%	0.0%	33.3%	33.3%
šiqpes	66.7%	33.3%	0.0%	0.0%	0.0%
šinqeb	66.7%	33.3%	0.0%	0.0%	0.0%
šia'leb	33.3%	33.3%	0.0%	0.0%	33.3%
širgez	33.3%	0.0%	33.3%	33.3%	0.0%
šiqreb	33.3%	33.3%	0.0%	33.3%	0.0%

5.3   Comparison of tests

Table 6 below shows the distribution in percentage of the forms according to meaning in the first and second tests in the test groups.

Table 6: Distribution in percentage of form vs. meaning

Meaning	First test	Second test
Causative	20.0%	29.4%
Repetitive	18.3%	22.1%
Active	32.5%	16.9%
Root-Ext.	5.0%	1.5%
Blend	15.0%	14.0%
Other	0.8%	3.7%
NA	8.3%	12.5%

Five subjects participated in both tests, with time difference of 16 years. The results of the first and second tests of the same participants are presented in Tables 7 and 8 below.

Table 7: Same participants: results of first test; distribution in percentage

Form	Causative	Repetitive	Agentive	Root-Ext.	Blend	NA
šipteaħ	0.0%	20.0%	40.0%	0.0%	40.0%	0.0%
šidrek	40.0%	20.0%	40.0%	0.0%	0.0%	0.0%
šifleaħ	0.0%	20.0%	40.0%	0.0%	20.0%	20.0%
šiqpes	60.0%	20.0%	0.0%	0.0%	20.0%	0.0%
šinqeb	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%
šia'leb	20.0%	0.0%	20.0%	0.0%	20.0%	40.0%
širgez	0.0%	20.0%	20.0%	0.0%	40.0%	20.0%
šiqreb	20.0%	20.0%	40.0%	0.0%	20.0%	0.0%

Table 8: Same participants: results of second test; distribution in percentage

Form	Causative	Repetitive	Agentive	Blend	Other	NA
šipteaħ	0.0%	20.0%	20.0%	40.0%	20.0%	0.0%
šidrek	20.0%	20.0%	0.0%	40.0%	0.0%	20.0%
šifleaħ	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%
šiqpes	40.0%	20.0%	20.0%	20.0%	0.0%	0.0%
šinqeb	0.0%	20.0%	60.0%	20.0%	0.0%	0.0%
šia'leb	20.0%	0.0%	20.0%	0.0%	20.0%	40.0%
širgez	20.0%	40.0%	0.0%	20.0%	20.0%	0.0%
šiqreb	0.0%	0.0%	80.0%	20.0%	0.0%	0.0%

Table 9 below shows the distribution in percentage of the forms according to meaning in the first and second tests in the group of subjects who took the test twice.

Table 9: Distribution in percentage of form vs. meaning in the group of subjects who took the test twice

Meaning	First test	Second test
Causative	17.5%	12.5%
Repetitive	17.5%	17.5%
Agentive	32.5%	32.5%
Root-Ext.	2.5%	0.0%
Blend	20.0%	22.5%
Other	0.0%	7.5%
NA	10.0%	7.5%

6 Analysis of results

6.1 First test – 1989

Most subjects in the research group and all subjects in the control group recognized *š* as a prefix added to the primary root. In other words, they extracted the tri-consonantal part of the words, indicating that *š* had a special status. 75.8% of the fifteen subjects and 100% of the three control subjects isolated the *š* apart from the tri-consonantal root. This was done in two ways:

a. by assigning a special meaning to it, being it causative, repetitive or agentive;
b. by relating it formally to the tri-consonantal primary root, simply stating "from the word *derek* 'way'" etc.

Yet, the internal distribution of each meaning suggests that the subjects could only point out that the *š* had a special status, but could not assign a specific meaning to it.

On the other hand, a meaningful minority of the subjects in the research group did not set the *š* apart from the root. Rather, they segmented the quadri-consonantal skeleton in a totally different way, while interpreting it as blending of two separate components, in which the first contained the sound *š*. Moreover, 9.1% of the items were found difficult to cope with, as some subjects were not able to answer them, while others gave irrelevant answers.

6.2 Second test – 2005

Only 69.9% of the subjects recognized *š* as a prefix added to the primary root. This is a decrease of almost 6% compared with the group of 1989. Again, the internal distribution of each meaning suggests that the subjects could only point out that the *š* had a special status, but could not assign a specific meaning to it.

Also in this test, a meaningful minority of the subjects in the research group did not set the *š* apart from the root, but rather segmented the quadri-consonantal skeleton in a totally different way, while interpreting it as blending of two separate components, in which the first contained the sound *š*. The percentage of subjects who used blending for their analyses remained almost the same in the second test. A relatively large difference was observed in the percentage of cases where subjects could not cope with the *šif'el* forms. The percentage of *šif'el* forms, which were

difficult to cope with in the second test increased to 16.2%, a difference of 78% compared with the first test. *šif'el* forms are not widespread in Israeli Hebrew compared with other verbal forms, not the more so productive. The results may hint at a further degeneration process of these forms in Israeli Hebrew.

6.3   Subjects who participated in both tests

Subjects who took the test again after 16 years, produced different answers in the second test than in the first one. 70% of the subjects isolated the *š* in the first test, assigning to it a special status, whereas only 62.5% did so in the second test. Blending, as in the broader test, remained the same. The percentage of forms which were found by the subjects difficult to cope with increased from 10% in the first test to 15% in the second, and increase of 50%.

7   Secondary root formation in Hebrew

Secondary root formation is a process by which a verbal root takes an affix and generates a new root. This strategy of creating new words is quite widespread in Israeli Hebrew, but was also used in Mishnaic and Medieval Hebrew (Junger 1987:49). In this process, an affix of a nominal pattern, into which an initial root was generated, is attached to the original root, creating a new, quadri-consonantal root. An example of the process is presented in figure 1 below. In Israeli Hebrew affixes are usually the prefixes *t-*, *n-*, *m-* and the suffixes *-n*, *-t*, which are parts of nominal patterns, but occasionally one can find additional ones.

Figure 1: Secondary root formation process[8]

Tri-consonantal root:		ħ	š		b		Basic meaning: 'think, calculate'
+		⇩	⇩		⇩		
Nominal pattern:	m	a	C_1	C_2	e	C_3	Dominant meaning: 'instruments'
=	⇩	⇩	⇩	⇩	⇩	⇩	
Word:	m	a	ħ	š	e	v	'computer'[9]
Secondary root	⇩		⇩	⇩		⇩	
extraction:	**m**		ħ	š		b	Prefix m- is integrated into the root
+	⇩		⇩	⇩		⇩	
Verbal pattern:	C_1	i	C_2	C_3	e	C_4	Dominant meaning: 'agentive'
=	⇩	⇩	⇩	⇩	⇩	⇩	
New verb:	m	i	ħ	š	e	v	'computerize'

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[8] C_i stands for a root radical
[9] *b* is realized as *v*; phonological changes of *b ~ v* are not discussed here.

8   Summary and conclusions

8.1   Historical process

Historically, the possible origins of *šif'el* forms seem to be lost in darkness, and a good deal of comparative diachronic research is required in order to come up with a plausible explanation, assuming this to be possible.

Although some diachronic processes are presented in this paper, the period of time in which this study was held is limited, and thus this paper can be considered as focused on a more synchronic approach.

8.2   Statistical interpretation

The sample in this mini-research is too small to be considered statistical par excellence. Yet, it gives some idea about the *šif'el* forms in Israeli Hebrew, and may hint at the trends in the language in this regard.

According to the results, the number of *šif'el* instances in Israeli Hebrew does not justify setting up a special pattern, least of all a major and central one, such as a verbal pattern. Another reason for not setting up a special pattern for *šif'el* is the lack of a common, dominant meaning of its forms, unlike other Patterns in the verb system of Hebrew.

8.3   Productivity

This study did not include a productivity test. Nevertheless, I have a solid foundation to assume that Israeli Hebrew native speakers would produce *hif'il* forms rather than *šif'el* ones whenever asked to form a verb with a causative meaning. Such were the results in studies carried out by Berman (1990): adults (control group) used *hif'il* forms for causative meanings. No research, to the best of my knowledge, was carried out for the repetitive meaning. Relying on other processes in Israeli Hebrew, which are out of the scope of this paper, and thus are not discussed, I predict that Israeli Hebrew speakers would produce an analytic construction for the repetitive meaning, rather than a form in the *šif'el* pattern. Such constructions can be, for example, *mijen meħadaš* 'sort again', literally 're-sort' and not **šimjen*.

8.4   Summary

The semantic criterion only is apparently not enough to determine the existence or non-existence of a category in a language. In other words, cases of a one to one relationship between form and meaning are very rare. Thus, the formal criterion acquires a paramount importance. In the comprehension test speakers tended to analyze *šif'el* forms as derived from the combination of a tri-consonantal root and a prefix *š*, even if no constant meaning was assigned to the prefix. On the other hand, it should not be forgotten that literacy might have constituted a factor here: all subjects were high school graduates. Hence, they were taught at some step of their high school education that a *šif'el* pattern existed with mostly repetitive, but also causative meaning, and this might have influenced the results. Evidence for this can be found in

the two control groups: one of the teachers in the first test, and one of the youngsters in the second test. The former consisted of high school teachers of Hebrew grammar and literature, who were teaching this pattern as part of their school curriculum. The latter consisted of youngsters below 15 years old, who, in the schools of the 2000's, are not taught that there is a *šif'el* pattern any more. These did not assign repetitive meaning, for example, to any of the *šif'el* forms in the test.

Some differences were observed along time in the comprehension of *šif'el* forms among Israeli Hebrew native speakers, and the numbers may hint at some trends in Israeli Hebrew in the use of these forms. We can see a decrease in the comprehension of *šif'el* forms by native speakers, who extracted the *š* as a separate prefix to a lesser extent than sixteen years earlier, and presented a larger number of *šif'el* forms with which they could not cope.

In light of the fact that *šif'el* forms are not very common in Israeli Hebrew, and on the basis of the results in this study, which point at a degeneration process of these forms in the language, I would suggest to analyze *šif'el* forms differently, treating them as quadri-consonantal roots, beginning with *š*, integrated into the agentive *pi'el* pattern. The *š* can be considered as another expansion strategy of tri-consonantal roots, in addition to the currently existing (and productive) ones, such as duplicating the last radical of the root, or an addition of a fourth consonant, originating in a noun pattern.

Thus, the following is suggested: The instances of *šif'el* in Israeli Hebrew can be considered as a kind of secondary root formation, by means of incorporating the prefix *š* into the root, similarly to the derivation of a quadri-consonantal root from nouns, formed by a combination of a root and an affix. The *š* in the *šif'el* forms was recognized as a prefix by the majority of the subjects in both groups, although this majority was different in percentage between the groups. Yet, whereas the common process of secondary root formation uses a known noun affix in order to form a quadri-consonantal root, it is not clear what the origin of *š* is. Still, the process of forming the new quadri-consonantal root is apparently similar, and thus I would suggest to broaden the notion of secondary root formation to include the formation of initial-*š* roots from tri-consonantal bases as a secondary root formation by prefixation rather than by a nominal affix.

Quadri-consonantal root created this way would have the pattern of $C_1iC_2C_3eC_4$, which is morphologically parallel to the agentive D-stem pattern *pi'el*, having the morphological structure $C_1iC_2C_2eC_3$.

9   References

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