



Al-Raba'a, Basem Ibrahim Malawi & Kitagawa, Yoshihisa. 2022. Reflexivity, reciprocity and collectivity in Jordanian Arabic. *Glossa: a journal of general linguistics* 7(1). pp. 1–38. DOI: <https://doi.org/10.16995/glossa.5799>



Open Library of Humanities

Reflexivity, reciprocity and collectivity in Jordanian Arabic

Basem Ibrahim Malawi Al-Raba'a, KIMEP University, Kazakhstan, balrabaa@kimep.kz

Yoshihisa Kitagawa, Indiana University Bloomington, USA, kitagawa@indiana.edu

This study examines, first, the syntactic asymmetries between reflexive and reciprocal constructions in Jordanian Arabic (JA), paying special attention to those with morphological marking. In particular, it will be argued that morphologically marked reflexives are one-place predicates, but their reciprocal counterparts are two-place predicates, with their internal arguments being realized either overtly or covertly in syntax. It will then be argued that what is generally regarded as a reciprocalizing morpheme (*t-*) indicates obligatory “collectivity,” namely, two subeventualities significantly overlapping in time (and place). An attempt will also be made to identify the semantic apparatuses which can properly capture the interpretation of a sentence when a τ -marked verb appears. Finally, it will also be inquired how the τ -morpheme derives the so-called Verb Forms 5, 6 and 8, and exhibits either reflexive or collective interpretations in JA. A brief cross-language and cross-dialect survey will also be attempted in Appendix B and Appendix C.

Glossa: a journal of general linguistics is a peer-reviewed open access journal published by the Open Library of Humanities. © 2022 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.

 OPEN ACCESS



1. Introduction – Reflexives and Reciprocals in JA

As is well known, reflexivity and reciprocity represent two different but related linguistic concepts, and we often witness more than one way of their grammaticalization. In Jordanian Arabic (JA), for example, reflexivization may be achieved in at least two ways. As in (1) below, it may be represented syntactically with the internal argument of the verb appearing as a SELF-anaphor.¹

- (1) l-walad₁ ?addab nafs-uh₁.
 the-boy.NOM behaved self-him.ACC
 ‘The boy behaved himself.’

As shown in (2) below, it may also be represented morphologically when a reflexive morpheme (e.g., *t-*) is affixed to the verb.

- (2) l-walad t-?addab.
 the-boy.NOM T-behaved
 ‘The boy behaved. (= The boy behaved himself.)’

Similarly, reciprocal constructions in JA fall into two types, one making use of reciprocal anaphors as in (3) and the other involving overt morphological marking on the verb as in (4).²

- (3) l-waladeen_{<1+2>} ?aawanu baʕṭ-hum l-baʕṭ_{<1↔2>}.
 the-boys.DL.NOM helped some-them.ACC the-some.ACC
 ‘The two boys helped each other.’
- (4) l-waladeen t-?aawanu.
 the-boys.DL.NOM T-helped
 ‘The two boys helped each other.’

In the remainder of this study, for the sake of convenience, we label the constructions as in (1) and (3) “syntactic reflexives/reciprocals” and those as in (2) and (4) “morphological reflexives/reciprocals,” paying attention to the distinct surface forms of the involved verbs. These contrastive labelings, however, will turn out to be too loose eventually as our analyses proceed.

¹ JA taken up in this work is what may be referred to as Rural Jordanian Arabic, which the first author speaks. The judgments provided on the JA examples, which were presented with relevant discourses and/or contexts, have also been agreed upon by at least four (sometimes five) other native speakers. The glossing conventions are as follows: ACC = accusative, DIST = distributive, DL = dual, F = feminine, GEN = genitive, M = masculine, NEG = negation, NOM = nominative, OM = object marker, RECIP = reciprocal, REFL = reflexive.

² The reciprocal interpretation of the anaphor is indicated in this work by coindexation accompanied by a bidirectional arrow as in _{<1↔2>}. It is meant to indicate the coindexation with the two-membered set _{<1+2>} and the crossing relation holding between the two members of this set. Reciprocity of course may hold among three or more members of the set, but for simplicity’s sake, we will discuss only the reciprocity holding between two members. We are concerned in this work, in other words, mostly with the so-called “strong reciprocity.” We will briefly discuss “weak reciprocity” in Appendix C.

In traditional Arabic grammar, reflexive constructions as in (1)–(2) and reciprocal constructions as in (3)–(4) are generally considered to involve a parallel structure. That is, reflexive/reciprocal verbs lacking overt morphological marking as in (1) and (3) are treated as transitive and must therefore take an anaphor as their object. In contrast, morphologically marked verbs as in (2) and (4) are analyzed as intransitive, reflexive or reciprocal (see Wright 1896; Holes 2004; Ryding 2005). Similar analyses are often adopted for other languages like Greek and Hebrew as well (e.g., Reinhart & Siloni 2005; Dimitriadis 2008b; Siloni 2008; 2012).

There is one issue that has caused controversy in the literature when this transitive-intransitive dichotomy is adopted. It is how the morphologically marked one-place construction can be assimilated to the syntactically represented two-place construction in providing their interpretations. Reinhart & Siloni (2005), for instance, proposed that “morphological” reflexive constructions in Hebrew like (5b) below be analyzed as involving two syntactic operations which let this sentence be interpreted on a par with (5a): what they call “reflexivization bundling” and accusative Case absorption.

- (5) a. Dan raxac et **acmo**.
 Dan washed OM **himself**
 ‘Dan washed himself.’
- b. Dan **hitraxec**.
 Dan **REFL**.washed
 ‘Dan washed.’ (Reinhart & Siloni 2005: 390)

They hypothesize that the bundling operation first fuses the external theta-role of the two-place verb with its internal one (e.g., Agent and Theme) forming one complex theta-role, and then assigns this complex theta-role to the sole syntactic argument, the subject. As a result, the verb is realized as a one-place predicate, and the internal argument need not be syntactically projected or case-marked while it is expressing a two-place thematic relation.

Pushing the same idea, Siloni (2001; 2008; 2012) further contends that a reciprocal construction in Hebrew like (6b) below undergoes a “reciprocalization bundling” operation (by which the external and internal theta-roles are fused and assigned to the subject argument) as well as absorption of accusative Case (see also Laks 2007), and becomes interpreted on a par with (6a).

- (6) a. Hem ni]ku { **ze** et **ze** / **exad** et **ha-]eni** }.
 they kissed this ACC this one ACC the-second
 ‘They kissed each other.’
- b. Hem **hitna]ku**.
 they **RECIP**.kissed
 ‘They kissed.’ (Siloni 2008: 452)

- (10) a. **Josi ve-Rina hitnaʃku [e]_{RECIP}**
 Yosi and-Rina HIT-kissed
 ‘Yosi and Rina kissed each other.’
- b. **Josi hitnaʃek im Rina.**
 Yosi HIT-kissed with Rina
 ‘Yosi and Rina kissed each other.’
- c. **Rina hitnaʃqa [e] ha-jom b-a-paʔam ha-riʃona.**
 Rina HIT-kissed the-day in-the-time the-first
 ‘Rina and someone kissed each other today for the first time.’

Bar-Asher Siegal points out that this analysis permits us to capture all the interpretations in (8a–b) and (10a–c) uniformly, whether they involve a transitive or an intransitive predicate, a plural or a singular subject, or a reciprocal or a non-reciprocal interpretation. Note that the so-called oblique argument is regarded as serving as the internal argument of the predicate in (10b) and presumably in (10a) and (10c) as well, whether it is overt or covert. These cross-language studies encourage us to hypothesize that the optionality of the oblique reciprocal argument in (11) below in fact is analyzable in two ways as illustrated in (12), in which either an overt or empty reciprocal anaphor appears as the complement of a two-place verb in JA.^{4,5}

- (11) l-waladeen_{<1+2>} t-ʃaawanu (**maʃ baʃð-hum 1-baʃð**_{<1↔2>}).
 the-boys.DL.NOM T-helped with some-them.GEN the-some.GEN
 ‘The two boys helped each other.’
- (12) l-waladeen_{<1+2>} t-ʃaawanu {**maʃ baʃð-hum 1-baʃð**_{<1↔2>} / [e]_{RECIP <1↔2>}}.
 the-boys.DL.NOM T-helped with some-them.GEN the-some.GEN
 ‘The two boys helped each other.’

Crucially, on the other hand, morphological *reflexives* are prohibited from cooccurring with an overt anaphor, as illustrated by (13) below, making a sharp contrast with the morphological *reciprocal* in (11) above.

⁴ In other words, we do agree with both Bar-Asher Siegal (2016) and LeTourneau (1998) about the need to postulate a phonetically empty anaphor in some cases of morphological reciprocals in Arabic. However, the successful cooccurrence of morphological T-marking with an overt reciprocal anaphor as in (12) makes us believe that T-marking should not be regarded as a morpho-syntactically metamorphosized empty reciprocal anaphor as described in (7).

⁵ When a verb is reciprocalized with morphological T-marking, the internal argument must be accompanied by some designated prepositions like *maʃ* ‘with’ also in JA as shown in (12). In generative syntactic terms, this preposition may be regarded as compensating for the case absorbed by T-morpheme. Whether or not such characterization turns out to be plausible, these prepositions seem to be nearly transparent in semantic terms, only adding somewhat redundant information in a way similar to *on* in *rely on* in English. Since the PP complement overtly expressed in this construction is interpreted as the internal argument, T-morpheme in JA is unlikely to induce detransitivization by “reciprocalization bundling,” contrary to what is proposed for Hebrew by Siloni (2012).

- (13) l-walad t-ʔaddab (*maʕ nafs-uh₁).
 the-boy.NOM T-behaved with self-him.GEN
 ‘The boy behaved himself.’

This observation leads us to take the position that morphologically marked reflexives indeed project only one argument syntactically although we leave it open how such a one-place construction comes to be derived and yields a two-place interpretation without involvement of an empty syntactic argument.

To sum up, comparison of reflexive and reciprocal constructions leads us to the following hypotheses about “morphological” reflexives and reciprocals in JA: (i) T-marked reflexives project only one but T-marked reciprocals project two syntactic arguments, and (ii) when T-marked reciprocals are not accompanied by an overt reciprocal anaphor, they involve a phonetically empty internal argument. These hypotheses thus lead us to shy away from Siloni’s (2001; 2008; 2012) bundling analysis of morphological reciprocals as in (6b), which induces valency reduction, (at least for JA, in which each of the two arguments in the reciprocal construction separately receives a thematic role).⁶

The remainder of this work proceeds as follows. In Sections 2, we first define the terms “collectivity” and “distributivity” as we use in this work. Then, appealing to these notions, we demonstrate the interpretive contrast between “morphological” and “syntactic” reciprocals, which leads us to identify collectivity as the function of the T-morpheme in JA.⁷ Sections 3 attempts to identify the formal apparatuses that capture the semantics of collectivity. Finally in Section 4, we will analyze the morphological properties of the T-marked reflexives and reciprocals, paying attention to the semantics of their input and output verbs.

2. The interpretive properties of reciprocals

In this section, we would like to examine and discuss the interpretive properties of reciprocals in JA. In pursuit of this topic, we will find out that several semantic notions such as collectivity, reciprocity and simultaneity are rather intricately intertwined in the interpretation of reciprocals in JA. Our goal in this section is: (i) to clearly define the notion of collectivity and distinguish it from distributivity, and (ii) to abstract collectivity from reciprocity and simultaneity/symmetry.

⁶ We believe that we can further argue that reflexives and reciprocals should *not* be treated parallelly in the syntax of JA when we closely examine some facts on binding. Such arguments are summarized in Appendix A along with the objection to those arguments raised by one of the anonymous reviewers.

⁷ This claim contrasts with the oft-observed descriptive characterization of this morpheme as a reciprocalizer (Wright 1896; Thackston 2000; Fischer 2002; Holes 2004; Ryding 2005; Fassi Fehri 2012, among others). Despite the existence of such a disparity, we will continue to use “morphological reciprocal” as a convenient label of the T-marked construction, contrasting it with “syntactic reciprocal.”

In the process of fulfilling these tasks, we will be led to identify the exact semantic function associated with the so-called “reciprocal” T-morphemes in JA as *collectivity*.

2.1 Collectivity and distributivity

In Section 1, we presented two types of reciprocal sentences in JA: syntactic and morphological reciprocals. We then adopted the hypothesis that they are structurally parallel and involve a two-place construction even when the complement reciprocal anaphor of the *T-marked* predicate is realized covertly, as exemplified in (14) and (15).

- (14) l-ʔaxu₁ w-ʔuxt-uh₂ ʔaawanu **baʔð-hum** **l-baʔð**_{<1↔2>}.
 the-brother.NOM and-sister-his.NOM helped **some-them.ACC** **the-some.ACC**
 ‘The brother and his sister helped each other.’

- (15) l-ʔaxu₁ w-ʔuxt-uh₂ t-ʔaawanu
 the-brother.NOM and-sister-his.NOM T-helped
 {maʔ **baʔð-hum** **1-baʔð**_{<1↔2>} / [e]_{RECIP<1↔2>} }.
 with **some-them.GEN** **the-some.GEN**
 ‘The brother and his sister helped each other.’

When it comes to their interpretations, however, “syntactic” and “morphological” reciprocals exhibit differences. First, in the syntactic reciprocal sentence as in (14), the expressed reciprocity can be semantically construed either distributively or collectively. That is, the two subeventualities involved in the reciprocal helping in (14) may have “distributively” occurred at different times and/or in different locations, for example, as in the situation such that the brother financially supported the sister while she went to college and the sister looked after the brother when he became seriously ill in later years. Alternatively, the reciprocal helping in (14) may also have occurred “collectively,” with the involved subeventualities significantly overlapping (spatio)temporally, for example, as in the situation such that the brother and the sister clung to each other and warmed themselves in a cabin when they got lost in a snow-covered mountain (with “complete simultaneity”). Collective reciprocal helping in (14) may also have occurred with somewhat looser, “partial (or situational)” simultaneity, for example, in the situation such that the brother and his sister teamed up and collaboratively finished cleaning the house, the brother vacuuming the floor and the sister wiping the windows and furniture. We define the notions collectivity and distributivity in this particular way in the context of the event semantics (as will be formalized in Section 3). Therefore, caution should be exercised to eliminate any misunderstanding that may arise when these terms are used in some other sense.

The availability of both collective and distributive interpretations in (14) can be confirmed when we observe that this sentence can be felicitously followed either by distributive adjuncts as in (16a–b) or by a collective adjunct as in (16c).⁸

- (16) a. **bi-t-tanaawub** ‘taking turns/in turn’
in-the-turn.GEN
- b. **b-fakel munfaṣil** ‘separately’
in-manner.GEN separate.GEN
- c. **sawijjeh** ‘together’
together.ACC

Reciprocal constructions involving morphologically T-marked verbs as in (15), on the other hand, only permit the collective interpretation, and are thus compatible with the collective but not distributive adjuncts, as shown in (17).⁹

- (17) l-ʔaxu₁ w-ʔuxt-uh₂ t-ʕaawanu (maʕ **baʕḏ-hum** **1-baʕḏ**_{<1↔2>})
the-brother.NOM and-sister-his.NOM T-helped with **some-them.GEN** **the-some.GEN**
{ ^{ok}**sawijjeh** / #**bi-t-tanaawub** }.
together.ACC in-the-turn.GEN
‘The brother and his sister helped each other { ^{ok}together / #taking turns }.’

The same contrast arises even when the reciprocal anaphor *baʕḏ-hum 1-baʕḏ* is replaced by an empty anaphor [e]_{RECI} (indicated in (17) as the optionality of the overt anaphor).¹⁰

⁸ A little caution is called for when we appeal to these adjunct expressions as a litmus test for a distributive-collective contrast. First, while we use the translation ‘in turn’ here and below for naturalness of English translation, *tanaawub*, a term commonly used to indicate “taking separate shifts,” e.g., in a Jordanian military, would not permit any overlap of either complete or partial simultaneity as described above, contrary to English *in turn*, which seems to be compatible with certain type of partial simultaneity.

Second, *sawijjeh* and its English translation ‘together’ can be used as in (i) below to indicate the more abstract sense ‘in collaboration with’ rather than describing the overlap of subeventualities.

(i) Three artists painted this picture **together**.

In our test, we are appealing to *sawijjeh* ‘together’ indicating ‘the significant overlap of subeventualities’ rather than ‘in collaboration with’. We are grateful to an anonymous reviewer for urging us to be alert to such a variation.

⁹ Throughout the paper, we will not indicate functional categories irrelevant to our arguments. Also, we will let the judgments of Arabic sentences be reflected in their English translations as well with *, #, etc., even if those English sentences themselves are grammatical. Various types of extra examples that we were unable to incorporate into the main text are listed in Appendix E.

¹⁰ Siloni (2002: 391; 2012: 266, 282) and Dimitriadis (2008a: 332; 2008b: 379) tried to capture the difference between the “morphological” and the “syntactic” reciprocals in Hebrew and Greek, respectively, in terms of the possible number of events each construction may describe. The generalization we offered above about JA is quite similar to theirs (at least in essence) and provides a further crosslinguistic basis for the generalization in question. We inherited the terms “collectivity” and “distributivity” and their characterization from their works and elaborated them further as described above.

Another such pair of “syntactic” and “morphological” reciprocal sentences are presented in (18) below, in which the same contrast can be observed.

- (18) a. *l-taaḍgreen*_{<1+2>} *faaṣalu* **baṣḍ-hum** **l-baṣḍ**_{<1↔2>}.
 the-businessmen.DL.NOM haggled **some-them**.ACC **the-some**.ACC
 ṣala l-ʔasṣaar { ^{ok}**waḍḥ-an li-waḍḥ** / ^{ok}**bi-t-tanaawub** }.
 on the-prices.GEN face-ACC for-face.GEN in-the-turn.GEN
 ‘The two businessmen haggled with each other over the prices { ^{ok}face to face / ^{ok}in turn }.’
- b. *l-taaḍgreen*_{<1+2>} *t-faaṣalu* (*maṣ* **baṣḍ-hum** **l-baṣḍ**_{<1↔2>})
 the-businessmen.DL.NOM T-haggled with **some-them**.GEN **the-some**.GEN
 ṣala l-ʔasṣaar { ^{ok}**waḍḥ-an li-waḍḥ** / #**bi-t-tanaawub** }.
 on the-prices.GEN face-ACC for-face.GEN in-the-turn.GEN
 ‘The two businessmen haggled with each other over the prices { ^{ok}face to face / #in turn }.’

Once again, the distributive interpretation available in the syntactic reciprocal in (18a) becomes unavailable in the morphological reciprocal in (18b). Therefore, (18a) is compatible with the situation such that the first businessman haggled with the second businessman over the prices of some items on one occasion and the second businessman haggled with the first businessman over the prices of different items on another occasion. On the other hand, (18b) is compatible only with the situation such that the two businessmen haggled with each other over the prices on a single occasion. Note here that the collectivity in (18b) involves what was identified above as overlapping subeventualities induced by “partial (or situational)” simultaneity. While the mutual haggling took place “collectively” within a single business session, the two businessmen were not necessarily talking to each other at the very same moment. In other words, the overlapping subeventualities required by the T-morpheme in JA can be induced by either complete or partial simultaneity.¹¹

Thus, we now face a task of having to explicate the observed contrast between “syntactic” and “morphological” reciprocals in JA, in particular, why the collective interpretation becomes obligatory only in the latter.

2.2 Reciprocity and collectivity

One might consider that the obligatory collectivity discussed above arises in one way or another from a reciprocal anaphor as its source. This, however, does not seem to be the case since the contrast between “syntactic” and “morphological” reciprocals arises while both of them involve a reciprocal anaphor, for example as we saw in (18a–b) above. Reciprocal anaphors, in other words, are susceptible to both collective and distributive interpretations.

¹¹ Such looser “partial” simultaneity arises also with predicates like *f-ḡ-r* ‘fight’ and *r-s-l* ‘correspond’. In one fighting event, for example, punching by each participant does not necessarily take place at exactly the same moment, exhibiting only partial simultaneity which can still induce collective reciprocity.

We also observe in (19) below that a morphologically T-marked predicate is incompatible with adjunct expressions enforcing distributivity such as *bi-t-tanaawub* ‘taking turns’ and *b-fakel munfaṣil* ‘separately’.

- (19) l-ʔaxu w-ʔuxt-uh **t-ʕaawanu** maʕ ʔabuu-hum
 the-brother.NOM and-sister-his.NOM T-helped with father-their.GEN
 { ^{ok}sawijjeh / #bi-t-tanaawub / #b-fakel munfaṣil }.
 together.ACC in-the-turn.GEN in-manner.GEN separate.GEN
 ‘The brother and his sister helped their father {^{ok}together/#taking turns/#separately}.’

Note that (19) does not involve any reciprocal anaphor or reciprocal interpretation.

Researchers like Dimitriadis (2008b), Siloni (2008) and Bar-Asher Siegal (2016) report that morphologically derived predicates similar to the T-marked verb in (19) involve reciprocity between the subject and the (comitative) complement in Greek, German and Hebrew, which they called “discontinuous (reciprocal) construction.” The sentence in (19), however, can make up a felicitous discourse even when it is followed by another sentence negating reciprocity (square-bracketed below) in (20).

- (20) l-ʔaxu w-ʔuxt-uh t-ʕaawanu maʕ ʔabuu-hum
 the-brother.NOM and-sister-his.NOM T-helped with father-their.GEN
 [laakin ʔabuu-hum **maa** t-ʕaawan maʕ-hum].
 but father-their.ACC NEG T-helped with-them.GEN
 ‘The brother and his sister helped their father [but their father did **not** help them].’

This suggests that (19) does not involve any reciprocal interpretation between the subject and the complement.¹² After we have discussed the semantics and morphology involved in collectivity, we will point out in Section 4.4 that “discontinuous reciprocals” indeed are possible in JA but only under restricted circumstances.

In short, collectivity is enforced on morphologically T-marked predicates whether or not reciprocal anaphors are introduced into a sentence, i.e., independently of reciprocity. This observation suggests that the function of the T-morpheme in JA should be characterized independently of reciprocity.

2.3 Lexically induced simultaneity and collectivity

Many researchers have identified and discussed what they call “symmetrical” (or “collective/group-level/mutual”) predicates in English as in (21) below, which permit what can be sensed as

¹² We will report the same phenomenon observed in a fair number of other Arabic dialects in Appendix C, where we present the results of our small-scale investigation.

reciprocity without requiring an overt reciprocal anaphor (e.g., Lasersohn 1995; Carlson 1998; Link 1998; Peres 1998; Lønning 2011).

(21) John and Mary **kissed/hugged/met/married**.

Crucially, the “reciprocity” expressed by each verb in (21) does not permit distributed multiple events. “John and Mary kissed,” therefore cannot properly describe, for example, the situation such that Mary kissed John on his cheek after John kissed Mary on her forehead. Carlson (1998: 45) argues that “symmetrical” predicates denote a singular event but their lexically entailed mutuality holding between the atomic individuals of a plural subject induces obligatorily reciprocal and collective interpretations. (See also Link 1998: 7, 49 for a similar analysis.) It seems to be true that the lexical meanings of “symmetrical” predicates induce the sense of simultaneity and mutuality because of the necessarily arising shared experience/situation in the induced eventualities.

One may suspect that such lexical semantics of the involved predicates may also play a crucial role in inducing obligatory collectivity in JA, at least in some of the cases discussed above, e.g., (18b) involving the “symmetrical” predicate *faaşalu* ‘haggled’. It indeed is the case that a distributive adjunct is anomalous in (22) below, in which the “symmetrical” verb *gaabalu* ‘met’ appears even without any reciprocal anaphor present overtly or covertly.

(22) Bader w-Bandar *t-gaabalu* maʃ Sawsan (#**bi-t-tanaawub**).
 Bader.NOM and-Bandar.NOM T-met with Sawsan.GEN in-the-turn.GEN
 ‘Bader and Bandar met Sawsan (**#in turn**).’

There are reasons, however, to believe that such lexically induced simultaneity is not necessarily the source of the obligatory collectivity we observed in JA (although it seems to be inducing plurality of eventualities). First, as Carlson (1998: 43) notes, the predicates in question behave as “collective” only when they are used *intransitively* with a plural NP as their subject. The transitive use of *kiss* in (23a) below, for example, can denote multiple events but no simultaneous or symmetrical entailment arises at least between the atomic individuals of the plural subject *John* and *Mary*.

(23) a. John and Mary *kissed* **their daughter**.
 b. John and Mary *kissed* **each other**.

Even when a reciprocal anaphor appears as the object as in (23b), the transitive use of *kiss* can felicitously describe the distributed multiple events like John’s kissing Mary on the arm and Mary’s kissing John on the arm (observation ascribed to Lila Gleitman). The situation is exactly the same in (24a–b) below, the JA counterpart of (23a–b).

(24) a. Bader w-Sarah *baasu* bint-hum.
 Bader.NOM and-Sara.NOM kissed daughter-their.ACC
 ‘Bader and Sara kissed their daughter.’

- b. Bader₁ w-Sarah₂ **baasu** baʃð-hum l-baʃð_{<1↔2>}.
 Bader.NOM and-Sara.NOM kissed some-them.ACC the-some.ACC
 ‘Bader and Sara kissed each other.’

Note now that the sentence in (22) as well involves a two-place construction, and no simultaneity between *Bader* and *Bandar* seems to be entailed, suggesting that the obligatory collectivity in this sentence (as per our definition) was not caused by lexically induced simultaneity of the verb *gaabalu* ‘met’.

Second, even when an identical “symmetrical” verb is used, whether or not it exhibits obligatory collectivity depends on the form it appears in, i.e., whether it is morphologically T-marked or not. Compare, for instance, (25) below with (22) above.

- (25) Bader w-Bandar **gaabalu** Sawsan (^{ok}**bi-t-tanaawub**).
 Bader.NOM and-Bandar.NOM met Sawsan.ACC in-the-turn.GEN
 ‘Bader and Bandar met Sawsan (^{ok}**in turn**).’

While both sentences involve a symmetrical verb *gaabalu* ‘met’, a distributive reading is permitted in (25) but not in (22). The contrast in question, in other words, is independent of the symmetricity of the verb itself but rather is dependent on the verb forms.

Various other “symmetrical” verbs also exhibit the contrast in question when they appear in “syntactic reciprocal” sentences on the one hand and in “morphological reciprocal” sentences on the other:

- (26) a. z-zalameh₁ w-marat-uh₂ **ʕaanagu / baawasu** baʃð-hum l-baʃð_{<1↔2>}
 the-man.NOM and-wife-his.NOM hugged kissed some-them.ACC the-some.ACC
 { ^{ok}**b-laħðet bidaajet raas es-saneh / ^{ok}bi-t-tanaawub** }.
 in-moment.GEN beginning.GEN head.GEN the-year.GEN in-the-turn.GEN
 ‘The man and his wife hugged/kissed each other { ^{ok}at the moment the new year began / ^{ok}taking turns }.’
- b. z-zalameh₁ w-marat-uh₂ **t-ʕaanagu/ t-baawasu** (maʃ baʃð-hum
 the-man.NOM and-wife-his.NOM T-hugged T-kissed with some-them.GEN
 l-baʃð_{<1↔2>}) { ^{ok}**b-laħðet bidaajet raas es-saneh**
 the-some.GEN in-moment.GEN beginning.GEN head.GEN the-year.GEN
 #**bi-t-tanaawub** }.
 in-the-turn.GEN
 ‘The man and his wife hugged/kissed each other { ^{ok}at the moment the new year began / #taking turns }.’

The morphologically unmarked verbs *faanagu* ‘hugged’ and *baawasu* ‘kissed’ in (26a) are compatible with both of the adjuncts ‘at the moment the new year began’ and ‘taking turns’, yielding either a collective or distributive interpretation. When the same verbs are morphologically T-marked as in (26b), on the other hand, the distributive adjunct ‘taking turns’ suddenly becomes incompatible. It is true that the distributive adjunct is incompatible even when the morphologically T-marked verbs in (26b) are not accompanied by an overt reciprocal anaphor (indicated by its optionality). Therefore, they may appear to act as an intransitive “genuine” symmetrical verb at first sight. As discussed in Section 1, however, the seemingly intransitive construction here should be analyzed as involving an empty anaphor [e]_{RECIP} in the complement, and hence lexically entailed simultaneity is unlikely to arise directly between the conjoined subjects.¹³

Finally, the contrast in question between the T-marked and non-T-marked verbs can be observed even when the verb is non-symmetrical in meaning as in (27) and (28).

(27) Bader w-Bandar *t-saamaħu* maʕ Sawsan (#**bi-t-tanaawub**).
 Bader.NOM and-Bandar.NOM T-forgave with Sawsan.GEN in-the-turn.GEN
 ‘Bader and Bandar forgave Sawsan (#**in turn**).’

(28) Bader w-Bandar *saamaħu* Sawsan (^{ok}**bi-t-tanaawub**).
 Bader.NOM and-Bandar.NOM forgave Sawsan.ACC in-the-turn.GEN
 ‘Bader and Bandar forgave Sawsan (^{ok}**in turn**).’

(27) is only compatible with the reading that both Bader and Bandar forgave Sawsan on one occasion while (28) is compatible with not only such a collective reading but also with a distributive reading: Bader and Bandar separately forgave Sawsan, each on a distinct occasion.¹⁴

In short, lexically induced simultaneity of predicates should not be regarded as the only source of the obligatory collectivity observed in morphological reciprocals in JA.

2.4 Collective morpheme

Our investigations so far in this section lead us to identify the exact source of the observed obligatory collectivity. **Table 1**–(i–iii) encapsulate which constructions exhibit optional collectivity and which others obligatory collectivity:

¹³ An empty reciprocal complement is not permitted in the syntactic (i.e., morphologically unmarked) reciprocals as in (26a) in JA. We will discuss this phenomenon in Appendix B when we take up the cross-linguistic variations between Arabic and English.

¹⁴ See also the contrast between (19) and (29) to be discussed shortly below in Section 2.4.

	Optional collectivity		Obligatory collectivity
(i)	(14) + (16)	vs.	(17)
	(18a)	vs.	(18b)
(ii)		vs.	(19)
	(28)	vs.	(27)
(iii)	(25)	vs.	(22)
	(26a)	vs.	(26b)

Table 1: Optional vs. obligatory collectivity.

The contrasts shown in (i) indicate that obligatory collectivity is not induced by reciprocal anaphors, whether they are overt or covert. The observations in (ii) tell us that obligatory collectivity in fact can be observed even when no reciprocity whatsoever is involved in the sentence. Finally, the contrast in (iii) demonstrates that obligatory collectivity arises independently of lexically induced mutuality/simultaneity of the so-called “symmetrical” predicates.

While none of reciprocity, mutuality or simultaneity can induce the obligatory collectivity observed in the data listed on the right-hand side of **Table 1**, there is one thing in common among all of them — the morphological marking of the verbs with the morpheme *t-*. This observation suggests that obligatoriness of collectivity is either directly induced by or at least coincides with the presence of the morpheme *t-*. In fact, as illustrated in (29) below, when we eliminate the T-morpheme from the verb in (19) listed under **Table 1**–(ii), the distributive expression meaning ‘taking turns’ becomes compatible, which further supports this hypothesis. (Note that (29) fills the gap in one of the cells on the left-hand side of **Table 1**–(ii).)

- (29) l-ʔaxu w-ʔuxt-uh **ʔaawanu** ʔabuu-hum
the-brother.NOM and-sister-his.NOM helped father-their.ACC
{ ^{ok}sawijjeh / ^{ok}**bi-t-tanaawub** }.
together.ACC in-the-turn.GEN
‘The brother and his sister helped their father { ^{ok}together / ^{ok}taking turns }.’

Thus, while researchers have generally treated the Arabic T-morpheme examined in this section solely as a reciprocal marker, the facts in JA prompt us to reidentify it as a morpheme inducing collectivity rather than reciprocity. In the rest of this work, we would like to pursue this hypothesis and call the T-morpheme in question a “collective morpheme” or “collectivizer.”¹⁵

¹⁵ In Section 4, a more general investigation of the verb morphology in JA will lead us to take the view that the T-morpheme is both *potentially collective* and *potentially reflexive*. In the appendices, we will also explore a possible extension of our proposal on the T-morpheme in JA to English (Appendix B) and other Arabic dialects (Appendix C). It should be made clear, however, that we are *not* denying the existence of reciprocalizing morphemes in other languages.

Accordingly, we will pay most of our attention to collectivity, distancing ourselves from the topic of reciprocity in the discussions that follow.

3. The semantics of collectivity

In this section, we will construct a semantic model, with which we attempt to clarify, first, how plural eventualities and their distributivity and collectivity are semantically derived. To these ends, we adopt the devices proposed by Lasersohn (1998) and Büring (2005), combining and readjusting them.

To begin with, the sentence in (30) below can exhibit either distributive or collective interpretation (as per our definitions of these notions).

(30) John and Mary sang a song.

That is, it can describe John's singing and Mary's singing done either on separate occasions or on one occasion. The first step to capture both of these readings is to identify the existence of a plural eventuality. A quite common approach to fulfil this task is to postulate a distributive operator of some kind.¹⁶ Büring (2005: 204), for instance, postulates a *covert* distributive operator (*Dist*) semantically characterized as in (31).

(31) $\llbracket Dist \rrbracket^s = \lambda P_{\langle e,t \rangle} \lambda Z. \forall x \text{ s.t. } x \sqsubseteq_A Z, P(x)$ (\sqsubseteq_A indicates "atomic part of")

Roughly, a property $\llbracket Dist \rrbracket^s(\alpha)$ is defined to hold of a plurality Z if and only if α holds of all atomic parts of Z functioning as an argument of the predicate P .

We believe that the collective reading in (30) above can be captured by postulating a covert collective operator (*Coll*), which operates on the semantics provided by *Dist*. *Coll* is defined as in (32) below, which mimics (and simplifies) Lasersohn's (1998: 278, 288) semantic characterization of the collective adverb *together*.

(32) a. $\llbracket Coll_{\text{Spatiotemporal}} \rrbracket^s = \lambda P \lambda Z \lambda e [P(e)(Z) \ \& \ \forall e_1, e_2 \leq e$
 $\llbracket [\exists y P(e_1)(y) \ \& \ \exists x P(e_2)(x)] \rightarrow K(e_1) \circ K(e_2) \rrbracket]$

b. $\llbracket Coll_{\text{Temporal}} \rrbracket^s = \lambda P \lambda Z \lambda e [P(e)(Z) \ \& \ \forall e_1, e_2 \leq e$
 $\llbracket [\exists y P(e_1)(y) \ \& \ \exists x P(e_2)(x)] \rightarrow \tau(e_1) \circ \tau(e_2) \rrbracket]$

Here, P is a predicate, e_1 and e_2 are two subeventualities in e , and Z is a group of individuals. K in (32a) is a function that maps any eventuality onto both its running time (τ) and space (σ), with the little circle (\circ) indicating a significant overlap between the time and location of

¹⁶ See, for example, the approaches offered by Landman (1989; 2000); Heim & Lasnik & May (1991); Lasersohn (1995); Carlson (1998); Link (1998); and Büring (2005), among others.

the two subeventualities. If the subeventualities overlap only in time but not in space, we can simply replace the spatial and temporal function K with the temporal function τ as in (32b). Roughly, a property $\llbracket Coll_{(\text{spatio})\text{temporal}} \rrbracket^g$, i.e., collectivity, is defined to hold of P if and only if the subeventualities e_1 and e_2 in the eventuality e significantly overlap in time (and space). We need to take heed of the following three points when we adopt this approach. First, when we discuss the notion of collectivity appealing to $Coll$, we are paying attention to the overlapping property of eventualities rather than reciprocity, entailed simultaneity, or a single eventuality achieved by a group. Second, we consider that the presence of $Coll$ in a sentence gives rise to *obligatory* collectivity and also that some constructions may or may not involve $Coll$, which gives rise to optional collectivity. Third, $Coll$ in (32) is concerned with collectivity in the event semantics while Buring's (2005) $Dist$ as in (31) is defined without incorporating event semantics. We therefore need to redefine $Dist$ in (31) in order to combine it with $Coll$ in (32). This adjustment can be made by changing the semantic type of the predicate verb V in (31) from $\langle e, \langle e, t \rangle \rangle$ into $\langle e, \langle e, \langle \varepsilon, t \rangle \rangle \rangle$ and accordingly the types of constituents that combine with its maximal projection VP in order to avoid any type mismatches. The semantic type of the $Dist$ operator, in other words, needs to be changed from $\langle e, t \rangle$ as in (33a) into $\langle e, \langle \varepsilon, t \rangle \rangle$ as in (33b). (Here, ε is meant to indicate the semantic type of eventuality.)

- (33) a. $\llbracket Dist \rrbracket^g = \lambda P_{\langle e, t \rangle} \lambda Z. \forall x \sqsubseteq_A Z, P(x)$ (= (31))
 b. $\llbracket Dist \rrbracket^g = \lambda P_{\langle e, \langle \varepsilon, t \rangle \rangle} \lambda Z \lambda e. \forall x \sqsubseteq_A Z, P(x)(e)$

Redefined under the event semantics, the function of $Dist$ as in (33b) now comes to identify the existence of a plural eventuality such that each atomic individual of a plural argument (typically a subject) functions as a participant in respective subeventualities. Note then that the subeventualities introduced this way may take place either collectively or distributively (as per our definitions of these notions) even if the naming of this operator “ $Dist$ ” (inherited from the literature) may give the impression that obligatory distributivity arises. In a sense, this operator is labeled “distributive” only because it distributes the atomic individuals of the plural argument among the subeventualities.

In our analysis, we postulate $Coll$ and $Dist$ as the heads projecting their own phrases $CollP$ (Collective Phrase) and $DistP$ (Distributive Phrase), respectively, above VP as in the syntactic representation indicated in (34).

- (34) $[_{TP} \text{Sbj}_1 [_{CollP} (\mathbf{Coll}) [_{DistP} (\mathbf{Dist}) [_{VP} t_1 V \text{Complement}]]]]$

Presumably, the introduction of these operators is optional though $Dist$ must select VP, and $Coll$ must select $DistP$ as a complement, once they are introduced.

The sentence (30) above thus can be syntactically represented as in any of (35a–c).

- (35) a. John and Mary [_{VP} sang a song].
 b. John and Mary [_{DistP} **Dist** [_{VP} sang a song]].
 c. John and Mary [_{CollP} **Coll** [_{DistP} **Dist** [_{VP} sang a song]].

Since (35a) does not involve *Dist*, no subeventualities arise, which presumably results in the group reading of the subject involving only a single eventuality. *Dist* in (35b), on the other hand, identifies a plural eventuality, namely, the subeventualities in each of which an atom of the plural subject participates. Since *Coll* is not involved, its subeventualities receive no restriction and can be ambiguously interpreted as either collective or distributive. To the contrary, *Coll* introduced in (35c) imposes obligatory overlap on the involved subeventualities and requires that they take place collectively. We consider that which of these interpretations arises depends on the context/pragmatics, and that, in order to represent each such context-dependent interpretation properly, either or both of *Dist* and *Coll* are introduced into a syntactic representation. The claim we made on the T-morpheme in JA therefore can be formally embodied as its requirement to co-occur with *Coll*.

One important and interesting question is whether and what role *Dist* and *Coll* might play in the interpretation of reciprocals. Reciprocity induced by reciprocal anaphors is known to exhibit compatibility with distinct contexts involving varied “strength” of reciprocity, ranging from the “strong reciprocity” (i.e., reciprocity *conjunctively* holding between the involved atomic individuals) as in (36) below to the “weak (or non-symmetric) reciprocity” (i.e., reciprocity *disjunctively* holding between the involved atomic individuals) as in (37).¹⁷

(36) John and Mary kissed **each other**.

(37) The trays are stacked on top of **each other**.

Different researchers adopt different approaches to cope with the variation of actual interpretations which fall somewhere between these two interpretations. Dalrymple et al. (1998), for example, postulate a small inventory of reciprocal meanings and hypothesize that a sentence takes the strongest meaning in the inventory when it is consistent with the given context. Bar-Asher Siegal (2020), on the other hand, hypothesizes that the weakest reciprocity is the basic meaning of what he calls “NP-strategy” reciprocals, which can be strengthened depending on the given context and intended implicature. Perhaps, even the opposite approach is at least logically possible, which hypothesizes that the strongest reciprocity is the basic meaning and it can be weakened depending on the context and implicature. Since our main interest in this section is the semantics of collectivity, we are not in a position to evaluate or select any of such approaches to capture the interaction between the semantics of reciprocals and their contexts, or to argue for

¹⁷ In Appendix C, we will see that the “collective-distributive ambiguity” can be observed and the T-morpheme eliminates this ambiguity even in “weak (or non-symmetrical) reciprocals” in JA and other dialects of Arabic.

any particular semantic analysis of reciprocity.¹⁸ In Appendix D, nonetheless, we will explore how the operators *Dist* and *Coll* can be utilized in describing the semantic interpretation of collectivity when it is combined with (strong) reciprocity in JA.

4. Aspects of T-morphology in Jordanian Arabic

We now pay attention to morphology. The traditional study of verb morphology in Arabic has recognized two distinct functions of morphological T-marking as summarized in **Table 2**.¹⁹

	(i) Input Verb Form	(ii) Derived Verb Form	(iii) Root	(iv) Derived Meanings
a.	2	5	<i>ḥ-m-m</i> ‘bathe’	<i>t-ḥammamu</i> ‘they bathed{ themselves / #each other }’
b.	3	6	<i>s-m-ḥ</i> ‘forgive’	<i>t-saamaḥu</i> ‘they forgave{ each other / #themselves }’
c.	1	8	<i>r-m-j</i> ‘throw’	<i>ṯir-t-amu</i> ‘they threw { themselves / #each other }’
d.	1	8	<i>f-r-g</i> ‘separate’	<i>ṯif-t-ragu</i> ‘they separated from{ each other / #themselves}’

Table 2: Overview of T-morphology in JA.

First of all, as exemplified in column (iv), the T-morpheme appears at surface as a prefix in Forms 5 and 6 but as an infix in Form 8. This variation, however, is generally considered to be induced by phonology and all instances of T-morpheme are said to be identifiable as a prefix (see McCarthy 1981: 390). Following this well-accepted suggestion, we will analyze all instances of T-morpheme appearing in all of Forms 5, 6 and 8 as prefixes.

The prefix *t-* serves as a reflexivizer in Form 5 (**Table 2–a**) but it has been said to serve as a reciprocalizer in Form 6 (**Table 2–b**). The same T-morpheme in Form 8, on the other hand, has been said to ambiguously serve as a reflexivizer as in **Table 2–c** or as a reciprocalizer as in **Table 2–d**. Reflecting the conclusion we drew in Section 2.4, however, we recognize the T-morpheme in **Table 2–b** and **Table 2–d** as a collectivizer rather than a reciprocalizer with the assumption that reciprocity in collective sentences generally arises due to the syntactic presence of a reciprocal anaphor, which may be overt or covert.²⁰

¹⁸ See also Sabato & Winter (2012) and Mari (2014), among others, for relevant discussions.

¹⁹ See Appendix E for further examples. It is well known that Semitic languages exhibit a quite rich variety of non-concatenative verb morphology involving consonantal roots into which vowels and affixes are slotted for inflection and derivation, and JA is no exception to it. **Table 2** certainly is not comprehensive and by no means attempts to encapsulate all the semantic signification of all verb forms in JA. We are concentrating here on the verb forms and their meanings that are of interest to the main topic of this work. For detailed discussion of Arabic verbal morphology in general, see McCarthy (1981; 1982); Watson (2002); Holes (2004); Ryding (2005; 2014); and Essien (2014), among others.

²⁰ In Section 4.4 below, we will discuss a context in which reciprocity arises with Forms 6 and 8 without involving a reciprocal anaphor.

The segregation of these two distinctive functions of T-marking can be confirmed in (38a–d) below. First, the distributive adjunct ‘taking turns/in turn’ is felicitous in (38a) and (38c) but not in (38b) and (38d). That is, collectivity is optional in the former verb forms (5&8) but obligatory in the latter forms (6&8).

(38) a. Reflexive (Form 5):

el-ʔuxteen ez-zyaar t-ḥammamen bi-l-ḥammaam
the-sisters.DL.NOM the-little.NOM T-bathed in-the-bath.GEN
{ **b-nafs** **el-wagt** / **bi-t-tanaawub** }.
in-same.GEN the-time.GEN in-the-turn.GEN

‘The two little sisters bathed { **themselves** / #**each other** } in the bath
{ **simultaneously** / **taking turns** }.’

b. Collective (Form 6):

l-waladeen t-saamaḥu { **b-nafs** **el-wagt** / #**bi-t-tanaawub** }.
the-boys.DL.NOM T-forgave in-same.GEN the-time.GEN in-the-turn.GEN

‘The two boys forgave { **each other** / #**themselves** } { **simultaneously** / #**in turn** }.’

c. Reflexive (Form 8):

l-waladeen ʔir-t-amu ʔa-l-ʔasirrah { **b-nafs** **el-wagt** /
the-boys.DL.NOM T-threw on-the-beds.GEN in-same.GEN the-time.GEN
bi-t-tanaawub}.

in-the-turn.GEN

‘The two boys threw { **themselves** / #**each other** } on the beds { **simultaneously** /
taking turns }.’

d. Collective (Form 8):

z-zalameen ʔif-t-ragu { **b-nafs** **el-wagt** / #**bi-t-tanaawub** }.
the-men.DL.NOM T-separated in-same.GEN the-time.GEN in-the-turn.GEN

‘The two men separated from { **each other** / #**themselves** } { **simultaneously** / #**in turn** }.’

Second, as indicated by the translations, reflexive interpretations are available in (38a) and (38c) but prohibited in (38b) and (38d). Reciprocal interpretations, on the other hand, are available in (38b) and (38d) but prohibited in (38a) and (38c). In Sections 1 and 2 above, we adopted the view that T-reflexives in JA make up a one-place construction while T-collectives make up a two-place construction which permits an empty reciprocal anaphor as the complement. All the interpretive restrictions observed in (38) are in accordance with these morpho-syntactic analyses.

How exactly can the T-morpheme exhibit reflexivity in some cases and collectivity in others? Although this issue is independent of other claims we made above and its full-scale pursuit goes beyond the scope of this paper, we would like to conduct an initial survey on this issue. One possible and perhaps reasonable approach is to hypothesize that the T-morpheme is inherently specified as both *potentially reflexive* and *potentially collective*, and that each of these inherent

properties is activated only when some specific properties exist in the verb form the T-morpheme is attached to. Though briefly, we would like to explore an analysis of T-morphology along this line, couching it in the syntactic and semantic analyses argued for above.

As summarized in **Table 2**–(i–ii) above, the T-morpheme in JA takes three distinct verb forms as input and derives three distinct verb forms as output. In what follows, we will examine each such derivation paying attention to the properties of the input verb forms and the specific effects the T-morpheme achieves in each case. For the sake of brevity of our discussion, we will abbreviate “Verb Forms 1, 2, 3, 5, 6, and 8” as “F1, F2, F3, F5, F6 and F8,” respectively, sometimes referring to the verb forms themselves and other times using them as mere labels. In addition, we will use “transitive, unergative and unaccusative” to label the distinct *thematic properties of the original consonantal verb roots* as in **Table 2**–(iii) (rather than characterizing a syntactic construction co-occurring with any verb form).

4.1 Derivation of Verb Form 5 from Verb Form 2

As was introduced in **Table 2**–a above, F5 is derived when the T-morpheme selects F2 as its input. F2, whose form is characterized by the consonant gemination of the second radical ($C_1VC_2C_2VC_3$), makes up a *causative* construction, as illustrated by (39)–(41) below (cf. Wright 1896; Holes 2004; Ryding 2005, among others). (We are suggesting here that F2-unaccusatives should also be regarded as involving causation, extending a traditional view.)

- (39) a. **F2-transitive:**
 l-ʔustaað ʔallam ʔ-ʔaalib l-ʔazif
 the-teacher.M.NOM caused.to.*learn* the-student.M.ACC the-playing.ACC
 ʔa-li-bjaanoh
 on-the-piano.GEN
 ‘The male teacher caused the male student to learn (playing) the piano.
 (= The male teacher taught the male student (playing) the piano.)’
- b. l-ʔabu mallak ʔibn-uh sajjaarah.
 the-father.NOM caused.to.*own* son-his.ACC car.ACC
 ‘The father caused his son to own a car. (= The father got his son a car.)’
- (40) **F2-unergative:**
 huuh maffa / sabbah / ʔaddab ʔibn-uh.
 he.NOM caused.to.*walk* caused.to.*swim* caused.to.*behave* son-his.ACC
 ‘He caused his son to walk/swim/behave. (= He made his son walk/swim/behave.)’
- (41) **F2-unaccusative:**
 a. ʔaww eʃ-ʔames fattah li-wruud.
 light.NOM the-sun.GEN caused.to.*open* the-flowers.ACC
 ‘The sunlight caused the flowers to open/bloom.’

- b. huuh kassar ʃ-ʃubbaak.
 he.NOM caused.to.**break** the-window.ACC
 ‘He caused the window to break. (= He broke the window.)’

The effect of F5-T-marking then can be regarded as *requiring the causer and causee in F2 be united in reference*, as illustrated in (42)–(44).

(42) F5-**transitive**:

- a. ʔ-ʔaalib t-ʃallam l-ʃazif ʃa-li-bjaanoh
 the-student.M.NOM T-caused.to.learn the-playing.ACC on-the-piano.GEN
 ‘**The male student** caused **himself** to learn (playing) the piano.’ (= The male student learned / taught himself / self-taught (playing) the piano.)’
- b. l-ʔibin t-mallak sajjaarah.
 the-son.NOM T-caused.to.own car.ACC
 ‘**The son** caused **himself** to own a car. (= The son got himself a car.)’

(43) F5-**unergative**:

- l-ʔibin t-maffa / t-sabbah / t-ʔaddab.
 the-son.NOM T-walked T-swam T-caused.to.behave
 ‘**The son** caused **himself** to walk / swim / behave. (= The son walked / swam / behaved.)’

(44) F5-**unaccusative**:

- a. li-wruud t-fattahat.
 the-flowers.NOM T-caused.to.open
 ‘**The flowers** caused **themselves** to open. (= The flowers bloomed.)’
- b. l-gazaaz t-kassar.
 the-glass.NOM T-caused.to.break
 ‘**The glass** caused **itself** to break. (= The glass broke by itself.)’

Based upon the interpretations of F5-transitive as in (42) and F5-unergative as in (43), F5-T-morpheme has traditionally been characterized as a “reflexivizer,” while F5-unaccusative as in (44) has been treated separately as (medio)passive (Wright 1896; Ryding 2005). Our extension of the causative analysis of F2 to unaccusatives as in (41), however, makes it possible for us to assimilate all cases of F5 in (42)–(44).

In short, F2 makes up a *causative* construction, and T-morpheme selecting F2 *requires the causer and causee in F2 be united in reference*, deriving F5 as a “reflexive” verb.

4.2 Derivation of Verb Form 6 from Verb Form 3

As was summarized in Table 2–b above, an F6 is derived when the T-morpheme selects F3 as its input. F3 (C₁V₁V₁C₂V₂C₃) is identified by the vowel lengthening taking place in its input verb form F1. F3 verbs often imply some kind of loose symmetricity/parallelism, as in (45a–b).

(45) F3-unergatives:

- a. l-walad ḏaaḥak *(ṣaaḥb-hu).
 the-boy.NOM laughed friend-his.ACC
 ‘The boy laughed with his friend.’
- b. l-walad raakaḏ *(l-bint).
 the-boy.NOM ran the-girl.ACC
 ‘The boy ran with the girl.’

It is rather difficult to formally characterize the exact semantico-syntactic effect achieved by F3. One descriptive generalization we have managed to come up with, however, is that F3 seems to require the agent argument of the input verb to appear with *one more animate* (typically *human*) *participant as the initiator of the same eventuality*, which in effect paves the way for F3 to involve a *plural eventuality* under certain conditions to be discussed shortly below. Moreover, what is noteworthy in (45a–b) is that F3-unergatives must appear with an accusative-marked object which is interpreted as an additional agent of the verb. Putting emphasis more on this interpretive effect than its form, we will label this added participant in examples like (45) “*agentive object*.”²¹

Similarly, F3-transitives must appear with such an “agentive object” when the object of a transitive verb is inanimate while this extra participant is prohibited when the object is animate, as illustrated by the contrast in each of (46)–(47).²² (Note the distinct positions of * between each pair of sentences.)

(46) F3-transitive:

- a. l-walad raahan *(ṣaaḥb-uh) b-maṣaari.
 the-boy.NOM bet friend-his.ACC in-money.GEN
 ‘The boy bet money with his friend. (= Both the boy and his friend bet money.)’
- b. z-zalameh naada *(ṣaaḥb-uh) l-bint.
 the-man.NOM called friend-his.ACC the-girl.ACC
 Intended: ‘The man called (the name of) the girl with his friend. (= Both the man and his friend called (the name of) the girl.)’

(47) F3-transitive:

- a. l-walad ṣarak *(ṣaaḥb-uh) ṣa-l-ṣafa.
 the-boy.NOM shared friend-his.ACC on-the-dinner.GEN
 ‘The boy shared dinner with his friend. (= The boy and his friend shared dinner.)’

²¹ As far as we can tell, there is no evidence that a transitive verb taking an experiencer subject can productively constitute F3, which has led us to decide on the label *agentive object*. Benmamoun (2003: 53–56) characterizes F3 as a “plural form of a verb” and describes the interpretation induced by such an additional agent as “the meaning of sharing in the same activity.” We would like to credit this insight to him, and hope that we have clarified it further.

²² See Benmamoun (2003: 56) for similar examples in Standard Arabic.

- b. l-walad $\text{\textcircled{a}aawan}$ (* $\text{\textcircled{s}aahb-uh}$) *l-bint*.
 the-boy.NOM helped friend-his.ACC the-girl.ACC
 Intended: ‘The boy helped the girl with his friend. (= Both the boy and his friend helped the girl.)’

In other words, when (and only when) the agent in the input verb is not accompanied by the second animate/human participant, F3 adds an agentive object, which is to be interpreted as an extra initiator of the same action.

On the other hand, since unaccusative verbs do not involve any agent argument to begin with, they cannot appear in F3 at all, as illustrated in (48) below. Note that these sentences are ungrammatical whether the second participant appears as an accusative-marked object or not, and also whatever interpretive role this participant may be intended to play.

(48) *F3-unaccusatives

- a. *li-zhuur *faatahat* ({ s-samaad / l-jaasmiin }).
 the-roses.NOM opened the-fertilizer.ACC the-jasmine.ACC
 Intended: ‘The roses bloomed ({ due to the fertilizer / with the jasmines }).’
- b. *l-gazaaz *kaasar* ({ l-hawa / s-saguf }).
 the-glass.NOM broke the-wind.ACC the-roof.ACC
 Intended: ‘The glass broke ({ by the wind / with the roof }).’

Turning now to F6, we have noted that F6-T-morpheme is attached to only those F3s that can yield a *plural eventuality*. This state of affairs is a natural consequence if F6-T-morpheme is a collectivizer, as argued for in Section 2.4. If only a single eventuality is involved in its input verb form, a collectivizer cannot fulfil its function properly and fails to be interpreted. For instance, while the F3s involving a single eventuality as in (49a–b) below have no problem, the same verbs cannot be turned into F6s, as shown in (50a–b).

- (49) a. z-zalameh *naada* l-walad b-haḏiik l-laḥḏah.
 the-man.NOM called the-boy.ACC in-that.GEN the-moment.GEN
 ‘The man called the (name of the) boy at that moment.’
- b. z-zalameh *xaabar* $\text{\textcircled{f}}\text{-}\text{\textcircled{f}}\text{\textcircled{r}}\text{\textcircled{t}}\text{\textcircled{a}}\text{\textcircled{h}}$ $\text{\textcircled{s}}\text{\textcircled{a}}\text{\textcircled{n}}\text{\textcircled{-}}\text{\textcircled{i}}\text{\textcircled{l}}\text{\textcircled{l}}\text{\textcircled{i}}$ $\text{\textcircled{s}}\text{\textcircled{a}}\text{\textcircled{a}}\text{\textcircled{r}}$.
 the-man.NOM informed the-police.ACC on-what.GEN happened
 ‘The man informed the police about what had happened.’
- (50) a. *z-zalameh *t-naada* $\text{\textcircled{s}}\text{\textcircled{a}}\text{\textcircled{-}}\text{\textcircled{l}}\text{\textcircled{-}}\text{\textcircled{w}}\text{\textcircled{a}}\text{\textcircled{l}}\text{\textcircled{a}}\text{\textcircled{d}}$ b-haḏiik l-laḥḏah.
 the-man.NOM T-called on-the-boy.GEN in-that.GEN the-moment.GEN
 Intended: ‘The man called the (name of the) boy at that moment.’

- b. *z-zalameh t-xaabar ʕa-f-ʕurṭah ʕan-illi ʕaar.
 the-man.NOM T-informed on-the-police.GEN on-what.GEN happened
Intended: ‘The man informed the police about what had happened.’

If the input F3 involves a plural eventuality, on the other hand, the derived F6 becomes legitimate, with its subeventualities interpreted as *obligatorily collective*, as we have confirmed with numerous examples in Sections 2.1–2.3. (See (17), (18b), (19), (27), (22) and (26b) listed in the right column of **Table 1**.)

Having examined all the F6 examples at hand, we have noted that a plural eventuality which their input F3s are required to induce can be established in at least four ways as described in (A)–(D) below.

(A) It is created by *parallel subeventualities* involving two NPs interpreted as agent as in (51) and (52).

(51) F6-**unergative**:

- a. l-walad t-ḏaahak *(maʕ ʕaahb-uh) xilal muʕaahadet et-tilfizjoon.
 the-boy.NOM T-laughed with friend-his.GEN while watching.GEN the-television.GEN
 ‘The boy laughed with his friend while watching television. (= Both the boy and his friend laughed while watching television.)’
- b. l-walad t-raakaḏ *(maʕ l-bint).
 the-boy.NOM T-ran with the-girl.GEN
 ‘The boy ran with the girl. (= Both the boy and the girl ran.)’

(52) F6-**transitive**:

- a. l-walad t-raahan *(maʕ ʕaahb-uh) b-maʕaari ʕala sibaag
 the-boy.NOM T-bet with friend-his.GEN in-money.GEN on race.GEN
 el-ḥiṣneh.
 the-horses.GEN
 ‘The boy bet money with his friend on the horse race. (= Both the boy and his friend bet money on the horse race.)’
- b. l-walad t-ḥaasab *(maʕ ʕaahb-uh) ʕala el-waḏḏbeh.
 the-boy.NOM T-paid with friend-his.GEN on the-meal.GEN
 ‘The boy paid for the meal with his friend. (= Both the boy and his friend paid (their shares of) the money for the meal.)’

In F6-unergative (51a), for example, the addition of the agentive object induces two parallel subeventualities “the boy laughed” and “his friend laughed.” Similarly in the F6-transitives in (52), the second participant is added as an agentive object within the complement PP and induces an extra subeventuality. Thus, in (52a) for example, two parallel subeventualities “the boy bet money” and “his friend bet money” arise.

(B) A plural eventuality required by the F6-T-morpheme can also be created even when the eventuality does not involve parallel subeventualities if at least *one of the two participants is plural* in number.

When the input verb is transitive, it does not seem to matter whether this plural participant is interpreted as the subject as in (53) or the complement of the verb as in (54).

(53) F6-transitive (Plural subject):

l-ʔaxu **w-ʔuxt-uh** **t-ʔaawanu** maʔ ʔabuu-hum
 the-brother.NOM and-sister-his.NOM T-helped with father-their.GEN
 { ^{ok}sawijjeh / #b-ʔakel munfaʕil }.
 together.ACC in-manner.GEN separate.GEN
 ‘The brother and his sister helped their father { ^{ok}together / #separately }.’

(54) F6-transitive (Plural complement):

l-ʔabu **t-ʔaawan** maʔ **ʔibn-uh** **w-bint-uh** { ^{ok}lamma
 the-father.NOM T-helped with son-his.GEN and-daughter-his.GEN together.ACC
 ʕimlu waadʒib-hum sawijjeh / #b-ʔakel munfaʕil }.
 did homework.ACC-their together.ACC in-manner.GEN separate.GEN
 ‘The father helped his son and daughter { ^{ok}when they did their homework together /
 #separately }.’

At first sight, when the input verb is unergative, the plural subject alone appears to suffice to create a plural eventuality required by the F6-T-morpheme, as exemplified by (55a–b).

(55) F6-unergative:

- a. **l-waladeen** **t-ḏaaḥaku** { ^{ok}b-naʕs el-waqt / #bi-t-tanaawub }.
 the-boys.DL.NOM T-laughed in-same.GEN the-time.GEN in-the-turn.GEN
 ‘The two boys laughed { ^{ok}simultaneously / #in turn }.’
- b. **l-waladeen** **t-raakaḏu** { ^{ok}b-naʕs el-waqt / #bi-t-tanaawub }.
 the-boys.DL.NOM T-ran in-same.GEN the-time.GEN in-the-turn.GEN
 ‘The two boys ran { ^{ok}simultaneously / #in turn }.’

One question that arises is why the agentive object required in the input F3 need not appear in F6 here. Since an unergative verb requires an agentive object in F3 even with a plural subject, as shown in (56a–b) below, we cannot consider that the plurality of the subject in (55) alone made the appearance of an agentive object unnecessary.

(56) F3-unergative (plural subject):

- a. **l-waladeen** **ḏaaḥaku** *(**ʕaaḥib-hum**).
 the-boys.DL.NOM laughed friend-their.ACC
 ‘The two boys laughed with their friend.’

- b. Bader **t-saabag** maʃ Bandar { ^{ok}b-nafs l-wagt
 Bader.NOM T-raced with Bandar.GEN in-same.GEN the-time.GEN
 / #bi-t-tanaawub }.
 in-the-turn.GEN
 ‘Bader raced with Bandar { ^{ok}at the same time / #in turn }.’

We will analyze this case in more detail in Section 4.4 below.

(D) In pursuing the source of a plural eventuality in F6, we have encountered some examples that appear to constitute exceptions to our generalizations. Sometimes, F6 seems to be permitted even when none of (A)–(C) above is achieved, as illustrated by (58)–(60).

- (58) z-zalameh **t-baahaθ** bi-l-muwǝuuʃ (#min wagt la-θaani).
 the-man.NOM T-discussed in-the-subject.GEN from time.GEN to-second.GEN
 ‘The man discussed the subject **thoroughly** (#from time to time).’
- (59) z-zalameh **t-laaʃab** bi-l-natiiǝgeh (#min wagt la-θaani).
 the-man.NOM T-manipulated in-the-result.GEN from time.GEN to-second.GEN
 ‘The man manipulated the result **completely** (#from time to time).’
- (60) z-zalameh **t-daaras** bi-l-fikrah (#min wagt la-θaani).
 the-man.NOM T-studied in-the-idea.GEN from time.GEN to-second.GEN
 ‘The man studied the idea **intensely** (#from time to time).’

That is, F6 seems to be permitted even when a sentence does not involve any of plural participants, parallel subeventualities, or symmetrical verbs. None of these examples involves the second human/animate participant, either. The possibility of F6 in such sentences may suggest some essential inadequacy of the generalization made above. By pushing forward some creative and abstract thinking, however, we can envisage a way to capture cases like (58)–(60) under the proposed generalization.

First, the rejection of a distributive adjunct “from time to time” in these sentences suggests that these sentences all involve obligatory collectivity although such an interpretation is not directly or immediately detectable. Instead, they all seem to convey some implied meanings which may be characterizable as certain types of *intensity* or *exhaustiveness* as indicated by “thoroughly,” “completely” and “intensely” in their translations. We would like to claim here that such intensified interpretations are arising because the eventuality involved in each of these sentences can be analyzed as plural, involving *the convergence of multifaceted or multi-angled subeventualities*. Simply put, we consider that the event of “the man’s discussing the subject” in (58), for instance, was “thorough” because he examined various aspects of the subject.

Similarly, “the man’s manipulating the result” in (59) was complete because he maneuvered various significant aspects of the result. As a matter of fact, these sentences can co-occur with the adjuncts indicating a plural eventuality but they cannot co-occur with the adjuncts indicating only a single eventuality, as illustrated in (61a–c).

- (61) a. “The man discussed the subject” in (58) followed by:
 { ^{ok}min ɕɔawaanib kθiireh / #min ɕɔaanib waahad }.
 from sides.GEN many.GEN from side.GEN one.GEN
 ‘{ ^{ok}from many sides / #from one side }’
- b. “The man manipulated the result” in (59) followed by:
 { ^{ok}min ʔiddit ɕɔawaanib / #min ɕɔaanib waahad }.
 from several.GEN sides.GEN from side.GEN one.GEN
 ‘{ ^{ok}from several sides / #from one side }’
- c. “The man studied the idea” in (60) followed by:
 { ^{ok}min ʔiddit zawaaja / #min zaawjeh wahadeh }.
 from several.GEN angles.GEN from angle.GEN one.GEN
 ‘{ ^{ok}from several angles / #from one angle }’

The suggested analysis of (58)–(60) is also compatible with the observation that the verbs which express a one-time event cannot constitute a similar F6, as already seen in (50a–b).

Finally, even if the proposed account of (58)–(60) is adopted, we must still explain how such a plural eventuality can be made possible with the involvement of only a single initiator of the event. To fulfill this task, we would like to appeal to the notion “guise” proposed by Heim (1998) to explain why the violation of Principles B and C of the binding theory can be evaded in examples like (62a–b), respectively (Reinhart 1983; Higginbotham 1985; Grodzinsky & Reinhart 1993).

- (62) a. You know what Mary, Sue and John have in common?
 Mary admires John, Sue admires him, and **John** admires **him** too.
- b. **He** put on **John’s** coat; but only John would do that; so he is John.

In these utterances, the speaker believes, and intends the hearer to believe, that the highlighted NPs are coreferential despite the apparent violation of Principles B and C, respectively, induced by such interpretations. Heim (1998: 214–217) attempts to solve this conundrum by postulating two distinct “guises” of the same referent *John* and *him/he* in the given contexts which would lead to different cognitive values. In (62a), for example, *John* as an admirer and *him* as the admired appear as two distinct guises. Since the two guises are distinct from each other, they do not give rise to a binding relation in syntax, and hence do not violate Principles B/C. In their semantic interpretation, on the other hand, the interlocutors appeal to their knowledge and/or assumption that the two guises share the same referent and interpret them as coreferential.

Returning now to (58)–(60), we have claimed above that a plural eventuality in these examples is induced by the convergence of multifaceted subeventualities. Then, it probably is not entirely inconceivable that multiple guises as the initiators of such multiple subeventualities appear in these examples. In (59), for example, “*the man* as one guise addressed the problem from a theoretical angle,” and “*the man* as another guise addressed the problem from a practical angle,” and so on. Such multiple guises can induce parallel subeventualities while they refer to one and the same participant. The approach adopted in (D) is admittedly exploratory, but it allows us to capture not only the obligatory collectivity but also the otherwise inexplicable source of the intensified interpretation observed in (58)–(60), assimilating them into those discussed in (A)–(C). We will discuss this phenomenon in Section 4.4 below again, which suggests that (D) in fact can be regarded as a quite rational option the grammar of JA permits.

In short, F3 pluralizes an eventuality, requiring the involvement of *more than one human (or animate) participant as the initiator of the same eventuality*. Then, T-morpheme selecting F3 requires the subeventualities involved there to significantly overlap in time (and location), deriving F6 as a “collective” verb.

4.3 Derivation of Verb Form 8 from Verb Form 1

F8 is derived when the T-morpheme selects F1 as its input. F8 ($\mathbf{2iC_1tVC_2VC_3}$) is derived from F1 ($C_1VC_2VC_3$) by: (i) *t*-prefixation ($t-C_1$) followed by (ii) Flop (C_1t), and (iii) compensatory $\mathbf{2i}$ -prefixation to avoid both a consonant cluster ($\#C_1t$) and a vowel ($\#iC_1t$) word-initially. (See Wright 1896: 41; McCarthy 1981: 390; among others.) F1 is an inflected but *unaugmented* verb form, which serves as the foundation in deriving many other verb forms. As already described in Table 2–(c–d) above, F8 sometimes yields reflexivity just as F5 does, but at other times it yields obligatory collectivity just as F6 does. How can we rationalize these phenomena? We will attempt to provide an answer below based upon the following reasoning. When F8 yields a reflexive interpretation, it must be the case that the F1 it selects shares whatever aspect of F2 which activates the “potential reflexivity” of the T-morpheme. Likewise, when F8 yields an obligatory collective interpretation, it must be the case that its input F1 shares the aspect of F3 which activates the “potential collectivity” of the T-morpheme.²³ Let us now discuss each of these cases in turn.

First, since the basic function of the T-morpheme as a *reflexivizer* is to require *united reference* of the participants within a single eventuality, the only way the input *unaugmented* verb (F1) can satisfy this requirement would be to provide two participants. This reasoning will lead us

²³ Since these conditions must be met by the F1 verbs’ idiosyncratic lexical properties, only a limited number of F8s are derivable compared to F5s and F6s, which are derivable from more “productively derived” F2s (causativized by gemination) and F3s (pluralized by vowel lengthening).

to consider that F8 necessarily selects a *transitive F1* whose two arguments can enter a felicitous *self-related* (or *intrapersonal*) relation when they are interpreted as united in reference, as exemplified in (63).²⁴

(63) **Reflexive F8:**

- a. l-ʔixwah ʔix-**t-abu** bi-s-siddeh.
 the-brothers.NOM T-hid in-the.attic.GEN
 ‘The brothers hid themselves into the attic.’
- b. li-wlaad ʔir-**t-amu** ʕa-l-ʔasirrah.
 the-boys.NOM T-threw on-the-beds.GEN
 ‘The boys threw themselves on the beds.’

Reflexive F8, on the other hand, is never possible with intransitive F1, i.e., unergative or unaccusative verbs.

In short, the reflexivity in F8 is induced more or less in the same way as that in F5, except that the *united reference* of the participants within a single eventuality is made available by the *unaugmented* verb (F1) which denotes a *self-related* (or *intrapersonal*) relation.²⁵

Next, the T-morpheme as a *collectivizer* requires the involvement of a *plural eventuality* in the input verb. In most, if not all, cases of collective F8s, this requirement seems to be fulfilled when the input unaugmented verb (F1) is *symmetrical* in nature, as in (64a–b).

(64) **Collective F8 (Plural subject):**

- a. z-zalameen_{<1+2>} ʔif-**t-aragu** [e]_{<1↔2>}.
 the-men.DL.NOM T-separated
 ‘The two men separated from each other.’
- b. l-waladeen_{<1+2>} ʔix-**t-alaʔu** [e]_{<1↔2>}.
 the-boys.DL.NOM T-mingled
 ‘The two boys mingled with each other.’

Both of these sentences exhibit only a collective reciprocal interpretation (e.g., (38d)) and their subjects must be plural (as will be shown directly below in (65a–b)). This set of facts naturally leads us to postulate an empty reciprocal anaphor as an agentive object in these sentences. The collectivity of the T-morpheme in (64a–b), in other words, seems to be activated by the plural

²⁴ In Section 1, we observed some facts that led us to believe that T-reflexives are *syntactically* realized as a one-place construction. As expected, these reflexive sentences can exhibit either collective or distributive interpretations.

²⁵ As an anonymous reviewer pointed out to us, there is a puzzling complementarity involved in the reflexive sentences in JA — when F1-reflexivization is possible, F2/F5-reflexivization is not possible. On the other hand, when F2/F5-reflexivization is possible, F1-reflexivization is not possible due to the absence of the corresponding F1 form. The examination of these lexical gaps would have to be left for future research.

eventuality in F1 that is induced perhaps by the combination of (A) (parallel subeventualities), (B) (plural participant) and (C) (symmetrical verbs) discussed in Section 4.2 above.

If we alter the plural subject in (64a–b) into a singular one, on the other hand, an overt agentive object is required to appear (in the PP complement), as in (65a–b).

(65) **Collective F8** (Singular subject):

- a. *z-zalameh* *ʔif-t-arag* *(**ʕan marat-uh**)
 the-man.NOM T-separated from wife-his.GEN
 ‘The man separated from his wife.’
- b. *l-walad* *ʔix-t-alaṭ* *(**bi-l-bint**)
 the-boy.NOM T-mingled in-the-girl.GEN
 ‘The boy mingled with the girl.’

Here, a plural eventuality was induced by the addition of an agentive object combined with a symmetrical verb ((C)). The situation is similar to (A) but the involved subeventualities are reciprocal rather than parallel. We will discuss this case in more detail in Section 4.4 below.

Thus, the collectivity in F8 is induced more or less in the same way as that in F6, except that (C) seems to be always involved for F8. We have not encountered any collective F8 licensed by (D) (convergence of multifaceted subeventualities), either. As will be discussed directly below in Section 4.4, however, there is a good reason for these restrictions.

4.4 Collectivity with single subjects

Having examined both semantics and morphology of collectivity, we now are ready to rationalize how a plural eventuality is induced with a singular subject in some T-marked collective constructions.

Since the T-morpheme in JA is a collectivizer, it needs to be associated with the operator *Coll*. *Coll* in turn needs a plural eventuality to operate on, and hence requires the presence of *Dist*, as in (66) (cf. (34)).

(66) [_{TP} Sbj₁ [_{CollP} **Coll** [_{DistP} **Dist** [_{VP} t₁ T-V Complement]]]]

When the subject is singular and *Dist* cannot identify a plural eventuality in the sentence, the grammar of JA seems to permit two ways to devise a plural eventuality.

One method is to introduce an agentive object and appeal to the symmetrical property of the involved verb. For instance, as we saw with (51) and (52) in Section 4.2, when the F3 (as the input to the T-marking of F6) implies loose symmetricity/parallelism, the introduction of an agentive object makes parallel subeventualities available, which can be collectivized by F6. When the F3 verbs imply more direct symmetricity (i.e., simultaneity), e.g., *race*, *hug*, *kiss*, and *fight*,

the introduction of an agentive object gives rise to a crisscrossing plural eventuality and hence reciprocity. The interpretation derived by this strategy as in (67) below is generally recognized as “discontinuous reciprocity.”²⁶

- (67) el-walad *t-saabag* maʕ ʔuxt-uh.
 the-boy.NOM T-raced with sister-his.GEN.
 ‘The boy raced with his sister.’

JA permits another method to devise a plural eventuality with a singular subject. When the input F3 does not imply any kind of symmetricity/parallelism, e.g., *help*, *forgive* and *blame*, the strategy adopted for (51)–(52) and (67) is not available. We believe that a plural eventuality can be devised in such cases with the “guises” of a singular subject, provided that the emerging multifaceted subeventualities are semantico-pragmatically felicitous, as observed with (58)–(60) in Section 4.2. The same strategy is adopted with an asymmetrical F3 as in (68) below, which cannot induce “discontinuous reciprocity.”

- (68) el-walad *t-ʕaawan* maʕ ʔuxt-uh.
 the-boy.NOM T-helped with sister-his.GEN
 ‘The boy helped his sister **a great deal / in many aspects.**’

The multifaceted subeventualities arising here can be detected by the “intensified” interpretation (*a great deal/in many aspects*) which suddenly pops up in this sentence. The presence of “discontinuous reciprocity” in (67) and its absence in (68) can also be demonstrated when we see that the reciprocity of the former cannot be negated as in (69a) while the reciprocity of the latter can be negated as in (69b).

- (69) a. (67) + #w-laakin ʔuxt-uh *maa t-saabagat* maʕ-uh.
 and-but sister-his.NOM NEG T-raced with-him.GEN
 ‘The boy raced with his sister, #**but** his sister did **not** race with him.’
- b. (68) + ^{ok}w-laakin ʔuxt-uh *maa t-ʕaawanat* maʕ-uh.
 and-but sister-his.NOM NEG T-helped with-him.GEN
 ‘The boy helped with his sister, ^{ok}**but** his sister did **not** help him.’

Note that (69a) also makes a sharp contrast with (20) in Section 2.2, which involves a plural subject.

²⁶ See Dimitriadis (2008a; 2008b) and Siloni (2008) for relevant discussions on the role of symmetricity in discontinuous reciprocity. As far as we can tell, F1 as the input to the collective F8 is always symmetrical in nature in JA. F8 cooccurring with a singular subject therefore always exhibits “discontinuous reciprocity,” as we saw with (65) in Section 4.3.

4.5 Two functions of t-morpheme

The investigation so far has led us to conclude that *potential reflexivity* of the T-morpheme is activated by the input verb's capability of involving an *intrapersonal* (or *self-related*) relation, and its *potential collectivity* is activated by a *plural eventuality* the input verb induces in a sentence.

We have also confirmed that each of such activation is clearly segregated between F5 (for reflexivity) and F6 (for collectivity), but both types of activation can take place in F8. One reasonable interpretation of this state of affairs is that the T-morpheme induces reflexivity when it selects the input verb form in which the required united reference can be satisfied, whether it is F1 (intrapersonal transitive) or F2 (causative). Likewise, the T-morpheme induces obligatory collectivity when it selects the input verb form which can supply a plural eventuality, whether it is F1 (symmetrical transitive) or F3 (unergative or transitive involving two human/animate participants). Then, in a sense, F5, F6 and F8 can be regarded as mere descriptive labels for each of such subcases of activation, as summarized in **Table 3**.²⁷

	Activated potential property of T-morpheme	Activation by		Descriptive label
a.	reflexivity	intrapersonal relation in	Causative (F2)	Form 5
b.			Transitive (F1)	Form 8
c.	obligatory collectivity	plural eventuality in	Unergative or Transitive involving two human/animate participants (F3)	Form 6
d.			Symmetric Transitive (F1)	Form 8

Table 3: T-morpheme activation.

Finally, as we have confirmed in **Table 2** at the outset of this section, the two potential functions of the T-morpheme as a reflexivizer and a collectivizer are *exclusive* — if one is possible, the other is not possible. Why do they have to be? The answer comes from the very nature of these two functions. First, reflexivity arises because the T-morpheme requires *united reference* between the two participants in the eventuality. On the other hand, the obligatory collectivity is induced by the T-morpheme when a plural eventuality is made available by the input verb. If the two participants in a plural eventuality are united in reference, the two subeventualities involved there amount to be induced by one and the same participant, that is, in a singular rather than plural eventuality. The potential collectivity of the T-morpheme therefore would fail to be activated. We thus are led to the conclusion that the two participants in the input subeventualities must be

²⁷ See also Doron (2003) for the attempt to unify reflexives and reciprocals paying attention to the distinct number of involved participants.

disjoint in reference in order for the potential collectivity of the T-morpheme to be activated. Since the T-morpheme's reflexivizing function induces united reference and its collectivizing function is realized only with disjoint reference, they are mutually exclusive.

The analysis of verb forms in JA we summarized above is far from being comprehensive and the view pursued in this section is undoubtedly preliminary. We believe, however, that they deserve further scrutiny both by those who find them reasonable and by those who do not, so that we can further advance a formal investigation of the syntactic and semantic aspects of verb morphology in JA, which is only scarcely available in the literature. We also hope that they have a potential to shed light on the semantics of the morphological verbal templates in other Semitic languages as well.

5. Summary and conclusion

This paper started with the observations leading us to believe that morphologically marked *reflexives* in Jordanian Arabic (JA) are one-place predicates, but their *reciprocal* counterparts are two-place predicates, with their internal arguments being realized either covertly or overtly in syntax.

It was then argued that, at least in JA, what has traditionally been regarded as a “reciprocalizing” function of the T-morpheme should be reanalyzed as its “collectivizing” function and that the associated reciprocity arises as the side effects of plural eventualities required by the T-morpheme, i.e., parallel subeventualities holding between two separate participants, plural participants or guises. Though briefly, a formal semantic analysis was also provided for the JA sentences which yield distributivity, collectivity and reciprocity in their interpretation.

In the final section, it was also conjectured how the T-morpheme interacts with the semantico-syntactic properties of the input verb forms and derive distinct verb forms.

Abbreviations

ACC = Accusative

DIST = Distributive

DL = Dual

F = Feminine

GEN = Genitive

JA = Jordanian Arabic

M = Masculine

NEG = Negation

NOM = Nominative

OM = Object marker

RECIP = Reciprocal

REFL = Reflexive

Supplementary files

The supplementary materials for this article can be found here: <https://doi.org/10.16995/glossa.5799.s1>. They contain the following materials:

- **Appendix A:** The structural properties of reciprocals
- **Appendix B:** Possible cross-linguistic investigations of Arabic and English
- **Appendix C:** T-morphemes in various Arabic dialects — An initial investigation
- **Appendix D:** Interaction of collectivity and reciprocity
- **Appendix E:** Further examples of sentences and T-marked verbs

Acknowledgements

We are extremely grateful to: our informants for their patient and sincere participation in our investigations, Tom Grano for his help on semantics, and three anonymous reviewers for their helpful comments and criticisms. We would also like to thank the editor for his patient and sensible treatment of the long and winding review process of this work. The usual disclaimers apply to whatever mistakes and deficiencies originated from our ignorance.

Competing interests

The authors have no competing interests to declare.

References

- Bar-Asher Siegal, Elitzur A. 2016. The Semitic templates from the perspective of reciprocal predicates. *Proceedings of the 10th Mediterranean Morphology Meeting*, 16–30.
- Bar-Asher Siegal, Elitzur A. 2020. *The NP-strategy for Expressing Reciprocity: Typology, History, Syntax and Semantics*. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/tsl.127>
- Benmamoun, Elabbas. 2003. Reciprocals as plurals in Arabic. In Lecarme, Jacqueline (ed.), *Research in Afroasiatic grammar II: Selected Papers from the Fifth Conference on Afroasiatic Languages*, 53–62. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/cilt.241.05ben>
- Büring, Daniel. 2005. *Binding theory*. Cambridge: Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9780511802669>
- Carlson, Greg. 1998. Thematic roles and the individuation of events. In Rothstein, Susan (ed.), *Events and grammar (studies in linguistics and philosophy 70)*, 35–51. Dordrecht: Kluwer Academic Publishers. DOI: https://doi.org/10.1007/978-94-011-3969-4_3
- Dalrymple, Mary & Kanazawa, Makoto & Kim, Yookyung & McHombo, Sam & Peters, Stanley. 1998. Reciprocal expressions and the concept of reciprocity. *Linguistics and philosophy* 21(2). 159–210. DOI: <https://doi.org/10.1023/A:1005330227480>
- Dimitriadis, Alexis. 2008a. The event structure of irreducibly symmetric reciprocals. In Dölling, Johannes & Heyde-Zybatow, Tatjana & Schäfer, Martin (eds.), *Event Structures in Linguistic Form and Interpretation*, 328–354. Berlin: Mouton de Gruyter. DOI: <https://doi.org/10.1515/9783110925449.327>
- Dimitriadis, Alexis. 2008b. Irreducible symmetry in reciprocal constructions. In König, Ekkehard & Gast, Volker (eds.), *Reciprocals and reflexives: Theoretical and typological explorations*, 375–409. Berlin: Mouton de Gruyter.
- Doron, Edit. 2003. Agency and voice: The semantics of the Semitic templates. *Natural Language Semantics* 11. 1–67. DOI: <https://doi.org/10.1023/A:1023021423453>
- Essien, Hannah. 2014. Structural study of Arabic morphology. Bloomington, IN: Indiana University Bloomington dissertation.
- Fassi Fehri, Abdelkader. 2012. *Key features and parameters in Arabic grammar*. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/la.182>
- Fischer, Wolfdietrich. 2002. *A grammar of Classical Arabic (third revised edition)*. New Haven, Connecticut: Yale University Press.
- Grodzinsky, Yosef & Reinhart, Tanya. 1993. The innateness of binding and coreference. *Linguistic Inquiry* 24. 69–102.
- Heim, Irene. 1998. Anaphora and semantic interpretation: A reinterpretation of Reinhart's approach. In Sauerland, Uli & Percus, Orin (eds.), *The interpretive tract: Working Papers in Syntax and Semantics, MIT Working Papers in Linguistics, Volume 25*, 205–246. Cambridge, MA, Department of Linguistics, MIT.
- Heim, Irene & Lasnik, Howard & May, Robert. 1991. Reciprocity and plurality. *Linguistic Theory* 22(1). 63–101.

- Higginbotham, James. 1985. On semantics. *Linguistic Inquiry* 16. 547–593.
- Holes, Clive. 2004. *Modern Arabic structures, functions, and varieties*. Washington, DC: Georgetown University Press.
- Laks, Lior. 2007. Morphology and thematic arity operations: Evidence from Standard Arabic. In Mughazy, Mustafa A. (ed.), *Perspectives on Arabic linguistics XX: Papers from the twentieth annual symposium on Arabic linguistics*, 51–67. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/cilt.290.06lak>
- Landman, Fred. 1989. Groups, I. *Linguistics and Philosophy* 12(5). 559–605. DOI: <https://doi.org/10.1007/BF00627774>
- Landman, Fred. 2000. *Events and plurality: The Jerusalem lectures (studies in linguistics and philosophy)*. Dordrecht: Kluwer Academic Publishers. DOI: <https://doi.org/10.1007/978-94-011-4359-2>
- Laserson, Peter. 1995. *Plurality, conjunction, and events (studies in linguistics and philosophy 55)*. Dordrecht: Kluwer Academic Publishers. DOI: https://doi.org/10.1007/978-94-015-8581-1_5
- Laserson, Peter. 1998. Events in the semantics of collectivizing adverbials. In Rothstein, Susan (ed.), *Events and grammar (studies in linguistics and philosophy 70)*, 273–292. Dordrecht: Kluwer Academic Publishers. DOI: https://doi.org/10.1007/978-94-011-3969-4_11
- LeTourneau, Mark S. 1998. Implicit reciprocals in Standard Arabic. In Benmamoun, Elabbas & Eid, Mushira & Haeri, Niloofar (eds.), *Perspectives on Arabic linguistics XI: Papers from the eleventh annual symposium on Arabic linguistics*, 91–113. Amsterdam: John Benjamins. DOI: <https://doi.org/10.1075/cilt.167.07let>
- Link, Godehard. 1998. *Algebraic semantics in language and philosophy* (CSLI Lecture Notes No. 74). Stanford, California: CSLI Publications.
- Lønning, Jan Tore. 2011. Plurals and collectives. In van Benthem, Johan & ter Meulen, Alice (eds.), *Handbook of logic and language*, Second Edition, 989–1033. Amsterdam: Elsevier. DOI: <https://doi.org/10.1016/B978-0-444-53726-3.00023-2>
- Mari, Alda. 2014. Each other, asymmetry and reasonable futures. *Journal of Semantics* 31. 209–261. DOI: <https://doi.org/10.1093/jos/fft003>
- McCarthy, John Joseph. 1981. A prosodic theory of nonconcatenative morphology. *Linguistic Inquiry* 12(3). 373–418.
- McCarthy, John Joseph. 1982. *Formal problems in Semitic phonology and morphology*. Texas: University of Texas, Austin.
- Peres, Joao Andrade. 1998. Issues on Distributive and Collective Readings. In Hamm, Fritz & Hinrichs, Erhard (eds.), *Plurality and Quantification (Studies in Linguistics and Philosophy 69)*, 339–365. Dordrecht: Kluwer Academic Publishers. DOI: https://doi.org/10.1007/978-94-017-2706-8_9
- Reinhart, Tanya. 1983. *Anaphora and semantic interpretation*. London: Croom Helm.
- Reinhart, Tanya & Siloni, Tal. 2005. The lexicon-syntax parameter: Reflexivization and other arity operations. *Linguistic Inquiry* 36(3). 389–436. DOI: <https://doi.org/10.1162/0024389054396881>

- Ryding, Karin C. 2005. *A reference grammar of Modern Standard Arabic*. Cambridge: Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9780511486975>
- Ryding, Karin C. 2014. *Arabic: A linguistic introduction*. Cambridge: Cambridge University Press. DOI: <https://doi.org/10.1017/CBO9781139151016>
- Sabato, Sivan & Winter, Yoad. 2012. Relational domains and the interpretation of reciprocals. *Linguistics and Philosophy* 35(3). 191–241. DOI: <https://doi.org/10.1007/s10988-012-9117-x>
- Siloni, Tal. 2001. Reciprocal verbs. In Falk, Yehuda N. (ed.), *Proceedings of the Israel association of theoretical linguistics 17*. Jerusalem: Hebrew University of Jerusalem. <http://linguistics.huji.ac.il/IATL/17/TOC.html>.
- Siloni, Tal. 2002. Active lexicon. *Theoretical Linguistics* 28. 383–400. DOI: <https://doi.org/10.1515/thli.28.3.383>
- Siloni, Tal. 2008. The syntax of reciprocal verbs: An overview. In König, Ekkehard & Gast, Volker (eds.), *Reciprocals and reflexives: Theoretical and typological explorations*, 451–498. Berlin: Mouton de Gruyter.
- Siloni, Tal. 2012. Reciprocal verbs and symmetry. *Natural Language & Linguistic Theory* 30(1). 261–320. DOI: <https://doi.org/10.1007/s11049-011-9144-2>
- Thackston, Wheeler M. 2000. *An introduction to Koranic and Classical Arabic: An elementary grammar of the Language*. Bethesda, Maryland: IBEX Publishers.
- Watson, Janet C. E. 2002. *The phonology and morphology of Arabic*. Oxford: Oxford University Press.
- Wright, William. 1896. *A grammar of the Arabic language*, Vol.1. Originally written in German by Carl Caspari and Translated by William Wright, Smith, William Robertson & de Goeje, Michael Jan (eds.). Cambridge: Cambridge University Press. (Original work published 1874.)

