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The Typology of Reciprocal Constructions

Rachel Nordlinger[1,2]

[1]Research Unit for Indigenous Language, School of Languages and Linguistics, University of Melbourne, Parkville, Victoria, Australia; email: racheln@unimelb.edu.au

[2]ARC Centre of Excellence for the Dynamics of Language, Canberra, Australian Capital Territory, Australia

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Keywords

reciprocal, symmetry, valency, typology, morphosyntax

Abstract

Reciprocal constructions involve a complex mapping of semantics onto morphosyntax, requiring multiple propositions to be overlaid onto a single clause and the permutation of semantic roles within the set of participants involved. This complexity challenges the standard processes relating predicates to situations, and thus languages arrive at a great diversity of solutions for how reciprocal situations are encoded within a single clausal structure. Recent typological work has showcased this diversity from different perspectives, but further work is needed to determine how different morphosyntactic and semantic properties interact and what implicational connections and correlations exist with other parts of the linguistic system. Theoretical typologies highlight the importance of reciprocal constructions for our understanding of grammatical structure crosslinguistically.

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1. INTRODUCTION

The notion of reciprocity lies at the heart of complex social interaction, and it has therefore been of interest to philosophers, biologists, evolutionary theorists, and other social scientists for centuries (for an overview of some of this discussion, see König & Gast 2008b, pp. 1–4). The expression of reciprocity is also of interest to linguists because "[r]eciprocal constructions arguably denote the most complex event type to be expressed in most languages by regular grammatical means" (Evans 2008, p. 33).

To understand the source of this complexity, consider a simple English sentence and its reciprocal equivalent, as shown in example 1:

(1a) Sam saw Pat.

(1b) Sam and Pat saw each other.

The simple clause in example 1a conveys a single proposition; each participant plays a single role in the event, as either the seer or the participant that is seen. The reciprocal clause, however, conveys two distinct propositions: Sam saw Pat and Pat saw Sam. Each participant plays two roles: as initiator of one event and end point of the other (Kemmer 1993); in example 1b, Sam is both seer and seen, as is Pat. Lichtenberk (1985, p. 21) defines such a "prototypical reciprocal situation" as a context in which "there are two participants, A and B, and the relation in which A stands to B is the same as that in which B stands to A." The complexity for grammatical encoding thus arises from the need to express multiple events, with multiple assignations of participant to semantic role, in a single construction.

Further complexity arises when we consider reciprocal constructions with more than two participants, as in example 2:

(2) The five children saw each other.

Following the description given for example 1b, we might assume that this construction would necessarily describe a situation in which each of the five children serves as initiator of a seeing event directed at each of the other four children, leading to 20 seeing events in total.[1] However, as discussed by Dalrymple et al. (1998), English reciprocal constructions with groups larger than two can have a range of interpretations that differ from this "strong reciprocity" type (Langendoen 1978). The reciprocal relation may apply to each member of the group, so that each of the five children is both instigator of a seeing event and end point of another, but without the requirement that this apply to every possible pair within the group (e.g., "weak reciprocity"; Langendoen 1978).[2] Other possible interpretations are evident in the reciprocal constructions in examples 3 and 4:

(3) The awardees followed each other onto the stage. [chain]

(4) The people at the dinner party were married to each other. [pairwise]

In example 3, while the awardees in the middle of the procession are both following and being followed and therefore filling both roles in the event, each is engaged in only one event per role, and in fact the awardees at the beginning and end of the procession have only one role each. In example 4, the reciprocal relation can only hold of pairs within the larger group (for more discussion of these different reciprocal types, see Section 4).

[1] Each child sees each of the other four children: $5 \times 4 = 20$.

[2] For example, child 1 sees children 2 and 3; child 2 sees children 3, 4, and 5; child 3 sees children 1 and 2; child 4 sees child 5; and child 5 sees child 3.

Perhaps because of their semantic complexity, reciprocal constructions show an array of interesting grammatical properties across languages. In reciprocal constructions, there is a mismatch between semantic argument structure and grammatical realization because asymmetric predicates are used to describe symmetric situations, and multiple semantic roles are mapped to a single grammatical function. In example 1b above, the individual referents of the conjoined NP *Sam and Pat* realize both agent and undergoer semantic roles, yet function grammatically as subject. Simple reciprocal constructions thus violate the basic assumptions about semantic roles and their realization because such constructions involve two semantic roles mapping to a single grammatical function in the syntax. Consequently, reciprocal constructions across languages are often associated with unusual or aberrant morphosyntactic behavior, such as unusual case marking, complex number and gender agreement, and mixed transitivity effects (for discussion of mixed transitivity effects in Australian languages, see Evans et al. 2007).

Languages deal with this mismatch in radically different ways. English, for example, encodes reciprocity in the syntax, using the quantificational anaphor *each other* in the nonsubject position. In example 1b, it occurs in the same position as the direct object in example 1a. Many other languages, such as Swahili, use a reciprocal verbal affix that derives an intransitive symmetric verb, so in this case there is only the subject NP expressed, as shown in example 5:

Swahili

(5a) *Juma* *a-li-m-tekeny-a* *Halima*.
Juma 3SG.SBJ-PST-3SG.OBJ-tickle-FV Halima
'Juma tickled Halima.'

(5b) *Juma na Halima wa-li-tekeny-**an**-a*.
Juma and Halima 3PL.SBJ-PST-tickle-**RECP**-FV
'Juma and Halima tickled each other.'
(Hurst 2012, p. 226)

In the reciprocal construction in example 5b, the verb is inflected with the reciprocal marker *-an-*, which derives an intransitive predicate (with only one syntactic argument) as shown by the fact that there is no object marker on the verb and no NP in the object position (in contrast with example 5a).

Languages also vary in the argument relations of the parts of the reciprocal. In some languages, the reciprocal construction is possible only when the reciprocants realize the agent and patient/undergoer roles of a transitive predicate and are expressed in the subject position (as in examples 1b and 5b above). However, depending on the language, it is possible for the reciprocal relation to hold between object and oblique arguments (e.g., *The teacher introduced* [*Sam and Pat*] [*to each other*]) or between argument functions and possessors (e.g., [*Sam and Pat*] *taught* [*each other's*] *children*; *I introduced* [*Sam and Pat*] [*to each other's*] *teachers*) (Evans 2008, p. 42).

The semantic and grammatical complexity of reciprocal constructions makes them a fascinating area for typological study and a rich source of data to help us understand the different design solutions taken by languages with very different grammatical resources. In this review, I discuss the typological research on reciprocal constructions, focusing primarily on morphosyntactic (Section 3) and semantic (Section 4) typological studies and the relationships between them. I show that while reciprocal constructions have received substantial attention in recent typological literature, there remain many avenues for further research.

2. DEFINING A RECIPROCAL CONSTRUCTION

Reciprocal relations are necessarily symmetric, involve a plurality of participants, and require assignment of two semantic roles to each participant (König 2017). However, as discussed above, if

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there are more than two participants there is a variety of mutual relations that can be expressed, including strong versus weak reciprocity, chained relations, pairwise relations, and simultaneous versus sequential events (for further discussion, see Section 4). Languages may vary in terms of how these different mutual relations are mapped to construction types, and thus the following question arises: How are reciprocal constructions to be identified across languages?

Haspelmath (2007, p. 2088) defines a mutual situation as one with "two or more participants (A, B, . . .) in which for at least two of the participants A and B, the relation between A and B is the same as the relation between B and A." A reciprocal construction, then, can be defined as a construction that is "*specialized for* and *conventionalized for* the expression of mutual situations" (Evans 2008, p. 35, italics in the original). This does not exclude the possibility that a reciprocal construction may also be polysemous with other meanings, and in fact such polysemy is commonly found with reflexive, collective, and sociative meanings across languages (see Section 4).

A crucial aspect of a reciprocal construction is that the multiple predications encoded are presented as one event or situation (Nedjalkov 2007a, p. 7). Thus, a sequence of clauses that spells out the symmetric relation, such as example 6, does not form a reciprocal construction according to this definition. This aspect of the semantics of reciprocal constructions leads Evans (2008, 2010) to suggest that the prototypical reciprocal construction also expresses a third proposition: that the two participants are "doing it together," thus accounting for the subtle semantic difference between example 1b above and example 6:

(6) Pat saw Sam and Sam saw Pat.

As discussed further in Section 3, reciprocal constructions may be derived from asymmetric predicates by various grammatical means, such as morphological marking on the verb, the use of anaphors like *each other*, and adverbials like *mutually*. They may also be formed through the use of lexical reciprocal predicates—predicates that can express a mutual situation as part of their meaning, as in example 7 (see Nedjalkov 2007a, pp. 14–16):

(7) Sam and Pat quarreled.

In Section 3.3, I discuss research suggesting that these lexical reciprocals may have particular properties in some languages, including the possibility of forming discontinuous reciprocal constructions.

Most of the research on reciprocal constructions focuses on verb-headed clauses; however, other types of semantically two-place predicates also can form reciprocal constructions, as in example 8:

(8) Sam and Pat are friends/colleagues/enemies.

Since reciprocal constructions necessarily involve two or more participants who play two semantic roles in the same event, such constructions must be formed from semantically bivalent predicates (those with two semantic arguments). Reciprocal constructions differ across languages, however, in terms of whether they are syntactically monovalent (with both reciprocants expressed in the subject, as in example 7) or syntactically bivalent (with two arguments overtly expressed, as with the quantificational anaphor *each other* in example 2). A more detailed discussion of valency in reciprocal constructions is provided in Section 3.2.

3. THE MORPHOSYNTAX OF RECIPROCAL CONSTRUCTIONS

The first decade of the twenty-first century saw an explosion of crosslinguistic typological research on reciprocal constructions, with a number of projects and edited volumes published on the topic.

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These include works by Frajzyngier & Curl (2000), König & Gast (2008a), and Evans et al. (2011a) and an extensive five-volume set edited by Nedjalkov (2007c), which contains chapters focusing on different topics related to the typology of reciprocals as well as in-depth studies of reciprocals in more than 40 languages from across the world. This work has vastly expanded our understanding of how reciprocity is encoded across languages and how the grammatical expression of reciprocal situations interplays with their semantic interpretation.

3.1. Typologies of Reciprocal Strategies

There are many different morphosyntactic strategies used across languages to encode reciprocal meanings, and many languages make use of more than one strategy. Common strategies include the use of a bipartite NP construction, as in English *each other* and also Russian (example 9); a reciprocal pronoun, as in Hausa (example 10); a reciprocal clitic, as in Wambaya (example 11); a verbal affix, as in Swahili (example 12); and a compound verb, as in Mandarin (example 13). Many languages also make use of the lexical strategy, where the symmetric activity is inherent to the meaning of the predicate, as with the English verb *quarrel* (example 7).

Russian

(9) *Oni* *vide-l-i* ***drug*** ***drug-a***.
3PL.NOM see-PST-PL other other-ACC
'They saw each other.'
(Nedjalkov 1991, p. 283; cited in Evans 2008, p. 49)

Hausa

(10) *mun* *tsallàkē* ***jūnan-mù***.
1PL.AUX jumped RECP-1PL
'We jumped over one another.'
(Newman 2000, p. 530; cited in Evans 2008, p. 58)

Wambaya

(11) *Alag-bulu* *wurlu-**ngg**-a* *nyurrunyurru*.
child-DU(NOM) 3DU.SBJ-RR-NFUT chase
'The two children are chasing each other.'
(Nordlinger 1998, p. 142)

Swahili

(12) *Juma* *na* *Halima* *wa-li-tekeny-**an**-a*.
Juma and Halima 3PL.SBJ-PST-tickle-RECP-FV
'Juma and Halima tickled each other.'
(Hurst 2012, p. 249)

Mandarin

(13) *Tāmen* ***dǎ-lái-dǎ-qù***.
3PL beat-come-beat-go
'They beat each other.'
(König & Kokutani 2006, p. 275)

A number of researchers have proposed typologies of reciprocal constructions. König & Kokutani (2006) proposed the first typology, building on Faltz's (1985) typology of reflexive constructions. König and Kokutani make a primary distinction between "nominal" strategies, where the reciprocal function is marked with an NP or pronominal element (as in examples 9–11), and "verbal" strategies, where reciprocity is marked on the verb (as in examples 12 and 13). Nominal strategies may be quantificational (example 9) or pronominal (examples 10

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MAIN CATEGORIES IN EVANS'S STRUCTURAL TYPOLOGY OF RECIPROCAL CONSTRUCTIONS

- Single clause [Single proposition]
  - NP marking strategy [Argument-marking strategy]
    - Bipartite quantifier NP
    - Reciprocal nominal
    - Reciprocal pronoun
      - Free
      - Bound
    - Reciprocal role marking on NP
    - Double role marking
  - Verb-marking strategies [Predicate-marking strategy]
    - Morphological modification of verb
    - Auxiliary to verb
    - Lexical strategy
  - Conjunct strategy
  - Adverbial strategy
- Multiple clauses [Multiple propositions]
  - Conventionalized biclausal construction
  - Zigzag summative construction
  - Fused multiple predicates
    - Verb compounding with mutual predicate
    - Verb compounding with repeated one-way predicate
    - Symmetric signing
    - Fused contrastive subject

The categories listed above are from Evans (2008).

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and 11), while verbal strategies are distinguished as synthetic (example 12) or compound (example 13).

Nedjalkov's (2007a) typology, on the other hand, first distinguishes reciprocal constructions according to whether they are lexical or grammatical. Lexical reciprocals have inherently reciprocal semantics, such as *quarrel* in example 7. All of the reciprocal constructions in examples 9–13 are grammatical (or derived) reciprocals. He then subclassifies the grammatical reciprocals into three types based on the morphosyntactic means by which the reciprocal marker is expressed: syntactic (e.g., examples 9 and 10), morphological (examples 12 and 13), and clitic (example 11).

Evans (2008) provides the most elaborated typology, which expands these earlier proposals and encompasses data from close to 200 different languages. A summary of the key aspects of Evans's typology is presented in the sidebar titled Main Categories in Evans's Structural Typology of Reciprocal Constructions (Evans 2008, p. 45).

Evans's typology first distinguishes single-clause reciprocals from multiple-clause reciprocals, each with a number of types. Within the single-clause category Evans includes the categories we have already seen: NP/argument-marking strategies (as in examples 9–11) and verb/predicate-marking strategies (as in example 12). Example 13 is treated as a multiclausal strategy (verb compounding with repeated one-way predicate) even though the compounded verb clearly heads a

single clause.[3] However, Evans adds a number of additional strategies not explicitly discussed in previous typologies. These include a reciprocal auxiliary strategy—where languages with complex verb constructions that consist of an auxiliary in combination with a coverb make use of a specialized reciprocal auxiliary to mark reciprocal constructions (example 14b)—and a number of multiple predicate strategies, such as the fused contrastive subject strategy in Mawng shown in example 15:

Warrwa

(14a) *kinya* *ngul* *ngirr-a-ma-ny.*
this spear 3AUG.SBJ-TR-put-PRF
'They speared it.'

(14b) *ngul* *ngirr-**wanji**-na.*
spear 3AUG.SBJ.PST-exchange-PST
'They speared each other.'
(Evans 2008, p. 71)

Mawng

(15) *Ngani-wu-ng* ***la*** ***ngapimung.***
3M>1SG-hit-PST:PFV CONJ 1SG.CONTR
'We (two) hit each other.' [Lit. 'He hit me and I (in contrast).']
(Singer 2011, p. 238)

In the Warrwa examples (examples 14a and b), there is a contrast between the regular transitive construction in example 14a—in which the coverb *ngul* 'spear' is combined with the inflected auxiliary verb *-ma-* 'put' to form the predicate 'to spear'—and the reciprocal construction in example 14b, where the inflected auxiliary has been replaced with a reciprocal auxiliary, *wanji* 'exchange.'[4] The fused contrastive subject strategy of Mawng (in example 15) is particularly unusual in having a regular transitive verb conjoined with a contrastive subject pronoun to encode the reciprocal relation. While this construction seems clearly to have its origins in a biclausal strategy, Singer (2011) provides detailed arguments showing that it is a single clause synchronically.

Evans (2008) has proposed the most elaborated typology of reciprocal constructions in the literature to date, but it still does not capture the full range of structural strategies for encoding reciprocal relations across the world's languages. First, Evans intentionally restricts his scope to reciprocals formed from a transitive verbal base predicate, setting aside reciprocal constructions formed from other types of predicates, such as nominals (see example 8 above).

Second, as Evans (2008, p. 35, footnote) himself notes, his typology is based on a sample of fewer than 200 languages, so there is every reason to expect that further crosslinguistic research will reveal additional types. One example is the goal-marked reciprocal construction in Marri Ngarr shown in example 16. In this construction, the reciprocal meaning is expressed through the use of the goal marker in the verb (otherwise used to mark indirect objects, benefactives, locations, and goals, as shown in example 16c) replacing the direct object marker in the base transitive verb:[5]

[3]In fact, a number of the strategies listed under Evans's multiple-clause category are clearly single clauses syntactically despite having a complex predicate structure; therefore, a better name for this category might be "multiple predicate" rather than "multiple clause."

[4]The Southern Daly languages Murrinhpatha and Ngan'gityemerri (also in northern Australia) have a more elaborated version of this strategy with a specialized set of reciprocal (and reflexive) auxiliaries that relate systematically to those used in transitive constructions (see Reid 2011).

[5]The glosses DI and MUN in the verbs in these examples are labels for particular auxiliary paradigms in Marri Ngarr.

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Marri Ngarr

(16a) *gudin-**ning**-mit=gawunh=a.*
3DU.SBJ.DI.REAL:IPFV-**1SG.OBJ**-look.at=3DU.SUBJ.SIT.REAL=PST
'They (2) were looking at me.'
(Preston 2012, p. 95)

(16b) *ganggi gumbudin-**gi**-mit=gambu.*
1DU.INCL 1.INCL.SBJ.DI.REAL:PFV-**1INCL.GOAL**-look.at=1INCL.SBJ.SIT.REAL
'We (dual, inclusive) looked at each other.'
(Preston 2012, p. 83)

(16c) *awu am-**ngin**-at a-yilirrki.*
CLF:MEAT 2SG.SBJ.MUN.IRR-**1SG.GOAL**-pick.up CLF:MEAT-muscle
'Pick up some beef for me.'
(Preston 2012, p. 26)

Example 16b is a reciprocal construction headed by the same verb as the regular transitive construction in example 16a. In example 16a, we see that the second argument is encoded with a direct object marker *-ning-* '1SG.OBJ.' In the reciprocal construction in example 16b, however, a goal marker is used in this slot with the same person and number agreement features as the subject. The paradigm of goal markers is otherwise used to express oblique arguments and adjuncts, such as benefactives and goals as shown in example 16c. Thus, in Marri Ngarr, the reciprocal construction is expressed through a change in the verbal argument structure from transitive (requiring a direct object marker) to semi-transitive, containing a subject and a (coreferential) oblique goal argument.

There is much work still to be done to discover and delineate the full range of strategies that languages draw upon to form reciprocal constructions. Such work helps us understand the variety of solutions languages use to solve the problem of how to map a symmetric, multipredicational semantics onto a single grammatical construction. It is also important in feeding another interesting set of questions regarding the implicational connections and correlations that may exist between the choice of reciprocal strategy and other variant properties of a language. How does the type of morphosyntactic strategy interact with other aspects of the reciprocal construction—whether syntactic or semantic? I turn to some of the research in this domain in the following sections.

3.2. Reciprocal Constructions and Valency

Another dimension along which reciprocal constructions can be typologized is that of valency: the number and type of arguments selected for by the predicate. Some reciprocal constructions retain the valency of their nonreciprocal counterpart; others reduce the valency of the base verb, resulting in a monovalent predicate (with only one argument—namely, the subject). Nedjalkov (2007a, p. 21) links this property to the morphosyntactic strategy involved, claiming that morphological reciprocal markers "reduce the valency of the underlying verb by deleting the direct or indirect object. . . . In the case of pronominal reciprocals there is hardly any valency reduction."[6]

Pronominal reciprocals and other NP/argument strategies are defined by the fact that the reciprocal marker appears in a (nonsubject) argument position in the syntax, either an NP position (as in example 17) or a bound pronominal position (as in example 18). Thus, in these construction types the clause retains the syntactic arguments of the base verb, and there is no valency reduction:

[6]Nedjalkov (2007a, p. 22) also associates valency effects with the types of polysemies that reciprocal constructions enter into (for discussion of this issue, see Section 4).

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Icelandic

(17a) *Stelpa-n og strákur-inn sáu* ***hvort annað***.
girl.F.SG.NOM-DEF and boy.M.SG.NOM-DEF see.3PL.PST **each.N.SG.NOM other.N.SG.ACC**
'The girl and the boy saw each other.'
(Hurst & Nordlinger 2021, p. 105)

(17b) *Ég kynnti mennina tvo fyrir* ***hvorn öðrum***.
I introduced men.M.PL.ACC two to **each.M.SG.ACC other.M.SG.DAT**
'I introduced (the) two men to each other.'
(Hurst & Nordlinger 2021, p. 104)

Warlpiri

(18a) *Ngarrka-jarra-rlu ka-pala-jana paka-rni*.
man-DU-ERG IPFV-3DU.SBJ-3PL.OBJ strike-NPST
'The (two) men are striking them (e.g., the dogs).'

(18b) *Ngarrka-jarra-rlu ka-pala-****nyanu*** *paka-rni*.
man-DU-ERG IPFV-3DU.SBJ-**RR** strike-NPST
'The (two) men are striking themselves/each other.'
(Hale et al. 1995, p. 1437)

In examples 17a and b, the reciprocal construction is marked with a bipartite NP of the type we have seen in English (*each other*). In Icelandic, the reciprocal NP is inflected with the grammatical case appropriate to its argument position. Thus, in example 17a, *annað* 'other' is inflected with the accusative case, which generally appears on direct objects, providing evidence that the clause remains transitive and there is no valency reduction. Interestingly, the two parts of the bipartite NP in Icelandic inflect independently for case, with the quantifier *hvor* agreeing in case with the antecedent (nominative case in example 17a and accusative case in example 17b). Thus, we have an unusual morphosyntactic pattern in which the two parts of a single NP are independently inflected for grammatical case, each governed by a different part of the larger clause (Hurst & Nordlinger 2021).

In the Warlpiri sentence in example 18b, the reciprocal construction is marked with the presence of the reflexive/reciprocal bound pronoun *-nyanu*, which appears in the same position that the object bound pronoun does in a transitive clause (example 18a). The subject NP remains inflected with ergative case, providing further evidence that the reciprocal construction retains the transitivity of the base verb.

In verb-marked reciprocals, on the other hand, a morphological affix encodes the reciprocal relation. Most commonly this derives a monovalent (intransitive) symmetric verb (with only a subject NP argument) from the bivalent base. Examples include the Swahili sentence in example 12 above and the following:

Hungarian

(19) *János és Mari csókol-****óz****-t-ak*.
János and Mari kiss-**RECP**-PST-3PL
'Janos and Mari kissed.'
(Siloni 2008, p. 453)

Chichewa

(20) *Mbiídzi zi-ku-mény-****an****-a*.
10zebras 10SBJ-PRS-hit-**RECP**-FV
'The zebras are hitting each other.'
(Dalrymple et al. 1994, p. 146)

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However, this correlation between valency and morphosyntactic reciprocal strategy is not absolute. While there is certainly a crosslinguistic tendency for NP/argument strategies to maintain valency and for verb-marked strategies to reduce valency, reciprocal constructions using the same morphosyntactic strategy can differ in their valency properties. Maslova (2008, p. 230) provides the following example from the Bantu language Tonga, which shows verbal reciprocal marking as well as two argument NPs each expressing one of the reciprocants, thus maintaining the syntactic valency of the nonreciprocal verb:[7]

Tonga

(21) *Joni ba-la-yand-ana amukaintu wakwe.*
John 3PL-PRS-love-RECP wife his
'John and his wife love each other.' [Lit. 'John mutually loves his wife.']
(Collins 1962, p. 74; cited in Maslova 2008, p. 230)

The Malagasy reciprocal construction appears similar to the monovalent verb-marked constructions in Hungarian (example 19) and Chichewa (example 20) as shown in example 22. However, Hurst (2006, 2012), building on work by Keenan & Razafimamonjy (2001, 2004), argues that despite appearing to have undergone valency reduction in such examples, the reciprocal construction in Malagasy in fact retains the full valency of the base verb, on the basis of examples such as example 23.

Malagasy

(22) *M-**if**-an-dainga i Be sy Ranaivo.*
PRS-**RECP**-ACT-lie ART Be and Ranaivo
'Be and Ranaivo lie to each other.'
(Keenan & Razafimamonjy 2001, p. 49)

(23) *M-**if**-an-dainga amin-bady Be sy Ranaivo.*
PRS-RECP-ACT-lie to-spouse Be and Ranaivo
'Be and Ranaivo lie to each other's spouses.'
(Keenan & Razafimamonjy 2001, p. 52)

In example 22, there is only a single NP argument expressed—the subject NP *i Be sy Ranaivo*—and thus it appears as if the reciprocal construction has reduced the valency of the verb. However, in example 23, it is clear that the verb 'lie' has retained its base valency despite being reciprocalized since there are two NP arguments expressed in the clause: the subject and the recipient ('spouses'). Furthermore, if the valency had been reduced as a result of the reciprocal construction, there would be no recipient argument for the reciprocal to modify as possessor. Thus, Hurst (2006, 2012) argues that the Malagasy reciprocal construction retains the valency of the base verb even though the nonsubject NP must be unexpressed in regular reciprocal sentences such as example 22. Hurst uses the framework of Lexical-Functional Grammar (LFG) to argue that in these examples there is a mismatch between different levels of syntactic structure [f(unctional)-structure and c(onstituent)-structure in LFG terms], such that the second argument is present in f-structure while unexpressed at c-structure. He shows how this approach accounts for a number of syntactic properties that distinguish the verb-marked reciprocals in Malagasy from those in other languages, such as Hungarian and Chichewa.

[7]Note that this construction differs from the discontinuous reciprocal constructions discussed in Section 3.3 since the second NP ('his wife') appears in the same form as the object in the nonreciprocal construction, whereas in discontinuous constructions the second NP is introduced with a comitative phrase.

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Maslova (2008) makes a different type of valency distinction, between what she terms "unary" reciprocal constructions—in which there is only one morphosyntactic slot available for the free expression of the reciprocants—and "binary" constructions, with two available slots. Unary strategies are then subclassified into (*a*) strategies in which the valency of the verb is reduced (as in examples 19 and 20) and (*b*) strategies in which the two argument slots are preserved, but one is filled with a fixed expression that is not referentially independent. Thus, in Maslova's typology it is possible for a reciprocal construction to be bivalent (valency-preserving) yet unary. The English reciprocal construction is one example: Only the subject slot is available for the free expression of the reciprocants; the other NP position is filled with the fixed expression *each other*. In binary constructions the valency frame of the base predicate is maintained, and there remain two slots available for independent nominal reference (Maslova 2008, p. 230). An example of a binary construction is given in example 24 (see also example 21 above and the discontinuous reciprocal constructions discussed in Section 3.3):

(24) Her friends do not like me **and vice versa**.

The Malagasy reciprocal construction would be treated as unary in this typology since only the subject slot is available for overt expression of the reciprocants, despite the construction being valency-preserving at f-structure according to Hurst's (2006, 2012) analysis.

The Malagasy construction illustrates one way in which reciprocal constructions can show mixed effects with respect to valency indicators. Evans et al. (2007) discuss this issue in a number of Australian languages in which morphosyntactic indicators related to valency such as case, verbal agreement, and noun incorporation may show a mismatch in reciprocal constructions. Illustrative examples include the following:

Kuuk Thaayorre

(25) *Parr-an peln ii waarin-rr*.
kid-ERG 3PL(ERG) there chase-RECP.NPST
'All the kids are chasing each other.'
(Evans et al. 2007, p. 570)

Dalabon

(26a) *Ka-h-ngarrinj-yidjnja-n*.
3/1-ASS-hand-touch/hold-PRS
'S/he is holding my hand.'
(Evans et al. 2007, p. 575)

(26b) *Ke-h-langû-yidjnja-rr-inj*.
3DU.DISH.SBJ-ASS-hand-hold-RR-PST:PFV
'The two of them shook each other's hands.'
(Evans et al. 2007, p. 576)

In the Kuuk Thaayorre reciprocal construction in example 25, the verb is inflected with the reciprocal suffix, and the clause appears monovalent because of the (required) absence of an object NP. However, the subject NP is inflected with ergative case, which is otherwise found only in syntactically transitive (bivalent) clauses. In the Dalabon reciprocal construction in example 26b, the reciprocal-marked verb is inflected with an intransitive (monovalent) subject pronominal (a different set of subject bound pronominals is used in transitive clauses such as example 26a), yet contains an incorporated body part relating to the patient, as in the regular transitive construction in example 26a. Evans et al. (2007) argue that this construction can only mean 'they shook (each other's) hands,' where the incorporated noun is construed with the patient, as opposed to

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something like 'their hands touched each other,' where it would be construed with the agent. This suggests that a patient object must still be present at some level of structure despite the other morphosyntactic markers of monovalency.

Evans et al. (2007) argue that such mixed valency effects may arise from the fact that reciprocal constructions reflect a mismatch of semantic and syntactic structure, and particularly that the semantics of reciprocal constructions includes both symmetric bivalent predicates (A acts on B; B acts on A) as well as a monovalent predicate (A and B act together). They suggest that the mismatches may arise from some of the morphosyntactic properties being sensitive to the bivalent predicates in the semantics while others are conditioned by the monovalent predicate. They do not, however, demonstrate how this interaction could be captured systematically, leaving such an analysis for future work.[8]

3.3. Discontinuous Reciprocals and Reciprocation Strategies

Many languages with verb-marked reciprocals have the option of a discontinuous reciprocal construction, where the reciprocants are expressed across the subject and a comitative argument, as shown in example 27b:

Greek

(27a) *O Giannis kje i Maria filithikan.*
the John and the Maria kissed-RECP.PL
'John and Maria kissed each other.'

(27b) *O Giannis filithike me ti Maria.*
the John kissed-RECP.SG with the Maria
'John and Maria kissed each other.' [Lit. 'John kissed each other with Maria.']
(Dimitriadis 2008, p. 388)

Siloni (2012), building on earlier work (e.g., Siloni 2002, 2008; Reinhart & Siloni 2005), provides a typology of reciprocal verbs (i.e., verb-marked reciprocals) in which she distinguishes two types based on their formation in either the syntax or the lexicon. Siloni argues that this distinction can account for why discontinuous reciprocal constructions are licensed in some languages and not others.

In Siloni's typology, all reciprocal verbs are formed via a valency-reducing operation; however, lexical reciprocal verbs are formed via an operation in the lexicon and enter the syntax with symmetric semantics already, whereas syntactic reciprocal verbs are those where the symmetric sense is formed via an operation in the syntax. Periphrastic reciprocal constructions, such as in English, are also formed in the syntax, but they involve reciprocal anaphors (such as *each other*) and therefore fall outside of Siloni's typology.

Siloni (2008, 2012) argues on the basis of a series of semantic and syntactic tests that the following reciprocal constructions in French (example 28), Czech (example 29), Hungarian (example 30), and Russian (example 31) are formed with monovalent reciprocal verbs despite the presence of the *se* clitic in French and Czech:

French

(28) *Jean et Marie se sont embrassés.*
John and Mary RR be.3PL.PRS kissed.3PL
'John and Mary kissed.'

[8]Evans et al. (2007) also note that this line of argument is problematic because reciprocal constructions in many Australian languages (and across the world) are often polysemous with reflexive constructions, which do not have these same semantic properties yet share some of the same morphosyntactic mismatches.

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Czech

(29) *Dan a Petr se políbili.*
Dan and Petr RR kissed
'Dan and Petr kissed.'
(Siloni 2008, p. 453)

Hungarian

(30) *János és Mari csókol-óz-t-ak.*
János and Mari kiss-RECP-PST-3PL
'Janos and Mari kissed.'
(Siloni 2008, p. 453)

Russian

(31) *Miša i Maša obnjali-s'.*
Misha and Masha hugged-RECP
'Misha and Masha hugged.'
(Siloni 2008, p. 452)

The clitics *se* in examples 28 and 29 are not reciprocal objects, as shown by the fact that these constructions do not pattern like syntactically bivalent reciprocals, such as in English, in the availability of ambiguity in embedded reciprocal constructions. Sentences of the type in example 32a, which contain a reciprocal object in the embedded clause, are ambiguous depending on whether the reciprocal is associated with a broad ("I") reading (example 32b) or a narrow ("we") reading (example 32c) (Higginbotham 1980; Heim et al. 1991a, 1991b; Williams 1991):

(32a) Pat and Sam said that they saw **each other**.

(32b) Pat said "I saw Sam" and Sam said "I saw Pat."

(32c) Pat and Sam both say "we saw each other."

The availability of both of these readings accounts for the acceptability of example 33b despite the fact that example 33a is self-contradictory, since while the "we" reading is contradictory in example 33b, the "I" reading is feasible under embedding (example 33c) (Siloni 2012, p. 263):

(33a) #Pat and Sam defeated each other in the final.

(33b) Pat and Sam said that they defeated each other in the final.

(33c) Pat said "I defeated Sam" and Sam said "I defeated Pat."

The reciprocal verbs shown in examples 28–31, however, do not pattern in this same way, which Siloni (2008) takes as evidence that they are syntactically monovalent. The Hebrew sentence in example 34, for instance, can have only one reading (the "we" reading):

Hebrew

(34) *Dan ve-Ron amru še-hem hitkatvu.*
Dan and-Ron said that-they wrote.RECP
'Dan and Ron said that they corresponded.'
[Dan and Ron both say "we corresponded"—R.N.]
(Siloni 2008, p. 453)

Siloni (2008, p. 455) shows that French (and Czech) patterns like Hebrew in not allowing ambiguity in embedded reciprocal constructions, as demonstrated by the fact that self-contradictory instances such as example 33 above remain contradictory under embedding (example 35). She

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therefore argues that the French and Czech reciprocal constructions do not contain a reciprocal object and that they contain monovalent reciprocal verbs such as in Hebrew, Hungarian, and Russian:

French

(35a) *#Pierre et Jean se sont vaincus à la finale.*
Pierre and Jean RR be.3PL.PRS defeated.3PL LOC the.F final
'Pierre and Jean defeated each other in the final.'

(35b) *#Pierre et Jean ont dit qu'-ils se sont vaincus*
Pierre and Jean have.3PL.PRS said that-3PL.SBJ RR be.3PL.PRS defeated.3PL
à la finale.
LOC the.F final
(Siloni 2008, p. 455)

However, while Siloni argues that examples 28–31 all can be shown to involve monovalent reciprocal verbs, she also argues that the reciprocal constructions of languages such as French and Czech differ from those of Hebrew, Hungarian, and Russian in that the former are formed in the syntax and the latter in the lexicon. Evidence for this is that lexically formed reciprocal verbs can have a corresponding discontinuous reciprocal construction, in which the logical subject of the reciprocal verb is split across the syntactic subject and a comitative argument (Dimitriadis 2004, 2008). In languages with verbal agreement, the verb often agrees with the subject alone (as in examples 36 and 37):

Greek

(36) *O Giannis filithike me ti Maria.*
the John kissed-RECP.SG with the Maria
'John and Maria kissed each other.' [Lit. 'John kissed each other with Maria.']
(Dimitriadis 2008, p. 388)

Swahili

(37) *Juma a-li-tekeny-an-a na Halima.*
Juma 3SG.SBJ-PST-tickle-RECP-FV COM Halima
'Juma and Halima tickled each other.' [Lit. 'Juma tickled each other with Halima.']
(Hurst 2012, p. 5)

Hungarian

(38) *János csókol-óz-ott Kati-val.*
John kiss-RECP-PST Kate-WITH
'John and Kate were kissing.' [Lit. 'John kissed each other with Kate.']
(Dimitriadis 2008, p. 393)

However, discontinuous reciprocals are not possible in French, as shown in example 39. Siloni (2008) argues that this is due to the fact that reciprocal verbs in French are syntactically formed:

French

(39) **Jean s'-est embrassé avec Marie*
Jean RR-be.3SG.PRS kissed with Marie
(Siloni 2008, p. 474)

Dimitriadis (2008, p. 378) argues that the discontinuous reciprocal construction is possible only with predicates that are irreducibly symmetric, by which he means that they express a binary relationship in which the two participants have necessarily identical participation in the event. Siloni (2008), on the other hand, while agreeing that discontinuous reciprocal constructions will

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necessarily have symmetric semantics, attributes this to the fact that they are formed only from lexically formed reciprocal verbs. Symmetric predicates that are formed in the syntax, such as in example 39, do not license discontinuous reciprocal constructions.

The analysis of discontinuous reciprocal constructions raises interesting questions about argument structure and has been important in advancing theoretical understanding of the nature of verb-marked reciprocal constructions. One issue is the relationship between simple and discontinuous reciprocal constructions, and the arguments for considering one to be derived from the other. Mchombo & Ngunga (1994) suggest that the discontinuous construction is derived from the simple (monovalent) reciprocal construction, with the comitative phrase essentially extraposed from a conjoined subject. On the other hand, Rákosi (2008), building also on Dimitriadis (2004), argues that the discontinuous reciprocal construction is syntactically bivalent, with the subject and the comitative phrase corresponding to separate syntactic arguments. Evidence for this analysis includes the fact that the comitative phrase behaves differently from comitative adjuncts; in example 40, for instance, the sentence is ungrammatical if the comitative phrase is omitted (Hurst 2012, p. 277):

Swahili

(40) *Juma a-na-pend-an-a na Pili.*
Juma 3SG.SBJ-PRS-love-FV COM Pili
'Juma and Pili love each other.'
(Dimitriadis 2004, p. 2)

Semantically, the comitative phrase can also be shown to be a distinct argument from the subject. To illustrate this, Dimitriadis (2004) provides examples such as the following:

Greek

(41a) *Ta agorja kje ta koritsja angaljastikan.*
the boys and the girls hugged(RECP)
= Each boy shared hugs with some (all?) boys and girls.

(41b) *Ta agorja angaljastikan me ta koritsja.*
the boys hugged(RECP) with the girls
= Each boy shared hugs with some (all?) girls.
(Dimitriadis 2004, p. 28)

According to Dimitriadis (2004, p. 29), example 41a describes a situation in which there is a single group of boys and girls with hugs exchanged between various pairs of this group, regardless of gender. Example 41b, on the other hand, can only describe a situation in which the hugs are between a boy and a girl. Thus, in the discontinuous reciprocal construction, the reciprocal relation must involve a member of the syntactic subject and a member of the comitative argument; it is therefore more restricted semantically than the simple reciprocal construction in example 41a. This difference in the semantics is not easily accounted for by analyses that treat the comitative phrase as part of the logical subject of the reciprocal. Thus, on the basis of these (and many other) arguments, it can be established that discontinuous reciprocal constructions are syntactically bivalent, with both a subject and a comitative argument. The interesting question then is how to reconcile this bivalency with the fact that they are formed only from lexical reciprocal predicates, which themselves are clearly monovalent.

In her typology of reciprocal verbs, Siloni (2012) treats these bivalent reciprocal verbs (those that form discontinuous reciprocal constructions) as also being formed in the lexicon, capturing their close association with regular lexically formed reciprocal verbs. Both of these reciprocal verb

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types are formed from their nonreciprocal counterpart through a lexical operation of "bundling" (Reinhart & Siloni 2005), which takes two semantic roles (usually agent and patient) and bundles them together to form a single complex role. This single complex role then maps to a single grammatical function in the syntax (namely, the subject). Also associated with this reciprocal bundling is the marking of the verb as symmetric. Thus, the process of forming the monovalent reciprocal verb *kiss*-RECP is represented schematically in example 42:

(42) Verb entry: *kiss* [Ag][Th]
Reciprocalization output: $kiss_{SYM}$ [Ag-Th]
Syntactic representation: John and $Mary_{Ag\text{-}Th}$ $kissed_{SYM}$
(Siloni 2012, p. 281)

The bivalent reciprocal verbs involved in discontinuous reciprocal constructions have an additional argument that is semantically empty (see also Rákosi 2008 for development of this idea), drawing its interpretation from that of the subject and introduced with the preposition *with* (or analogous case morphology). The bundling operation involved in forming these bivalent reciprocal verbs (SYM′) is thus related to that in example 42 but adds an additional argument, as shown in example 43. Each reciprocal verb formed in the lexicon therefore has a monovalent form and a bivalent form that is used in discontinuous reciprocal constructions:

Reciprocal verb
(43) Monovalent: V_{SYM} [Ag-Th]
Bivalent: $V_{SYM'}$ [Ag-Th] [Ø-WITH]
(Siloni 2012, p. 310)

Since these bivalent reciprocal verbs are formed in the lexicon according to this approach, they are possible only in languages with lexical reciprocal verbs. This then accounts for the fact that discontinuous reciprocal constructions are not found in languages with syntactically formed reciprocal verbs, such as French and Czech as discussed above.

Siloni's (2012) typology, however, focuses only on reciprocal verbs and only on those that can be shown to be monovalent (or, at least, to have a monovalent option). Thus, it covers only a small proportion of the reciprocal constructions found across the world's languages and discussed in Section 3.2 above. Hurst (2012) builds on some of the insights of Dimitriadis (2004, 2008), Rákosi (2008), and Siloni (2008, 2012) to provide a broader typology of reciprocation strategies, incorporating NP/argument reciprocal constructions and monovalent and bivalent verb-marked reciprocals in one typological framework. Hurst's (2012) typology is couched within the framework of LFG and exploits the parallel structures of LFG to argue that reciprocation strategies in different languages operate at different levels of structure, thus accounting for the variety of morphosyntactic properties and syntactic behaviors found in reciprocal constructions across languages. LFG assumes three levels of syntactic structure: a(rgument)-structure, the level at which predicates are associated with their (semantic) arguments for mapping to grammatical functions; f(unctional)-structure, the level at which grammatical functions are encoded and functional relations are captured; and c(onstituent)-structure, the level at which hierarchical constituent structure and linear relations are encoded. Hurst's typology distinguishes reciprocation strategies according to the level of structure at which the symmetry associated with reciprocal constructions is formed as well as the process involved. NP/argument reciprocals, such as in Icelandic (see example 17) or English *each other* constructions, maintain two arguments across all three levels of structure and express reciprocation through the use of reciprocal anaphors. Verb-marked reciprocals as in Malagasy (see examples 22 and 23) maintain two arguments at a-structure and f-structure but express only one in c-structure; monovalent reciprocal verbs in Swahili [Siloni's (2012) monovalent

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lexical reciprocal verbs] have only a single argument at all levels of structure, while monovalent verbs as in French [Siloni's (2012) syntactic reciprocal verbs] have two arguments at a-structure mapping to single arguments at f-structure and c-structure. Hurst (2012) shows how the different behavioral properties associated with these reciprocal constructions across languages follow directly from these differences in their underlying reciprocation strategies.

Hurst's (2012) typology incorporates a broad range of reciprocal constructions into a single typological framework, making some significant inroads into our understanding of the syntax of reciprocal constructions crosslinguistically and demonstrating that surface morphosyntactic properties may cross-cut the underlying reciprocation strategy involved. However, further work is needed to apply this framework to the array of different reciprocal strategies encompassed in Evans's (2008) structural typology, to determine whether this approach can truly capture the enormous variation found across languages of the world.

4. SEMANTIC TYPOLOGIES OF RECIPROCAL CONSTRUCTIONS

Work in formal semantics on the interpretation and meaning of reciprocal constructions has focused on such issues as the logic of reciprocity and how reciprocal meanings are interpreted (e.g., Fiengo & Lasnik 1973, Langendoen 1978, Higginbotham 1980), the logically distinct types of symmetry and the relationships between these different meanings (e.g., Dalrymple et al. 1998, Beck 2001), the relationship of reciprocity to plurality and theories of anaphora (e.g., Heim et al. 1991b), and scope ambiguities and the interpretation of embedded reciprocal pronouns (e.g., Heim et al. 1991a, Williams 1991). For the most part, this work has focused primarily on English and thus also on reciprocal constructions that are formed with a reciprocal anaphor (although see Dalrymple et al. 1994 for an exception).

Evans et al. (2011a) used a semantic typology approach to investigate the expression of reciprocity across languages. In this study they took as a starting point the different symmetric relations identified by Dalrymple et al. (1998) (see example 44) and supplemented them with additional dimensions relevant to the expression of reciprocity across languages, such as simultaneous versus sequential action (example 45) and the difference between dual and plural reciprocal meanings:

(44) The members of this family love one another. [Strong]
The people at the dinner party were married to one another. [Pairwise]
The graduating students followed one another up onto the stage. [Chain]
The teacher and her pupils intimidated one another. [Radial]
The drunks in the pub were punching one another. [Melee]
The children chased each other round in a ring. [Ring]
(Evans et al. 2011b, p. 8)

Balinese
(45a) *Nyoman ma-diman ajak Ketut.*
Nyoman MID-kiss with Ketut
'Nyoman and Ketut kissed each other.' [simultaneous]

(45b) *Nyoman saling Ø-diman ajak Ketut.*
Nyoman RECP UV-kiss with Ketut
'Nyoman and Ketut kissed each other (in turn).' [sequential]
(Evans et al. 2011b, p. 9)

The different semantic dimensions relevant to the expression of reciprocals were encapsulated in a series of nonlinguistic video stimuli, which speakers of more than 20 languages were then

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asked to describe. The researchers compared the constructions used in these descriptions crosslinguistically and found "coherent cross-linguistic tendencies married with linguistic idiosyncrasies" (Evans et al. 2011b, p. 23). In a number of languages, the set of meanings encoded by English *each other/one another* (as in example 44) is likewise encoded with a single reciprocal construction. In others, however, only a subset of these meanings could be encoded with the same construction used in prototypical reciprocal constructions. Evans and colleagues' findings suggest that the particular cluster of meanings that formal semantic work on reciprocal constructions has focused on (e.g., Langendoen 1978, Dalrymple et al. 1998) reflects a recurrent tendency across languages but not necessarily a fixed set of polysemies. These findings thus demonstrate the need for more crosslinguistic research in the semantics of reciprocal constructions.

Another strand of work in the semantics of reciprocal constructions looks at the broader polysemies that are found across languages. A well-known and extremely common polysemy is between reciprocal and reflexive meanings, as in examples 46–48:

Imbabura Quechua

(46) *Wambra-kuna riku-ri-rka.*
child-PL see-REFL/RECP-PST
'The children saw themselves/The children saw each other.'
(Cole 1982, p. 91; cited in Maslova & Nedjalkov 2013)

French

(47) *Pierre et Jean se sont habillés.*
Pierre and Jean RR be.3PL dressed.PL
'Pierre and Jean dressed themselves/Pierre and Jean dressed each other.'
(Siloni 2012, p. 278)

Warlpiri

(48) *Ngarrka-jarra-rlu ka-pala-nyanu. paka-rni.*
man-DU-ERG IPFV-3DU.SBJ-RR strike-NPST
'The (two) men are striking themselves/each other.'
(Hale et al. 1995, p. 1437)

Maslova & Nedjalkov (2013) report that of the 175 languages in their sample, polysemous reflexive/reciprocal constructions are present in 60 (34%). This common polysemy arises from the fact that reciprocal and reflexive constructions share the property of encoding a situation in which a participant plays two distinct roles in the same event. Reciprocal meanings, however, necessarily involve multiple participants for which this property holds, thus bringing added complexity as we have seen. Other meanings that are commonly encoded with reciprocal constructions across languages are collective and sociative meanings (example 49) and iterative meanings (example 50) (Lichtenberk 1985, Nedjalkov 2007b):

Yakut

(49) ölör- 'to kill'
ölör-**üs** 'to kill *each other*' [reciprocal]
'to kill somebody *together*' [collective/sociative]
(Nedjalkov 2007b, p. 237)

East Futunan

(50a) *alofa* 'to love'
fe-alofa-'aki 'to love each other' [reciprocal]

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(50b) *tapa* 'to sparkle'
fe-tapa-'aki 'to sparkle again and again' [iterative]
(Nedjalkov 2007b, p. 237)

Lichtenberk (1985, p. 32) suggests that the use of a single construction type across reciprocal, reflexive, and collective/sociative meanings is due to some shared semantic properties among these situation types, including the multiplicity and identity of the roles performed by the participants and the low individuation of the participants involved [see also Kemmer's (1993) discussion of the "middle" construal]. However, as demonstrated by Nedjalkov's (2007c) inclusion of three volumes of chapters dedicated to the polysemy of reciprocal markers, there is an enormous amount of variation and complexity in this area, and a single explanation is unlikely to capture it all.

An important, and as yet unanswered, question concerns the relationship between the morphosyntactic properties of a reciprocal construction and the types of polysemies it can encode. Nedjalkov (2007a, p. 22) finds a correlation between valency-changing in reciprocal-marked predicates and the polysemy involved; he states that reflexive-reciprocal polysemy entails valency reduction, reciprocal-sociative polysemy entails valency increase, and iterative-reciprocal polysemy entails no valency change. He also notes that polysemous reciprocal markers are mostly affixes and clitic pronouns rather than free forms (Nedjalkov 2007a, p. 17). However, if the polysemy arises through shared semantic properties of the different situations, as suggested by Lichtenberk (1985), then it is not immediately obvious why the type of polysemy should interact with the morphosyntactic realization of the construction in these ways.

5. CONCLUSION

Reciprocal constructions require a complex mapping between propositional semantics, semantic roles, and grammatical functions and thus provide an interesting challenge for linguistic encoding. Exploring the different design solutions that languages use to confront this challenge advances our understanding of language structure and the limits of variation, and recent years have seen great advances in this respect in the typological literature.

Structural typologies, such as those of König & Kokutani (2006), Nedjalkov (2007a), and Evans (2008), identify different morphosyntactic strategies that are used crosslinguistically to encode mutual relations, with a primary distinction between nominal (NP/argument) and verbal strategies, and a majority of languages seem to make use of one of these two major types. However, many languages use more than one strategy, and it is not yet clear what the implicational connections are between these different structural choices and other semantic or morphosyntactic properties. Furthermore, as shown by theoretical typologies such as those of Siloni (2012) and Hurst (2012), focusing only on the morphosyntactic properties of reciprocal constructions may mask other differences regarding the nature of the reciprocation strategy involved. Reciprocal constructions that use the same primary strategy (e.g., morphological marking on the verb) may in fact exhibit very different types of behavior with respect to valency and interaction with other syntactic constructions. An important avenue for future research is to challenge such theoretical typologies with the full array of variation found across the world's languages to provide a complete understanding of the nature of reciprocal strategies and the implications for theories of language structure.

Further work is also needed in exploring the correlations between morphosyntactic and semantic properties of reciprocal constructions: What is the full set of polysemous meanings found in reciprocal constructions, and are different polysemies dependent on structural properties of their formation? How can theoretical accounts of reciprocation strategies capture the array of semantic construals found across languages (e.g., Langendoen 1978, Dalrymple et al. 1998) to provide an

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integrated analysis of the complex mappings of reciprocal constructions? As a lens on the interplay between multiple parts of the linguistic system and on the solutions languages arrive at when standard processes relating predicates to situations are challenged, continued research into the typology of reciprocal constructions will provide significant insights into the nature of grammatical structure across languages.

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