

**THE SYNTAX OF LEXICAL
RECIPROCAL CONSTRUCTIONS**

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Proceedings of the LFG10 Conference

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(Editors)

2010

CSLI Publications

<http://csli-publications.stanford.edu/>

1 Abstract¹

Many languages are able to productively form two types of reciprocal constructions from a transitive base: a monadic construction which groups the participants in the relation in the subject NP while losing an object NP; and a dyadic construction which creates a symmetric situation by placing one participant in a subject NP and another in a comitative phrase (also with the corresponding loss of an object). I show that the syntax of these constructions in Swahili (as well as in many other languages) can be understood as a natural consequence of speakers reanalysing a comitative phrase in a monadic reciprocal construction as an argument. My analysis builds upon recent work within LFG and is not only sensitive to these constructions' diachronic development from a basic transitive verb, but also provides insight into a variety of features these constructions share cross-linguistically. Furthermore, this analysis predicts the syntactic behaviour of many naturally symmetric verbs in English (such as *dance*, *quarrel* etc.).

2 Background

Many verbally marked reciprocal constructions have two forms; a basic monadic form (1b) and a dyadic alternation (1c). The examples below are from Swahili, but the monadic/dyadic alternation has been attested in many other Bantu languages (e.g., Chicheŵa, Mchombo (1991) and Luganda, McPherson (2008)) as well as Hungarian (Rákosi (2008)), Hebrew (Siloni 2001), Icelandic, German (Dimitriadis 2004) etc.:

(1a) Swahili - Basic transitive construction²
Juma a-li-m-pig-a Halima
Juma 3sgS-PST-3sgO-hit-FV Halima
“Juma hit Halima”

(1b) Monadic reciprocal construction
Juma na Halima wa-li-pig-an-a
Juma and Halima 3plS-PST-hit-REC-FV
“Juma and Halima hit/fought each other”

(Both participants share roughly equal participation in this event.)

1 Thank you to Mr Hillary Kissassi, my Swahili teacher, for his aid in the collection of data presented here. For helpful comments and discussions, I would also like to thank Rachel Nordlinger, Averil Grieve and György Rákosi. All errors are mine.
2 3sgS – 3rd person singular subject, REC – reciprocal morpheme, FV – final vowel, MV – middle voice, APP – applicative.

- (1c) Dyadic reciprocal construction
Juma a-li-pig-an-a na Halima
 Juma 3sgS-PST-hit-REC-FV COM Halima
 “Juma and Halima hit each other”
 lit. “Juma hit.rec/fought with Halima”

(Unlike in (1b), Juma in this situation is usually the instigator of the event and Halima's participation does not have to match his – she may be a reluctant participant, for example.)

The monadic reciprocal construction (1b) is formed by marking the verb with a reciprocal morpheme (-*an-*) and grouping the participants of the event into the subject NP. The resulting reciprocated verb no longer has an object. The dyadic construction (1c) is formed using the same reciprocal morphology on the verb, but the subject is singular and in place of the object there is now a prepositional phrase.

In previous work, Dimitriadis (2004) has convincingly argued for other languages that the comitative phrase in these constructions is not part of a discontinuous subject and that it is syntactically (and semantically) distinct from the subject NP. In the case of Swahili, despite the fact that the comitative preposition *na* shares the same form as the coordinator, the phrase *na Halima* in (1c) can be shown to be distinct from the subject by verbal agreement. Verbs in Swahili agree in number with their subject – irrespective of whether the subject is discontinuous or not. So, unlike the dyadic construction, the discontinuous form of the monadic construction has plural subject agreement:

- (2) Discontinuous form of the monadic reciprocal construction
Juma wa-li-pig-an-a na Halima
 Juma 3plS-PST-hit-REC-FV and Halima
 “Juma and Halima hit each other”

That (2) is distinct from the dyadic reciprocal construction in (1c) is also demonstrated by the semantic differences between them. A dyadic reciprocal construction allows the two participants to have unequal participation in the event – however, (2) above has the same meaning as the monadic construction in (1b) where both Halima and Juma are equal participants in the event.

That the comitative phrase in (1c) is an argument (as opposed to an adjunct) is demonstrated by the fact it is obligatory and that its existence is presupposed by the verb:

- (3) **Juma a-li-pig-an-a*
 Juma 3sgS-PST-hit-REC-FV
 *‘‘Juma hit each other’’

As far as I am aware, there is no account in LFG that unifies the productive alternation between a transitive verb with its monadic and dyadic reciprocal counterparts as occurs in Swahili. Previous analyses of the dyadic construction have for the most part been limited to European languages where the construction is restricted to a small set of verbs. Dimitriadis (2004:4) for example, bases his analysis on the concept of irreducible symmetry but he explicitly recognises that it cannot be applied to the Bantu languages. Likewise, Rákosi (2008) provides an analysis that is synchronically well-justified in the case of Hungarian monadic/dyadic constructions – but it has limited cross-linguistic applicability because it treats the verb in dyadic constructions as a basic lexeme that is no longer derived from its transitive base.

What is needed for Swahili and the other Bantu languages is an account of the monadic and dyadic reciprocal constructions that explains their productive formation from a transitive base. I argue that the dyadic reciprocal construction is formed by the reanalysis of a comitative phrase in a monadic construction as a core argument of the verb. I capture this phenomenon in LFG by building upon the work of two researchers; Rákosi (2008) and Webb (2008). As a consequence of this analysis, not only do I provide an account of the alternation of the Swahili monadic and dyadic constructions above with respect to their transitive base, but in section 4 I also show how several intriguing cross-linguistic properties of these constructions are predicted, including:

1. Why the dyadic reciprocal construction is typically formed from a comitative phrase.
2. Why these constructions have subtly different semantics with respect to the participation of the entities in the symmetric relation.
3. Why the clitic marked reciprocal construction in Romance languages, and periphrastic reciprocal construction in English (i.e., *they saw each other*) are not able to form the dyadic reciprocal construction.
4. Why there exist in English a small set of so called ‘‘naturally symmetric’’ verbs (such as *dance, argue, fight etc.* – see Kemmer 1993) which despite not being marked with reciprocal morphology still allow the formation of a dyadic construction.

3 Analysis

In order to have cross-linguistic applicability, this analysis of the monadic and dyadic reciprocal constructions in Swahili is built upon a new understanding of comitative phrases. First though, I present an analysis of the monadic construction as being formed from a transitive base. The dyadic construction is in turn formed from the monadic reciprocal construction:

lexical base → monadic construction → dyadic construction
 (1a) *pig-a* (1b) *pig-an-a* (1c) *pig-an-a na ...*
 hit hit.rec hit.rec / fight with

3.1 Formation of the monadic reciprocal construction

This analysis of the Swahili monadic construction ultimately draws from work by Alsina (1996) in his account of reciprocal constructions in Catalan. However, I differ from him by using the formalism introduced by Rákosi (2008).³ The difference between these analyses is that Alsina maps two argument slots to one grammatical function at the level of f-structure, whereas Rákosi uses a process of “argument unification” to bundle two arguments into a single slot at the level of a-structure, and this slot is subsequently mapped to f-structure via the usual mapping principles. This process occurs at the level of the lexicon – and can be understood as one that takes a lexeme as its input, and produces another lexeme as its output. For example, the a-structure of the verb *piga* – “hit” in (1a) above is:

(4) *piga* < [P-A][P-P] >⁴

After undergoing argument unification, the two argument roles are assigned a single argument slot. This produces the new lexeme in (1b) above, *pigana* – “hit_each_other”, which like other lexemes forms a part of the mental lexicon of the speaker:

(5) *pigana* < [[P-A][P-P]] >

The outermost square brackets above indicate that the argument bundle of proto-agent and proto-patient have been unified to a single argument slot.

For the mapping between a-structure and f-structure, I follow Rákosi in

3 Unlike Rákosi (2008), who forms the monadic reciprocal construction from the dyadic construction, I will use this analysis to explain how the monadic construction is formed from a transitive base.

4 I follow Alsina (1996) in using Dowty's (1993) analysis of thematic roles as belonging to two prototypical categories: proto-agent (P-A) and proto-patient (P-P).

employing Ackerman's (1992) version of lexical mapping theory. Ackerman developed his version of mapping theory to incorporate Dowty's concept of proto-roles.⁵ For reasons of space, I will only briefly outline how Ackerman's theory differs from the LMT as described by Bresnan (2001):

Firstly, arguments are intrinsically classified by assigning them one of two possible syntactic role features, [-r] or [-o]. The arguments are classified by the following principles:

- (1) The argument with the most heavily weighted proto-patient properties is intrinsically classified as [-r].
- (2) The argument with the most heavily weighted proto-agent properties is intrinsically classified as [-o].
- (3) All other arguments are intrinsically classified as [-o].

Ackerman (1992:64)

Secondly, arguments are assigned a default classification where the highest ranking argument receives a [-r] feature and all other arguments receive [+r], unless they have already received an intrinsic classification of [-r]. The arguments are then mapped to grammatical functions according to the standard principles of *function-argument bi-uniqueness* and the *subject condition* (see Bresnan 2001:311 and the references contained within). For example, consider the mapping between arguments and grammatical functions for the transitive verb *piga* - “hit” and monadic reciprocal verb *pigana* - “hit_each_other”:

<u>Transitive <i>hit</i> from (1a)</u>	→	<u>Monadic <i>hit.rec</i> from (1b)</u>
<i>piga</i> < [P-A][P-P] >		<i>pigana</i> < [[P-A][P-P]] >
intr. -o -r		intr. -o
def. -r		def. -r
bi-uniq. SUBJ SUBJ/OBJ		bi-uniq. SUBJ
result: SUBJ OBJ		result: SUBJ

The resulting analysis of the monadic reciprocal construction predicts that it be intransitive, where the verb at the level of f-structure selects only a subject. This prediction is borne out in (6) below where the clause is ungrammatical because its associated f-structure violates the coherence condition (see Bresnan 2001:63):

- (6) **Juma na Halima wa-li-pig-an-a* *Fatuma*
 Juma and Halima 3plS-PST-hit-REC-FV *Fatuma*
 “*Juma and Halima hit each other Fatuma*”

⁵ Rákosi (2008) provides a very clear summary of the important features of Ackerman's (1992) work, some of which are repeated here.

The analysis I present here for the formation of the monadic reciprocal construction is similar to that of Rákosi's – the key difference being that it is applied to a transitive verb rather than one in a dyadic reciprocal construction (note in section 3.2.2 below I will return to Rákosi's work on Hungarian and show how it can be encapsulated in this analysis of the dyadic reciprocal construction). Insofar as this analysis presents the monadic reciprocal construction as being formed via a lexical operation on a transitive base it is akin to the work of Siloni (2008) and Reinhart and Siloni (2005).

3.2 Formation of the dyadic reciprocal construction

The most striking feature of dyadic reciprocal constructions from a cross-linguistic perspective is their formation from a comitative phrase. In fact, as we will see in section 4, many of the unusual properties that dyadic reciprocal constructions share in the world's languages actually arise as a consequence of their relationship with comitative phrases. The analysis of the dyadic reciprocal construction presented is able to explain these phenomena because it builds upon a new understanding of comitative phrases in reciprocal constructions which extends Webb's (2008) work on instrument phrases. In section 3.2.1 below I first present my analysis of comitative phrases in LFG before turning to the analysis of the Swahili dyadic reciprocal construction in section 3.2.2.

3.2.1 Analysis of typical comitative phrases

A typical comitative phrase adds an optional entity to an event. This comitative entity participates in the event in a manner very similar to another participant in the event carrying a thematic role. For example, in (7) below, the PP “with Abel” is a comitative phrase and Abel participates in the event of *catching* in a manner similar to that of Cain:

(7) *Cain caught fish with Abel*

The terminology I use here is that the comitative entity (Abel above) is *linked* to another participant in the event. In this case Abel is linked to Cain and his participation in the event is similar to that of Cain's. A further examination of comitative phrases like those in (7) above reveal that they typically have properties of both adjuncts and arguments:

Adjunct properties

- Comitative phrases are optional and their presence is not part of the verb's meaning. In “*Cain ate (spam) (with Abel)*” the patient's meaning is implied, even if not present, whereas the comitative's meaning is wholly optional.

Argument properties

- Comitative phrases participate in the event described by the verb – acting with another entity, and upon another entity, if present. For example, in “Cain caught fish with Abel”, Abel has very similar participation in this event as Cain.
- Comitative phrases are restricted in their number – unlike adjuncts. So in (8) below, only one comitative phrase can appear after the verb whereas in (9) many adjuncts may modify an event:

- (8) **Cain caught fish with Abel with Eve.*
(9) *Cain caught fish in summer in the mornings.*

As comitative phrases share properties of both adjuncts and arguments, how should they be analysed? In fact, an analysis of phrases which sit in the middle of the argument/adjunct continuum has been explored by many linguists but most notably by Grimshaw (1990). She defines the term an “a-adjunct” (argument/adjunct) as a phrase which has an intermediate status between an argument and an adjunct and analyses it as:

- (i) not being assigned a theta-role by the verb.
(ii) being licensed by the argument structure of the verb.
(adapted from Grimshaw 1990:108)

Her first property accounts for why the existence of comitatives is not presupposed by the verb when they are not present (and hence their adjunct-like optionality). The second property accounts for why the number of comitatives is restricted.

Webb (2008) analyses instruments as a-adjuncts and proposes that verbs can have two tiers of argument structure; arguments on the first tier and a-adjuncts on the second tier. I propose that comitative phrases are also usually a-adjuncts and so should be analysed in a manner parallel to Webb's analysis of instruments. For example, in (10) below, the 1st tier argument structure has two slots for the two thematic roles selected by the verb *catch*. However, an optional 2nd tier of argument structure is also defined for the a-adjuncts:

- (10) *Cain caught fish with Abel*
catch: 1st tier < [P-A][P-P] > 2nd tier < [] >

Note that in Webb's analysis, the instrument a-adjunct receives the theta-role of agent. I depart from his analysis here and follow Grimshaw (1990) in supposing that comitative a-adjuncts are not directly assigned a theta-role. Under the system of proto-roles adopted here (from Dowty 1993), this in turn means that the comitative phrase is unspecified for a thematic role – instead

its participation in the event is understood to be the same as (or similar to) that of another entity.⁶ I represent this below using empty square brackets []. This analysis of a comitative entity as having an argument description of [] ends up being equivalent to that which Rákosi gives for a *partner* thematic role in his analysis of the dyadic reciprocal construction in Hungarian (see Rákosi 2008:424 and the references contained within).

The mapping from argument structure to f-structure occurs via the standard mapping rules described above, but with the provision that the arguments in the first tier are mapped before any of the a-adjuncts in the second tier:

<i>catch:</i>	1 st tier < [P-A] [P-P] >	2 nd tier < [] >
intrinsic	-o -r	-o
default	-r	+r
<u>bi-uniq.</u>	SUBJ SUBJ/OBJ	OBL
result:	SUBJ OBJ	OBL

Below I outline some of the predictions this analysis makes which will have relevance to my analysis of dyadic reciprocal constructions.

3.2.1.1 *Comitative phrases as arguments*

The first implication of this analysis is that we might expect to find verbs which select a comitative phrase as an argument rather than as an a-adjunct, especially given that a-adjuncts already appear at a lower tier of a-structure. In this situation, the comitative entity is part of the verb's first tier of argument structure – making it a prototypical argument. This is seen in English with the verb *quarrel*:

(11) *Bob quarrelled with Fiona.*

<i>quarrel:</i>	1 st tier < [P-A] [] >
intrinsic	-o -o
default	-r +r
<u>bi-uniq.</u>	SUBJ OBL
result:	SUBJ OBL

Note that this definition of *quarrel* is precisely that which Rákosi (2008:444) gives for *veszekedik* - “quarrel” in Hungarian. This analysis also raises the possibility of comitative phrases appearing as both a 1st tier argument and a 2nd tier a-adjunct. Rákosi (2003) observes that verbs which

⁶ Although a comitative entity is typically linked to the highest thematic role the verb selects, this does not have to be the case. Consider “The man was beaten up on the bus with his wife”. See Rákosi (2006:107-112) for further discussion.

treat the comitative phrase as being an argument optionally allow a comitative a-adjunct as well – a possibility that is not available to verbs which do not select a comitative phrase as an argument:⁷

(12a) **Péter-rel (együtt) ritkán fut-ott-am Kati-val*
 Peter-with together rarely run-pst-1Sg Kate-with
 *‘‘I rarely ran with Kate with Peter’’

(12b) *Péter-rel (együtt) ritkán veszeked-t-em Kati-val*
 Peter-with together rarely quarrel-pst-1Sg Kate-with
 ‘‘I rarely quarrelled with Kate, together with Peter’’

Rákosi (2003:3)

Under this analysis of comitative phrases, the verb *veszekedtem* – ‘‘quarrel’’ in (12b) now selects a comitative entity in both 1st and 2nd tier argument structure:

<i>veszekedtem</i>	1 st tier < [P-A][] >	2 nd tier < [] >
intrinsic	-o -o	-o
default	-r +r	+r
bi-uniq.	SUBJ OBL	OBL
result:	SUBJ OBL _{arg}	OBL _{a-adj}

3.2.1.2 Unequal participation in the event

In the analysis of comitative phrases above, we see that the comitative entity does not receive the same thematic role as that of the entity to which it is linked. This means we might expect that the comitative entity is able to engage in the event in a manner different to that of its linked entity. This behaviour is in fact observed in the day-to-day usage of comitative phrases. For example, consider Maria's participation in the event in (13) below:

(13) *Maria selected photos for the gallery with Mark.*

Although it is possible Maria and Mark have identical participation in the event, my understanding is that Mark is more likely to be providing assistance to Maria – perhaps looking over her shoulder. Fortunately, we do not need to rely on intuitions alone to argue that there are differences between these comitative entities and the entities to which they are linked – for a restricted set of verbs, these intuitions can be formalised. For example, consider the verb ‘‘collide’’:⁸

7 An analogous example in English is ‘‘Michel fought [with Satan]_{Arg} [with God on his side]_{A-Adj}’’

8 Also *dance* – ‘‘Don danced with the broomstick’’, *fight* – ‘‘The fishermen fought with the elements’’ and others.

- (14a) *The car collided with the tree.*
 (14b) *#The car and the tree collided.*
 (14c) *##The tree collided with the car.*

It has been noted by many authors (*e.g.*, Rákosi (2008), Dimitriadis (2004), Gleitman *et al.* (1996), Dowty (1993) *etc.*) that sentences like (14b,c) potentially throw doubt upon any analysis where the car and the tree must participate identically in the predicate. Simply put, if both participants were receiving identical thematic roles from the predicate, we would expect that the participants could be swapped with little or no change in meaning – and clearly that is not the case. Dimitriadis offers a counterargument to this point, arguing that the differences in acceptability of (14b) and (14c) are caused by “structural differences between the two argument positions” (Dimitriadis 2004:37). The evidence he uses to support this view comes from Gleitman *et al.* (1996) who argue that even for predicates which must logically assign the same thematic roles to two participants, there are still differences in interpretation which seem dependent upon structural factors. For example Gleitman *et al.* (1996) argue that both China and North Korea must have the same thematic roles in (15) below – and so the differences in interpretation between (15a) and (15b) are due to structural differences:

- (15a) *China is similar to North Korea.*
 (15b) *North Korea is similar to China.*

(from Dimitriadis 2004, based upon examples from Gleitman *et al.* 1996.)

Here, the *ground* (the oblique argument) is the source of comparison, and the *figure* (the subject) is compared to it. For example, in (15b) North Korea might be similar to China insofar as, like China, it has a communist government. However, while structural effects might play some role in the contrast in meaning between two structurally distinct arguments, the change in acceptability of sentences like (14a) and (14b,c) above is factored around agency – *i.e.*, it is a thematic distinction. Consider again the contrast in meaning between (14a) and (14c). Dowty (1993) points out that changes in context change the admissibility of the sentences. For example, imagine the following contexts: the tree has been torn from the ground by a hurricane and slams into a stationary car, or the tree is animate (such as in a children's story) and while running through the forest, trips over an unseen car. In these contexts (14c) – “The tree collided with the car” is now the appropriate description of the event. Examining the contexts in more detail we see that the acceptability of (14c) is dependent upon whether the subject NP is moving and/or animate. These are both properties that Dowty argues contribute to the characterisation of an agent proto-role (Dowty 1993:572). In other words, the tree and car in (14) have differing degrees of agency, and so

adjunct as an argument. The comitative entity adds a participant to the event which engages in the same activity as another entity. Symmetric and lexically derived reciprocal verbs have an interpretation that is very similar in its entailments – two entities engage in an event with the same participation, but because reciprocal verbs are symmetric, the verb now *requires* the presence of a partner (e.g., for the verb *hit* in (1) above, both participants are hitting, they are both being hit, and they are necessarily engaged in the event together). Crucially then, those verbs which have an interpretation that is symmetric at the level of the lexicon allow the possibility for a comitative a-adjunct to be reanalysed as an argument in the 1st tier of argument structure.

<u>Monadic <i>visit.rec</i> with a-adjunct</u>	<u>Dyadic <i>visit.rec</i></u>
<i>tembeleana</i> : 1 st tier < [[P-A][P-P]] > → 1 st tier < [[P-A][P-P]] [] > 2 nd tier < [] >	

Given that comitative phrases may already appear as 1st tier arguments, it is unsurprising that in the case of symmetric verbs a comitative a-adjunct can be reanalysed in this way. Now that the comitative entity is an argument of the verb, the subject NP no longer requires two participants as the symmetric relation occurs between the subject NP and the comitative phrase:

(17) *Juma a-li-tembel-e-an-a* *na Halima*
 Juma 3sgS-PST-visit-APP-REC-FV COM Halima
 “Juma and Halima visited each other”

This representation of reciprocal verbs in Swahili was built upon the notion that speakers reanalyse a comitative a-adjunct in a monadic construction as being an argument. The resulting form of the dyadic reciprocated verb correctly predicts the syntax of these constructions. For example, the a-structure of the dyadic verb *pigana* - “hit_each_other” from (1c) maps the comitative entity to an oblique argument:

(18) Dyadic *pigana* - “hit each other with” from (1c)
pigana: 1st tier < [[P-A][P-P]] [] >

intrinsic	-o	-o
default	-r	+r
<u>bi-uniq.</u>	SUBJ	OBL
result:	SUBJ	OBL

(1c) *Juma a-li-pig-an-a* *na Halima*
 Juma 3sgS-PST-hit-REC-FV COM Halima
 “Juma and Halima hit each other”
 lit. “Juma hit.rec/fought with Halima”

transitive base. However, the process I have described above is not specific to just Swahili. In section 4 below I examine the implications this analysis has from a cross-linguistic perspective and show that many properties of dyadic reciprocal constructions can be now understood.

4 Cross-linguistic implications

4.1 Why the dyadic reciprocal construction is typically formed from a comitative phrase

The analysis of dyadic reciprocal constructions presented above is built upon the notion that a comitative a-adjunct is reanalysed as an argument. Under this analysis, we would expect that a similar operation could occur in different languages. More specifically though, it predicts that the dyadic reciprocal construction be formed from a comitative phrase and overwhelmingly, this is the case:

- (19) Greek (Hellenic) - Dimitriadis 2004:25
O Yanis filithike me ti Maria
 the John kissed-REC COM the Maria
 lit. “John kissed each other with Maria”
 “John and Maria kissed (each other)”
- (20) Hebrew (Afro-Asiatic) - Siloni 2008
Ha-yeladim hitnaešku im ha-yeladot
 the-boys kissed.REC COM the-girls
 lit. “The boys kissed each other with the girls”
 “The boys and girls kissed each other”
- (21) Hungarian (Uralic) - Rákosi 2008:443,444
A katoná-k vesz-eked-t-ek az őrmester-rel
 the soldier-pl quarrel-REC-PST-3pl the sergeant-COM
 “The soldiers quarrelled with the sergeant”
- (22) Icelandic (Germanic)
Þeir börðu-st við víkinga
 3pl.m.nom fight.pl.PST-MV COM viking.m.pl.acc
 “They fought (from *berja* - 'hit') with the vikings”

4.2 That the dyadic reciprocal construction is formed from the monadic construction

Dimitriadis (2008, 2004) and Rákosi (2008) argue that the monadic

reciprocal construction is formed from its dyadic equivalent whereas the analysis above predicts the opposite. Now, in the literature I have examined, the monadic reciprocal construction is either more prevalent than its dyadic counterpart, or equally prevalent. Recall that both these constructions contain reciprocal morphology, so any analysis which posits that the dyadic construction is the base of formation for the monadic construction needs to provide an additional mechanism to account for the existence of the monadic constructions which have no dyadic counterpart. I think this is an unlikely historical path for the formation of monadic reciprocal constructions.

4.3 Weakening of symmetric semantics

In this section I discuss the implications this analysis of dyadic reciprocal constructions has on their associated semantics. In particular, I contrast the predications it makes with Dimitriadis' (2004) work on irreducible symmetry and show that some unexpected data revealed by Rákosi (2008) can be explained by the analysis presented here.

4.3.1 Irreducible symmetry

Dimitriadis' notion of irreducible symmetry and its relation to dyadic reciprocal constructions can be understood as the requirement that the symmetric event be conceived as being atomic and that the symmetry be absolute insofar as the entities are required to have identical participation within the event. A predicate has the property of irreducible symmetry if:

- (a) it expresses a binary relationship, but
- (b) its two arguments have necessarily identical participation in any event described by the predicate.

(Dimitriadis 2008:378)

For example, for the predicate *kiss* to be irreducibly symmetric requires that both participants kiss is the same way in a single event. Situations where one participant has a different participation in the event are ruled out, as are situations which are only symmetric when seen as a collection of events (e.g., Henry kissed Sally on the hand at night, and Sally kissed Henry on the cheek at dawn). Under the analysis presented here, the dyadic construction is conceived of as arising from a reanalysis of a comitative a-adjunct as a comitative argument. What semantic features might we expect in the resulting construction – and are they compatible with Dimitriadis' conception of irreducible symmetry? I characterised the comitative construction as introducing an entity which participates in the same event as the entity to which it is linked, but optionally with a less active participation. The implications such an analysis has on our understanding on the formation of dyadic reciprocal constructions revolve around two concepts; atomic events

and symmetry.

4.3.2 Atomic events

An atomic event is one where the participants engage in single event. For example, in (23) below there is one event of cooking, and Olaf is doing it:

(23) *Olaf cooked some fish.*

With a plural entity, we can often conceive of an event in two ways, as being atomic or non-atomic. For example the event of cooking below can be either atomic (24a) or non-atomic (24b):

(24a) *Olaf and Sally cooked some fish together.*

(24b) *Olaf and Sally cooked some fish, Olaf in the morning and Sally in the evening.*

Comitative phrases introduce an entity to the event which is linked to another participant. Above I argued that this linkage does not require that the two entities have identical participation in the event, however, it does usually require an atomic conception of the event. For example, like (24a) above, the comitative construction in (25) requires an atomic interpretation of the event:

(25) *#Olaf cooked some fish with Sally, Olaf in the morning and Sally in the evening.*

With respect to reciprocity, unlike analytic (or phrasal) reciprocal constructions, most monadic reciprocal constructions describe atomic events because they are formed at the level of the lexicon. The addition of a comitative entity further hardens this tendency because it is a participant which shares in an atomic event. This view is in line with Dimitriadis – and is supported by the massive amounts of linguistic evidence he provides.

4.3.3 Symmetric participation

Symmetric participation occurs when every participant in a relation acts as both the initiator and endpoint of that relation. For example, we can say that Olaf and Sally have symmetric participation in the event of seeing if we can say: “Olaf saw Sally and Sally saw Olaf”. Symmetric participation is independent of whether the event is atomic or not. For example, if Olaf saw Sally in the morning, and Sally saw Olaf in the evening, their participation in the relation of seeing is still symmetric. Given my analysis of comitative entities, how might symmetry be affected in dyadic reciprocal constructions? I argued above that comitative entities do not need to have identical participation in the event with the entity to which they are linked – and often have less agentive properties. Therefore we might expect dyadic

constructions to have weaker symmetric entailments between the two participants. This predication is at odds with Dimitriadis (2008, 2004) who argues that participation of the two entities in a dyadic construction must be identical. However, my prediction is in line with the data where we do see this weakening of symmetry – even to the point of allowing the symmetry to be cancelled. For example, Rákosi (2008:423) illustrates this very clearly with the following example:

- (26) *Én num veszeked-t-em János-sal ő veszeked-ett vel-em*
 I not quarrel-pst-1sg John-with he quarrel-pst with-1sg
 “I was not quarrelling with John, he was quarrelling with me”

I have found similar examples for Icelandic (*slást* – “brawl” from the middle voice of *slá* - “hit”) and this pattern is particularly clear in Swahili where the symmetry can be cancelled for most verbs in the dyadic reciprocal construction. For example:

- (27) Juma a-na-pend-an-a na Halima,
 Juma 3sgS-pres-love-rec-fv with Halima
lakini Halima ha-m-pend-i Juma
 but, Halima neg-3sgO-love-fv Juma
 “Juma loves each other with Halima,
 but Halima does not love Juma”

4.3.4 Concluding remarks

With respect to whether the symmetric situation should be seen as an atomic event or as a collection of events, the analysis I present is in line with work by Dimitriadis in predicting that dyadic reciprocal constructions be atomic. However, contra Dimitriadis, I predict that the dyadic reciprocal construction can have looser entailments with regard to symmetry when compared to its monadic equivalent. This prediction is borne out in some situations in Swahili and Hungarian where there are examples of the comitative entity not participating in the symmetric event to the same extent of the subject entity.

4.4 Lexical versus syntactic reciprocal constructions

Siloni (2008) notes that French, although having a superficial resemblance to the Swahili and Hungarian reciprocal constructions, does not allow the formation of a dyadic reciprocal construction:

- (28) **Jean s'-est embrassé avec Marie.* (From Siloni 2008:482)
 Jean se-is kissed with Marie
 *“(Jean kissed each other with Marie)”

Also, English:

(29) **John saw each other with Marie.*

The analysis I presented for the dyadic construction occurs at the level of the lexicon where a comitative entity associated with a verb in a monadic reciprocal construction is reanalysed as an argument. Because the reciprocal construction in English is formed via a phrase, the symmetric sense of the situation is introduced at the level of syntax – not at the level of the lexicon. This means that the predicate in a reciprocal construction (*see* in (29) above) is asymmetric at the level of the lexicon and consequently the comitative phrase is not able to be reanalysed as an argument. Given that the dyadic construction in French is ungrammatical, it would imply that the French reciprocal construction is also formed at the level of syntax. Siloni (2008) investigates these constructions in detail and this is her conclusion too. The evidence she provides is based upon whether a reciprocal event can be understood as a collection of asymmetric events or not. Her argument is that lexemes can only denote atomic events, and the pluralisation of events must occur at the level of syntax. Examples like (30) below demonstrate that the French clitic reciprocal construction can describe a collection of asymmetric events in the context of a game where Jean kisses Marie five times and Marie kisses Jean five times (i.e., there were ten separate kisses):

(30) *Jean et Marie se sont embrassés cinq fois.*
Jean and Marie se are kissed five times
(From Siloni 2008:481)

Contrast this with the Swahili lexical reciprocal construction where the only possible reading is that there were three shared kisses:

(31) *Juma na Halima wa-li-bus-i-an-a mara tatu*
Juma and Halima 3plS-PST-kiss-APP-REC-FV times three
“Juma and Halima kissed each other three times”

The analysis I present here fits with Siloni (2008) and Reinhart and Siloni's (2005) work on reciprocals which treats the French reciprocal construction as being syntactically derived, and which associates the dyadic reciprocal construction with an operation that occurs at the level of the lexicon.

4.5 Naturally Symmetric Verbs

In English there exist a set of “naturally symmetric” verbs (such as *quarrel*, *argue* etc.) which appear to participate in a dyadic construction,

despite not having any reciprocal morphology. For example, consider (32) below:

(32a) *Bill and Mary argued/quarrelled/danced.*

(32b) *Bill argued/quarrelled/danced with Mary*

This alternation is in fact predicated as a consequence of the formation of the dyadic construction. Recall that this construction takes a symmetric verb as its base and reanalyses an associated a-adjunct as an argument. Thus far we have examined reciprocated (monadic) verbs which became symmetric as a result of their formation. However, some verbs are already symmetric as basic lexemes (such as *quarrel etc.*). These verbs then are suitable candidates for participation in a dyadic construction because, like the derived symmetric verbs in Swahili, they can serve as a base for the dyadic lexical operation.

5 Conclusion

The motivation for this analysis of the Swahili reciprocal constructions is driven by a reanalysis of a comitative a-adjunct as an argument. Because comitative constructions form part of the a-structure associated with a predicate, this reanalysis necessarily occurs at the level of the lexicon. Additionally, in order for the comitative a-adjunct to be reanalysed as an argument, a candidate predicate requires the participation of two entities and that these entities must engage in a relationship which is compatible with comitative semantics. Both naturally symmetric verbs and symmetric verbs that are formed in the lexicon fulfil these criteria; a symmetric verb requires (prototypically) two participants with similar participation in the event (recall for the Swahili verb *pigana* – “hit_each_other”, both participants are hitting, they are both being hit, and they are engaged in the event together). This understanding of comitative a-adjunct reanalysis predicts the central features that lexically derived reciprocal constructions share cross-linguistically:

- Why the entity represented by the oblique grammatical function is typically marked as being a comitative phrase.
- Why these constructions are so strongly associated with high degrees of symmetry within a single event.
- Why languages with reciprocal constructions formed in syntax are not compatible with the dyadic reciprocal construction.

Finally, this explanation provides a natural account for why other symmetric verbs which are not marked with reciprocal morphology (*e.g.*, *quarrel*, *bicker etc.* in English or *onzea* - “chat” in Swahili) allow the same alternations between a monadic and dyadic form.

6 References

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