Further remarks on reciprocal constructions

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In view of the breathtaking scope of the comparative research enterprise led by Vladimir P. Nedjalkov whose results are published in these volumes, I have no choice but to select and highlight a few topics that I find particularly interesting and worthy of further comment and further study. I will focus here on conceptual and terminological issues and on some phenomena that have been discussed in the literature but are not so well represented in this work. I will also try to summarize some of the major known generalizations about reciprocals, as discussed in this work and elsewhere, in the form of twenty-six Greenberg-style numbered universals.

1. Reciprocal, mutual, symmetric

Let us begin with a terminological discussion of the most basic term, **reciprocal**. In the present volumes, this term is used both for meanings (e.g. *reciprocal situation, reciprocal event*) and for forms (e.g. *reciprocal construction, reciprocal marker, reciprocal predicate*). In most cases, the context will disambiguate, but it seems to be a good idea to have two different terms for meanings and for forms, analogous to similar contrasts such as *proposition/sentence, question/interrogative, participant/argument, time/tense, multiple/plural.* Since all reciprocals express a situation with a mutual relation, I propose the term **mutual** for the semantic plane, reserving the term *reciprocal* for specialized expression patterns that code a mutual situation. A similar terminological distinction is made by König & Kokutani (2006), Evans (2007), Dimitriadis (2007), but these authors propose the term *symmetric* for meanings, reserving *reciprocal* for forms.

There are several problems with the term *symmetric* that make it less suitable, in my view, than the term *mutual*:

(i) The term *symmetric(al) predicate* has been widely used, following Lakoff & Peters (1969), for lexical reciprocals like *Pedro and Aisha are similar*; these would have to be renamed to "underived symmetric predicates";

(ii) Dimitriadis (2007) uses the term to differentiate between reciprocals of the type *Pedro and Aisha kissed* (=symmetric reciprocals) and *Pedro and Aisha kissed each other* (=asymmetric reciprocals);

(iii) mutual situations are rarely fully symmetric (cf. Kemmer 1993: 256, n. 65);[1]

(iv) the term comes from the realm of logic and mathematics, and human language seems mostly to require concepts having to do with human actions and feelings rather than with mathematics.

A **mutual situation** can be defined as a situation 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. Thus, in (1) we have a non-mutual situation, because Aisha is the agent of an action affecting Pedro, and Pedro is the patient. By contrast, in (2a–b) Aisha is both agent and patient, and so is Pedro, so the situations qualify as mutual.

(1) *Aisha pinched Pedro.*

(2) a. *Aisha and Pedro pinched **each other**.*
     b. *Aisha pinched Pedro, and Pedro pinched Aisha.*

In (3), there are three participants, and a mutual relation exists only between two of them (Lisi and Aisha), but this is sufficient to make the examples qualify as mutual situations.

(3) a. *Pedro told Aisha and Lisi a secret about **each other**.*
     b. *Pedro told Aisha a secret about Lisi, and he told Lisi a secret about Aisha.*

In reciprocal constructions expressing transitive events such as (2a), and also in more complex events such as (3a), both participants play two identical roles, but there are also mutual situations where there is just a single role: In *Aisha and Pedro are cousins*, both play the role 'cousin of' with respect to each other. In fact, in this example it seems better to speak about a **mutual configuration**. Mutual situations and events are then just special cases of mutual configurations. Mutual configurations can also be expressed by noun phrases, such as *Humboldt's and Cuvier's articles about each other*.

For the participants standing in a mutual relation to each other, I propose the neologism **mutuant**. (Nedjalkov and some other authors in this work use the term *reciprocant* for participants of a mutual situation, but given that we want to restrict the term *reciprocal* to the expression plane, we should not use *reciprocant* for the semantic plane.)

In general, the mutuants are expressed by the arguments of a reciprocal construction, but most languages also allow the expression of mutual situations in which only one of the mutuants is expressed overtly. In (4a), the second mutuant must be inferred from the context (it must be a definite null participant, e.g. 'different from my previous proposal'), whereas in (4b) the second mutuant remains completely implicit ('married to someone').

(4) a. *Your proposal is very different.*
     b. *My friend Pedro got married.*

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1. For example, Huddleston & Pullum (2002) distinguish between two different uses of one…the other in English: symmetric (e.g. *They were sitting one beside the other*) and asymmetric (e.g. *They were placed one on top of the other*).

2.   Major ways of expressing mutual configurations

Mutual configurations can be expressed explicitly, as in all the examples seen so far, but they can also be left implicit, as in (5) and (6).

(5)   a.   *Hector and Achilles fought obsessively.*
      b.   *Lisi and Aisha are in love.*

(6)   To'aba'ita (Lichtenberk, Ch. 36, p. 1554)
      Kero   musu-a   babali-daro'a.
      3DU.FACT kiss-3.OBJ cheek-3DU.POSS
      'The two of them kissed them/themselves/each other on the cheek.'
      (Lit. '…kissed their cheeks.')

These sentences have one interpretation on which they express mutual relations, but they also have a non-mutual interpretation. For example, in (5a) Hector might have fought against Menelaus and Achilles against Memnon, and in (5b), Lisi might be in love with Fatima and Aisha with Ram. In (6), the two could have kissed the cheeks of some other pair of people.

Implicit expression of mutual situations is apparently not common. Most mutual situations are expressed explicitly, either by free non-specialized and fully compositional combinations of clauses in discourse (as in 2b, 3b),[2] or by specialized patterns, called **reciprocal constructions**.

The boundary between free and specialized expressions of mutual situations mostly coincides with the boundary between multiclausal and monoclausal expression, but there are some intermediate cases. Multiclausal expressions may be abbreviated by omitting the verb in one of the clauses ("gapping"), so that we do not have full clauses anymore:

(7)   a.   *Aisha pinched Pedro, and Pedro Aisha.*
      b.   *Lisi is in love with Ram, and Ram with Lisi.*

Since the second parts of these examples are still very clause-like, one would not say that the examples are monoclausal. But (8) is fairly similar to (7):

(8)   *Aisha pinched Pedro, and **vice versa**.*

This construction is clearly specialized and is thus an instance of a reciprocal construction, although one could say that it is still biclausal, with *vice versa* as a kind of "pro-clause" (an anaphoric clause substitute).

Another multiclausal construction that can perhaps be said to express mutuality is the *back* construction seen in (9).

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2. Another non-specialized way of expressing mutual situations is by means of universal quantifiers (cf. Maslova 2007: §3.2):

(i)   *Each participant knows all the others well.*
(ii)   *The participants each know the others well.*

Here, too, a mutual interpretation is only one possibility, though of course the most likely one.

(9)   *Aisha pinched Pedro, and Pedro pinched her **back**.*

Here *back* apparently requires an identical response action. Constructions of this kind are considered "non-grammaticalized" by Nedjalkov (Ch. 3, §2.1), but since they are specialized and not fully compositional, they are included in the category "reciprocal constructions" here. However, most reciprocal constructions are monoclausal, and the remainder of this paper (just like 99.9% of this work) will be devoted to monoclausal reciprocals.

Figure 1 summarizes various ways in which languages can deal with mutual situations.

Most papers in this work deal only with monoclausal reciprocals, which can be divided into grammatical reciprocals and lexical reciprocals. **Grammatical reciprocals** have traditionally been at the center of syntacticians' attention, and often lexical reciprocals are ignored completely in discussions of reciprocal constructions. This is normal: In a similar way, studies of causative constructions often ignore lexical causatives and concentrate entirely on grammatical causatives. But when one starts with the semantic side of the phenomena (as one must in typology), it is necessary to include lexical causatives (and analogously lexical reciprocals) as well.

Lexical reciprocals (also called *allelic predicates* in §7 below) can be defined as predicates that express a mutual configuration by themselves, without necessary grammatical marking. They consist of a semantically restricted set of predicates whose meanings generally fall into the class of social actions and relations ('marry', 'quarrel', 'friend'), spatial relations ('adjoin', 'next to'), and relations of (non-)identity ('same as', 'different from', 'resemble').
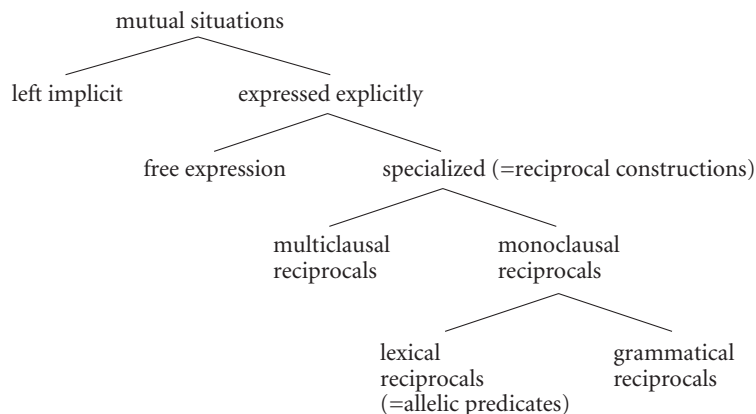
Figure 1. Ways of expressing mutual situations

3.   Basic properties of monoclausal reciprocal constructions

Monoclausal reciprocals are quite diverse, and the pages of this work are filled with details of their cross-linguistic diversity. However, there are also some ways in which they are remarkably uniform. Somewhat trivially, we can start by making the following generalization:[3]

> **Universal 1:**
> In all languages, monoclausal reciprocal constructions are at least as complex formally as the corresponding non-reciprocal constructions denoting simple events.

More interestingly, languages show a strong tendency to express the set of mutuants in a single argument.

> **Universal 2:**
> In all languages with reciprocal constructions, there are constructions in which the mutuants are expressed in a single (nonsingular) argument of the predicate.

Such constructions are called **simple reciprocal constructions** by Nedjalkov (Ch. 1, §7), and they account for the overwhelming majority of reciprocals in this work. As Maslova (Ch. 6, p. 336) notes, "instead of encoding symmetry, languages encode role identity between the reciprocal participants".

It seems that one of the main reasons for using reciprocal constructions is that one wants to present the mutual situation from the point of view of the entire set of mutuants, not just from one mutuant's point of view. Moreover, one also wants to express the joint participation of the mutuants in a single coherent situation (cf. Evans 2006). Thus, (10b) is the most usual reciprocal counterpart of the free mutuality expression in (10a).

(10)   German (Wiemer & Nedjalkov, Ch. 10, p. 47)
   a.   *Hans schlägt Paul, und Paul schlägt Hans.*
        'Hans hits Paul, and Paul hits Hans.'
   b.   *Hans und Paul schlagen **sich**.*
        'Hans and Paul hit each other.'
   c.   *Hans schlägt **sich** mit Paul.*
        'Hans and Paul hit each other.' (Lit. 'Hans hits each other with Paul.')

However, some languages also allow reciprocals in which the mutuants are expressed by two different arguments, as in (10c). Such constructions are called **discontinuous reciprocal constructions** by Nedjalkov (Ch. 1, §7) (see also Dimitriadis 2004). Crucially for

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3. Interestingly, in some Western Austronesian languages there are reciprocal constructions which lack a verbal affix that is obligatorily present in the corresponding non-reciprocal construction: In Madurese (Davies 2000), 'hit' is *m-okol* (with the active-voice nasal prefix *m-* that makes the root-initial consonant of the root *pokol* 'hit' disappear), while 'hit each other' is *saleng pokol*, where there is no voice prefix. This construction is not a counterexample to Universal 1, however, because the reciprocal word *saleng* is obligatory in the construction.

Universal 2, all languages with discontinuous reciprocals also have simple reciprocals. Moreover, it seems that in discontinuous reciprocals, one of the arguments is always an oblique (most commonly a comitative) argument.

> **Universal 3:**
> No language has a reciprocal construction in which there are two mutuant-expressing arguments that are coded like the A (most agent-like argument) and the P (most patient-like argument) of a typical transitive clause.

Thus, we do not in general find reciprocals of the sort shown schematically in (11):

(11)   *The girl-*NOM *kissed-*REC *the boy-*ACC.
       'The girl and the boy kissed (each other).'

However, there are some exceptions to Universal 3. Most obviously, lexical reciprocals are sometimes transitive verbs (e.g. English *to marry, to resemble*, Nivkh *ŋəzi* 'be of the same size', *ŋətə* 'be of the same age'). And occasionally one finds transitive grammatical reciprocals such as (12) from Yakut:

(12)   Yakut (Nedjalkov & Nedjalkov, Ch. 26, p. 1130)
       Kini bu kihi-ni bil-si-bet ete.
       he   this man-ACC know-REC-NEG AUX.PAST
       'He and this man did nor know each other.'
       (Lit. 'He did not know-mutually this man.')

In Yakut, this is a completely unproductive pattern, but reciprocals of the type (11) have been reported to be productive in the northern Australian language Iwaidja (Evans 2007). Here reciprocals are formed in a way that is reminiscent of the *vice versa* construction in (8), though Evans explicitly says that the construction is monoclausal.

(13)   *anb-uku-n   lda wamin a-ngurnaj*
       3PL.A>3PL.P-give-NPST and 3PL.REC 3PL-name
       'They used to give each other their (clan) names.'
       (Lit. 'They gave them, and mutually, their names.')

What languages typically do instead is to express the set of mutuants as a single argument occupying one of the two syntactic positions in which the mutuants are in the corresponding non-reciprocal clause pair. This argument will be called the **reciprocator** here. The other syntactic position will be called the **reciprocee**.[4] The reciprocee is either omitted or is expressed by a **reciprocal anaphor**, i.e. a noun phrase whose reference is dependent on and derivative of a nearby referential expression. The (metaphorically speaking)

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4. In practice, there is only one reciprocee position per clause, though theoretically clauses with two reciprocee positions are perhaps possible:

(i)   *The participants introduced each other to each other.*
(ii)   *They put each other's spoons on each other's plates.*

process of transforming an "underlying" non-reciprocal construction into a reciprocal construction, and in particular the change brought about in the reciprocee position, is called **reciprocalization**.

We see both subtypes of reciprocal constructions in (14)–(15), where the (a) example shows the corresponding non-reciprocal clause pair, and the (b) example shows the reciprocal construction.

(14) reciprocee is omitted: Cashinahua (Camargo, Ch. 45, p. 1869)

     a. *paku-n   haidu d~~iti~~-ai.*
        Paco-ERG Jairo hit-PROGR
        'Paco is hitting Jairo, Jairo is hitting Paco.'

     b. *paku inun haidu d~~iti~~-**nanan**-ai-bu.*
        Paco and Jairo hit-REC-PROGR-PL
        'Paco and Jairo are hitting each other.'

(15) reciprocee is expressed by an anaphor: Vietnamese (Bystrov & Stankevich, Ch. 47, p. 1943)

     a. *Lan yêu Hống. Hống yêu Lan.*
        Lan love Hong Hong love Lan
        'Lan loves Hong. Hong loves Lan.'

     b. *Lan và Hống yêu **nhau.***
        Lan and Hong love each.other
        'Lan and Hong love each other.'

In (14b), the object argument is reciprocalized, which means that it is not overtly expressed. The verbal reciprocal marker indicates it. In (15b), again the object argument is the reciprocee, and here this is marked by the presence of the reciprocal anaphor *nhau*.

The discontinuous reciprocal construction is exemplified by (16a–c).

(16) a. Polish (Wiemer, Ch. 11, p. 526)
      *Widzisz **się** z   babci-ą dwa razy w tygodniu.*
      see.2SG REC with grandma two times in week
      'You and grandma meet ('see each other') twice a week.'

     b. Yakut (Nedjalkov & Nedjalkov, Ch. 26, p. 1128)
      *Kini aγa-tə-n   kətta kuust-**uh**-a   tüs-t-e.*
      he   father-his-ACC with hug-REC-CONV AUX-PAST-3SG
      'He and his father hugged (each other) quickly.'

     c. Venda (Bantu; Maslova, Ch. 6, p. 344)
      *musidzana u   khou   rw-**an**-a   na   mutukana*
      girl   3SG PRES.CONT hit-REC-FV with boy
      'The girl and the boy are hitting each other.'
      (Lit. 'The girl is hitting each other with the boy.')

The use of such discontinuous reciprocals is usually quite restricted lexically. It is only possible with verb-marked reciprocals (as noted by Nedjalkov, Ch. 1, §7.1, Ch. 3, §3.2):

Universal 4:
Only verb-marked reciprocals allow a discontinuous reciprocal construction.

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4. Reciprocal anaphors

4.1 Anaphoric reciprocal constructions

A large class of reciprocal constructions contains two arguments that both refer to the entire set of mutuants. Typical examples are (17a–d).

(17) a. English
   *The friends trust **each other**.*

   b. Lezgian (Haspelmath 1993:415)
   *Cükwer-a-ni   Sajran-a   **čp-i - čeb***   *qužaxlamiš-na.*
   Cükwer-ᴇʀɢ-and Sajran-ᴇʀɢ selves-ᴇʀɢ - selves(ᴀʙs) embrace-ᴀᴏʀ
   'Cükwer and Sajran embraced each other.'

   c. Bamana (Vydrine, Ch. 46, p. 1917)
   *Mǔsa ní   Fántà yé   **ɲɔ´gɔn**   bùgɔ.*
   Musa and Fanta ᴘꜰᴠ each.other strike
   'Musa and Fanta struck each other.'

   d. Polish (Wiemer, Ch. 11, p. 515)
   *Janek   i   Franek   pomaga-l-i   **sobie**.*
   Janek.ɴᴏᴍ and Franek.ɴᴏᴍ help-ᴘsᴛ-ᴘʟ self.ᴅᴀᴛ
   'Janek and Franek helped each other.'

In these three cases, the reciprocator gives a description of the set of mutuants (either a conjoined NP or a nonsingular NP), and the reciprocee is represented by an **anaphoric expression** (or short: an *anaphor*) that refers to the same set.[5] The anaphoric expression can be a "bipartite quantifier" (as in English and many other European languages), a non-quantifier bipartite expression (as in Lezgian),[6] a single-part element that looks like a noun (as in Bamana; cf. Evans's 2007 category "reciprocal nominal"), or a single-part element that looks like a pronoun (as in Polish). What all these have in common is that the anaphoric expression refers to the same set of entities as the reciprocator, but compared to reflexive constructions (which express simple situations), the coreference in the parallel permuted situations expressed by reciprocals is more complicated: The coreference obtains not between the sets as wholes, but between the individual membes of the sets (in 15a, member A of {the friends} trusts member B of {each other}, member B of {the friends}

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5. Nedjalkov uses the older term "reciprocal pronoun" for all of these forms, including those that look more noun-like than pronoun-like (e.g. in that they have no person distinctions).

Note that I am not using the term *anaphor* in the generative sense (where it contrasts with "pronominals" in the context of the Binding Theory), but a more general sense for all anaphoric expressions. (However, in the context of reciprocal anaphors this difference is irrelevant, because all anaphoric reciprocal expressions in my sense are also reciprocal anaphors in the generative sense, so there is no danger of misunderstanding.)

6. In the typologies of König & Kokutani (2006) and Evans (2007), there seems to be an implicit assumption that bipartite reciprocal anaphors are "quantificational" in some sense, while single-word items are not. But the Lezgian example shows that bipartite anaphors need not have anything to do with quantification (see also the chapters on Yakut, Even, Evenki and Udehe in this work), and anaphors with a quantificational sense need not be bipartite (e.g. Finnish *toinen*, see (24) below).

trusts member A of {each other}, etc.). For this constellation, Nedjalkov sometimes uses the felicitous term **cross-coreference**.

Reciprocal constructions that include a reciprocal anaphor which is cross-coreferential with its antecedent will be called **anaphoric reciprocal constructions** here.[7] A first universal about them is formulated in (17).

Universal 5:
All reciprocal constructions with two arguments that both refer to the set of mutuants are anaphoric reciprocal constructions.

That is, reciprocal constructions where the noun phrase denoting the set of mutuants is simply repeated, as in (18), are excluded by this universal.[8]

(18) *_Taro and Jiro phoned Taro and Jiro._

In anaphoric reciprocal constructions, an important question is what restrictions there are on the syntactic positions of the antecedent and the anaphor. This issue is only partially dealt with in the contributions to this work, but it has received considerable attention in the generative literature. We can start with Universal 6:

Universal 6:
In all languages, there are prominence-related restrictions and locality-related restrictions on the relation between an antecedent and a reciprocal anaphor.

4.2   Prominence-related restrictions on antecedent-anaphor combinations

Let us first look at the prominence relations. In canonical reciprocals, the antecedent must be the (more prominent) subject and the anaphor must be the (less prominent) object:

(19) a.   English
            *_**Each other** pinched Aisha and Pedro._
      b.   Basque (Hualde & Ortiz de Urbina 2003:608)
            *_**Elkarr-ek**   Epi eta Blas maite ditu._
            each.other-ERG Epi and Blas love AUX
            'Each other love(s) Epi and Blas.'

More generally, we can formulate:

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7. An alternative term is _argumental reciprocal constructions_, which is based on the fact that anaphors behave like arguments of the verb.

8. Universal 5 can be taken to follow from Chomsky's (1981) Binding Theory (Principle C), which says that "r-expressions are free" (= not bound). However, this presupposes that the peculiar cross-coreferential semantic relation of mutual situations falls under "binding", and defining this concept in such a way as to apply equally to coreference and to cross-coreference is not straightforward.

> **Universal 7:**
> The more clearly two arguments differ in prominence, the easier it is for the more prominent argument to antecede the anaphor. Less prominent arguments cannot antecede more prominent arguments.

What exactly counts as "prominence" is a difficult question, and languages differ in this regard. For instance, However, in some languages it appears that the anaphor can occur in the subject position. Shkarban & Rachkov (Ch. 22, p. 922) give the following example from Tagalog:

(20) *Nag-pasalamat-an   ang **isa't   isa.***
     AG.REC.PFV-thank-REC NOM one.and one
     '[They] thanked each other.' (lit. 'Each other was thanked by them.')

In Tagalog, the "subject" relation is notoriously problematic in that the typical subject properties of European languages are split among two argument types, the (nominative) *ang*-argument and the actor *ng*-argument. As noted in Schachter (1976), the *ang*-argument tends to have the reference-related subject properties, and the actor *ng*-argument tends to have the role-related subject properties.[9] In (20), it is the (omitted) actor argument that antecedes the anaphor, suggesting that anteceding a reciprocal anaphor is a role-related property.

This is confirmed by some facts from English: Note that it is typically the case that the passive agent cannot be a reciprocal anaphor, as seen in (21).

(21) English
        *??Aisha and Pedro were kissed by **each other**.*

This would suggest that prominence on a semantic-role hierarchy (e.g. agent > recipient > patient) is also relevant, not just prominence on a syntactic-function hierarchy (subject > object).

The situation is similar in ditransitive constructions. In many cases, the direct object is clearly more prominent than the indirect object, so that only the latter can be expressed anaphorically:

(22) English
       a. *I introduced my colleagues to **each other**.*
       b. **I introduced each other to my colleagues.*
(23) German
       a. *Ich zeigte die Kinder **einander** auf dem Foto.*
           'I showed the children (ACC) to each other (DAT) on the photo.'
       b. **Ich zeigte **einander** den Kindern auf dem Foto.*
           'I showed each other (ACC) to the children (DAT) on the photo.'

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9. In this paper, I follow Nedjalkov's practice of using the terms "subject", "direct object", and "indirect object" in a strictly semantic sense: The subject is the S/A-argument, the direct object is the P-argument, and the indirect object is the R-argument (see Dryer 2007 for the definition of these semantic role-types).

(24)   Finnish (Kaiser 2002:3)

     a. *Minä esittel-i-n   Liisa-n   ja   Mari-n   **toisi-lle-en.***
         I   introduce-PST-1SG Liisa-ACC and Mari-ACC each.other-ALL-3
         'I introduced Liisa and Mari to each other.'

     b. *Minä esittel-i-n   **toise-nsa***   Liisa-lle ja   Mari-lle.
         I   introduce-PST-1SG each.other-3 Liisa-ALL and Mari-ALL
         '*I introduced each other to Liisa and Mari.'

But when the recipient is more topical than the theme and precedes it, the reciprocal construction becomes much worse:

(23)   German

     c. *Ich zeigte **einander** die Kinder auf dem Foto.*
         'I showed to each other (dat) the children (acc) on the photo.'

(24)   Finnish (Kaiser 2002:4)

     c. $^{?}$*Minä esittel-i-n   **toisi-lle-en***   Liisa-n   ja   Mari-n.
         I   show-PST-1SG each.other-ALL-3 Liisa-ACC and Mari-ACC
         'I showed to each other Liisa and Mari.'

4.3   Locality-related restrictions on antecedent-anaphor relations

Now let us take a brief look at locality relations. Again, so far we can formulate a universal only in very general terms:

> **Universal 8:**
> If the antecedent and the reciprocal anaphor are coarguments of the same predicate, all languages with reciprocal anaphors allow the construction (unless it is pre-empted by some even more grammaticalized construction). The less local the relationship between the antecedent and the recipient is, the less likely it is that it is acceptable.

The following implicational scale can be set up as a first attempt (see also Nedjalkov, Ch. 1, §12.4):

(25)   coargument > possessor of coargument > subject of complement clause > nonsubject of complement clause

The contrast between a coargument and a possessor can be illustrated by German, which does not allow its reciprocal anaphor *einander* to occur as a possessor, in contrast to English:

(26)   *Aischa und Pedro telefonierten mit-**einander**.*
       'Aisha and Pedro talked to each other on the phone.'

(27)   *Aischa und Pedro telefonierten mit {***einanders** Müttern/ $^{??}$den Müttern von-**einander**}.*
       'Aisha and Pedro talked to each other's mothers on the phone.'

English at least marginally allows *each other* to occur as the subject of a complement clause, as in the following examples:

(28) a. *Miss C. and I are going to find out what each other are like.* (Jespersen 1924: 224)
      b. *?The twins wanted to know what each other were/was doing.* (Quirk et al. 1985: 365)
      d. *John and Mary haven't decided what each other should do.* (Everaert 1999: 74)

In Japanese, not only a subject, but also an object of a complement clause can be in the appropriate domain (Nishigauchi 1992: 159–160):

(29) *John to Mary-ga [**otagai**-ga   Bill-o   seme-ta   to] omot-ta   (koto)*
      John and Mary-NOM each.other-NOM Bill-ACC accuse-PST that think-PST that
      'John and Mary thought that each other accused Bill.'

(30) *John to Mary-ga [kono ziken-ga **otagai-o**   kizutuke-ta to] omot-ta*
      John and Mary-NOM this   incident each.other-ACC hurt-PST   that think-PST
      (koto)
      that
      '*John and Mary thought that this incident would hurt each other.'

However, Nishigauchi notes that (30) is possible only because the subject is inanimate. The equivalent of **John and Mary thought that Bill accused each other* is impossible in Japanese as well.

Even in English, less local examples have occasionally been cited in the literature:

(31) a. *They₁ think it bothered **each other**₁ that the pictures are hanging on the wall.* (Kuno 1987)
      b. *[Bush and Dukakis]₁ charged that General Noriega had secretly contributed to **each other**'s₁ campaign.* (Pollard & Sag 1992)

When the subject of the complement clause is coreferential with a main-clause argument, a long-domain interpretation can be found even for languages that are otherwise much more restrictive:

(32) a. Russian (Knjazev, Ch. 15, ex. 92)
          *Dmitrij i   Ivan pokljalis' pogubit' **odin drug-ogo**.*
          Dmitri and Ivan swore   ruin   one other-ACC
          '[Dmitri and Ivan]₁ swore to ruin each other₁.'
      b. German
          *Dmitrij und Iwan schworen, **einander** zu ruinieren.*
          '[Dmitri and Ivan]₁ swore to ruin each other₁.'

Since it is unlikely that Dmitri and Ivan wanted to be ruined, these sentences are most naturally interpreted as 'Dmitri swore to ruin Ivan, and Ivan swore to ruin Dmitri'. This is possible not only with infinitival complement clauses, but also with finite ones:

(33) a. English
          *John and Mary think they like **each other**.* (Heim et al. 1991: 65)
          'John thinks that he likes Mary, and Mary thinks that she likes John.'
      b. Hebrew (Siloni 2007, ex. 4b)
          *Dan ve-Ron ʔamru še-hem nicxu **eħad ʔet ha-šeni**   b-a-gmar.*
          Dan and-Ron said   that-they defeated one ACC the-second in-the-finale
          'Dan and Ron said that they defeated each other in the finale.'

It seems that in general, less grammaticalized reciprocal anaphors have fewer locality constraints. Thus, as noted by Knjazev, in example (32) the Russian anaphor *odin drugogo* is used (rather than the more grammaticalized *drug druga*), and in Basque, only the anaphor *bata bestea* 'one the other' can be used outside the immediate clause of the antecedent, while the more grammaticalized *elkar* cannot:

(34)   Basque (Hualde & Ortiz de Urbina 2003:613)
     Epi-k   eta Blas-ek   ez dakite {*elkarr-ek/   bata bestea-k} zer egin duen.
     Ernie-ERG and Bert-ERG not know each.other-ERG one other-ERG what do   AUX.COMP
     'Ernie and Bert don't know what each other will do.'

5.   Verb-marked reciprocals

Verb-marked reciprocals have a verbal marker that is closely associated with the verb but is not a reciprocal anaphor, i.e. does not behave like an argument of the verb in any way. Two examples are given in (35) and (36).

(35)   Japanese (Alpatov & Nedjalkov, Ch. 25, p. 1032)
     *Taroo to   Akiko wa aisi-**at**-te-iru.*
     Taro   and Akiko TOP love-REC-CONT-NPAST
     'Taro and Akiko love ach other.'

(36)   Chukchi (Nedjalkov, Ch. 40, p. xx)
     *Eqelʔ-ən   ənkʔam ətləɣ-ən   penrə-**wəlɣ**-ə-ɣʔat.*
     enemy-ABS and   father-ABS attach-REC-…
     'The enemy and father attacked each other.'

Verbal markers of this type and reciprocal anaphors are the two most important kinds of **reciprocal markers** (for other types, see Nedjalkov, Ch. 3). Throughout this paper, reciprocal markers are highlighted by boldface in the examples.

Verb-marked reciprocals most commonly signal the reciprocalization of the direct object, as in example (14b) from Cashinahua above, and as in (35)–(36). But in addition to the direct object, also other arguments can be reciprocalized in verb-marked reciprocals. Nedjalkov talks about different **diathesis** types to describe the different positions of the reciprocee. In addition to the **canonical** diathesis of (35)–(36), he distinguishes an **indirect** diathesis (the reciprocee is indirect object), a **possessive** diathesis (the reciprocee is possessor of an argument), and an **adverbial** diathesis.

(37)   Indirect reciprocal: Kolyma Yukaghir (Maslova, Ch. 44, p. 1843)
     legul-ek   n'e-kes'i-l
     food-FOC REC-bring-1PL.OF
     'We have brought each other food.'

(38)   Possessive reciprocal: Yakut (Nedjalkov & Nedjalkov, Ch. 26, p. 1118)
     *Kiniler oyo-loru-n   bil-**s**-el-ler.*
     they   child-their-ACC know-REC-PRES-3PL
     'They know each other's children.'

Since the reciprocee is generally omitted in verb-marked reciprocal constructions, it would be helpful if there were some other way of identifying it, e.g. by different reciprocal markers for different syntactic functions or semantic roles of the reciprocee. Surprisingly, this does not ever seem to be found:

> **Universal 9:**
> Different reciprocal markers are never used for different diathesis types.

As is noted by Nedjalkov (Ch. 1, §12.1.1.2, p. 56), some languages (such as Ainu) with verb-marked reciprocals do not have reciprocals from intransitive bases, but all have verb-marked reciprocals from transitive bases:

> **Universal 10:**
> If a language has verb-marked reciprocals based on intransitive verbs, it also has verb-marked reciprocals based on transitive verbs.

What these four diathesis types share is that the reciprocator (i.e. the overtly expressed argument) is the subject. In Nedjalkov's terminology, they are all **subject-oriented**. There are no verbal reciprocals in which the subject is reciprocalized or a non-subject becomes the reciprocator. Thus, we do not find reciprocals like those shown schematically (39) in any language. In these schematic examples, first the two corresponding non-reciprocal sentences are given, then the (hypothetical, non-occurring) non-subject-oriented reciprocal, and then the corresponding (widely occurring) subject-oriented reciprocal. Here "Ø" stands for the reciprocee that is not expressed overtly.

(39) a. I love you. You love me. → *Ø Love-REC us.
(OK: We love-REC Ø.)
b. I gave you it. You gave me it. → *Ø Gave-REC us it.
(OK: We gave-REC Øit.)
c. I hold your hand. You hold my hand. → *Ø Hold-REC our hand.
(OK: We hold-REC Ø's hand.)
d. I come to you. You come to me. → *Ø Come-REC to us.
(OK: We come-REC Ø.)

We can therefore formulate another universal:

> **Universal 11:**
> In verbal reciprocals, the reciprocator is always the subject, and the reciprocee can only be the direct object, the indirect object, the possessor of a co-argument, or an adverbial.

In this respect, verb-marked reciprocals are quite similar to anaphoric reciprocals, where, as we saw, the antecedent has to be in a prominent syntactic position, and the anaphor must be in a less prominent position.

Verb-marked reciprocals also show very rigid locality constraints: They are completely impossible with a non-local reciprocee:

(40)   I think that you are wrong. You think that I am wrong.
→ *We think-REC that Ø be wrong.

For the four occurring diathesis types, Nedjalkov (Ch. 1, §12.4, p. 69) notes that they can be arranged on an implicational scale, from the most common to the least common type:

(41)   **Scale of Verb-marked Diathesis Types**
canonical diathesis > indirect diathesis > possessive diathesis > adverbial diathesis

The associated implicational universal is:

Universal 12:
If a language has verb-marked reciprocals with one of the diatheses on the Scale of Verb-marked Diatheses Types, it also has all other types to the left.

This is analogous to the implicational scale in (25) above. But verb-marked reciprocals are stricter than anaphoric reciprocals in two further respects. First, object-oriented reciprocals are more rarely verb-marked than subject-oriented reciprocals:

Universal 13:
If a language has a verb-marked object-oriented reciprocal construction, it also has a verb-marked subject-oriented construction.

Most languages with verb-marked reciprocals that are described in this work seem to have only subject-oriented reciprocals. Ainu is an example of a language whose verbal marker (*u-*) can be used both for subject-oriented and for object-oriented reciprocals.
Second, verb-marked possessive reciprocals are quite restricted with respect to the position of the co-argument whose possessive modifier is reciprocalized:

Universal 14:
In verb-marked possessive reciprocals, the co-argument whose possessive modifier is the reciprocee must be the direct object.

That is, we find reciprocalizations such as (42), but not (43a–b), where the co-argument is a locative and an instrumental, respectively.[10]

(42)   I scratched your back. You scratched my back.
→   We scratched-REC Ø's back.
(43)   a.   I slept in your bed. You slept in my bed.
→   *We slept-REC in Ø's bed.
b.   I cut it with your knife. You cut it with my knife.
→   *We cut-REC it with Ø's knife.

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10. An exception is the Even example cited by Nedjalkov in Ch. 1, p. 55.

6. Verb-marked vs. anaphoric reciprocals

The distinction between verb-marked and anaphoric reciprocals is not always completely straightforward. It is clearest when the reciprocal anaphor behaves like a noun phrase in all relevant respects (e.g. occurring with adpositions, inflecting for case, showing number distinctions), and when the verbal marker behaves like a valency-changing affix in all relevant respects (e.g. occurring between the stem and tense-aspect-mood affixes).

The distinction becomes more problematic when the reciprocal anaphor is a verbal affix, or when the verbal marker is not an affix and varies for person. The former case is illustrated by Adyghe, which has a reciprocal prefix *zə-* that occurs in the same slot as the object agreement marker:

(44) Adyghe (Letuchiy, Ch. 18, ex. 20a–b)

    a. *tə*   *pxʏə-r*   *Ø-tə-gʏəstə.*
        we.OBL firewood-ABS 3SG.DO-1PL.A-burn
        'We burn firewood.'

    b. *zə-d-gʏəstə.*
        REC-1PL.A-burn
        'We burn each other/ourselves.'

Here there are no strong reasons not to say that the reciprocal prefix is an anaphoric element,[11] but the case of Djaru (Ch. 21) is more problematic, because in this Australian language, the bound reciprocal marker that occurs in the slot of bound pronouns may cooccur with free non-reciprocal pronouns, as in (45):

(45) Djaru (Tsunoda, Ch. 21, p. 861)
    ngali-ngku   *nga=li=**nyunu***   *ngali*   *nyanya.*
    1DU.INC-ERG CARRIER=1DU.INC.SB=REC 1DU.INC(ABS) see.PAST
    'We saw each other.'

Here it is less clear whether =*nyunu* is in an argument position (and hence an anaphor rather than a verbal marker), because *ngali* is clearly an argument.

Verbal markers that are not affixes and that vary for person are found in Romance, Germanic and Slavonic languages, e.g. German *sich* (cf. Ch. 10), Polish *się* (cf. Ch. 11), and French *se* (cf. Ch. 12). Although these *se*-type elements are usually called "reflexive pronouns", the view is widespread that combinations such as German *sich schlagen* 'hit each other', Polish *bronić sie* 'defend oneself/each other', French *s'aimer* 'love onself/each other' should be regarded as reciprocal verbs rather than as anaphoric reciprocal constructions.

Siloni (2007) claims that reciprocal pronouns always allow long-distance antecedence, as seen earlier in (33–34). Thus, the fact that (46a–b) from French and Czech are im-

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11. Note that Nedjalkov (Ch. 1, §2.2.3, Ch. 3, §1.1) uses the term "anaphoric marker" even for elements that have no properties of noun phrases at all (e.g. verbal reciprocal markers such as Chukchi -*wəly* and Evenki -*meet*), as long as they only express reflexive and/or reciprocal meaning. It seems to me that restricting the term anaphoric to argument-like elements is more standard than Nedjalkov's use (the idea behind this is that anaphoric elements are referential, and only argumeent-like elements can carry reference).

possible (or only have a contradictory reading with clause-bound antecedence) would show that French *se* and Czech *se* are not reciprocal pronouns, but rather verbal markers ("operators").

(46)   a.   French
             *_Pierre et Jean ont dit qu'ils **se** sont vaincus à la finale._
             'Pierre and Jean said that they defeated each other in the finale.'
       b.   Czech
             *_Dan a Petr říkali, že **se** porazili ve včerejší šachové partii._
             'Dan and Petr said that they defeated each other in yesterday's chess game.'

Another argument that is frequently made for French is that *se*-verbs are treated as intransitives in causative constructions with *faire* (e.g. Dimitriadis 2004; Siloni 2007). In causatives of intransitives, the causee becomes a direct object (*les* in 47a), while in causatives of transitives, the causee becomes an indirect object (*leur* in 47b). The reciprocal *se*-verb in (47c) behaves like the intransitive in (47a) in requiring a direct-object causee.

(47)   a.   *Marie **les** fait courir.*
             'Marie makes them run.'
       b.   *Marie les **leur** fait embrasser.*
             'Marie makes them kiss them.'
       c.   *Marie **les** fait s'embrasser.*
             'Marie makes them kiss each other.'

For Serbo-Croatian, Zec (1985) argues that *se* is not an argument of the verb, citing its behaviour in comparative constructions (see also Dimitriadis 2004, who provides ex. 18b).

(48)   a.   *Petar   je   branio   sebe   uspešnije nego Anu.*
             Peter   AUX defended himself better   than Ana.ACC
             'Peter defended himself better than (he defended) Ana.'
       b.   *_Lekari   su   **se**   branili   uspešnije nego Anu._
             doctors   AUX REC defended   better   than Ana.ACC
             'The doctors defended each other better than (they defended) Ana.'

Following Zec, Mchombo (1993) shows that in the Bantu language Chichewa, the reciprocal suffix *-án* does not behave as an argument with regard to this test, while the reflexive prefix *dzi-* does behave as an argument (which is not surprising, given that *-án* occurs in a position typical of valency-changing markers, while *dzi-* occurs in the object prefix slot). It would be interesting to know whether Adyghe *zə-* also behaves like an argument with regard to this test.

   For German, the tests mentioned here are either not applicable or seem to point to an anaphoric status of *sich*. However, Gast & Haas (2007), who highlight the fact that *sich* cannot have reciprocal meaning when it occurs after prepositions, argue that *sich* is a clitic-like element after all (or more precisely, that there are two *sich* items, one clitic verbal marker and one argumental *sich*).

   Before leaving the topic of verb-marked vs. anaphoric reciprocals, let us note one additional generalization that concerns a diachronic tendency (cf. Nedjalkov, Ch. 3, §3.2):

> **Universal 15:**
> Anaphoric reciprocal constructions show a much greater tendency of being replaced than verb-marked reciprocals. Thus, in almost all languages that have both an anaphoric and a verb-marked reciprocal, the former is younger and etymologically more transparent.

7. Allelic predicates

All languages seem to have a substantial number of simple words (verbs, adjectives and nouns) that denote mutual configurations by themselves, without occurring in a special grammatical (morphological or syntactic) construction. They fall into a small number of semantic classes:

(49) a. verbs of competition: 'fight', 'quarrel', 'negotiate', 'argue'
　　 b. verbs of joint action: 'communicate', 'play chess', 'consult'
　　 c. verbs of connecting: 'combine', 'unite', 'acquaint', 'compare', 'mix'
　　 d. verbs of dividing: 'separate', 'distinguish'
　　 e. predicates of (non-)identity: 'same', 'similar', 'different', 'match'
　　 f. relationship nouns: 'friend', 'colleague', 'compatriot', 'cousin'

Such non-derived lexemes denoting mutual configurations are called **allelic predicates** here.[12] Given the definition of *reciprocal* in §1, an allelic predicate is a special kind of reciprocal predicate, and consequently the term **lexical reciprocal**, which is generally used in this work for allelic predicates, is not inappropriate. However, it seems that for a number of reasons a special new non-compound term would be helpful:

(i) Allelic predicates of the type in (49) are more often discussed outside the context of reciprocals (e.g. Lakoff & Peters 1969; Gleitman et al. 1996) than in the context of reciprocals, so that they deserve a special term that is not derived from *reciprocal*.

(ii) The most commonly used term, *symmetric predicate*, is problematic because grammatical reciprocals also express symmetric (= mutual) situations. To address this point, one would have to resort to a clumsy term like *inherently symmetric predicate* (cf. Dixon's (1991:59) term *inherently reciprocal verb*).

(iii) The term *lexical* is used in a number of different ways. In particular, it is often used for complex derived forms that are supposed to be nevertheless part of the "lexicon" (as opposed to the "syntax"). For instance, according to Reinhart & Siloni (2005), verb-marked reciprocals in Hebrew, Hungarian and Russian are formed in the lexicon (and could thus be described as "lexical reciprocals").

In the Questionnaire (Nedjalkov & Geniušienė, Ch. 8, p. 413), there is a question "Are there any lexical reciprocals in the language under study?", but as Knjazev (Ch. 2, p. 117) points out, it is very likely that Universal 16 is true (see also König & Kokutani 2006:274):

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12. Based on Greek *allēlo-* 'each other, mutual'.

> **Universal 16:**
> All languages have allelic predicates (= lexical reciprocal predicates).

It also seems that universally, allelic predicates fall into the semantic classes given in (49) above, and that all languages have both subject-oriented and object-oriented lexical reciprocals (so that the two questions 66–67 in the Questionnaire, p. 414, are likewise redundant).

There is some question about how precisely allelic (=lexical reciprocal) predicates should be defined. According to Nedjalkov (Ch. 1, §2.3, p. 14), "these are words with an inherent reciprocal meaning", but he includes not only cases of unanalyzable ("non-marked") predicates (*to argue, to combine, next to, colleague*), but also reciprocal deponents ("reciproca tantum"), i.e. reciprocal predicates with a reciprocal marker whose base form does not occur without this marker (e.g. French *se bagarrer* 'fight'; **bagarrer* does not exist on its own). This is problematic, because one could argue for such predicates that since the reciprocal marker is present, the root itself does not have a mutual meaning, so that se bagarrer would not count as "inherently reciprocal" in meaning. It appears that the term *lexical reciprocal*, as used in this work, should be defined as "a reciprocal predicate that cannot be derived in a regular way from a non-reciprocal base". This would also take care of "lexicalized" reciprocals, for which a base exists, but where the semantic relationship between the base and the reciprocal is not regular.[13]

Allelic predicates can usually be used both in a simple construction, as in (50), where the set of mutuants is expressed by a single argument, and in a discontinuous construction, as in (51), where there are two arguments.

(50) a. *Ram and Dolores quarreled.*
      b. *I compared Rubens and Rembrandt.*
      c. *Kurdish and Persian are similar.*
      d. *Lisi and Aisha are colleagues.*

(51) a. *Ram quarreled with Dolores. (=Dolores quarreled with Ram.)*
      b. *I compared Rubens with Rembrandt. (=I compared Rembrandt with Rubens.)*
      c. *Kurdish is similar to Persian. (=Persian is similar to Kurdish.)*
      d. *Lisi is Aisha's colleague. (=Aisha is Lisi's colleague.)*

The members of the two sentence pairs are roughly synonymous, but of course not fully (cf. Gleitman et al. 1996 for some discussion from a psychological point of view). Since the oblique argument of a discontinuous construction is often optional (i.e. can be omitted with an indefinite or definite interpretation), simple constructions like (50) are often

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13. Nedjalkov (Ch. 1, §2.3, (iv)) also considers subsuming unproductive (but regular) reciprocals like Russian *ob-nimat'sja* 'embrace each other' under lexical reciprocals. But to do that, one would have to broaden the definition even further, to "reciprocal predicates that cannot be derived productively from a non-reciprocal base". Unproductive reciprocals are necessarily "lexical" in the sense that speakers must remember them and keep them in their mental lexicon. But speakers probably also have many productively formed reciprocals in their mental lexicon, and presumably nobody would want to define *lexical reciprocal* as "reciprocal predicate that (some? all?) speakers have in their mental lexicon". So a definition based on unanalyzability or irregularity seems preferable.

ambiguous. Thus, (50a) can also mean 'Ram and Dolores quarreled with someone else', and (50c) can also mean 'Kurdish and Persian are similar to some other contextually given entity'.[14]

There are also some allelic predicates that can only be used in the simple construction:

(52) English (Nedjalkov, Ch. 1, p. 15, 99)
    a. *My father and the neighbor are alike.*
    b. **My father is alike with the neighbour.*

(53) German (Wiemer & Nedjalkov, Ch. 10, p. 499)
    a. *Der Rektor versammelte die Professoren und Dozenten.*
        'The rector gathered the professors and instructors.'
    b. **Der Rektor versammelte die Professoren mit den Dozenten.*
        (lit. 'The rector gathered the professors with the instructors.')

And some allelic predicates can only be used in the discontinuous construction:

(54) English (cf. Nedjalkov, Ch. 1, §16.2.2, p. 100)
    a. *Kurdish resembles Persian.*
    b. **Kurdish and Persian resemble.*

The verb *resemble* is also unusual in that it is transitive. It seems that many languages completely lack such transitive allelic predicates, and even English, where transitive verbs are used very widely, has only relatively few of them (*match, marry, meet* are further examples).

8. Uniplex vs. multiplex mutual events

Mutual configurations show the mutuants in multiple roles, and this may or may not involve several different sub-events. A clear case with multiple sub-events is (55):

(55) *Ram and Dolores told **each other** a secret.*

Here there must be two telling events and two secrets involved, because secret-telling is not an action that can be carried out jointly and in a mutual way, so that a single event would result. By contrast, a clear case where there is just a single event is (56):

(56) *Pedro and Aisha quarreled (with each other).*

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14. This ambiguity is exploited in the joke cited by Evans (2007):

    "Receptionist at hotel, as couple checks in: Are you married? Man: Yes. Woman: Me too."

The receptionist had intended the simple construction, whereas the second answer shows that the discontinuous construction with an omitted argument was understood ('married to someone (else)').

This can be paraphrased as 'Pedro quarreled with Aisha' or as 'Aisha quarreled with Pedro' (depending on the perspective one wants to adopt), but the situation cannot be said to consist of these two sub-events. Example (56) describes just a single event.

The contrast between (55) and (56) can be described by saying that (55) denotes a **multiplex mutual event**, while (56) denotes a **uniplex mutual event** (for the term pair *uniplex/multiplex*, see Talmy 1988).

Uniplex mutual events have been discussed under the heading of *naturally reciprocal events* by Kemmer (1993: §4.1.3), where it is observed that "Naturally reciprocal events are characterized by a low degree of distinguishability of the two events that constitute the relations between the participants" (p. 112). Kemmer notes that in pairs such as (57a–b), (58a–b), the (a) sentence can express two separate kissing actions, while in the (b) sentence there is "almost certainly only one kiss involved; the kissing actions of the two participants are simultaneous and virtually indistinguishable" (p. 111).

(57) English (Kemmer 1993: 111)
    a.   *John and Mary kissed **each other**.*
    b.   *John and Mary kissed.*

(58) Modern Greek (Dimitriadis 2004: §1)
    a.   *O   Jánis   ke   i   María fíli-s-an   o   énas ton alo.*
        the Jannis and the Maria kiss-AOR-3PL the one   the other
        'Jannis and Maria kissed each other.'
    b.   *O   Jánis   ke   i   María filí-**θik**-an.*
        the Jannis and the Maria kiss-REC.AOR-3PL
        'Jannis and Maria kissed.'

Dimitriadis (2004) uses the term *irreducibly symmetric event* for the second type, and characterizes it as "expressing a binary relationship whose participants have necessarily identical participation."

Kemmer notes that the distinction between simultaneous and sequential actions is relevant here in that only multiplex mutual events can express sequential actions. This is shown by the contrast in (59).

(59) English (Kemmer 1993: 113)
    a.   *John and Mary kissed **each other**, one after the other.*
    b.   **John and Mary kissed, one after the other.*

Siloni (2002: 391) suggests a further way of showing more clearly how multiplex mutual events differ from uniplex mutual events. When a multiplicative adverbial ('five times') is added, it becomes clearer how many events are described:

(60) Hebrew
    a.   *Dan ve-Ron   nišku **eḥad ʔet ha-šeni** ḥameš peˤamim.*
        Dan and-Ron kissed one   ACC the-other five   times
        'Dan and Ron kissed each other five times.'
        (i.e. there were five or ten kissing events)

b. *Dan ve-Ron* **hit**-*našku ħameš peˤamim.*
Dan and-Ron REC-kissed five   times
'Dan and Ron kissed five times.' (i.e. there were five kissing events)

The anaphoric reciprocal construction in (60a) can express a multiplex or a uniplex event, but (60b) can express only a uniplex event (see also Dimitriadis 2004; Siloni 2007).

The distinction between uniplex and multiplex events is also reflected in a reduplicative pattern in Madurese, as discussed by Davies (2000: 128–130). In this western Austronesian language, pre-reduplication of the verb's final syllable expresses iterative events consisting of separate sub-events, as illustrated by (61) and (62).

(61) *Ali ban Hasan ger~moger   kabungkaan du jam ban nanəm   obi.*
Ali and Hasan ITER~AV.fell tree   two hour and AV.plant obi
'Ali and Hasan cut down trees for two hours and (in between) planted obi.'

(62) *Ali ban Siti biq~nobiq   kanaq jhuwa. Ali gik are sənen.   Siti gik are*
Ali and Siti ITER~AV.pinch child that   Ali just day Monday Siti just day
səlasa.
Tuesday
'Ali and Siti pinched that guy (more than once). Ali did so on Monday and Siti did so on Tuesday.'

In (61), the second activity of obi-planting need not follow the entire activity of tree-felling, but the two can occur interleaved with each other, because *germoger kabungkaan* refers to a multiplex event.[15] In (62), the last two sentences show that the multiple pinch-ings occurred quite separately from each other. Likewise, reduplicated reciprocals express multiplex events:

(63) *Bambang biq Ita* **ghuk**~*teghuk-***an** *tanang du jam ban nendang bal.*
Bambang and Ita REC~take-REC   hand two hour and AV.kick ball
'Bambang and Ita held each other's hand for two hours and kicked a ball.'

(64) *Ali biq Hasan* **rem**~*kerem-***an** *sorat. Ali ngerem are sənen.   Hasan ngerem are*
Ali and Hasan REC~send-REC letter Ali AV.send day Monday Hasan AV.send day
səlasa.
Tuesday
'Ali and Hasan sent each other letters. Ali sent his on Monday and Hasan sent his on Tuesday.'

That these are reciprocal is shown by the obligatory -*an* suffix and the lack of the actor-voice morphology on the verb (cf. footnote 3). Reduplicated reciprocals like (63)–(64) contrast with non-reduplicated reciprocals that express uniplex mutual events:

(65) *Ali biq Hasan a-temo   ḍaq taman.*
Ali and Hasan AV-meet in park
'Ali and Hasan met in the park.'

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15. As Davies shows, this contrasts with the durative suffix -*e* (*moger-e*), which expresses a single (uniplex) protracted event.

(66) *Ita biq Bambang a-seom.*
      Ita and Bambang av-kiss
      'Ita and Bambang kissed (each other).'

Verbs like 'kiss' can also reduplicated, and then we have a complex event again:

(67) *Ita biq Bambang **om~seom-an.***
      Ita and Bambang rec~kiss-rec
      'Ita and Bambang kissed (each other) (several times).'

Given the distinction between multiplex and uniplex mutual events, we can formulate another universal (cf. Dimitriadis 2004):

Universal 17:
In all languages, all allelic predicates express uniplex mutual events. Multiplex mutual events can only be expressed by grammatical reciprocals.

As Dimitriadis (2004:§3.3) points out, allelic predicates must express uniplex events even if they occur with reciprocal anaphors. In contrast to (60a) above, (68b) can only have a uniplex reading ('There were a total of five meetings between John and Mary'), and it is synonymous with (68a).

(68) a. *John and Mary met five times.*
      b. *John and Mary met **each other** five times.*

9.   Reciprocal deponents

As noted by Kemmer (1993:106–107), reciprocal deponents always express "naturally reciprocal events" (see Nedjalkov, Ch. 1, §2.3, p. 14, for examples of reciprocal deponents):

Universal 18:
Reciprocal deponents (i.e. verbs with reciprocal marking and mutual meaning that lack a corresponding unmarked non-mutual base form) always express uniplex mutual events.

This is a special case of Universal 17 if reciprocal deponents are included in the class of allelic predicates, following the general practice of this work.

It is probably useful to distinguish further between **strong reciprocal deponents** and **weak reciprocal deponents**. The former are reciprocals like French *se bagarrer* 'fight', where the corresponding base form simply does not exist (**bagarrer*). Weak reciprocal deponents are reciprocals whose meaning cannot be derived in a straightforward way from the corresponding base form. Two examples are given in (69).

(69) weak reciprocal deponents
    a. Turkish   *gör-üş-*   'meet' (=/ 'see each other')   *gör-*   'see'
        (Haiman 1983:806)
    b. Norwegian   *slå-ss*   'fight' (=/ 'hit each other')   *slå*   'hit'
        (Kemmer 1993:111)

Weak reciprocal deponents are often called "lexicalized" (e.g. Kemmer 1993:111; Ned-jalkov, Ch. 1, §2.3), which is apparently meant to indicate that their origin is still fairly transparent: They started out as regular derived reciprocals, but were used so frequently that some speakers stored them holistically in their mental lexicons. This was the pre-condition for the semantic shift that occurred, and as a result of the semantic shift, all speakers now need to have these reciprocals in their lexicons. Like strong deponents and other allelic predicates, they cannot express multiplex events:

Universal 19:
Weak reciprocal deponents (i.e. verbs with reciprocal marking and mutual meaning that diverge semantically from their (erstwhile) base form) always express uniplex mutual events.

Again, Universal 19 is a special case of Universal 17, but it is worth stating separately, because it is interesting to ask what the explanation is: Can reciprocals shift their mean-ing only if they denote uniplex events? Or can grammatical reciprocals become part of a speaker's mental lexicon (thus fulfilling a precodition for meaning drift) only if they de-note uniplex events? Or are only uniplex-event-denoting reciprocals frequent enough to become part of a speaker's mental lexicon? I leave the issue unresolved here.

     Another regularity concerns the reciprocal marker that is used in reciprocal depo-nents:

Universal 20:
In all languages, reciprocal deponents are verb-marked; anaphoric reciprocal construc-tions are never deponents.

One might object that markers like French *se*, Polish *się* and German *sich*, which some-times occur in reciprocal deponents, are in fact reciprocal anaphors. But as we saw in §6, they are not very clear cases of anaphors, and some authors have argued that they are clitic (or even affixal, for French *se*) verbal markers. So if Universal 20 is weakened some-what ("clear cases of anaphoric reciprocal constructions are never deponents"), it has an excellent chance of being correct.

10.   Frequently mutual actions

Although I am not aware of any corpus studies, it is clear that some (expressions of)[16] actions occur more often mutually than others (in terms of relative frequency, i.e. for some actions there is a greater proportion of mutual occurrences among all occurrences than for others). For instance, 'greet' is an action that is typically carried out in a mutual way, while 'poison' is an action that is normally carried out in a non-mutual way. Frequency asymmetries are typically mirrored by formal asymmetries in human languages (cf. Haspelmath 2008), so it is expected that frequently mutual actions will be expressed with less coding (and more cohesive coding) than rarely mutual actions:

> **Universal 21:**
> If a language has two reciprocal markers that differ in length, and if this language treats frequently mutual actions differently from rarely mutual actions with respect to these markers, then always the frequently mutual actions are expressed by the shorter marker, and the rarely mutual actions are expressed by the longer marker.

This generalization was originally observed by Haiman (1983: 803–806) and highlighted again by Kemmer (1993: 103–106). Kemmer's distinction between one-form languages (like many Bantu languages which use the verbal reciprocal marker *-an* for all verbs) and two-form languages (like Hungarian) is too simplistic, because many languages have more than two different reciprocal markers (as seen in many of the contributions to this work), but the basic observation and Haiman's explanation in terms of economic motivation seem to be correct.

However, we still know too little about the extent to which frequency differences correlate with grammatical differences, and since the contributions to this work do not give any frequency information, much further research is needed. However, it does seem to be clear that the Hungarian and Russian way of grammaticalizing frequency differences is not the only one possible. In these languages (and other European languages), the verb-marked reciprocals occur with a highly restricted class of verbs, but it is quite possible that in languages with many more verb-marked reciprocals, frequency differences still play a role.

Haiman and Kemmer are not careful to distinguish between necessarily mutual events (i.e. events expressed by allelic predicates) and frequently mutual events. Haiman talks about "symmetrical predicates" denoting "acts or states which are reciprocal, either necessarily (e.g. *be alike*) or very probably (e.g. *agree, meet*), and for which the expected case – that of reciprocity – need not be signaled overtly" (p. 803). But *agree* and *meet* are also allelic predicates, like *be alike*, because it is not possible to say **I met him, but he did not meet me*, or **I agree with her, but she does not agree with me*. Similarly, Kemmer introduces

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16. When I talk about actions occurring frequently, this is a shorthand for expressions of actions occurring frequently in speech. It goes without saying that what kinds of actions actions occur in the world is irrelevant to language.

her "naturally reciprocal events" as "events that are either necessarily (e.g. 'meet') or else very frequently (e.g. 'fight', 'kiss') semantically reciprocal" (p. 102). Her term "naturally reciprocal" suggests that frequency is indeed the decisive criterion for identifying such reciprocals, because "natural" can only be understood as a synonym of "frequent" here. However, from the beginning of her discussion, Kemmer considers the natural reciprocals as an "event type" that is semantically defined, rather than in terms of frequency of use, and she ends up with a definition that is basically identical to my definition of uniplex mutual events (see §8 above).

There is very probably a strong correlation between frequently mutual events and uniplex mutual events, as formulated in Universal 23:

> **Universal 22:**
> In all languages, the overwhelming majority of all mutual event expressions denote uniplex mutual events.

However, the two concepts should still be kept separate, because frequently mutual verbs may still be used non-mutually, and this results in the contrast between the uniplex 'meet' and the non-uniplex (or not necessarily uniplex) 'kiss' that we saw in (37) and (68) above.

Frequency differences also lead to differences in preferred interpretation, as illustrated in (70).

(70)   a.   *They talked for an hour.*
     b.   *They played for an hour.*

In (70a), the preferred interpretation is that they talked to one another, because mutual talking is much more frequent than non-mutual talking (see also (5a–b) above). In (70b), the interpretation on which they played separately is much more readily available, because solitary playing is quite common as well.

With these verbs, the nonsubject arguments are generally optional, but there are also interesting cases of verbs whose direct object is normally obligatory, but that can omit it with a reciprocal interpretation. Such verbs can be called **zero-explicit** reciprocal verbs. The most widely cited language that has such verbs is English, and the most widely cited verb of this sort is *kiss*. Interestingly, English seems to have few other verbs that are like *kiss* (Levin (1993:201) mentions *court, embrace, hug, pet*). And I am not aware of many other languages that can express mutuality by the simple intransitive use of non-allelic transitive verbs. Kemmer (1993:103) mentions Twi, and Fortescue (Ch. 19, §3.1) says that West Greenlandic Eskimo has this option, though usually the reciprocal anaphor *immiC-* is added to the intransitive verb. Thus, zero-explicit coding of mutual situations seems to be very rare.

11.   The Scale of Reciprocal Marker Independence

With some simplification, it is possible to arrange the main types of reciprocal markers on a one-dimensional scale that will allow us to formulate further generalizations:

(71)   **Scale of Reciprocal Marker Independence** ("Independence Scale")
       separable bipartite anaphor > inseparable bipartite anaphor > single-part free anaphor >
       clitic anaphor > affixal anaphor > productive verbal marker > unproductive verbal marker
       > zero-explicit

A version of this scale was proposed by König & Kokutani (2006: 282): "quantificational
> pronominal > compound > synthetic". My scale differs from theirs only in that I ignore
the "compound" strategy (for reasons of space) and make further distinctions within their
other three types. König & Kokutani note a number of generalizations, e.g. (somewhat
trivially, because this is true throughout the language system), "an increase in morpholog-
ical substance and complexity" as we move from right to left:

Universal 23:
The higher the reciprocal marker is on the Independence Scale, the longer it tends to be.

Moreover, Haiman's and Kemmer's discussion of economy-based contrasts between
"light" and "heavy" reciprocal markers can probably generalized to degrees of independ-
ence, so that not only Universal 21, but also Universal 24 is true:

Universal 24:
The more frequently a predicate is used mutually, the lower its marker will be on the
Independence Scale.

Next, in moving from right to left on the scale, "we find fewer combinatorial restrictions
as far as verbs and syntactic environments are concerned" (König & Kokutani 2006: 282):

Universal 25:
The higher a reciprocal marker is on the Independence Scale, the fewer restrictions there
are on its applicability.

Finally, Nedjalkov (Ch. 1, §3.1) points out a correlation between monosemy/polysemy and
this scale: "Monosemous reciprocal markers are typically free morphemes/words (pro-
nouns and adverbs), less frequently affixes... Polysemous reciprocal markers are mostly
affixes and clitic pronouns." Likewise, König & Kokutani note that "the range of pos-
sible meanings seems to increase as we move from left to right on the scale, and they
point out that this is just a special instance of a much larger Zipfian regularity. Ned-
jalkov notes exceptions to his generalization such as the monosemous reciprocal suffx
-*wəlγ* in Chukchi, and the polysemous Polish reflexive-reciprocal free anaphor *siebie*, but
the following universal should be true with very few exceptions:

Universal 26:
If a language has two different reciprocal markers that occupy different points on the
Independence Scale, and they differ in the amount of polysemy, then the more independ-
ent marker will be less polysemous.

Clearly, a lot of empirical cross-linguistic work will have to be done in order to verify these universals. At present, quite a few of them are just more or less speculative claims, but it seems useful to make them explicit in order to instigate further cross-linguistic research.

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