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From competing patterns to competing structures: Verbal constructions based on loanwords in Hebrew

Des patrons rivaux aux structures rivales : constructions verbales à partir d'emprunts en Hébreu

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Abstract

The study examines the competition between morphological and periphrastic formation in the expression of verbal meaning, based on loanwords in Hebrew. *Ristert* vs. *asa istart*, for example, are derived from *restart* and denote 'do restart'. Semitic morphology relies on non-concatenative morphology, namely the combination of root and pattern. Most studies of Hebrew verb formation focus on the competition between patterns. For example, *tilfen* 'telephone' is formed according to the *CiCeC* pattern, while *hiklik* 'click' is formed according to *hiCCiC*. The current study examines a different type of competition, namely that between verbal patterns and a periphrastic construction. I will show that the selection between the two constructions can be partially predicted. Morpho-phonological criteria block morphological formation due to low structural transparency between the base and the derived verb and because of the existence of non-native suffixes, which make morphological adaptation more difficult. Low semantic transparency tends to block periphrastic formation, as there are cases with no alternative periphrastic construction that would express the same meaning of the derived verb. In addition, the lexical category of the base provides partial prediction with respect to the possibility to employ either construction. Many studies examined the competition between morphological and periphrastic structures from different points of view, but few studies have addressed it with respect to Semitic morphology. The study proposes one step in this direction, shedding light on the criteria for the selection between either

construction to express verbal meaning as well as the degree of adaptation of loanwords in general.

Keywords: verbs, Hebrew, morphological vs. periphrastic formation, competition

Résumé

Cette étude s'intéresse à la compétition entre construction morphologique et formation périphrastique pour exprimer des sens verbaux à partir d'emprunts en hébreu. *Ristert* vs. *asa istart,* par exemple, sont dérivés de *restart* et dénotent l'action de redémarrer. La morphologie sémitique est une morphologie non-concaténative, combinant racines et patrons. La plupart des études dédiées à la formation verbale en hébreu se concentrent sur la compétition entre patrons. Par exemple, le verbe *tilfen* 'téléphoner' est formé d'après le patron *CiCeC*, tandis que *hiklik* 'cliquer' est formé d'après *hiCCiC*. La présente étude examine quant à elle la compétition entre construction morphologique et formation périphrastique. Je montrerai que le choix opéré entre les deux types de construction est partiellement prédictible. Certains critères morpho-phonologiques peuvent bloquer la formation morphologique, lorsque la transparence structurelle est faible entre la base et le verbe dérivé, ou en cas de suffixes non natifs, qui rendent l'adaptation morphologique plus difficile. Une faible transparence sémantique semble au contraire bloquer la formation périphrastique, en particulier dans les cas où il n'existe pas de construction périphrastique à même d'exprimer le même sens qu'un verbe dérivé. En outre, la catégorie lexicale de la base permet de prédire dans une certaine mesure la possibilité d'employer chaque construction. De nombreuses études étudient la compétition entre formations morphologiques et périphrastiques selon différents points de vue mais peu d'études l'abordent dans le cadre de la morphologie sémitique. Cette étude constitue un premier pas dans cette direction, en mettant en lumière les critères qui prévalent à la sélection de chacune de ces constructions pour exprimer des sens verbaux et, plus généralement, en abordant la question du degré d'intégration des emprunts en hébreu.

Mots-clés : verbes, Hébreu, formation morphologique vs. periphrastique, compétition

1. Introduction

The study examines the competition between morphological and periphrastic structures in the expression of verbal meaning, based on loanwords in Hebrew. As demonstrated in the online examples below, the meaning of the verb 'talkback' is expressed morphologically by using the verb *letakbek* (1a), which is the infinitive form of the *CiCeC* verb *tikbek*. In contrast, the same

meaning is expressed periphrastically (1b) by using *lixtov*, which is the infinite form of the verb *katav* 'write' with the loanword *tokbek* 'talkback'. The same meaning can be expressed either by a single word using a morphological process, or by a multi-lexemic expression, and the two structures compete for the same meaning.

(1) a. kol exad yaxol **letakbek** [oritkamir.org, retrieved from Google]
'Everybody can **write a talkback**'
b. kol adam yaxol **lixtov tokbek**
'Every person can **write a talkback**'

Semitic morphology relies highly on non-concatenative morphology, namely the combination of root and pattern. The patterns indicate the prosodic structure of verbs, their vocalic patterns and their affixes (if any). For example, the verb *siper* 'tell' is formed in *CiCeC*, and *hitraxec* 'wash oneself' in *hitCaCeC*. The phonological shape of a verb is essential for determining the shape of other forms in the inflectional paradigm (Berman, 1978, 2003; Schwarzwald, 1981; Bolozky, 1978, 2003; Ravid, 1990; Bat-El, 1994; Aronoff, 1994). Most studies of Hebrew verb formation focus on verbal patterns, the relations between them and competition between them, namely, the criteria for selection of one pattern and not another. For example, transitive verbs are typically formed in *CiCeC*, e.g. *tilfen* 'telephone', while intransitive verbs like reflexives and inchoatives are formed in *hitCaCeC*, e.g. *hitmagnet* 'become magnetized'. The current study examines a different type of competition, namely the competition between using one of the verbal patterns or a periphrastic construction. I will show that the selection between the two structures can be partially predicted based on the interaction between morpho-phonological and lexical-semantic criteria. The study is based on online searches and the heTenTen corpus[1].

This paper is organized as follows. Section 2 provides background about the Hebrew verbal system and the criteria for pattern selection for new verbs that enter the language. Section 3 provides background on competition with focus on competition between morphological and peripharstic structures in general. In Sections 4 and 5, I present four criteria that partially predict the selection between morphological and periphrastic verbal constructions: morpho-phonological criteria (Section 4) and lexical-semantic criteria (Section 5). Data-collection is based on both online Google searches of morphological and periphrastic verbal construction based on loanwords, and the heTenTen corpus. As will be explained in the paper, the analysis is based on the contrast between examples that were found and examples that were not found at all or were highly rare. Section 6 offers concluding remarks.

[1] https://www.sketchengine.eu/hetenten-hebrew-corpus/

2. Verb formation in Hebrew

Word formation in Hebrew relies highly on non-concatenative morphology. Hebrew verbs are formed exclusively via non-concatenative morphology. The Hebrew system consists of configurations called patterns. The pattern indicates the prosodic structure of verbs, their vocalic patterns and their affixes (if any). Every new verb that enters the language must conform to one of the existing patterns. The phonological shape of verbs (unlike those of nouns and adjectives) is essential for determining the shape of other forms in the inflectional paradigm (Berman, 1978; Schwarzwald, 1981, 2002; Bolozky, 1978, 2003; Bat-El, 1989, 2011; Ravid, 1990; Aronoff, 1994, among others).

The verbal patterns differ from each another with respect to the types of verbs that they host (Berman, 1978, 2003; Bolozky, 1978; Schwarzwald, 1981, 2002; Ravid, 2004; Doron, 2003; Arad, 2005, among others). For example, *CiCeC* and *hiCCiC* are used mostly for active verbs, most of which are transitive (e.g., *simen* 'mark', *hidrix* 'guide'). *hitCaCeC* and *niCCaC* are typically selected for intransitive verbs (e.g. *hikavec* (*hitCaCeC*) 'shrink'). *CaCaC* is used for both types of forms, since it is neutral with respect to transitivity (see Berman, 1978, 2003). It can host both transitive verbs (e.g. *safar* 'count') and intransitive verbs (e.g. *nafal* 'fall')[2].

Various studies have examined Hebrew verb formation based on non-native words and the competition between patterns, namely the criteria that are responsible for selecting one pattern and not another. Table 1 below illustrates such verb formation. The formation of each of the verbs is based on non-native words, and each of the verbs is formed according to different patterns. Results of previous studies reveal that pattern selection is based on the interaction between morpho-phonological and semantic-syntactic criteria. *CiCeC* has become the default pattern for new verb formation and hosts active verbs, most of which are also transitive, e.g. *dibeg* 'debug'. *hiCCiC* also hosts such verbs but is selected mostly due to a morpho-phonological constraint. This happens in case the base consists of an initial consonant cluster, and selecting *hiCCiC* permits preserving such clusters, and hence verb formation is more faithful to the base, e.g. ***sp**am* - *hi**sp**im* 'send a spam' (Bolozky, 1978, 1999; Bat-El, 1994, 2017; Schwarzwald, 2002). *hitCaCeC* is selected for intransitive verbs that are usually inchoative, reflexive and reciprocal, e.g. *hitfayed* 'fade'. *CaCaC* is rarely used for new verb formation and *niCCaC* is not used at all (Schwarzwald, 1996, 2008; Bat-El, 2002).

[2] These features of the patterns represent tendencies rather than dichotomies in the division of labor between them. For example, there are also instances of active verbs in *hitCaCeC* (e.g. *hitpalel* 'pray').

Base		Derived verb		Verbal pattern
dibag	‘debug’	dibeg	‘debug’	CiCeC
spam	‘spam’	hispim	‘send a spam’	hiCCiC
blok	‘block’	balak	‘block’	CaCaC
feyd	‘fade’	hitfayed	‘fade’	hitCaCeC

Table 1. Hebrew verb formation

Most studies have examined this competition between the verbal patterns, while few studies have examined the competition between morphological formation, namely in one of the patterns, and periphrastic formation. The current study proposes one step in this direction, proving predications with respect to the likelihood of each strategy to be selected.

3. Morphological vs. periphrastic formation

Competition refers to the fact that speakers, to different degrees, have to make a choice between alternative ways of realizing the same concept. The term ‘competition’ (or ‘rivalry’) has received a great deal of attention in the study of natural languages. Competition can apply at all levels, from phonetics to pragmatics, and in some cases it can involve several levels at the same time (Rainer, Gardani, Dressler & Luschütsky, 2019). Competition is highly related to variation, which is inherent in human languages, and is crucial to the study of the language faculty. Different speakers can express the same meaning using different forms, but also the same speaker can use different forms for the same meaning. Morphological variation is also known as “overabundance” or “polymorphy”, where a cell within a paradigm can be filled by more than one form (Anttila, 2007). The forms that fill the cell are labeled “doublets”, e.g. English *learned/learnt* (see Aronoff, 1976; Malkiel, 1977; Kroch, 1989; Plag, 2000; Acquaviva, 2008; Embick, 2008; Corbett, 2010; Dal & Namer, 2010; Mörth & Dressler, 2014; Fradin 2016) or “cell-mates” (Thornton, 2011, 2012, 2019). The two (or more) forms are in competition, as they can in principle be used in the same syntactic and semantic contexts. Competing forms within one morphological slot deviate from canonicity in the sense that one slot is expected to be filled with only one form (Corbett, 2005), and challenge models that aim to explain why and how speakers prefer one form over another.

Most studies of competition in word formation were conducted within the limits of morphology, namely, competition in the word level between morphological processes, e.g. rival affixes or rival patterns. Competition has been also used to refer to the relationship between morphology and syntax in the formation of linguistic expressions (Ackema & Neeleman, 2004; Xu, 2019; Masini, 2009, 2019). Linguists have been examining

cross-linguistic differences between morphological and periphrastic formation since the 19th century. They terms 'synthetic' and 'analytic' were proposed by von Schlegel (1818), who considered them as two subclasses of inflected languages (Schwegler, 1990). Synthetic languages like Latin are mainly formed based on morphological rules, where a grammatical relation is expressed within a word via affixation (Schwegler, 1990; Chumakinab & Corbett, 2012). In contrast, analytic languages such as Modern Romance, express grammatical relations via separate items. This is manifested, for example, in inflected verbs, nouns or adjectives, depending on the language (Schwegler, 1990; Haspelmath, 2000; Bonami, 2015; Ackerman & Stump, 2004; Kiparsky, 2005; Brown, Chumakina, Corbett, Popova & Spencer, 2012; Corbett, 2013; Aronoff & Lindsay, 2014; Bonami & Samvelian, 2015; Ackerman, Stump & Webelhuth, 2011; Haspelmath & Michaelis, 2017, among others). Competition is also addressed with respect to gaps in paradigms and the corresponding periphrastic structures or what is also labeled 'multiword expressions' (Sadler & Spencer, 2001; Bonami, 2015; Hüning & Schlücker, 2015; Kastner & Zu, 2017, Rainer *et al.*, 2019, and references therein). This term is used as an umbrella term for a large set of items, e.g. complex nominal and verb-particle constructions, some of which are defined as periphrastic word formation (See for example, Mel'čuk, 1993, Ackerman & Webelhuth, 1997; Booij, 2002, 2009, 2010; Dehé, Jackendoff, Macintyre & Urban, 2002; Iacobini & Masini, 2007; Masini, 2009, 2019; Baldwin & Kim, 2010; Iacobini, 2015, among others). Many of them have been examined separately from word formation. Bonami (2015) developed a theory of periphrasis at the morphology-syntax interface that relies on the notion of collocation; in periphrasis, the exponence of some morpho-syntactic property set takes the form of a collocational requirement rather than the selection of a specific bit of synthetic morphology. As a result, the main elements stand in a relation of mutual selection, not unlike that found in lexically flexible idioms. Ackerman and Stump (2004) argue that paradigms defined by a language's morphology can include periphrastic combinations. Some periphrastic expressions are projected from morphological paradigms by realization rules. They proposed criteria for distinguishing morphologically defined periphrases from ordinary syntactic complementation. The criteria require a modification of the basic principle regulating the relation between morphology and syntax, permitting the exponence of lexical representations to be realized as independent and possibly discontinuous elements. In Booij's terms (2003, p. 15), "some syntactic structures have a function which is similar to that of word formation processes".

The competition between morphological and periphrastic structures is often motivated by the competition between economy vs. expressiveness/transparency (Kiparsky, 2005). It is sometimes referred, although not exclusively, to antagonistic interests of the speaker and the

addressee, where the former aims to be economic and minimize effort, while the latter expects more parsable utterances (Kiparsky, 2005, 2010; Štekauer, 2016, 2017; Rainer *et al.*, 2019; Körtvélyessy, Štekauer & Kačmár, 2021). Periphrastic formation can be blocked by the existence of morphological formation or a lexical item, e.g. *tomorrow* vs. *the day after today*. This is labeled "token blocking" (Rainer, 1988), "single word blocking" (Aronoff, 2016) or "lexical blocking" (Rainer, 2016).

Most studies of morphological vs. periphrastic formation focused on inflection, while few addressed it with respect to derivation. For example, many studies examined the formation of English comparative and superlative forms, e.g. *happier* vs. *more happy* (see for example, Bobaljik, 2012; Aronoff & Lindsay, 2014; Aronoff, 2016; Plag, 2018; Lindquist, 2000; Hilpert, 2008; LaFave, 2015; Adams, 2017, among others), showing that the selection of either form can be predicted by morpho-phonological and semantic constraints, as well as frequency. Masini's (2019) study examines two cases of competition between morphological and periphrastic constructions in Italian: simile constructions with color adjectives (*rosso come il fuoco* 'red as the fire') vs. compound patterns (*rosso fuoco* 'fire-like red'), and irreversible binomials (*sano e salvo* 'safe and sound') vs. coordinate compounds (*sordomuto* 'deaf-mute'). She shows that competition is at work between these two constructions and that it may lead to bidirectional blocking.

Semitic morphology poses another challenge to the study of competition. Various studies have examined the relations between verbal pattern in Hebrew (Berman, 1978, 1987; Bolozky, 1978, 1999; Doron, 2003; Izre'el, 2009; Ravid, 1990, 2004; Ussishkin, 2005; Faust & Hever, 2010; Faust, 2015; Ravid, Ashkenazi, Levie, Ben Zadok, Grunwald & Gillis, 2016; Laks, 2018; Kastner 2020). Studies of verb formation focused mainly on pattern selection. Fewer studies examined why a periphrastic form is used instead of a verb or in addition to it. This is demonstrated in (2), where some use the verb *hiklk* 'click' in its infinitive form *lehaklik* (2a), while others use the periphrastic form *asa klik* (lit. 'do click') in its infinitive form *laasot klik* (2b) (see Wohlgemuth (2009) for the typology of verbal borrowings).

(2) a. atem muzmanin **lehaklik** al ha-tmuna [facebook.com, retrieved from Google]
'you are welcome to **click** the picture'
b. carix **laasot klik** al ha-tmuna [motke.co.il, retrieved from Google]
'(one) should **click** the picture'

The current study proposes four criteria for the selection between morphological and periphrastic verbal constructions in Hebrew in case the base is a non-native word: two morpho-phonological criteria and two lexical-semantic criteria. Data-collection is based on online web searches of morphological and periphrastic verbal construction based on

loanwords, both on Google and the heTenTen corpus. It is important to note that using the web for morphological research has some limitations, and one should be cautious when relying on it. Using web searches raises the question of the extent to which the examples represent actual usage, in addition to the fact there is no simple way to quantify the results. However, the analysis is not based on the number of instances that are found, but on the contrast between what is found to different extents, and what is not found at all. I now turn to examine these criteria.

4. Morpho-phonological criteria

Morpho-phonological criteria restrict morphological formation of verbs and bring about partial preference for periphrastic formation. I discuss two such criteria.

4.1. Number of syllables

Most loanword-based verbs are derived from bases that do not exceed two syllables. In case the base consists of more than two syllables, verb formation is possible, but is less frequent, and in some cases blocked, and only a periphrastic construction is used to express the verbal meaning. Compare the loanwords *tokbek* 'talkback' and *katalog* 'catalogue', which are the bases for the formation of the *CiCeC* verbs *tikbek* 'write a talkback' (3a) and *kitleg* 'put in a catalogue' (3b). *Tokbek* consists of only two syllables and therefore the formation of *tikbek* involves only melodic overwriting of the base and its syllabic structure remains intact. In contrast, *katalog* consists of three syllables, so the formation of *kitleg* involves deletion of one of the vowels of the base in order to adjust it to the *CiCeC* pattern (see Section 2), in addition to melodic overwriting. As a result, the formation of *kitleg* is less faithful to the structure of the base, and the relation between them is structurally less transparent, in comparison with the relation between *tokbek* and *tikbek*. The formation of verbs like *kitleg* exists, but it is less frequent because of low faithfulness and structural transparency between the base and the derived form.

(3) a. tokbek 'talkback' → tikbek 'write a talkback'
b. kat**a**log 'catalogue' → kitleg 'put in a catalogue'

In case the loanword consists of more than three syllables, deletion of more vowels is required and therefore morphological formation becomes even more rare. For example, the formation of the verb *piprec* 'take a paparazzi picture', which is derived from *paparaci* 'paparazzi', involves deletion of the second and forth vowels of the base. Such a verb exists but only a few instances of it were found (4a) in comparison to the periphrastic construction *asa paparaci*

(4b), where both constructions surface in their infinitive forms (*lepaprec* for *piprec* and *laasot paparaci for asa paparaci*). It is therefore predicted that the more syllables there are, the lower the chances for morphological verb formation.

(4) a. im le-mišehu ba **lepaprec** [x.com, retrieved from Google]
'if somebody feels like **taking a paparazzi picture**'
b. kol exan haya yaxol **laasot paparaci** [mikmak.co.il, retrieved from Google]
'anybody could have **taken a paparazzi picture**'

In addition to vowel deletion, the formation of verbs based on loanwords with more than two syllables also results in consonant clusters that do not exist in the base (e.g. *katalog* - *kitleg*) and this also makes the derived verb less faithful to the base. So far, the examples that were presented were loanwords with only four (or less) consonants. In case the base consists more than four consonants and more than two syllables, verb formation results in consonant clusters of more than two consonants, which are relatively rare in Hebrew (Berman, 1978; Bolozky, 1978, 1999; Schwarzwald, 1981, 2004). For example, the base *filibaster* 'filibuster' consists of four syllables and six consonants. Morphological formation of a verb yields the verb fi**lbst**er, which consists of the quadric-consonant cluster ***lbst***, which is highly rare in Hebrew, in addition to the fact that such formation involves deletion of two vowels[3]. Such verb formation is highly rare and in most cases it is blocked. I found one such online example of the infinitive form (*lefalbster*) of the verb (5a), in contrast with numerous examples of the periphrastic construction *asa filibaster* (5b).

(5) a. ani lo metaxnen **lefalbster** [fs.knesset.gov.il, retrieved from Google]
'I don't plan to **do filibuster'**
b. hicati lahem **laasot filibaster** ad šaa mesuyemet [calcalist.co.il, retrieved from Google]
'I suggested to them that they **do filibuster** until a specific hour'

In some cases, morphological formation is completely blocked. The word *fotošop* 'Photoshop', for example, has no derived verb like **fitšep*. Instead, the construction *asa fotošop* 'do Photoshop' is used. There seems to be no semantic reason for not deriving such a verb, apart from the low structural transparency between the base and the potentially derived verb. It is important to note that this reflects tendencies rather a dichotomy. Verb formation based on words with more than two syllables is possible, but the fact that most cases of the lack of verb formation is when there are more than two syllables is not a coincidence. Table 2 below displays more examples of loanwords with more than two syllables. Verbs that are derived

[3] Blocking of verb formation could also be due to specific consonant clusters, but this merits further examination. I would like to thank an anonymous reviewer for pointing it out to me.

from such bases were either extremely rare or were not found at all. In contrast, they all surface in verbal periphrastic constructions.

Base		**Potential verb**
paparaci	paparazzi’	(?) piprec
fotošop	‘photoshop’	*fitšep
filibaster	‘filibuster’	(?) filbster
rilokeyšen	‘relocation’	*rilkšen
imuji	‘emooji’	*imej
takwandu	‘takwandoo’	(?) tikwend
telepatya	‘telepathy’	*tilpet
manipulacya	‘manipulation’	(?) minpel

Table 2. Loanwords with more than two syllables[4]

The issue of faithfulness to the base and structural transparency between the base and the derived verb is well known. Various studies have demonstrated the importance of preserving properties of the base in Hebrew verb formation (Bolozky, 1978, 1999; Bat-El, 1994, 2002, 2017; Schwarzwald, 2002, 2008; Ussishkin, 2005; Faust, 2015, among others). Examine the verbs in (6) which are derived from the loanwords *debug* and *spam*.

(6) a. dibag → dibeg / *hidbig ‘debug’
b. spam → hispim / *sipem ‘send a spam’

The verb *dibeg* is formed in CiCeC and not *hiCCiC* (**hidbig*), while the verb *hispim* is formed in *hiCCiC* and not *CiCeC* (**sipem*). The selection of *hiCCiC* allows preserving the consonant cluster of *spam*, and therefore, such formation is more faithful to the base. The verb *dibeg* is derived from a base with no consonant cluster, and a formation of *hiCCiC* would result in an undesired cluster. This is an example of faithfulness constraint that determines the competition between patterns and, as a result of such faithfulness, the structural relations between the base and its derived verb is more transparent. The current study takes this matter one step further, arguing that low structural transparency can also block verb formation, and bring about preference

[4] Some verbs are marked with a question mark while other are marked with an asterisk. The former represents verbs that were found, but were highly rare, while the latter represents verbs that were not found at all. However, this should be treated with reservation, as forms that were not attested can also surface. The study does not make absolute predictions about the possibility of verb formation, but proposed tendencies of preference for morphological or periphrastic constructions.

for periphrastic constructions (see Halevy-Nemirovsky, 1998a, 1998b), where the loanword remains intact.

4.2. Non-native suffixes

Loanwords with typical non-native suffixes typically do not have derived verbal counterparts. This is mostly found in loanwords with the English suffix *-ing* (Laks & Namer, in preparation). Hebrew speakers identify these words as typical loanwords, and as a result they are less likely to be integrated into the morphological system. A loanword like *gosting* 'ghosting' does not have a verbal counterpart like **gisteng,* but only a periphrastic construction like *asa gosting* 'do ghosting'. The items in Table 3 are highly frequent in verbal periphrastic constructions, but do not have derived verbs. This suggests that the morphological mechanism is sensitive to the morphological structure of loanwords, and in cases where it identifies typical non-native morphological elements, it tends not to integrate such words into the verbal system.

Base		**Potential verb**
gosting	'ghosting'	*gisteng
hiling	'heeling'	*hileng
buking	'booking'	*bikeng
rafting	'rafting'	*rifteng
bording	'boarding'	*birdeng
fišing	'fishing'	*fišeng

Table 3. Loanwords ending with *-ing*

This generalization has some counterexamples, but they are highly rare in comparison to periphrastic constructions that convey the same meaning. The verb *tizeng* 'do teasing', for example, occurs in its infinitive form (*letazeng*) in (7a) and is highly rare, while the periphrastic construction *laasot tizing* (7b) is highly frequent.

(7) a. tafsiki **letazeng** et ha-anašim [tapuz.co.il, retrieved from Google]
'stop **teasing** people'
b. tafsiki **laasot tizing** le-kulam [mako.co.il, retrieved from Google]
'stop **teasing** everybody'

Sensitivity to the morphological structure of loan nouns is found on other cases of Hebrew borrowing. This is evidenced in feminine formation of loan nouns and adjectives. Hebrew has three main feminine suffixes: *-a*, *-it* and *-et*, where *-it* is attached almost exclusively to loanwords (Schwarzwald, 2002, 2013), e.g. *asistent – asistent-it* 'assistant'. A recent study (Laks, 2019) revealed that *-a* can also be attached to loanwords in case they denote negative meaning, e.g. *snob – snob-it/snob-a* 'snob'. However, *-a* is not attached to loanwords (with

negative meaning) having affixes like *-er*, e.g. *tizer – tizer-it/*tizer-a* '*teaser*'. Only loanwords with no typical non-native features can take both feminine suffixes. Such words could be perceived as similar to Hebrew native words, and such native words can indeed take the suffix *-a*. Typical non-native structure brings about the selection of the default suffix *-it* and the selection of *-a* is blocked. In the same vein, I assume that Hebrew speakers perceive loanwords that end with *-ing* as "too foreign" and therefore they tend not to integrate them into the morphological system.

5. Lexical-semantic criteria

Lexical semantic criteria refer to the degree of semantic transparency of the verbal constructions and the lexical category of the base from which they are derived.

5.1. Semantic transparency

Low semantic transparency tends to block periphrastic formation. In such cases, the meaning of the morphologically derived verb is not transparent in relation to the base. In most cases, periphrastic formation relies on the verb *asa* 'do', which functions as light verb and precedes the loan base. In such cases the meaning of the morphological and periphrastic verbal constructions is the same, e.g. *rifreš/asa rifreš* 'refresh (a screen)', *hiklik/asa klik* 'click (on a button/mouse)' and both constructions can be found to different extents of variation. However, there are cases where the verbal construction does not mean 'do + the loan base' but has a more specific meaning that requires the use of a verb other than *asa*. As a result, the meaning of the morphologically derived verb is less transparent in relation to the loan base. For example, the verb *firmet*, derived from *format* 'a format', does not mean formatting in general, but formatting a computer. The noun *format* is borrowed into Hebrew but in a more general sense, not restricted to the domain of computers. The verb *firmet* 'format a computer' has no periphrastic alternative like *asa format* (literally 'do format'). There are periphrastic constructions like *šina format* 'change format' or *sam be-format* 'put into a format', but they are not used in the context of computer formatting. As a result, only the morphological construction *firmet* is used in this context[5].

The lack of periphrastic constructions is even more salient in case the morphologically derived verb has a metaphorical meaning with respect to the loan base. The verb *tirped* 'torpedo, ruin (plans)', for example, which surfaces in its first person plural form in (8), is

[5] This raises a more general question with regard to whether new word formation based on loanwords often implies the selection of a specific or domain-limited meaning, which calls for a separate discussion. I would like to thank an anonymous reviewer for pointing it out to me.

derived from the loan noun *torpedo* 'torpedo', but has a metaphorical meaning, which cannot be expressed via a periphrastic construction with the word *torpedo*[6].

(8) **tirpadnu** et ha-hacbaa [facebook.com, retrieved from Google]
'we **torpedoed** the voting'

5.2. Lexical category

The selection between morphological and periphrastic formation can be partially predicted based on the lexical category of the base. Findings reveal that in case the base is a verb, morphological formation is the only option[7], in case the base is an adjective, periphrastic formation is the frequent option and morphological formation is highly rare, and in the case of nouns, both options exist to different degrees of variation based on the criteria discussed so far. This can be summarized by the following hierarchy in (9).

(9) Preference for morphological over periphrastic verbal constructions
verbs > nouns > adjectives

Why are there such differences based on the lexical category of the base? In case the base is a verb, morphological formation is obligatory, a periphrastic option cannot exist. Verbs that are borrowed directly into Semitic languages must have a pattern. The verb *hitfayed* 'fade' (10), for example, cannot have a periphrastic alternative because the word *fade* itself is not used in Hebrew.

(10) be-emca yuli hem matxilim **lehitfayed** [facebook.com, retrieved from Google]
'in the middle of July they start **to fade**'

Nouns are borrowed directly into Hebrew without morphological adaptation, only phonological, e.g. *lazanya* 'lasagna', *toksido* 'tuxedo', *krason* 'croissant', and therefore can be the base for both morphological and periphrastic formation, based on the relevant criteria. The noun *forwerd* 'forward', for example, has been borrowed directly into Hebrew as the name of the command, and can be used as the base for both morphological formation of the *CiCeC* verb *firwed* 'forward', which surfaces in (11a) in its infinitive form (*lefarwerd*), and the periphrastic construction *laasot forwerd* 'do forward' (11b). Both constructions share the same

[6] It is also my impression that transitivity also affects the selection of morphological structures. Most of the verbs were found with a direct object, while periphrastic constructions typically occur without an object or with an indirect object. However, this observation requires further examination, and is therefore beyond the scope of this paper.

[7] There could also be morpho-phonological constraints that would block the integration of verbs. I have not encountered such examples so far. I thank an anonymous reviewer for pointing this out to me.

meaning and are used in the context of forwarding by email. In contrast, the verb *dilver* 'deliver', which surfaces in its infinitive form (*ledalver*) in (12) is derived directly from the English verb with no borrowed noun in Hebrew that can be the base for a periphrastic construction.

(11) a. esmax im tuxal **lefarwerd** et ha-meyl [forum.codeguru.co.il, retrieved from Google]
'I will be happy if you could **forward** this email'
b. ani carix **laasot forward** [htmag.co.il, retrieved from Google]
'I should **do forward**'

(12) ha-zman še-lokeax lahem **ledalver** at ha-mucar [il.bee.deals, retrieved from Google]
'the time that takes them to **deliver** the product'

Adjectives are an intermediate category between nouns and verbs with respect to borrowing (Ravid, 1992, 2006; Schwarzwald, 1998, 2002, 2013; Ravid & Levie, 2010). Some adjectives are borrowed directly with no morphological adaptation, e.g. *snob* 'snob'. Most borrowed adjectives undergo morphological adaptation of three types: (i) affixation of *-i*, which is a typical Hebrew adjectival suffix, e.g. *efektiv-i* 'effective' (cf. Hebrew native words *tarbut* 'culture' → *tarbuti* 'cultural'); (ii) truncation of a final consonant, which results in an *-i* ending adjective, e.g. *komi* 'comic'; and (iii) templatic formation, e.g. *medupras* 'depressed', which is formed according to the *meCuCaC* pattern.

The picture that emerges is that nouns never undergo morphological adaptation, verbs are systematically integrated into the morphological system of root and pattern, and adjectives are in the middle. This intermediary status of borrowed adjectives is also manifested in the selection between morphological and periphrastic constructions to express a verbal meaning. Most adjectives have periphrastic verbal constructions to convey the meaning of 'be(come) + Adjective'. For example, the adjective *larj* 'large (generous)' is used in the construction *nihya larj* 'become large' (13), while no examples of a verbal counterpart like **hitlarej* were found. Similarly, borrowed adjective like *tragi* 'tragic' and *wird* 'weird' have no verbal counterparts, but only periphrastic constructions like *nihya tragi* 'became tragic' (14) and *nihya wird* 'became weird' (15). Since most borrowed adjectives undergo some type of morphological adaptation, they are perceived as derived entries and there is a tendency to avoid further derivations, and therefore verb formation is relatively rare.

(13) kol exad **nihya** pitom **larj** [facebook.com, retrieved from Google]
'Everybody suddenly **becomes large**'

(14) ha-macav šelo **nihya tragi** [facebook.com, retrieved from Google]
'His situation **became tragic**'

(15) ze **nihya** mamaš **wird** [x.com, retrieved from Google]
'It **became** really **weired**'

It is important to emphasize that the tendency to avoid the formation of such verbs does not stem from their inchoative meaning, nor from the fact that they are typically supposed to be formed according to the *hitCaCeC* pattern. The inchoative meaning of 'become X' can be found in case the base is a noun, in addition to periphrastic constructions. For example, the noun *ʔobsesya* 'obsession' is the base for the formation of the verb *hitʔabses* 'become obsessed' (16a) and the periphrastic construction *haya be-ʔobsesya* 'be in an obsession' (16b), where both constructions in (16) surface in their infinitive forms.

(16) a. atem yexolim lehafsik **lehitʔabses** al ha-miškal šelaxem [healthy.walla.co.il, from Google]
'you can stop **being obsessed** with your weight'
b. ani bead lo **lihyot be-ʔobsesya** al ha-miškal [ynet.co.il, retrieved from Google]
'you can stop **being obsessed** with the weight'

6. Conclusions

This study has examined the competition between morphological and periphrastic verbal constructions in Hebrew that are based on non-native words. While every verb that enters the verbal system of Hebrew must have a pattern, there are cases in which potential verbs are not formed or are formed but compete with periphrastic constructions that convey the same meaning. Although the selection between the two constructions is subject to a great deal of variation, the current study has shown that it can be partially predicted based on systematic guidelines. Morpho-phonological criteria block morphological formation due to low structural transparency between the base and the derived verb and the existence of non-native suffixes, which make morphological adaptation more difficult. Low semantic transparency tends to block periphrastic formation, as there are cases with no alternative periphrastic construction that would express the same meaning of the derived verb. In addition, the lexical category of the base provides partial prediction as to the possibility of employing either construction. It is important to emphasize that the proposed criteria reflect tendencies, and each criterion has counterexamples. However, they do reflect predictions with respect to which constructions are more likely to be preferred.

Many studies examined the competition between morphological and periphrastic structures from different points of view, but few studies have addressed it with respect to Semitic morphology, especially in derivation. This paper proposes one step in this direction. Future studies should reveal more criteria that play a role in the expression of verbal meaning in addition to other domains of derivation.

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