



Quo vadis morphology?

MMM10 On-line Proceedings

Edited by:
Jenny Audring
Francesca Masini
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The Semitic templates from the perspective of reciprocal predicates

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1. Introduction

1.1 Background

Among the questions that theories about Semitic verbal morphology aim to answer is the following: what is the relationship between verbs with different but related meanings that share the same phonological root but appear in different templates (cf., *inter alia*, Ornan 1971; Berman 1975; Aronoff 1994; Doron 2003; Arad 2005)? The forms in (1) illustrate the phenomenon of the morphology of templates with the phonological root \sqrt{gdl} , which appears in six different templates:

- (1) \sqrt{gdl} verbal templates:¹
- | | | |
|--------------------------------|-----------------|--------------------|
| a. CaCaC (basic template) | <i>gadal</i> | ‘grow’ |
| b. CiCeC (intensive template) | <i>gidel</i> | ‘raise, cultivate’ |
| b'. CuCaC | <i>gudal</i> | ‘was raised’ |
| c. hiCCiC (causative template) | <i>higdil</i> | ‘enlarge’ |
| c'. huCCaC | <i>hugdāl</i> | ‘was enlarged’ |
| d. hitCaCeC (T-template) | <i>hitgadel</i> | ‘become bigger’ |

The goal of this paper is to shed some light on this broader question by considering the so-called “reciprocal verbs”, i.e., verbs with a certain morphological structure that allegedly encodes reciprocal relations. Such verbs often appear in the T-templates (cf. (1d)) across the Semitic languages, thus I would like to examine their relation to other verbs with the same root.

Previous studies on the morphology of the templates pay only little attention to the verbal expressions of reciprocity. Thus, the limited goals of this paper are to see what theories concerning the morphology of the templates in Modern Hebrew would have to account for with respect to these verbs.

1.1 Data and theoretical questions concerning the *reciprocal*-predicate

In most languages with verbal reciprocals, triplets of the type illustrated in (2a-c) are available (Nedjalkov 2007; Behrens 2007). Although this paper focuses on Hebrew, examples from a host of languages could be provided as well. The common assumption is that there is a morpheme related to reciprocity,² which in Hebrew would be the T-template, illustrated in (2) with the root \sqrt{nsk} :

¹ C stands for the consonants of the root.

² In order to avoid, at this point, commitment to the semantic content of the relevant linguistic markers, such morphemes are dubbed REC throughout this paper.

- (2) a. Transitive construction (basic template)
rut niška et miriam
 Ruth kiss.PST.3.F.SG ACC Miriam
 ‘Ruth kissed Miriam’
- b. *Rec*-construction (T-template)
rut ve-miriam hitnašku
 Ruth and-Miriam kiss.REC.PST.3.PL
 i. Collective reading: ‘Ruth and Miriam kissed each other’
 ii. Distributive reading: ‘Both Ruth and Miriam had reciprocal kissing with someone’ (not necessarily the other)
- c. Discontinuous *rec*-construction (T-template)
rut hitnaška im miriam
 Ruth kiss.REC.PST.3.F.SG with Miriam
 Collective reading (only): ‘Ruth and Miriam kissed each other’

Such triplets of sentences raise the following set of questions:

- (3) i. What is the relationship between the *rec*-predicates (predicates of the *rec*-constructions (2b-c)) and the *basic predicates* (predicates of the transitive constructions (2a))? Is it accurate to assume that either derives from the other? And, if so, what are the operations that this derivation involves?
- ii. What is the relation between the *rec*-predicates in (2b) and (2c)? Considering that the relationship between (2b) and (2c) requires also an account for the origin of the distributive reading of the *rec*-construction (2bii).
- iii. *Prima facie* ‘Miriam’ has the same semantic role in (2b) and (2c); however, the question is whether Miriam in sentence (2c) is an argument or an adjunct (the answer to this question determines the argument structure of the *rec*-predicate, and consequently sheds light on its derivation).

All previous analyses of verbal reciprocals assume that *rec*-predicates are at some level of analysis derivatives of more basic predicates. Furthermore, most reciprocals in Hebrew are found in the T-template, and the assumption, within various theories, about verbs in this template is that they are derivative of functions that have as their input either the root or verbs in other templates.

The following table (Table 1) portrays how previous analyses of verbal reciprocals answered the questions in (3). For the sake of brevity, I do not go into the details of each of these proposals. I only outline the various options that already exist in the literature, and additionally I note how I differ from them.

	The relation between (2a) and 2b-c (I)	The relation between (2b) and (2c) (II)	The status of the oblique expression in (2c) (III)	The nature of the <i>rec</i>-predicate
Nedjalkov (2007)	Syntactic derivation (a)>(b)	Extension (b)>(c)	N.A	Reciprocal verb
Dimitriadis (2008)	Semantic operation (a)>(b) same argument structure	(c)>(b) Reflexivization	Argument (one of the two arguments in a symmetric relation)	Symmetric predicate
Siloni (2012)	Lexical operation (a)>(b/c)	Two entries	Phrase unvalued in terms of thematic role	Take a set as an argument, whose members have two thematic roles each
Current proposal	<i>No derivational relation</i>	<i>Two realizations of the same lexical entry</i>	<i>An argument with a lexical role</i>	<i>A predicate with two arguments; not necessarily symmetric</i>

Table 1: Summary of the previous literature on verbal reciprocals.

The current paper proposes an analysis that provides the following answers to the questions in (3):

- (4)
- i. There is no grammatical relation between (2a) and (2b-c), neither morphological nor semantic.
 - ii. The two constructions in (2b) and (2c) are two different syntactic realizations of the same lexical entry/predicate. This is an atom-predicate (see Section 5.2 for a clarification of the term) and therefore the distributive and the collective readings are expected.
 - iii. The oblique phrase is an argument of the predicate.

The differences between the current proposal and the previous ones lies in the fact that I do not consider the *rec*-predicate to be an encoding of reciprocal/symmetric relations and offer, therefore, an alternative portrayal of the relationship between them and the symmetric events they denote. The current paper provides evidence for this analysis, in relation to the morphological form of these verbs (for a more detailed account on the semantics see Bar-Asher Siegal 2015). In the first part of the paper (Sections 2-3) I will still follow the assumption that reciprocity is part of the meaning of the *rec*-predicates, and I will demonstrate the problems of the derivational approaches. Only in Section 4 will I argue against this semantic assumption.

One further note regarding *rec*-predicates is in order. Siloni (2008, 2012) and, similarly, Doron and Rappaport Hovav (2009) consider reciprocalization as a diathetic operation resulting in valency reduction, which is, in essence, very similar to reflexivization, i.e.: an operation of semantic identification of the external θ -role with the internal θ -role of the verb. The difference between reflexives and reciprocals, accordingly, lies in the number of the participants. Reflexives have individuals as participants, while reciprocals have collective sets (Doron 2008: 70.) I will also examine the validity of this claim and consider various reasons for rejecting it.

I will conclude the introduction with some notes concerning the more general literature about the T-template in Hebrew (regardless of the fact that occasionally it encodes reciprocity): Arad (2005) observes that this template is one of the two templates that are marked as non-transitive. As we shall see, it is crucial to examine whether this is merely a syntactic claim, i.e., that verbs in the T-template never have a direct object (which is marked

in Hebrew with the accusative preposition for definite nouns); or whether this claim is also relevant at the semantic level.

Furthermore, it would be relevant to mention that in other theories, the T-template is related in different ways to arity-operations (valence changing operations). According to Siloni (2008), in light of her analysis to the verbal reciprocals (*inter alia* Siloni 2001, 2012), the T-template is, in a sense, a sensor to indicate various types of diathetic operations resulting in valency reduction. For Doron (2003), the T-template is the phonological representation of the head μ . This head operates as a MIDDLE and reciprocals and reflexives fall under this category

The structure of the paper is as follows. Section 2 raises various problems concerning the claim that *rec*-predicates derive from other predicates, and Section 3 demonstrates why reciprocal verbs are not reflexives. In order to support an alternative approach, I will discuss in Section 4 the semantics of *rec*-predicates, and in Section 5 the argument structure of *rec*-predicates, and how it can account for the various readings the *rec*-constructions have. I will conclude, in Section 6, with various remarks concerning *rec*-predicates and the challenges they raise for theories about the Hebrew/Semitic templates.

2. Problems with derivational approaches

While the basic and the *rec*-predicates in Hebrew and in many other languages may have similar phonological roots, there are various reasons to argue that they do not hold any grammatical-derivational relation.

2.1 Deponent³ reciprocal verbs

Cross-linguistically, there are reciprocal verbs that do not have a transitive counterpart, and nonetheless appear as reciprocals. There are even denominative verbs that feed directly the T-template without feeding a transitive template (Kemmer 1988: 30-31; Nedjalkov 2007:14; Knjazev 2007:118-119). This is, for example, the case with the Hebrew verb *lehit'agref* 'to box', a relatively new verb that does not have a transitive equivalent. Obviously, deponent verbs pose a problem for a theory that considers the *rec*-predicate to derive from the basic (transitive) predicate. Admittedly, this is not an insurmountable problem for a derivational approach. Siloni (2001), for instance, considers these verbs as exemplifications of a derivation from "frozen verbs". Such explanations, however, are not ideal from a theoretical standpoint.⁴

2.2 Adjuncts become arguments

If we think about reciprocalization as a function that takes transitive verbs as input and derives *rec*-predicates, the expectation is that the relevant function would operate on the arguments of the transitive-predicate only, since arity-operations should involve only what is included in the argument structure of the predicate in the input. This expectation, however, is not always met in the case of reciprocal verbs. Often, the roles of the sets participating in the reciprocal relation are adjuncts in their transitive counterparts, as can be illustrated with the

³ A deponent verb is a verb that appears in a non-active form, usually the middle or passive, but is active in meaning. Thus, since *rec*-predicates in Hebrew are found in a "middle" morphology (the T-template), and like other deponent verbs such roots have no other active forms, I follow the term found in Kemmer (1988), as this is the term used in the previous works on this phenomenon (I wish to thank Stephen Anderson for the terminological discussion).

⁴ Similarly, according to Doron (2003) and Arad (2005), such verbs may support the Root Hypothesis and be consistent with a claim that *rec*-predicates derive from the root directly with the aid of some *rec*/reflexive functional head.

root \sqrt{ktv} . In the case of the basic predicate, *katav* ‘write’, the recipient is not an argument of the transitive predicate (5a), since a writing does not entail a “recipient”. In the *rec*-predicate (5b), which appears in the T-template (*lehitekatev* ‘to correspond’), the participants are the writers but also the recipients of the writings:

- (5) a. *yosi katav mixtav le-dani ve-dani katav*
 Yosi write.PST.3.M.SG letter to-Dani and-Dani write.PST.3.M.SG
mixtav le-yosi.
 letter to-Yosi
 ‘Yosi wrote a letter to Dani and Dani wrote a letter to Yosi’
- b. *yosi ve-dani hitakatvu*
 Yosi and-Dani write.REC.PST.3.PL
 ‘Yosi and Dani corresponded’

This observation seems to pose a serious theoretical problem for derivational approaches to verbal reciprocals, as it indicates that even if reciprocity is part of the meaning of the verb, it is not a result of a derivation from the transitive predicate.

2.3 Reciprocity already in the transitive verb

In the case of several other verbs, reciprocity is also part of the meaning of the transitive verb, with a symmetric relation between the internal arguments:

- (6) a. *yosi immet et dani im raxel*
 Yosi confront.PST.3.M.SG ACC Dani with Rachel
 ‘Yosi made Dani have a confrontation with Rachel’
- b. *dani ve-raxel hit'amtu*
 Dani and-Rachel clash.REC.PST.3.PL
 ‘Dani and Rachel clashed’
- c. *yosi mizeg et šte ha-xevr-ot*
 Yosi merge.PST.3.MSG ACC two DEF-company-PL
 ‘Yosi Merged the two company’
- d. *šte ha-xevr-ot hitmazgu*
 two DEF-company-PL merge.REC.PST.PL
 ‘The two companies merged’

The verbs in (6a,c) are in the intensive template, those in (6b,d) are in the T-template, as was the case in (2a-b). While in (6) all verbs have a reciprocal component, in (2) only the one in the T-template has. Another difference between these pairs of verbs is that in roots like the one in (6), the sentences with the verbs in the intensive template entail those with verbs in the T-template, which is not the case in verbs like the one in (2). Moreover, there seems to be a more fundamental difference: verbs like the ones in (6) describe some inherently symmetric relations, either of physical situation (*mizeg* ‘merge, incorporate’, *iged* ‘group’, *irev* ‘mingle, blend’, *šidex* ‘put them together’, *xiber* ‘combine’, *ixed* ‘unify’, *hišmid* ‘glue’ and *hifrid* ‘separate’) or of inter-personal relation (*xiten* ‘marry’ and *šidex* ‘put them together, fix people up’). Verbs of the type illustrated in (2) are not inherently symmetric relations. The *rec*-predicates in these roots describe a reciprocal event of asymmetric relations (when “a kisses b”, it does not entail that “b kisses a”; however if “a clashes with b” then necessarily also “b clashes with a”).

These data may lead to think of one of several theoretical options:

- (i) *The derivation can go in both directions: Intensive Template/root => T-Template or T-Template => Intensive Template.*

According to this option, while in (2) the *rec*-predicate derives from the basic, transitive predicate, in (6) the transitive predicate derives from the *rec*-predicate. Accordingly, there is a functional head, which adds the thematic role of agent/cause. This head can take the *rec*-predicate as the input as well (not only the root).

This option poses a theoretical problem to theories according to which the function responsible for adding the thematic role of agent/cause takes only the basic lexical entry/the root as its input; such theories must, at the same time, assume that reciprocity/symmetry is the result of a different operation on the same lexical entry/root.⁵ In fact, Doron (2003, 2008) already notices that some of the verbs in the causative-template must derive from a middle-predicate (in the T-template).⁶

The problem with this option is that, as noted, these verbs have an inherent symmetric meaning. It is unclear in what sense the verbs in the T-template are the results of “derivation” from the root, and not that they are born, so-to-speak, in the T-template, due to their meaning.

- (ii) *The derivation is always in the same direction: Intensive Template/root => T-Template.*

The basic meaning includes the external (causer) argument. Thus, regardless of the level at which this operation takes place, the operation that results with a T-template only indicates the reduction of the external argument. Reciprocity, accordingly, is a type of lexical meaning that is independent of a specific morpheme, and it is not a type of semantic/morphological/lexical derivation.

- (iii) *Non-derivational approach.*

Rec-predicates tend to be in the T-template. It is not a result of any derivation, and it is regardless of whether reciprocity is inherent to the meaning of the predicate or whether the reciprocal verb is related to another asymmetric predicates.

2.4 Morphologically unmarked verbal reciprocals

Finally, verbs can express reciprocal events even without the morphology of T-templates. *Rec*-predicates appear in other templates as well, as is the case in the following verbs: *nilxam* ‘to fight’ (N-template), *rav* ‘to quarrel’ (basic-template) and *soxeax* ‘to converse’ (intensive-template). The last one is significant, since this root appears also in the basic-template *sax* ‘to say, to tell’ and according to Doron (2003, 2008), only roots that appear in a single template may not reflect the semantics involved regularly with the morphology of templates. Thus, while, according to her theory, it might be unnecessary to explain why the meaning of reciprocity is encoded in a verb such as *rav* that appears only in the basic-template, it is still necessary to explain why the verb *soxeax* (intensive-template) has the reciprocal meaning. Thus, such verbs impose a serious problem to a derivational approach, since they show that reciprocals are a class of verbs regardless of their form. Even if one assumes a semantic

⁵ A comparative note: in Akkadian, reciprocity is usually marked with the T-template (indicated by a *t*-infix), whereas the causative template is marked with a *š*-prefix. When a verb has a reciprocal meaning in the T-template, and it has a causative form as well, both morphemes appear. Compare (i) to (ii):

- (i) *mitgurum* ‘to come to an agreement’
šutamgurum ‘to bring to an agreement’
(ii) *našaqum* ‘to kiss’
nitkusum ‘to kiss each other’

These data may support the idea that there are two different relationships between templates. When they both derive from the root only one affix appears, but when one verb is derived from another, both affixes appear.

⁶ There are still some problems for Doron (2003, 2008), namely that the verbs with the additional causer are in the intensive-template and not in the causative-template.

derivation between different verbs, this derivation is not directly reflected in their morphology.

2.5 Preliminary conclusions

When going through the inventory of a language like Hebrew, it becomes clear that the way reciprocal verbs are introduced in the literature, as the triadic constructions (2a-c), is misleading. It is possible to present such a set of constructions for a given phonological root only for the minority of the *rec*-predicates in Hebrew (many of which express physical contact, which involve also emotions). The vast majority of verbs are either deponent or of the types introduced through the examples in (5)-(6). Furthermore, the idea that reciprocal verbs originate through some derivation from a more basic transitive root/verb relies on such triadic verbs. As demonstrated throughout this section, there are strong reasons not to assume such derivation. The facts demonstrated in Sections 2.1 and 2.3, on the one hand, do not need a convoluted explanation, once a derivation is not assumed; and the data presented in Sections 2.2 and 2.4, on the other hand, seem to have no hope in a derivational approach. The observations in Sections 2.1-2.2 weakened the assumption that *rec*-predicates are necessarily related to other predicates in the first place. Furthermore, the data in Sections 2.2-2.3 lead towards an analysis that the reciprocity of these verbs is unrelated to other predicates with the same root, and cannot be a result of a derivation. Finally, Section 2.4 argues that, if reciprocalization is indeed a semantic process, it is not necessarily reflected in the morphology.

Furthermore, the assumption behind the derivational approach is that, from the semantic point of view, the *rec*-predicates are a reciprocal version of the basic-predicates. As we shall see in Section 4, this is not the case, so, in fact, there will be not even a semantic motivation for such approaches.

3. Reciprocalization and reflexivization

Another topic that is often discussed both in the literature about the *rec*-predicates and in the literature about the morphology of the templates is the relationship between reflexives and reciprocals. The reason for this discussion is the fact that, in many languages, the morphology is identical for verbal reciprocals and verbal reflexives, and accordingly they both fall under the category of what many designate as “middle”. Thus, in theories that assume that the verbal templates represent one-to-one functions, the two must be one and the same phenomenon at some level. For Doron (2008), for example, reciprocalization and reflexivization are similar operations of semantic identification of the external θ -role with the internal θ -role of the verb. Accordingly, reflexives and reciprocals differ only in the number of the participants: reflexives have individuals as participants, while reciprocals have collective sets. In the rest of this section, I will demonstrate in which type of languages such a claim is valid, and that this is clearly not the case in Hebrew and other languages with similar verbal morphology.

In the context of languages like French, which convey reciprocity with a clitic anaphoric expression (Siloni 2012), most reciprocal constructions have two possible interpretations: one as reflexive and the other as reciprocal. Thus, for example, (7)-(8) have two readings:

- (7) *Pierre et Jean se sont lavés* [French]
 Pierre and Jean SE be.PRS.PL wash.PASS.PTCP.PL
 a. ‘Pierre and Jean washed (themselves)’
 b. ‘Pierre and Jean washed each other’

- (8) *Pierre et Jean se sont parlés* (+à eux mêmes)
 Pierre and Jean SE be.PRS.PL speak.PASS.PTCP.PL (to REFL)
 a. ‘Pierre and Jean spoke to themselves’
 b. ‘Pierre and Jean spoke to each other’

Only the context determines the choice of the reading. This is not the case in languages like Hebrew. The sentences in (9)-(10) illustrate that verbs are either reciprocal or reflexive, despite the fact that morphologically reflexive actions and reciprocal relations are both often similarly marked with the T-template.

- (9) *yosi ve-dani hitraxšu* [Hebrew]
 Yosi and-Dani wash.REFL.PST.3.PL (<= T-template)
 a. ‘Yosi and Dani washed (themselves)’
 b. ‘*Yosi and Dani washed each other’
- (10) *yosi ve-dani hitnašku* (<= T-template)
 Yosi and-Dani kiss.REC.PST.3.PL
 a. ‘*Yosi and Dani kissed themselves’
 b. ‘Yosi and Dani kissed each other’

If, in Hebrew, reciprocalization is a sub-type of reflexivization, one for a singular subject and the other for a set, it is surprising not to encounter an ambiguity between the two groups of verbs with a plural subject, as is regularly found in the languages of the French type. Similarly, since, according to Siloni, reciprocalization is essentially a similar operation in both types of languages, it is striking that such an ambiguity occurs only in one type of languages. As for the ambiguity of languages like French, Siloni explains that reciprocalization in the French type is productive for all transitive verbs, as is reflexivization, because both are syntactic. Hence, since they share morphology, the ambiguity is necessary. However, it is unclear why such an ambiguity is prevented in languages like Hebrew. Even if the reflexives and the reciprocals derive from different lexical operations, there should have still been room for the occurrence of both derivations with the same root, and we could expect the existence of similar ambiguity in such languages as well.⁷ These data support an analysis according to which reciprocity is related to the meaning of the verbs and is not merely a result of an arity-operation, therefore each verb has only one meaning: either of a reciprocal or of a reflexive. However, as we shall see in the next section, reciprocity in fact is not even part of the meaning of these predicates.

4. The semantics of the *rec*-predicates

In order to be able to discuss the argument structure of *rec*-predicates a preliminary observation regarding the semantics of these verbs is in order. So far, I followed the assumption that part of the meaning of *rec*-predicates is that they denote a reciprocal relation. The goal of this section is to challenge this assumption. This semantic discussion is also relevant for the question of the morphological derivation that we dealt with in the previous

⁷ There are, however, extremely rarely phonological roots that have two meanings in the T-template, one reflexive and the other reciprocal, such as *lehistabex* ‘to entangle’ (which has the two meaning in English as well: ‘to become twisted together’ and ‘to be involved in a complicated situation’) and *lehitxalek* ‘to be divided’ and ‘to slip’. As for the former, I discuss similar verbs in Bar-Asher Siegal (2015). As for the latter, it seems to be related to two independent meanings of this root, one related to the noun *xelek* ‘part’ and the other to *xalak* ‘smooth’. In any event, these examples are the exceptions. I wish to thank Maayan Nidbach for these two examples.

sections. The assumption was that morphological derivation reflects a systematic semantic shift from a regular transitive relation to a symmetric relation. Various theories assume that the derivation brings about a change in the argument structure of the predicates. Once it becomes clear that *rec*-predicates do not encode symmetry, an alternative analysis for the relation between the predicates is due.

Let us begin with Dimitriadis (2008) and Siloni (2012). According to them, *rec*-predicates denote only irreducibly symmetric events, with the following definition:

Definition: A predicate is *irreducibly symmetric* if (a) it expresses a binary relationship, but (b) its two arguments have necessarily identical participation in any event described by the predicate (Dimitriadis 2008: 378).

Despite their claim, these predicates, what we call *rec*-predicates, in point of fact, do not necessarily encode symmetric relations. Bearing in mind that they appear systematically in the discontinuous *rec*-construction in sentences with asymmetric reading like (11), it is clear that a symmetric or even reciprocal meaning is not necessarily entailed (cf. Carlson 1998):

- (11) *yosi hitnašek im ha-karit*
 Yosi kiss.REC.PST.3.M.SG with DEF-pillow
 ‘Yosi kissed the pillow’

While evidently (11) entails two participants, it does not entail that they are either active in the same way or even that both participants are active at all. Assuming that REC denotes reciprocity, one must provide an explanation for the possibility of sentences such as (11). The following three explanations are possible in theory:

- (i) Sentences similar to the one in (11) are representations of a different non-reciprocal predicate (Siloni 2012). However, one can easily illustrate that for each of the *rec*-predicates, in certain contexts, sentences with different levels of agency are available.⁸

⁸ See, for instance, the following examples:

- (i) *spaydermen mit'agref im saq igruf*
 Spiderman box.REC.PST.M.SG with bag.of boxing
 Lit. ‘Spiderman engaged in a “mutual boxing” with a boxing bag’.
 (<http://www.haaretz.co.il/misc/1.980551>)
- (ii) *be-migraš-im im kirot gvoh-im ešar lehitmaser im*
 in-playground-PL with wall.PL tall-M.PL possible throw.REC.INF with
ha-kir ve-la'asot al-av trikim
 DEF-wall and-do.INF on-3.M.SG trick-PL
 ‘In playgrounds with high walls it is possible to play *throw and catch* with the wall and to trick it’
 (<http://forum.vgames.co.il/showthread.php?p=1763593>)
- (iii) *u-me-rov romantika kim'at hitnašakti im eš*
 and-from-much romantics almost kiss.REC.PST.1.M.SG with tree
 ‘Overcome by the romantic atmosphere, I almost kissed (rec) a tree’
 (<http://www.groopy.co.il/forummessage.aspx?messageid=182809>)
- (iv) *oded menase lehit'amet im ha-mašav*
 Oded try.PRS.M.SG confront.REC.INF with DEF-situation
še-nixpa al-av
 REL-force.PASS.PST.3.M.SG on-3.M.SG
 ‘Oded is trying to confront the situation that was forced upon him’
 (http://www.rashut2.org.il/prod_program.asp?pgId=42232&sttsId=2)
- (v) *adif lehizdayen im buba mitnapax-at ve-lo lagaat*
 better have.intercourse.REC.INF with doll blow.up-F.SG and-NEG touch.INF
 ‘It is better to have intercourse with a blow-up doll and not touch’
 (www.shin1.co.il/ya.php?sid=7475664)

Consequently, a theory allowing one entry for all uses of the verbs in the lexicon should be favored.

- (ii) These are metaphorical uses of reciprocalization: *rec*-predicates in sentences like (11) are used metaphorically (Yosi was hugging the pillow as if it were another person). However, if this is indeed a metaphorical reading of a reciprocal construction one may wonder why such metaphorical readings are unavailable with other reciprocal constructions, such as the pronominal ones (11'a) or in the *rec*-construction (11'b) with a plural verb:

- (11') a. #yosi ve-ha-karit nišku exad et ha-šeni
 Yosi and-DEF-pillow kiss.PST.3.PL one ACC DEF-second
 b. #yosi ve-ha-karit hitnašku
 Yosi and-DEF-pillow kiss.REC.PST.3.PL
 Int. 'Yosi and the pillow kissed each other'

Thus, it becomes clear that the option of an asymmetric reading is related to that fact that (11) is in the discontinuous *rec*-construction.

- (iii) The last option to explain the non-reciprocal uses of these predicate is the most trivial one: *reciprocity is not necessarily encoded by the rec-predicates*. *Rec*-predicates are dyadic predicates, with one argument expressing the "agent" (*rec*-er) and the other the "patient" (*rec*-ed). As will become clear, according to this analysis, *rec*-predicates are no longer verbs that encode reciprocity, but a subset of verbs that appear (mostly) in the T-template.

5. The argument structure of *rec*-predicates and the various readings of the *rec*-construction

5.1 The argument structure of *rec*-predicate

One of the leading questions of this paper is the status of the oblique expression in the discontinuous *rec*-construction (cf. (3iii)). I would like to argue that it is an argument of the *rec*-predicate, proposing (12) as the argument structure (=AS) of such predicates:

- (12) *rec*-predicate (*rec*-er, *rec*-ed)

(13) is a reasonable criterion for being an argument of a predicate and for its lexical role (for a justification of this definition see Bar-Asher 2009).

-
- (vi) gam l-i ba lehitxabek im ha-adama hazo
 also to-1.SG come.PST.3.M.SG hug.REC.INF with DEF.land DEM.F.SG
 'I too wish to hug this land'
 (<http://d-spot.co.il/forum/index.php?showtopic=105750>)
- (vii) im ata matxil lehitgofef im ha-ašiš siman
 COND 2.M.SG begin.PRS.M.SG embrace.REC.INF with DEF-plant sign
 še-ata šikor
 REL.2.M.SG drunk
 'If you start embracing a plant, it is a sign that you are drunk'
 (<http://forum.bgu.co.il/Index.php?showtopic=190581>)
- (viii) ve-lex titvakeax im agadot
 and-go.IMP.2.M.SG argue.REC.FUT.2.M.SG with fairy.tale.PL
 'And go argue with fairy tales'
 (<http://www.nelech.co.il/Track/TrackInfo/16>)

- (13) To be an argument of a predicate is to be a function (=of a lexical role), the argument of which is bound with an existential quantifier in every instantiation of the predicate.

When considering the entailments of the *rec*-predicates, and also bearing in mind that these predicates appear systematically in sentences with asymmetric readings of the sort seen in (11)-(14), it is clear that a symmetric or even a reciprocal meaning is not necessarily entailed:

- (14) *yosi hitxabek im ha-karit*
 Yosi hug.REC.PST.3.M.SG with DEF-pillow
 ‘Yosi hugged the pillow’

The entailment, therefore, of all instantiations of this predicate is that there must always be in every hugging at least one hugger and one being hugged (a *hugger* and a *hugged*), and not necessarily two *huggers* and two that are being *hugged*.

- (15) $\forall e [\textit{rec-hug}'(e) \rightarrow \exists x \exists y (\textit{rec-hugger}(e, x) \wedge \textit{rec-hugged}(e, y))]$

Thus, (16) could be proposed as the AS for this predicate:

- (16) a. *rec-hug* (*rec-hugger*, *hugged*)
 b. *rec-hug'* $\rightarrow \lambda y \lambda x \lambda e [\textit{rec-hug}'(e) \wedge \textit{rec-hugger}(e, x) \wedge \textit{hugged}(e, y)]$

In a language like English, without a *rec*-morphology, a lexical description is problematic, as it is hard to distinguish between the transitive-predicate (2a) and the *rec*-predicate (2b-c). Using the equivalent Hebrew vocabulary, *hitxabqut* ‘*rec-hugging*’ involves *mitxabek* (the active participle form of the *rec*-verb) and *mexubak* (the passive participle form of the transitive counterpart verb). This is therefore what stands as the background for the more general proposal in (17) – a repetition of (12) – for the AS of *rec*-predicates:

- (17) *rec*-predicate (*rec-er*, *rec-ed*)

Note that (17) *does not claim that this is the function of the morphology involved with rec-predicates*. It only characterizes the AS of all the predicates that exhibit what we saw in (2b-c). In other words, this is what is in common to all verbs that have the reciprocal collective and distributive readings with plural subjects, and that at the same time may appear in the discontinuous *rec*-construction, where a reciprocal reading is not necessary. As we saw in Section 2.4, such verbs may appear in a variety of templates in Hebrew.

The idea behind this proposal is that, while it is clear that there are irreducibly symmetric events, this does not mean that there are irreducibly symmetric predicates. In other words, *symmetry is a characteristic of an event and not a content of a predicate*. Furthermore, having (17) as the AS, the discontinuous *rec*-construction is accordingly the basic realization of such predicates, as the *rec-er* is represented by the subject and the *rec-ed* by the oblique. Consequently, I will argue for the following two claims:

- (a) The predicates of the *rec*-construction and of the discontinuous *rec*-construction are the same, and represented in (17).
 (b) As for the collective and the distributive readings of the *rec*-construction: the collective reading is a specific reading of these predicates. The two alternative readings are always possible with atom-predicates.

The idea behind these claims is that, considering the following two sets of sentences ((18)-(19)), the sentences in (18c)-(19c) with the plural subjects describe the same events that are described by the sentences in (a+b), and are composed semantically in an identical way. The reciprocal reading of (19c), accordingly, is pragmatic, when (a) and (b) are contextually understood to be a description of the same event:

- (18) a. *John kissed (Jacob)*
 b. *Betty kissed (Marry)*
 c. *John and Betty kissed*
- (19) a. *John kissed (Betty)*
 b. *Betty kissed (John)*
 c. *John and Betty kissed*

When there is a plural subject, it may appear with a reciprocal anaphoric expression (20), and, as the sentence in (21) demonstrates, it is possible for the *rec*-ed to be only an implicit argument, i.e. not overtly expressed:

- (20) *yosi ve-rina hitnašku (exad im ha-šeni)*
 Yosi and-Rina kiss.REC.PST.3.PL (one with DEF-other)
 ‘Yosi and Rina kissed (each other)’
- (21) *rachel hitnašqa ha-yom b-a-pa’am ha-rišona*
 Rachel kiss.REC.PST.3.F.SG DEF-day in-DEF.time DEF-first.F
 ‘Rachel kissed someone today for the first time’ (implied: a reciprocal kissing)

Therefore, according to the current analysis, from a syntactic point of view, sentences with a plural subject (cf. (20)) are like sentences with only one overt argument (in subject position) and additional implicit arguments (cf. (21)).

5.2 The distributive and the collective readings of the *rec*-construction

The analysis presented here consists of two claims. First, the *rec*-predicates are atom predicates, and not set-predicates (cf. Winter’s 2002 typology of predicates).⁹ Second, the collective reading is a particular reading of sentences with plural subjects, and the difference between the distributive and collective readings results from issues related to scope of the event quantification (cf. *inter alia* McCawley 1968; Higginbotham and Schein 1989; Schein 1993 and Lasnik 1995).

Such an approach leads naturally to double readings. If we take a set A, denoted by a plural subject, it may have a distributive reading, as with other dyadic predicates:

- (22) $\forall x \in A \exists e \exists y R_{rec}(e, x, y)$

In such a reading, each member of the set denoted by the subject is the *rec*-er of a different event. As for the collective reading, it is not related to a different syntactic or lexical configuration than the one of the distributive reading. In this reading all members of set A are participating in the same event, without other participants, and all the participants occupying the *rec*-ed position are also members of the set A. Thus, in such a case, *especially when the cardinality of the set A is 2*, there is an irreducibly symmetric event. (23) is a representation of

⁹ A more elaborate version of this paper (Bar-Asher Siegal in prep.) includes support for this claim.

the collective reading (the existential quantifier binds the event variable and has a wider scope), and since (23) entails (22), (23) can be a specific reading of (22).

$$(23) |A| = 2 \quad \exists e \forall x \in A \exists y \in A [(x+y \rightarrow R_{\text{rec}}(e, x, y))]$$

According to this hypothesis, it is not the case that the *rec*-predicates are monadic set-predicates, but are dyadic atom-predicates. This is true with every atom-predicate with a plural subject that may be read as a single event or as a plural event (cf. Lakoff and Peters 1969, who claim that all these examples are the result of an ambiguity between sentential and phrasal conjunction), as illustrated by (24):

- (24) *John and Bill went to New York*
 a. *John and Bill, each of them, went separately to New York*
 b. *John and Bill went together to New York*

Therefore, what has been previously analyzed as the most basic manifestation of *rec*-constructions is, in fact, a specific reading of sentences with plural subjects according to which all relations are held in one single event.

5.3 Ramification for the discussion regarding the T-template in Hebrew

As noted earlier, according to Arad (2005), the T-template is marked as non-transitive. In light of the current analysis for the *rec*-predicates, Arad's claim is true only if this is a syntactic observation and it refers to the fact that these verbs never have a direct object. It is not true, however, if it claims that all verbs in the T-template have only one argument at the semantic level. Moreover, it is important to note that the restriction on having a direct object with the *rec*-predicate is not limited to the T-template, it is also true with *rec*-predicates in other templates:

- (25) *yosi rav im rina / *et rina*
 Yosi fight.PST.3.M.SG with Rina / ACC Rina
 'Yosi had a fight with Rina'

- (26) *yosi soxeax im rina / *et rina*
 Yosi converse.PST.3.M.SG with Rina / ACC Rina
 'Yosi held a conversation with Rina'

6. Concluding remarks

6.1 *Rec*-predicates and the challenges for theories regarding the Hebrew/Semitic templates

Section 2 discussed the problems of considering *rec*-predicate as a derivative of the basic-predicate. Section 4 established that reciprocity/symmetry is not part of the meaning of the *rec*-predicates, thus giving further support to the claim that they do not derive from other predicates. Section 5 provided an explanation for the various readings the *rec*-constructions have. Thus, up to this point, we have been seeking to demonstrate that (17) as a *rec*-predicate with one dyadic lexical entry can explain the various constructions involved with *rec*-predicates and their semantics. This leaves us, then, to deal with the following questions:

- (a) What is the difference between *rec*-predicates and transitive predicates?

(b) Why is the *rec*-ed always realized as an oblique and not as a direct object?

Dealing with question (b) is beyond the scope of the current paper (the matter was discussed in Bar-Asher 2009). As for question (a), if we have sentences (2a-c) in mind, *prima facie* the difference is obvious, since (2a) is not reciprocal and (2b-c) are. However, as has been demonstrated with sentences such as (27), reciprocity is not entailed by *rec*-predicates. Thus, the more subtle question concerns the difference between (27) and (28):

(27) *yosi hitxabek im karit*
 Yosi hug.REC.PST.3.M.SG with pillow
 ‘Yosi hugged a pillow’

(28) *yosi xibek karit*
 Yosi hug.PST.3.M.SG pillow
 ‘Yosi hugged a pillow’

I would like to argue that this is a lexical discussion and not a grammatical one; it would then follow that this issue need not be addressed by a theory of *rec*-predicates. In order to justify this claim, it should be mentioned that, as was noted earlier, the introduction of (2a-c) as a triadic construction was misleading. It is incorrect to assume that the *rec*-predicate is a reciprocalized transitive predicate: *rec*-predicates are, instead, *independent* (non-derived) predicates. They are bivalent like other transitive verbs, as their argument structure indicates (cf. (12)-(17)). While speakers of Hebrew may share intuitions about the differences between (27) and (28), such intuitions are similar to other lexical observations that speakers can provide about the subtle nuances concerning the semantic differences between verbs with similar denotations, such as *lehistakel* and *lehabit*, both meaning ‘to look’ / ‘to watch’ in Hebrew. However, we may still say that *lexabek* ‘to hug’ (transitive) and *lehitxabek* ‘to hug’ (*rec*) have different types of hugging events as their denotations. The type of hugging which is “reciprocal” is, accordingly, denoted only by the *rec*-predicate, but it is not a result of some syntactic/semantic/lexical operation, since as we saw throughout this paper there are strong reasons to reject derivational approaches to the *rec*-predicates.

6.2 Returning to the Semitic templates

The non-derivational analysis for the *rec*-predicates proposed throughout this paper is clearly consistent with Aronoff (1994) and Arad (2005), who consider the templates as inflectional/conjugational classes. In this case, it is not even clear if there is a distinguished functional head for the *rec*-predicates (note that we still have to answer the question: why most of them are in the T-templates? A question that was not dealt with here).

Prima facie this analysis challenges the hypothesis put forward by Doron (2003), who considers the templates as a spell-out of syntactic heads, and reciprocity as a type of reflexive/middle morphology. However, if we do accept that *rec*-predicates can still fall under the category of middle (as argued by Kemmer 1993 and others), some amendments must be made to such a hypothesis (see Section 2.3), and some further clarifications for the content of the category of middle must be made.

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Motivated phonological templates in Sign Language

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1. Introduction

One of the most striking and universal characteristics of language is usually taken for granted: the existence of distinct structural levels. All languages have phonology, morphology, syntax, prosody, and semantics, and each level has its own types of forms and its own rules and constraints for combining them. Sign languages – which arise spontaneously within communities of deaf people – are no exception. In fact, sign language linguistics as a field was born as a result of the seminal discovery by Stokoe (1960) that the meaningful level of signs/words is distinguishable from a meaningless level, akin to phonology, which provides its building blocks. This discovery implies that signed and spoken languages are similar in basic ways. It was surprising because signs appear to have iconic form-meaning correspondences, and were therefore assumed to be wholes that could not be broken down into meaningless parts, unlike spoken words, which are divisible into meaningless phonological segments or features. Since Stokoe's work, linguists have gone on to analyze each level of structure in sign languages, and have found numerous similarities between them and spoken languages (Sandler and Lillo-Martin 2006).

Yet sign languages are exceptional in the degree to which their words are iconically motivated, and this high degree of iconicity means that the phonological and morphological levels cannot always be cleanly and discretely separated.¹ Here we will show a unique type of interaction between phonology and morphology in sign languages, suggesting that the physical form that a language takes influences its linguistic form in nontrivial ways. Specifically, we will show, following Lepic et al. (2016), that the availability of two hands in sign languages is exploited in lexical word formation in largely predictable ways, due to iconicity. That is, the phonological structure of certain categories of signs is determined by meaning. We go on to adopt a templatic account that is influenced by morphological templates in Semitic languages, but, in the sign language case only, we show how phonological aspects of lexical templates are determined by meaning.

We begin in Section 2 with a brief overview of sign language phonology, including both one- and two-handed signs, and of morphology, including inflectional morphological templates that have been proposed earlier. In Section 3, we proceed to demonstrate that whether an uninflected lexical sign is one- or two-handed is often determined by particular categories of meaning. We propose some templatic schemata – motivated phonological templates – for different categories of two-handed signs. Despite the fact that formational elements have meaning, such signs are typically analyzed as monomorphemic. This lexical motivatedness blurs the line between morphology and phonology that is usually assumed, and leads us to conclude in Section 4 that the phonological and the morpho-lexical levels of language are not mutually exclusive.

¹ Iconicity does not stop at the level of the sign. There is iconic motivation behind morphology and syntax in sign languages as well (Taub 2001; Wilcox 2004; Perniss, Thompson and Vigliocco 2010; Meir et al. 2013).