

# THE HEBREW BINYAN *NIF'AL*: TWO PATTERNS OF VERBAL PASSIVIZATION?

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## 1. Introduction

This paper sets out to examine a unique morphological pattern of Hebrew passivization. It is commonly assumed that different thematic realizations of the same concept (e.g. passive, causative, reflexive) are derived from the same basic entry via thematic arity (valence changing) operations. The cross-linguistic variation in deriving new predicates via arity operations is accounted for by the Lex(icon)-Syn(tax) Parameter (Reinhart & Siloni 2005)

(1) *The Lex-Syn Parameter*

UG allows arity operations to apply in the lexicon or in the syntax.

The syntactic component of the grammar is the engine that builds phrases from elements selected from the lexicon. It has been suggested that the syntactic machine operates with the selected elements and the lexical-semantic information they bear and cannot change their basic properties (Siloni 2002). Once a theta role is part of the theta grid of a predicate in the structure, it must either be merged as an argument or have a residue in the syntax or at the level of interpretation. This is formulated in the following guideline.

(2) *The Lexicon Interface Guideline* (TLIG)

The syntactic component cannot manipulate theta grids: elimination, modification or addition of a theta role are illicit in syntax

Following previous studies, I assume that Passivization is syntactic (Horvath & Siloni 2005), while other operations in Hebrew (Reinhart & Siloni 2005) are lexical. In this paper, I examine the morpho-phonology of Hebrew passivization. Hebrew passive verbs have a distinct morphology; they share the same vocalic pattern *u-a* regardless of the structure and segments of the active base form. There is one passive form, the *nif'al* template, that demonstrates a different morphology. I argue that this passive form has become unproductive and that Hebrew aims at paradigm uniformity with regard to all passive verbs.

## 2. Passive Formation in Hebrew

The verbal system of Hebrew consists of prosodic shapes called binyanim. The binyan indicates the phonological shape of the verb, i.e. its vowels, its prosodic struc-

ture and its affixes (if any). The phonological shape of a verb, unlike that of a noun, is essential for determining the shape of the other forms in the inflectional paradigm (Bat-El 1989, Aronoff 1994). A verb which does not conform to one of the existing binyanim cannot enter the verbal system. Therefore, every new verb that enters the language must conform to one of the existing vocalic patterns.

(3) Hebrew Binyanim<sup>1</sup>

Perfect	Imperfect
pa'al	yi-f'a/ol
nif'al	yi-pa'el
hif'il	ya-f'il
pi'el	ye-fa'el
hitpa'el	yi-tpa'el

I assume the word-based approach (Aronoff 1976), according to which the lexicon consists of words rather than morphemes or roots or coded concepts lacking a phonological matrix. Specifically, I adopt the theory of Stem Modification (Steriade 1988, McCarthy & Prince 1990, Bat-El 1994), which accounts for generalizations about morpho-phonological alternations by allowing for internal stem adjustments, rather than assuming extraction of a consonantal root (Bat-El 1986).

Semitic languages such as Hebrew and Modern Standard Arabic demonstrate a steady morphological pattern of passive verbs. A Hebrew transitive verb changes into passive by melodic overwriting, i.e. changing its vocalic pattern into *u-a*.

(4) Hebrew passivization

a.	u	a			
	↓	↓			
	hiš	lix	'threw'	→	hušlax 'was thrown'
b.	u	a			
	↓	↓			
	si	per	'told'	→	supar 'was told'

The morphological shape of passive verbs can be easily predicted. The passive forms of binyan *pi'el* are derived in the *pu'al* template and the passive forms of *hif'il* share the *huf'al* template. The relations between active predicates and their passive counterparts exhibit only melodic overwriting; the prosodic structure in both forms is identical and thus vacuously assigned. Melodic overwriting does not involve reference to the consonantal root (Bat-El 1994, 2002) as it operates directly on the stem.

In Laks (2006) I present differences between the morpho-phonology of lexical operations and the syntactic operation of passivization. Passivization demonstrate a

<sup>1</sup> The system of binyan names stems according to the traditional practice of associating the consonantal root *pf*, *'l* with a vocalic template.

rather predictable morpho-phonology, where there is a one-to-one relation between input and output forms. Moreover, the morpho-phonology of passivization applies to the segmental level only, as the only change that occurs is in the quality of the vowels. It is not intrusive to the base form as it does not change its prosodic structure. In contrast, the morpho-phonology of lexical operations is less predictable. The same binyan can serve as the output of more than one operation (5a). Such formations involve not only the segmental level but the prosodic one as well. This is manifested in addition or deletion of syllables or moras to the base forms. (5) demonstrates the different combinations of input-output binyanim of lexical operations.

(5) Hebrew possible input/output binyanim

Lexical Operation	Input Binyan	Output Binyan	Examples
a. Decausativization	hif'il	pa'al nif'al hitpa'el	hix'is → ka'as 'angered' hivhil → nivhal 'frightened' hirciz → hitragez 'became upset'
	pi'el	pa'al hitpa'el	simeax → samax 'was happy' rigeš → hitrageš 'excited'
	pa'al	nif'al	haras → neheras 'ruined'
b. Causativization	pa'al	hif'il pi'el	xatam → hextim 'signed' lamad → limed 'studied - taught'
c. Reflexivization	pa'al	hitpa'el nif'al	raxac → hitraxec 'washed' šataf → ništaf 'washed'
	pi'el	hitpa'el	serek → histarek 'combed'
	hif'il	nif'al	hiš'in → niš'an 'leant'
	hif'il	hitpa'el	higniv → hitganev 'sneaked'

However, one intriguing passive form in Hebrew challenges the above observations. The Hebrew binyan *nif'al* demonstrates a different thematic manifestation from other binyanim. This binyan, as well as other binyanim (e.g. *hitpa'el*), can surface as the output of several lexical operations (6).

(6) Lexical operations in binyan *nif'al*

Lexical Operation	Examples	
a. Decausativization	šavar → nišbar hixnis → nixnas hidhim → nidham	'broke' 'came in' 'amazed'
b. Reflexivization	šataf → ništaf hiš'in → niš'an	'washed' 'leant'
c. Reciprocalization	pagaš → nifgaš	'met'

As shown in (5) the input of such operations is not restricted to one template only. There are few cases where this binyan serves as a basic entry in the lexicon, e.g. *nitpal* 'picked on somebody'. However, many *nif'al* verbs serve as the output of passivization, which is regarded as syntactic. This is not attested with regard to other binyanim. In this case the input of such operations is restricted to the *pa'al* template.

- (7) *Nif'al passive verbs*
- |       |   |         |             |
|-------|---|---------|-------------|
| katav | → | nixtav  | 'wrote'     |
| bala  | → | nivla   | 'swallowed' |
| 'axal | → | ne'exal | 'ate'       |
| baxar | → | nivxar  | 'chose'     |
| ša'al | → | niš'al  | 'asked'     |

The morpho-phonology responsible for this derivation is different from the one of other passive verbs. It is performed by adding /ni-/ to the base. The first vowel of the stem is deleted to preserve the prosodic structure of a binary foot (two syllables). This challenges the distinction I propose between the morpho-phonology of the two types or thematic operations; why should this template serve both syntactic and lexical operations? Moreover, why is the passive formation of other templates (e.g. *pi'el*, *hif'il*) manifested via melodic overwriting, while the one of *pa'al* is manifested by affixation?

In §3, I present an experiment I conducted in order to shed light on the two different morphological patterns of Hebrew passivization. I show that the *nif'al* formation of passive forms has become unstable and less productive than melodic overwriting.

### 3. Passive Formation Experiment

#### 3.1. Goal

The goal of this experiment is to examine the intuition of speakers with regard to the formation of passive predicates. It aims to test which prosodic templates subjects choose as a passive form of new transitive verbs they encounter.

#### 3.2. Prediction

I predict that there would be no variation in the passive forms of *pi'el* and *hif'il*, whose passive counterparts are expected to be *pu'al* and *huf'al* respectively, while there would be a variation to some extent, with regard to the passive forms of *pa'al*. Speakers are expected to form the passive forms of *pa'al* as *pu'al*. Turning *pa'al* into *pu'al* involves only melodic overwriting without changing the prosodic structure of the verb, in contrast to a *pa'al-nif'al/huf'al* alternation, where the prosodic structure changes due to an addition of a prefix and a vowel deletion.

#### 3.3. Method

Subjects were given nonce verbs in their active form and had to choose their appropriate passive counterparts out of five possibilities. Subjects were 50 native speakers of Hebrew between the ages of 12 and 47. The questionnaire consisted of 18 sentences, where each sentence contained two coordinated clauses. The first clause

consisted of an event described by an active verb and the second contained a paraphrase of this event. This paraphrase was in the passive voice. The subject had to fill in the missing verb. The second clause contained a by-phrase in order to make subjects use the passive form and to prevent an alternation with the decausative form. Eight sentences contained a nonce verb of binyan *pa'al* and eight sentences contained a nonce verb of the *pi'el* and *hif'il* binyanim (four of each). I also added two monosyllabic verbs which I discuss in §3.6.

Subjects had to fill in the passive form as demonstrated in (8).

- (8) rami **lasak** et ha-bayit, klomar ha- bait \_\_\_\_\_ al-yedey rami  
'Rami **lasak** (nonce verb) the house, i.e. the house \_\_\_\_\_ by Rami'

In order to avoid revealing the purpose of this questionnaire, I inserted ten other sentences, where subjects had to choose the output form of operations other than passivization, such as reflexives and causatives, as well as the formation of nouns.

### 3.4. Results

The results are almost unanimous with regard to the passive forms of *pi'el* and *hif'il*. 94% of the subjects used *huf'al* as the passive of *hif'il* and 92% chose *pu'al* as the passive of *pi'el*. This points to the high productivity of melodic overwriting in forming the passive forms of *pi'el* and *hif'il*.

- (9) Distribution of the passive forms of binyan *pi'el*

Nonce verb	pu'al		nif'al		huf'al		hitpa'el		pa'ul		Total
	num.	per.	num.	per.	num.	per.	num.	per.	num.	per.	
gines	47	94%	1	2%	0	0%	2	4%	0	0%	50
dimer	46	92%	2	4%	1	2%	0	0%	1	2%	50
gixel	46	92%	1	2%	1	2%	2	4%	0	0%	50
giles	45	90%	1	2%	2	4%	2	4%	0	0%	50
Average	46.00	92%	1.25	3%	1	2%	1.5	3%	0.25	1%	
Standard deviation	0.82	2%	0.50	1%	0.82	2%	1.0	2%	0.50	1%	

- (10) Distribution of the passive forms of binyan *hif'il*

Nonce verb	pu'al		nif'al		huf'al		hitpa'el		pa'ul		Total
	num.	per.	num.	per.	num.	per.	num.	per.	num.	per.	
hilrin	1	2%	0	0%	48	96%	0	0%	1	2%	50
hišnit	1	2%	1	2%	48	96%	0	0%	0	0%	50
himrig	2	4%	1	2%	45	90%	2	4%	0	0%	50
hexgil	3	6%	0	0%	46	92%	1	2%	0	0%	50
Average	1.75	4%	0.50	1%	46.8	94%	0.75	2%	0.25	1%	
Standard deviation	0.96	2%	0.58	1%	1.5	3%	0.96	2%	0.50	1%	

The results for the binyan *pa'al* are markedly different. Each verb had different results for the formation of its passive counterpart. For each verb, there was a different alternation between the forms of *pu'al* and *nif'al* although the majority of subjects chose *pu'al* (11).<sup>2</sup> On average, 59% of the subjects chose *pu'al* as the passive form of *pa'al*, while 30% chose *nif'al* as its passive form.

(11) Distribution of the passive forms of binyan *pa'al*

Nonce verb	pu'al		nif'al		huf'al		hitpa'el		pa'ul		pa'al		Total
	num.	per.	num.	per.	num.	per.	num.	per.	num.	per.	num.	per.	
palad	33	66%	12	24%	1	2%	3	6%	1	2%	0	0%	50
galas	38	76%	9	18%	0	0%	2	4%	1	2%	0	0%	50
kadaf	30	60%	14	28%	3	6%	3	6%	0	0%	0	0%	50
lasak	30	60%	12	24%	7	14%	1	2%	0	0%	0	0%	50
razal	33	66%	11	22%	4	8%	1	2%	0	0%	1	2%	50
kalam	20	40%	23	46%	5	10%	1	2%	0	0%	1	2%	50
gaxaš	24	48%	20	40%	5	10%	1	2%	0	0%	0	0%	50
gaxal	26	52%	17	34%	7	18%	0	0%	0	0%	0	0%	50
Average	29.25	59%	14.8	30%	4	9%	2	3%	0	0%	0	0%	
Standard deviation	5.73	11%	4.83	10%	2.56	6%	1.07	2%	0.5	1%	0.46	1%	

### 3.5. Discussion

The results in (9) and (10) point to the high productivity of melodic overwriting in forming passive predicates of *pi'el* and *hif'il*. There is hardly any variation in forming these passive verbs as the process responsible for their formation is predictable and not intrusive to the prosodic representation of the base form. However, the results for the binyan *pa'al* verbs are significantly different. For each verb there is a different variation between the forms of *pu'al* and *nif'a* as shown in (11). On average, 59% of the subjects chose *pu'al* as the passive form of *pa'al*, while 30% chose *nif'al* as its passive form. While the results reveal a tendency to use *pu'al* as the passive counterpart of *pa'al*, the gap in the results in comparison to the passive forms of *pi'el* and *hif'il* should be accounted for. Note that the results are different for every verb. This indicates that the same speaker can choose different forms as the passive of *pa'al* and that the *pa'al-nif'al* derivation of passive verbs has become unstable.

Note that there are two other factors that may have a considerable impact on the results; a phonological factor and psycho-linguistic factor. The former may determine that one form is preferred due the consonants that are involved and the way they are arranged, i.e. in a cluster or separated by a vowel. The latter states that similarity to an existing word or the context of the sentence can prime a choice of a template similar to a real word. Nonetheless, these two factors are expected to apply in all forms, not only within the *pa'al* nonce words. In light of the results for passive forms of *pi'el* and *hif'il*, it seems that these considerations did not have a great effect. The results are rather similar within each binyan, regardless of the base consonants or the associations the sentence might raise.

<sup>2</sup> There were subjects who chose other forms for the passive verb, but their percentage is insignificant.

A significant number of subjects chose *pu'al* as the passive counterpart of *pa'al*. I argue that the motivation for this choice is the parametric value of the Lex-Syn parameter. Since passivization is considered syntactic, its formation is expected to be morphologically less intrusive and more predictable. Moreover, paradigm uniformity with other passive forms (Steriade 2000), i.e. *pu'al* and *huf'al*, plays a role as well. Subjects who choose *pu'al* maintain the same vocalic pattern for all passive forms in the language.

The alternation between the *nif'al* and *pu'al* forms can be explained by two factors. All passive forms of existing verbs in binyan *pa'al* are in binyan *nif'al*. Speakers therefore have access to the *pa'al-nif'al* paradigm of passivizations and, as a result, they analogously form new passive verbs in *nif'al* as well. Speakers aim for paradigm uniformity with active-passive paradigms which they are already exposed to. Another possible explanation is paradigm contrast. Kenstowicz (2005) discusses several cases in which the phonology conspires to ensure that two phonologically distinct members of a paradigm remain phonologically distinct. He presents data where phonologically motivated processes fail to apply in order to maintain a paradigmatic contrast. In the Damascus dialect of Arabic, the third person object suffix demonstrates different behaviour with verbs in the first and third person feminine. Stress in Damascus Arabic falls on the rightmost heavy syllable, but never on the final syllable. When there is no heavy syllable, stress is antepenultimate. This dialect of Arabic has a constraint which prohibits a schwa in an unstressed open syllable. When adding the object suffixes to a verb, the stress might change. When the object suffix begins with a consonant, it closes the final syllable of the base to create a heavy syllable which attracts the stress (12a). When the suffix starts with a vowel, it should produce antepenultimate stress with syncope of the suffixal vowel (12b). However, such an input-output paradigm would merge this form of the paradigm with the first and second masculine (12c). Consequently, although the deletion of /e/ is phonologically motivated in both verbs, it occurs in only one.

(12) *Object suffixes in Damascus Arabic*

- a. 'allamét-ni 'she taught me'
- b. 'allamét-o 'she taught him'
- c. 'allámt-o 'I/you taught him'

The same suffix behaves differently in essentially the same phonological context in order to achieve paradigmatic contrast. (12c) is the chosen output as there is no other member of the perfective paradigm competing for the same phonetic output.

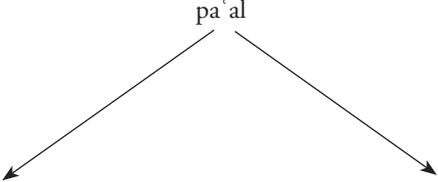
I argue that this paradigmatic contrast is also relevant for morphological processes. If passive counterparts of *pa'al* were in the *pu'al* form, they would be morphologically identical to the passive forms of *pi'el* verbs. Since speakers have access to the syntactic paradigms of passivization, there is a constraint prohibiting verbs of the *pi'el* and *pa'al* verbs to share the same passive counterparts. Thus, some speakers block the *pu'al* form as a passive form of *pa'al* in order to preserve a contrast. (13) demonstrates a case where transitive verbs with the same stem consonants are manifested in both *pa'al* and *pi'el*.<sup>3</sup> If melodic overwriting applied in (13a) there would be a merge of the passive forms of two semantically distinct verbs.

<sup>3</sup> Other examples of such pairs are *yacar* 'created' and *yicer* 'manufactured', *lamad* 'studied' and *limed* 'taught' and *patar* 'excused' and *piter* 'fired'.

- (13) a. parak → nifrak / \*purak 'unloaded'  
 b. perek → purak 'dismantled'

To conclude, paradigm uniformity on the one hand, and paradigm contrast on the other hand could be responsible for the occurrence of passive forms in binyan *nif'al*. Speakers who form *pu'al* as the passive counterparts of *pa'al* verbs aim for a low level of morphological intrusiveness for a syntactic operation and, in addition, paradigm uniformity with regard to the *u-a* vocalic pattern of other passive forms in the language (*pu'al* and *huf'al*). The interacting factors that affect the choice of passive forms are presented in (14).

- (14) The *pu'al* - *nif'al* variation

Active Form		
Passive Form	pu'al	nif'al
Motivation	<p>1. a low morpho-phonological intrusiveness</p> <p>2. passive paradigm uniformity: u-a vocalic pattern</p>	<p>1. active-passive paradigm contrast:  <i>pa'al</i> → <i>nif'al</i>  <i>pi'al</i> → <i>pu'al</i></p> <p>2. paradigm uniformity:  <i>pa'al</i> → <i>nif'al</i> passivization</p>

### 3.6. Monosyllabic Verbs

There is a group of monosyllabic verbs in binyan *pa'al*. Many of them are intransitive verbs such as *rac* 'ran' and *šat* 'sailed', hence they have no passive counterparts. There is a small number of monosyllabic transitive verbs such as *cad* 'hunted'. Binyan *nif'al* has a marginal pattern *nipol/napol*. This pattern occurs with verbs of two consonants, for example *nasog* 'retreat' and it can also be found as a passive form of monosyllabic verbs in *pa'al* (15):

- (15) *Napol/Nipol* Passive forms  
*cad* → *nicod* 'hunted'  
*laš* → *naloš* 'kneaded'  
*dan* → *nadon* 'discussed'

This template, however, is rather unproductive and the existing forms of its shape are few. I thus believe these passive forms are lexicalized and cannot be formed by a syntactic operation of passivization. The questionnaire also included two nonce monosyllabic verbs *lar* and *lat*. Subjects formed different passive counterparts for every verb as shown in (16) and (17).

(16) Passive forms of *lar*

percentage	number	Passive form
40%	20	hular
12%	6	lurar
2%	1	lurlar
2%	1	nilor
2%	1	nalor
8%	4	nilar
12%	6	nular
2%	1	larar
2%	1	nilran
2%	1	hulran
4%	2	luran
4%	2	hulrar
2%	1	nilra
6%	3	lar
<b>100%</b>	<b>50</b>	<b>Total</b>
<b>76%</b>	<b>38</b>	<b>Total u-a forms</b>

(17) Passive forms of *lat*

percentage	number	Passive form
50%	25	hulat
14%	7	lutat
2%	1	nalot
12%	6	nilat
4%	2	lulat
4%	2	nulat
2%	1	nolat
4%	2	niltat
2%	1	nimlat
6%	3	lat
<b>100%</b>	<b>50</b>	<b>Total</b>
<b>72%</b>	<b>36</b>	<b>Total u-a forms</b>

The *hupal* template is the most common passive form of both verbs. On average, 45% of the subjects used this form, while others formed the passive in many different

templates using various strategies.<sup>4</sup> Apart from *hupal*, all forms have a rather low percentage. This great variation in forming passive verbs from monosyllabic verbs shows that most speakers have not mastered the passive formation of monosyllabic verbs as they are rather rare and have an exceptional morphological shape. The *hupal* template clearly has a prominent advantage over each of the other forms used. The morpho-phonology responsible for its formation is relatively simpler in comparison to other forms. It involves adding the prefix /*hu-*/ to the base form that remains intact with regard to both the prosodic and the segmental level. Moreover, it resembles *huf'al* phonologically, as well as the vocalic pattern of both *huf'al* and *pu'al*. The formation of most of the other passive forms, in contrast, demonstrates a more intrusive morpho-phonology. Some are formed by reduplication of the last consonant, e.g. *lurar*. Although this form has the passive vocalic pattern *u-a*, its formation is morphologically complex as it is intrusive to the structure of the monosyllabic base.<sup>5</sup> Other forms are created both by affixation and by a vocalic change of the stem vowel, e.g. *nalor* and *nilat*. Additionally, paradigm leveling plays a role here in determining the passive form of monosyllabic verbs. The *hupal* form has the same vocalic pattern *u-a* of other passive forms and is therefore more accessible for speakers to form. Interestingly, there are two existing monosyllabic transitive verbs, which actually have a passive alternate with the *u-a* pattern:

- (18) *u-a monosyllabic passive forms*  
 sam → husam 'put'  
 šar → hušar 'sang'

I argue that the verbs in (18) have a higher token frequency than the ones in (15). As a result, their passive form is more common as well and it bears the morphological shape of the *u-a* pattern. The frequent use of the passive predicate increases the tendency to form the unmarked pattern of passivization, i.e. the *u-a* pattern. Examining the vocalic patterns of all the passive forms which subjects used in this case, there is a notable preference for preserving the *u-a* pattern, regardless of the strategy that was implemented on the base. 76% of the subjects preserved the vocalic pattern of *u-a* for the passive form of *lar*, while 72% of them did so for *lat*. It should be noted that the formation of nonce verbs such as *nulat* demonstrate the same level of intrusiveness as the one of *hupal* as they only differ in the consonant of the suffix. Forms such as *nulat* were hardly used as there is no motivation for their formation. There are no existing analogous forms with the prefix /*nu-*/, while there are many such forms that consist of the prefix /*hu-*/.

The case of Hebrew monosyllabic verbs provides further evidence for the central role of paradigm uniformity in determining the morphological shape of a word. The choice of the *u-a* pattern serves the desire for uniformity within passive forms. The choice of the specific *hupal* pattern points to the constraint that syntactic operations should exhibit minimal intrusiveness to the base form.

<sup>4</sup> I do not address the strategies used for all passive forms as many of them have a very low and insignificant percentage. Some subjects used rather peculiar forms that I do not account for and others simply did not change the nonce verbs. I assume that it results from a lack of acquaintance of such passive paradigms of monosyllabic verbs.

<sup>5</sup> I do not discuss this formation within the scope of this paper (See Bat El 2004).

#### 4. Conclusions

In this paper, I accounted for the two patterns of Hebrew passivization. I began by presenting the morphology that manifests passivization in comparison to other thematic operations. I argued that the existence of the *nif'al* passive forms contradicts the analysis of the unique morphology of passivization. The passive formation experiment reveals that binyan *nif'al* has become less productive as the output of passivizations and that there is a strong tendency to apply the same vocalic pattern in the formation of passive verbs. The case of monosyllabic verbs lends further support for this claim as most subjects formed passive verbs with the *u-a* pattern. This analysis reveals the interaction of several factors which are responsible for the observed variation in forming passive counterparts of *pa'al* verbs. In addition to the difference in the morpho-phonology of lexical and syntactic operations, other factors such as paradigm uniformity and paradigm contrast play a role in determining the morphological shape of derived verbs.

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