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The Syntax of Reciprocal Verbs:

An Overview

Tal Siloni, Tel Aviv University
siloni@post.tau.ac.il

1. Introduction

The paper discusses the syntactic behavior of various types of reciprocal verbs. In part it relies on findings reported in Siloni (2001). However, many aspects have been refined here and subsequent work has been taken into consideration (Dimitriadis 2002, 2004b, Hron 2005, Rákosi 2003, Reinhart and Siloni 2005, Siloni 2002). The paper suggests a typology of reciprocal verbs, and argues that certain types must be derived in the lexical component. The paper thus offers strong evidence that the lexicon is an active component of grammar, where operations apply (Siloni 2002).

The paper classifies reciprocal verbs to derived reciprocals, which split into lexical and syntactic, and inherent reciprocals, which are derived from object symmetric predicates. Subject symmetric predicates are also mentioned occasionally. The organization of the paper is as follows. The subsequent section sets apart reciprocal verbs and transitive verbs taking a reciprocal object. Section 3 shows that derived reciprocals crosslinguistically are unergative predicates. Nonetheless they split into two types: lexical and syntactic. The distinctions between the two types of reciprocals are discussed in sections 4, 5 and 6. Particular attention is given to the discontinuous reciprocal construction, which is allowed only by lexical reciprocals (section 6). Section 7 is devoted to inherent reciprocals.

2. Reciprocal verbs vs. reciprocal pronouns

Roughly, by reciprocal verbs I mean verbs denoting an eventuality that involves reciprocity between its participants. An alternative way to express reciprocity is by way of a reciprocal pronominal argument as in (1a). I use the term reciprocal verbs to refer to verbs denoting reciprocity without realizing a reciprocal pronominal object (1b).

- (1) a. hem nišku ze et ze/ exad et ha-šeni. (Hebrew)
they kissed this *acc* this/ one *acc* the-second
‘They kissed each other’
b. hem hitnašku.
they kissed(*rec*)
‘They kissed’

Reciprocal verbs appear in a certain morphological form. It can be a verbal form: e.g., a verbal template in Hebrew (often the fifth template, *hitpa’el*) (1b), or a verbal suffix in Russian (2a), and Hungarian (2b). The Romance family (e.g. Italian (2c)), Serbo-Croatian (2d), and Czech (2e) use a clitic to form reciprocals. English uses zero morphology with reciprocals (see translation to the examples in (2)). Cross-linguistically the same morphology is found also with other types of predicates: reflexives, unaccusatives, subject-Experiencer verbs, middles, impersonals, and passives. This morphology is typical of valence reducing operations, as discussed in detail in Reinhart and Siloni 2005.

- (2) a. Miša i Maša obnjali-s'. (Russian)
 Misha and Masha hugged-*rec*
- b. János és Mari csókol-óz-t-ak. (Hungarian)
 János and Mari kissed-*rec*-past-3pl
 'János and Mari kissed'
- c. Giovanni e Maria si sono abbracciati. (Italian)
 Giovanni and Maria *SI*(clitic) are hugged
 'Giovanni and Maria hugged'
- d. Petar i Marija se ljube. (Serbo-Croatian)
 Petar and Marija *SE*(clitic) kiss
 'Petar and Marija kissed'
- e. Dan a Petr se políbili. (Czech)
 Dan and Petr *SE*(clitic) kiss
 'Dan and Petr kissed'

The two modes of expression of reciprocity in (1) seem equivalent, but in more articulated contexts, interpretative differences are revealed between the two. For instance, (3a), which uses a reciprocal pronoun, is ambiguous in a way its counterpart with a reciprocal verb is not.

- (3) a. dan ve-ron amru še-hem katvu exad la-šeni.
 Dan and-Ron said that-they wrote one to the other
- i. Dan and Ron said that they corresponded.
- ii. Dan said that he wrote to Ron and Ron said that he wrote to Dan.
- b. dan ve-ron amru še-hem hitkatvu.
 Dan and-Ron said that they wrote(*rec*)
- i. Dan and Ron said that they corresponded.

For concreteness, I assume, following Heim, Lasnik & May (1991a 1991b), that reciprocal pronouns are complex expressions composed of a distributor (*each*) and a reciprocator (*other*). In (3a) the distributor, a marker of distribution, can have scope either over the local subject or over the matrix subject.¹ If the distributor has scope over the local subject, the sentence means that Dan and Ron said that they each wrote to the other; or in other words, they said they corresponded (i). If the distributor has scope over the matrix subject, it is the latter that is marked for a distributive reading and the interpretation is that each member of the pair Dan and Ron said that he wrote to the other (ii). Crucially, the reciprocal meaning of reciprocal verbs is incorporated within the verb, and undetachable in any sense; hence, long distance distribution is impossible, and (3b) has only the reading in (i).

(4a) is contradictory because it can only mean that Dan and Ron defeated each other. (4b), in contrast, has also a noncontradictory interpretation that Dan said he defeated Ron and Ron said he defeated Dan, which we get when the distributor has scope over the matrix subject.

- (4) a. dan ve-ron nicxu exad et ha-šeni ba-gmar. (Hebrew)
 Dan and-Ron defeated each other in+the-final
 'Dan and Ron defeated each other in the finale'
- b. dan ve-ron amru še-hem nicxu exad et ha-šeni ba-gmar.
 Dan and Ron said that-they defeated each other in+the-final
 'Dan and Ron said that they defeated each other in the finale'

Let us now back up the claim that the Romance clitic *se* (or *si*) indeed forms reciprocal verbs. As the clitic is reminiscent of object pronominal clitics, a possible analysis is that verbs with

¹ For our purposes it is orthogonal whether *each* takes scope via movement (as in Heim, Lasnik & May 1991a), or is bound in situ by an operator that does the distributive quantification (Heim, Lasnik & May 1991b).

se are transitive verbs taking a reciprocal object clitic. There are, however, good reasons to reject the object clitic analysis of the Romance clitic *se* (*si*). Heim, Lasnik and May (1991a) (acknowledging Luigi Rizzi for the observation) note that when a contradictory reciprocal sentence formed with the clitic is embedded as in (4b) it remains a contradiction. Consider the sentences in (5). As expected, (5a) is a contradiction just like (4a) above. Importantly, however, even when (5a) is embedded as in (5b) the only available reading is a contradiction, which would not be expected, if a reciprocal pronoun were involved. But if *se* forms a reciprocal verb, whose reciprocal meaning is undetachable, only the local, contradictory reading is available.

- (5) a. Pierre et Jean *se* sont vaincus à la finale. (French)
 Pierre and Jean *SE* are defeated in the final
 ‘Pierre and Jean have defeated each other in the final’
 b. Pierre et Jean ont dit qu’*il se* sont vaincus à la finale
 Pierre and Jean have said that they *SE* are defeated in the final

In Czech, too, the embedding of the contradictory (6a) does not avail the sentence of a noncontradictory reading.²

- (6) a. Dan a Petr *se* porazili ve včerejší šachové partii. (Czech)
 Dan and Petr *SE* defeated in yesterday(adj) Chess game
 b. Dan a Petr říkali, že *se* porazili ve včerejší šachové partii.
 Dan and Petr said that *SE* defeated in yesterday(adj) Chess game

French suggests additional evidence that *se* is not an object clitic and the verb is not a transitive verb, but rather an intransitive reciprocal. Diagnostics of transitivity confirm that the complex ‘*se* verb’ does not behave on a par with transitive verbs. As observed by Kayne (1975), French causative constructions treat transitives and intransitives differently. Reciprocals (just like reflexive verbs) pattern with intransitives. When the verb embedded under the causative verb *faire* ‘make’ is a transitive verb, its subject must be introduced by the preposition *à* (‘to’) (7a). When the lower verb is intransitive, its subject cannot be introduced by *à* (7b).³ As is clear from (7c), when the direct object of the embedded verb is a pronominal clitic, the verb patterns with transitive entries. But when the lower verb is reciprocal, its subject surfaces without the preposition (7d), just like the subject of intransitive verbs. (Notice that the different positioning of the pronominal clitic and *se* in the causatives of (7) suggests in itself that they deserve a different syntactic treatment.)

² Also in German when the reciprocal meaning is expressed via *sich*, we find the same behavior. The reciprocal reading in (i) is contradictory, unlike that in (ii), which uses the reciprocal pronoun *einander*. Unlike (ii), (i) does not have the meaning ‘Hans said that he defeated Paul in the final and Paul said that he defeated Hans in the final’ (Volker Gast, personal communication). This suggests that (i) contains a reciprocal verb, and not a reciprocal argumental pronoun.

- (i) Hans und Paul sagten, dass sie sich im Finale besiegt hatten.
 Hans and Paul said that they sich in the final defeated have
 (ii) Hans und Paul sagten, dass sie einander im Finale besiegt hatten.

The same is argued by Gast and Haas (2005) on different grounds. Reinhart and Siloni (2005) provide evidence that the reflexive *sich* in local contexts (not the long distance anaphor *sich*) is also not an argument syntactically bound.

Heim, Lasnik and May (as well as some of the speakers I have consulted) note that under certain conditions, it may be possible to construe the broad scope reading. I will not pursue this any further here, as independent evidence strongly suggests that these are intransitive verbs.

³ The subject of intransitives is an accusative argument. This is clear when it is cliticized, as the accusative clitic is used:

- (i) Je le ferai courir.
 I him_{cl} will+make run

- (7) a. Pierre a fait embrasser Jean à Marie. (French)
 Pierre has made kiss Jean to Marie
 'Pierre made Marie kiss Jean'
 b. Pierre a fait courir Marie.
 Pierre has made run Marie
 'Pierre made Marie run'
 c. Pierre l'a fait embrasser à Marie.
 Pierre him/her has made kiss to Marie
 'Pierre made Marie kiss him/her'
 d. Pierre a fait s'embrasser Jean et Marie⁴
 Pierre has made SE kiss Jean and Marie
 'Pierre made Jean and Marie kiss'

Further, as is well known, in French and Italian, transitive verbs use the auxiliary *avoir* 'have' to form complex tenses. Reciprocals (like reflexives) employ *être* 'be'. The use of *être* triggers obligatory subject agreement on the past participle (8b) unlike the optional (high register) object agreement triggered by direct object clitics (8a). As noted by Sportiche (1998), if *se* were simply an object clitic, this would be unexpected. Reinhart and Siloni (2005) argue that in certain languages the application of a valence reducing operation (e.g., the formation of reciprocal verbs) triggers the use of 'be' for Case reasons.

- (8) a. Marie et Claire se sont embrassé-*(es).
 Marie and Claire SE are kissed-(FPL)
 'Marie and Claire kissed'
 b. Ces filles, ils les ont embrassé-(es).
 These girls, they them(FPL) kissed-(FPL)
 'These girls, they kissed them'

As mentioned in the beginning of the paper, the set of reciprocal verbs is not uniform and includes different types of predicates. The bulk of the paper is devoted to reciprocal verbs that are derived from the corresponding nonreciprocal transitive entry, e.g., *hitnašek* 'kissed(rec)' in Hebrew from its transitive nonreciprocal counterpart *nišek* 'kissed'. I will refer to these verbs as *derived reciprocals* or simply, *reciprocals*, and will show that they can be derived in the lexicon or the syntax. The last section of the paper deals with verbs whose reciprocity is inherent; their transitive alternates, which they are derived from, also denote reciprocity but between members of the object set. I will call the former inherent reciprocals and their transitive alternates object symmetric predicates. Languages also have underived subject symmetric predicates, which I will discuss occasionally.

3. Reciprocals and their subject

The subject of reciprocals is understood to be both an Agent and a Theme. In (8a), for instance, Marie and Claire are both the Agent and the Theme of the kissing. The question then arises whether the subject is generated VP-internally or it is an external argument. In this section I show that crosslinguistically the subject of reciprocals fails tests diagnosing internal arguments.

As noted by Shlonsky (1987) among others, Hebrew allows two types of inversion: triggered inversion, which is licensed by some XP immediately preceding the verb [XP V S], and simple inversion [V S]. The latter is possible only with subjects that are internal arguments: subjects of passives (9a) and unaccusatives (9b). Reciprocals do not allow simple inversion (9c) just like

⁴ Like other sentences involving a 'se verb' in Romance, Serbo-Croatian and Czech, (8d) can have a reflexive reading (less dominant here owing to world knowledge). As will become clear in section 4, this is a property typical of languages forming their reciprocals in the syntax. In this paper, the focus is on the reciprocal reading, unless otherwise specified.

other predicates whose subject is an external argument (9d).

- (9) a. butlu štey harca'ot.
were+cancelled two lectures
b. higi'u šney studentim.
arrived two students
c. *hitnašku šney studentim.
kissed(*rec*) two students
d. *avdu šney studentim.
worked two students

Modification by possessive datives can also be used to detect internal arguments in Hebrew. As noted by Borer and Grodzinsky (1986), possessive datives (here *le-mi* ('to-whom' roughly 'whose')) can only modify internal arguments. Hence, they can serve as possessors to subjects of passives (10a) or unaccusatives (10b), but not to subjects of unergatives (10c). The subject of reciprocals (10d) patterns with the subject of unergatives.

- (10) a. le-mi nuka ha-xeder?
to-whom was+cleaned the-room
'whose room was cleaned?'
b. le-mi nexšelu šney studentim?
to-whom failed two students
'Whose students failed?'
c. *le-mi avdu šney studentim?
to-whom worked two students
d. *le-mi hitxabku šney studentim?
to-whom hugged(*rec*) two students

As briefly mentioned, the *hitpa'el* template appears not only with reciprocals but also with other types of predicates, including unaccusatives, reflexives, and (a few) passives. Alongside the biblical form *hitpa'el*, literary Hebrew can use the post-biblical form *nitpa'el* in past tense. Interestingly, for speakers whose grammar includes the form, it is clear that its distribution is limited. While unaccusatives and passives allow the form *nitpa'el*, reciprocals just like reflexives disallow it. The possibility to use *nitpa'el* seems to correlate with the type of argument that serves as a subject. Unaccusatives (11a-b) and passives (11c-d), whose subject is an internal argument, allow it, but not reciprocals (11e-f) and reflexives (11g-h), whose subject is the external argument (for reflexives, see Reinhart & Siloni 2004).

- (11) a. ha-mixnasayim nitkavcu.
the-pants shrank
'The pants shrank'
b. ha-sukar nitmoses.
the-sugar dissolved
'The sugar dissolved'
c. ha-uvdot nitgalu al yedey xoker svecari.
the-facts were+discovered by researcher Swiss
'The facts were discovered by a Swiss researcher'
d. ha-yecira nitxabra al yedey malxin carfati.
the-work was+composed by composer French
'The work was composed by a French composer'
e. *hem nitnašku.
they kissed
f. *hem nitxabku.
they hugged
g. *hu nitlabeš.

- he dressed
 h. *hu nitgale'ax.
 he shaved

In French, verbs whose subject is an internal argument can appear in expletive constructions (12a-b) and typically allow *en* cliticization out of their subject (12c-d), as *en* can cliticize only out of an internal DP argument. Reciprocals like their Hebrew equivalents do not pattern with verbs whose subject is an internal argument. They are marginal in expletive constructions (12e) and disallow *en* cliticization (12f).

- (12) a. Il est arrivé trois filles hier soir.
 there SE is arrived three girls yesterday evening
 'There arrived three girls yesterday evening'
 b. Il en est arrivé trois hier soir .
 there SE of+them is arrived three yesterday evening
 'There arrived three of them yesterday evening'
 c. Il s'est cassé beaucoup de verres dans ce lave-vaisselle.
 there SE is broken many glasses in this dishwasher
 'Many glasses broke in this dishwasher'
 d. Il s'en est cassé beaucoup dans ce lave-vaisselle.
 there SE of+them is broken many in this dishwasher
 'Many of them broke in this dishwasher'
 e. ??Il s'est embrassé beaucoup de filles à cette fête.
 there SE is kissed many girls in this party
 f. *Il s'en est embrassé beaucoup à cette fête.
 there SE is kissed many in this party

The subject of reduced relatives whose predicate is the perfect participle must be an internal argument. Hence the predicate can be a passive (13a) or an unaccusative (13b) but not an unergative (13c) (see Siloni 1995, 1997). Reciprocals (13d) pattern with unergatives.⁵

- (13) a. L'uomo arrestato dalla polizia è una spia.
 the man arrested by the police is a spy
 'The man arrested by the police is a spy'
 b. Il bicchiere rotti ieri apparteneva a mio nonno.
 the glass broken- SI yesterday belonged to my grandfather
 'The glass that broke yesterday belonged to my grandfather'
 c. *L'uomo telefonato a suo nonno è una spia.
 the man telephoned to his grandfather is a spy
 d. *I ragazzi baciati-si ieri sono miei alunni.
 the children kissed-SI are my pupils

In Russian, genitive of negation is a test relevant for our purposes. Internal arguments can bear genitive Case when the predicate is negated (Pesetsky 1982). Unlike the subject of unaccusatives (14a), the subject of reciprocals cannot bear genitive Case (14c), just like the subject of unergatives (14b).⁶

- (14) a. Ne ob'javilos' studentov.
 NEG showed up students(GEN)
 'Students did not show up'

⁵ Judgments are thanks to Guglielmo Cinque and Alessandra Lukinovich. In French the test is not applicable, as participial relatives of this kind disallow clitics altogether (unlike relatives with the -ant participle; see Siloni 1995, 1997 for discussion).

⁶ Judgments vary as genitive of negation is not equally productive among speakers.

- b. *Ne tancevalo studentov.
NEG danced students(GEN)
- c. *Ne obnimalos' detej.
NEG embraced(*rec*) children(GEN)

Crosslinguistic evidence, then, shows that reciprocals do not have a derived subject. I suggest that they are derived from the corresponding transitive entry by an operation (reciprocalization) that prevents mapping of a θ -role of the complement domain to its canonical syntactic position. The operation however does not eliminate the role altogether, but associates it with the external role. As will be shown in what follows, although reciprocalization is a universal operation that associates two roles with one – external - argument, it manifests systematic crosslinguistic variation.

4. Lexical vs. syntactic reciprocalization

The reciprocalization operation, then, associates two θ -roles with the external argument. The subject in (15a) is clearly associated with both the Agent and the Theme role (which is not mapped to the object position) of the corresponding transitive alternate (15b). Just like the subject of a reflexive (15c) is associated with both roles of the transitive entry (15d), so is the subject of a reciprocal. But while the reflexive denotes a reflexive event (of self-washing in (15d)), the reciprocal denotes a reciprocal event (an event of mutual kissing in (15a)). The reciprocalization operation is similar to that forming reflexives (for reflexivization, see Reinhart and Siloni 2005), but its semantics is different. Discussing the operation and its semantics is beyond the scope of this overview. For our purposes, suffice it to understand that reciprocalization suppresses the syntactic realization of a role of the complement domain, and links this role with the external role, so that both end up associated with the same argument.⁷

- (15) a. John and Mary kissed.
- b. John kissed Mary.
- c. John washed.
- d. John washed the baby.

Reciprocals in the languages I have examined split into two types: one type is found in Hebrew, Russian, Hungarian, and English, and the other, in the Romance family, Serbo-Croatian, Czech, (and German, which I will not discuss here). The two sets of languages systematically differ in several respects. As I will show below, the distinctions can all be accounted for under the assumption that reciprocals can be formed in different components of the grammar. Specifically, reciprocalization can apply in the lexicon or in the syntax, like other valence changing operations (arity operations), which are extensively discussed in Reinhart and Siloni 2005. This is formulated by the Lex(icon)-Syn(tax) parameter (16). The setting of the parameter for the relevant languages is listed in (17):

- (16) The Lex-Syn Parameter
UG allows arity operations to apply in the lexicon or in the syntax.
- (17) Lexicon setting: Hebrew, Russian, Hungarian, English.
Syntax setting: Romance, Serbo-Croatian, Czech.

The parameter classifies languages to syntax and lexicon languages. The former languages can apply reciprocalization in the syntax, forming syntactic reciprocals. The latter languages cannot

⁷ I assume this is not in contradiction with the spirit of the θ -criterion. I believe the requirement that θ -information be assigned is an indispensable part of the criterion, unlike the biuniqueness requirement it imposes on arguments and roles (for justification, see Bošković 1994, Chomsky 1995, Reinhart and Siloni 2005).

form reciprocals in the syntax but only in the lexicon; they have only lexical reciprocals.⁸ Both types of languages can, in addition, denote reciprocity by the use of reciprocal argumental pronouns. This option is orthogonal to the discussion and does not concern the lex-syn parameter.

I now turn to discuss the cluster of properties distinguishing between these two types of languages. As the distinctions hold across the languages in my sample, I will freely alternate between the languages when illustrating them.

(i) Productivity In lexicon languages, reciprocals are restricted to a closed, relatively small set of verbs. Roughly speaking, the set includes verbs denoting types of social interaction, as illustrated in (18). In syntax languages, the formation of reciprocals is a productive operation. Thus, while French has a reciprocal *draw* (19), for example, Hebrew, Russian, and Hungarian do not have one.

- (18) a. dan ve-dina hitxabku (Hebrew)
Dan and-Dina hugged(*rec*)
b. dan ve-dina nifgešu.
Dan and-Dina met(*rec*)
c. dan ve-dina nilxemu.
Dan and-Dina fought(*rec*)

- (19) Jean et Marie se sont dessinés. (French)
Jean and Marie SE are drawn
'Jean and Marie drew each other'

In lexicon languages, where reciprocals constitute a closed set, the set of reflexive verbs is also limited (it includes grooming verbs and a few others). In syntax languages, where reciprocal formation is productive, the formation of reflexives is productive, too.⁹ Hence, it is not surprising that in syntax languages verbal forms can be ambiguous between a reflexive and reciprocal reading (if they share the same morphology, as is the case in the sample of languages discussed here). (19) has in addition to a reciprocal also a reflexive reading ('Jean and Marie draw themselves'). Likewise, (20) has a reflexive (20i) and reciprocal reading (20ii). Of course, the reciprocal reading of (20) requires an appropriate context, otherwise speakers strongly prefer interpreting it as a reflexive, owing to world knowledge (i.e., people tend to wash themselves and not each other). The parallel sentence in Hebrew (21) is unambiguous. Its sole reading is reflexive, as in lexicon languages *wash* belongs to the set of reflexives and not to the set of reciprocals.

- (20) Pierre et Jean se sont lavés. (French)
Pierre and Jean SE are washed
i Pierre and Jean washed.
ii Pierre and Jean washed each other.

- (21) dan ve-ron hitraxcu. (Hebrew)
Dan and-Ron washed(*refl*).

Productivity is not in principle impossible for lexical operations. It is important to note that the sets of (lexical) reciprocals and reflexives are rather coherent crosslinguistically. Why are they restricted the way they are? The exact definition of the sets is not yet understood. It may turn out

⁸ As will become clear in section 6, there are instances of lexical reciprocals in syntax languages, but not vice versa.

⁹ The formation of reflexive verbs and their behavior across languages is extensively discussed in Reinhart and Siloni 2005, who also note that their sample of languages are consistent regarding the setting of the parameter across different valence reducing operations (i.e., reciprocalization, reflexivization and middle formation).

that the definition is imposed by specific properties of the lexicon. But even if the sets are to some extent language specific, it seems theoretically convenient that these idiosyncrasies fall in the domain of the lexicon. It has often been argued independently of the question of reciprocalization or reflexivization that irregularities are confined to the lexicon, which contains lists that have to be acquired anyway, whereas the syntactic component is a productive engine uncontaminated with idiosyncrasies. The difference in productivity between the lexical and syntactic setting of the lex-syn parameter corresponds to this view of the two components. Crucially, as will be shown below, additional evidence points to the same direction.

(ii) ECM reciprocals Languages also differ regarding the possibility to reciprocalize exceptional Case marking (ECM) predicates. Consider the ECM predicate in (22a) and its reciprocal equivalent in (22b). The matrix predicate *entendu* 'heard' does not take a DP as its internal argument, but rather a clause. *Marie* in (22a), to which *entendu* assigns accusative Case is not an argument of *entendu*, but the subject of the clause, and receives its θ -role from the embedded verb *chanter*. Nonetheless, *entendu* can undergo reciprocalization involving in addition to its own external role the external role of the verb *chanter*, as is clear from (22b).

- (22) a. Pierre a entendu Marie chanter la Marseillaise.
 Pierre has heard Marie sing the Marseillaise
 b. Pierre et Jean se sont entendus chanter la Marseillaise.
 Pierre and Jean SE are heard sing the Marseillaise
 'Pierre and Jean heard each other sing the Marseillaise'

Languages that set the lex-syn parameter to "lexicon" do not allow ECM reciprocals. They must use a reciprocal pronoun to express the relevant meaning (23). Lexical reciprocalization is bound to the domain of a single predicate.

- (23) dan ve-ron šam'u [exad et ha-šeni] šarim.
 Dan and-Ron heard each other sing

This difference is expected in light of the lex-syn parameter. The lexicon contains lists of items that are combined to phrases by the syntax. In the lexicon there is no relation whatsoever between distinct predicates; they are distinct items on a list. Only the syntax puts them together, merges them into structure, thereby establishing a structural relation between them. It is thus straightforward that an operation in the lexicon is limited to act on a single predicate and its θ -grid, and cannot involve two predicates, as in the lexicon they are distinct entries which nothing ties together.

When the operation is syntactic it applies after the formation of syntactic structure, which establishes structural relation between distinct lexical items. It is thus not surprising that a syntactic operation can affect θ -roles of two distinct predicates that structure has put in a local configuration.¹⁰

(iii) Frozen Input There are instances of lexical reciprocals whose transitive alternate does not exist in the vocabulary. For example, the verbs *hitvake'ax* 'argued' (24a) and *borot'sja* 'fight' (24b) do not have a transitive counterpart. There are no instances of syntactic reciprocals lacking a transitive alternate (see note 8).

- (24) a. dan ve-dina hitvakxu. (Hebrew)
 Dan and-Dina argued

¹⁰ For a definition of the local configuration, see Reinhart and Siloni 2005.

- b. Masha i Dima borolis'. (Russian)
Masha and Dima fought.

Why is it so? It has often been suggested that the lexicon includes entries that are frozen in the sense that they exist in the lexicon but cannot be inserted into syntactic derivations, and hence are not part of the actual vocabulary of the language (Chierchia 2004, Horvath and Siloni 2005, Reinhart 2000, among others). If frozen entries are available in the lexicon, they can feed lexical operations, in particular, the formation of reciprocals. Frozen entries, in contrast, cannot feed syntactic operations because they are not accessible to the syntax. Hence, syntactic reciprocals always have a transitive alternate in the vocabulary of the language.

(iv) Semantic drift Lexical reciprocals can undergo semantic drift, thereby acquiring a new meaning (alongside the original meaning or replacing it). Semantically drifted reciprocals are found in Hebrew, Hungarian and Russian. For example, the verb *vstrechat'sja* 'meet' in Russian has also the meaning 'to go out on a date', which is not shared by its transitive counterpart. Horvath and Siloni (2005) among others argue that items can undergo semantic drift only if they are present in the lexicon. It automatically follows that lexical reciprocals can drift, while syntactic reciprocals must keep the original meaning of the transitive verb, as they are not available in the lexicon (recall note 8).

(v) Idioms Reciprocals formed in the lexicon can give rise to idioms not shared by their transitive counterparts. The transitive alternate of (25), for example, has only a literal meaning. Preliminary searches suggest that syntactic reciprocals cannot form idioms not shared by the corresponding transitive verbs.

- (25) a. nipageš ba-sivuv.
will+meet(we) in+the-turn
'Just you wait and see'
b. efgoš otxa ba-sivuv.
Will+meet(I) you in+the-turn
'I will meet you at the turn'

Syntactic reciprocals are not at all available in the lexicon. They are inserted as two place predicates and are formed in the syntax. Horvath and Siloni (2005) among others argue that a predicate has to be present in the lexicon to give rise to an idiom. If this is correct, it follows that lexical reciprocals can form their own idioms, but syntactic reciprocals can participate in an idiom only if their transitive alternate does, as only the latter is available in the lexicon.

(vi) Accusative Case In both lexicon and syntax languages the operation forming reciprocals suppress the syntactic realization of an accusative (26) or a dative argument (27). However, in case a dative argument is suppressed, syntactic reciprocals can realize an accusative argument (27a-b), but lexical reciprocals cannot (27c-d).

- (26) a. Pierre et Marie se sont embrassés. (French)
Pierre and Marie SE are kissed
'Pierre and Marie kissed'
b. Juan y María se han besado. (Spanish)
Juan and María SE have kissed
'Juan and María kissed'
c. dan ve-dina hitnašku. (Hebrew)
Dan and-Dina kissed(rec)
d. János és Mari csókol-óz-t-ak. (Hungarian)

János and Mari kissed-*rec*-past-3pl
 'János and Mari kissed'

- (27) a. Pierre et Marie se sont chuchoté des mots d'amour. (French)
 Pierre and Marie SE are whispered words of love
 'Pierre and Marie whispered words of love to each other'
- b. Juan y María se dicen palabras de amor. (Spanish)
 Juan and María SE say words of love
 Juan and María said words of love to each other'
- c. dan ve-dina hitlaxšu (*milot ahava). (Hebrew)
 Dan and-dina whispered(*rec*) (words of love)
- d. János és Mari (*hízelgő szavak-at) sugdol-ódz-t-ak. (Hungarian)
 János and Mari (flattering words-*acc*) whisper-*rec*-past-3pl

These data suggest that valence reducing operations applying in the lexicon reduce accusative Case independently of the reduction of the Case of the suppressed argument. This would explain why the direct object cannot be realized in (27c-d), although reciprocalization has targeted the dative argument. When no operation applies in the lexicon (when the roles are bundled in the syntax), there is no Case reduction in the lexicon, and the verb is inserted in the syntax with its Case abilities. Some mechanism takes care of the Case feature associated with the syntactically suppressed argument, but if the verb has an additional Case, it remains available. I assume with others that the clitic *se/si* (or a parallel morphological device) reduces the superfluous Case. Indeed, syntactic reciprocalization is only possible when such a device is available.¹¹

There are additional differences between reciprocals across languages, which, at first glance, do not seem to split languages as expected by the lex-syn parameter. In section 5 and 6, I will show that under closer inspection, these differences, too, match the partition to lexical and syntactic reciprocals.

5. Event nominals

We find reciprocal event nominals with reciprocal morphology in lexicon languages (28). We do not find anything of the sort in Romance languages (29) or Serbo-Croatian.¹²

- (28) a. hitnaškut bney ha-esre (Hebrew)
 kissing(*rec*) the teenagers
 'the teenagers' mutual kissing'
- b. perešjoptyvanie detej (Russian)
 whispering(*rec*) children(GEN)
 'the children's mutual whispering'
- c. a gyerekek csókol-óz-ás-a (Hungarian)
 the-children kiss-*rec*-nominal-*Agr*
 'the children's (mutual) kissing'

It may be argued that the explanation for this fact is just morphological, namely that the Romance (and Serbo-Croatian) *se* is incompatible with nominal morphology. While this is

¹¹ Syntactic reciprocals can also realize a dative argument when the accusative one is suppressed. This cannot be tested with regard to lexical reciprocals as it seems that there is no input for reciprocalization that allows the suppression of an accusative argument and takes a dative in addition.

¹² The discussion is limited to event nominals, as the interpretation of result nominals is vaguer. The fact that a noun such as *kiss* could be used in the context of a mutual kissing does not make it a reciprocal nominal.

indeed correct, French (Romance) nonetheless allows unaccusative nominalizations without *se* (29), although their verbal counterpart appears with *se* (29b). So the question is why we cannot find the same with reciprocals.

- (29) a. le rétrécissement du pantalon au lavage.
the shrinking of the pants in+the washing
b. Le pantalon s'est rétréci au lavage.
The pants shrank in+the washing

Moreover, Hron (2005) observes that Czech, unlike Romance languages (or Serbo-Croatian) allows reciprocal event nominals (30), although its reciprocals pattern with syntactic reciprocals. Why does Czech allow reciprocal nominals unlike the other syntax languages in our sample?

- (30) Nepřetržité hádání se jejich děti jim zkazilo celou dovolenou.
Constant quarreling SE their children(GEN) them ruined whole vacation
'Constant quarreling of their children ruined them the whole vacation'

Hron (2005) points out that a priori two derivational paths are possible for reciprocal nominals: they can be derived either from their verbal counterparts by an operation of nominalization, or from their corresponding transitive nominals by an operation of reciprocalization. I assume nominalization is a lexical operation, as argued in Siloni 1997. Reciprocalization, in contrast, is subject to the lex-syn parameter.

In lexicon languages, then, we expect to find reciprocal nominals whether they are derived by nominalization of the corresponding reciprocal verbs, which are available in the lexicon, or by reciprocalization of the corresponding event nominal. It remains to be examined whether there is any evidence supporting one derivational path over the other.

Let us now examine syntax languages. First if indeed nominalization is a lexical operation, then it cannot form reciprocal nominals in syntax languages. This is so, because these languages derive the corresponding verbs in the syntax, and therefore in their lexicon there is no reciprocal input to nominalize. As will be briefly discussed in section 6, the operation deriving unaccusative verbs can only apply in the lexicon crosslinguistically, even in languages where reciprocalization and reflexivization are syntactic. Hence, unaccusative nominalizations are expected to be possible (29a).

Is reciprocalization of the corresponding event nominal an attested option? Showing that Czech reciprocal nominals cannot be argued to be formed in the syntax by nominalization of the corresponding reciprocal verb (their syntactic structure clearly does not involve a verbal projection), Hron (2005) suggests that they are derived by reciprocalization of the corresponding transitive nominal. He further shows that, as expected by the lex-syn parameter, reciprocalization of nominals in Czech is a syntactic operation, just like reciprocalization of verbs: it is productive and possible with ECM nominals.

The question then arises why reciprocalization of nominals cannot take place in Romance the way it does in Czech. Recall first that the clitic in Romance is a verbal clitic and can never be attached to nouns, unlike its Czech equivalent. Hence, reciprocal nominals with reciprocal morphology (of the Czech type) are blocked. Why is it impossible to derive reciprocal nominals with no reciprocal morphology from the corresponding transitive nouns? The reason for that, I believe, lies in the role of the clitic as a Case reducer. In the previous section, I concluded that lexical operations reduce the Case abilities of the predicate

altogether, while syntactic operations require a particular Case reducer. Thus, for a valence reducing operation to apply in the syntax, the Case feature associated with the suppressed argument must be reduced, whether the predicate is a verb or an event noun. Syntactic operations suppressing the syntactic realization of an argument are expected to be possible (on verbs and nouns) only if a device is available to take care of the superfluous Case. Now, Romance languages as well as Czech are syntax languages. However, syntactic reciprocalization of nouns is expected to be possible in Czech as it can use the clitic to reduce Case, but not in Romance where the clitic is incompatible with nouns.

6. The discontinuous construction

6.1 Setting the stage

Alongside the reciprocal constructions we have discussed so far (e.g., (31a)), lexicon languages also manifest the so-called discontinuous construction (or briefly, discontinuity) (31b):¹³

- (31) a. ha-yeladim ve-ha-yeladot hitnašku.
The-boys and-the-girls kissed(*rec*)
b. ha-yeladim hitnašku im ha-yeladot.
The boys kissed(*rec*) with the-girls

As pointed out by Frajzyngier (1999), Dimitriadis (2002), in the discontinuous construction (31b), reciprocity holds between the subject set and the oblique set introduced by the preposition *with*, and not between the members of the subject set as in (31a). Thus, in (31b), there were mutual kissing events between boys and girls; but no kissing events within the set of boys or girls. Reciprocity in (31a) is not limited this way: mutual kissing events are possible between all members of the subject set. As the discontinuous construction denotes reciprocity between the subject set and the oblique set, the subject set can be a singleton set, unlike in regular reciprocal constructions, which require the subject set to be equal to or bigger than two for reciprocity to be possible.

The discontinuous construction clearly implies that both the subject and the oblique constituent play the same role in the event. (32a) and (32b), where the syntactic positions of Dan and Dina are reversed, are equivalent. (32c) is a contradiction as its second conjunct negates the equal participation of both constituents.

- (32) a. dan hitnašek im dina.
Dan kissed(*rec*) with Dina
'Dan and Dina kissed'
b. dina hitnaška im dan.
Dina kissed(*rec*) with Dan
'Dan and Dina kissed'
c. #dan hitnašek im dina, aval dina lo hitnaška im dan.
Dan kissed(*rec*) with Dina, but Dina didn't kiss(*rec*) with Dan

¹³ In English, which I will not discuss here in detail, not all reciprocals allow the discontinuous construction although the language is a lexicon language, with a limited set of reciprocals, no ECM reciprocals, etc.

Similarly, it cannot be argued that the subject is somehow more active than the oblique constituent, as shown by the fact that (33) is possible, where it is clear that the kissing event took place owing to Dina's volition or initiative and despite Dan's unwillingness.

- (33) dan hitnašek im dina, lamrot še-hu mamaš lo raca, dina hixrixa oto.
 Dan kissed(*rec*) with Dina, although he really didn't want to, Dina forced him.

The discontinuous construction seems to be impossible with syntactic reciprocals, as illustrated below.

- (34) a. *Jean s'est embrassé avec Marie. (French)
 Jean SE is kissed with Marie
 b. *Giovanni si è abbracciato con Maria. (Italian)
 Giovanni SI is hugged with Maria
 c. *Juan se ha besado con María. (Spanish)
 Juan SE has kissed with Maria
 d. *Ana s-a curățat cu Ion. (Romanian)
 Ana SE-has cleaned with Ion
 e. *Dan se obviňoval s Petrem. (Czech)
 Dan SE accused with Petr

However, a closer inspection reveals that certain verbs in syntax languages do allow the discontinuous construction. In the next subsection, I will argue that instances of lexical reciprocals are possible in syntax languages, and only these can appear in the discontinuous construction and show properties typical of reciprocals in lexicon languages, such as semantic drift. Syntactic reciprocals disallow the construction.

6.2 Lexical reciprocals – not syntactic

In certain syntax languages, e.g., French and Italian we find isolated reciprocals allowing the discontinuous construction, while in others, e.g., Serbo-Croatian and Czech a wider set of reciprocals allows discontinuity. Below I show that there are good reasons to believe that these are instances of lexical reciprocals in syntax languages.

The verb *se battre* allows discontinuity. The basic entry, *battre*, means 'beat'. *Se battre* can also mean 'fight', as shown in (35). That is, semantic drift can apply to *se battre*. As mentioned in section 4, Horvath and Sioni (2005) argue that elements can undergo semantic drift only if they are present in the lexicon. If that is so, it follows that the reciprocal *se battre* 'fight' must be available in the lexicon; namely, it must be able to be formed in the lexicon (in addition to the syntax).

- (35) Jean et Pierre se sont battus. (French)
 Jean and Pierre SE are beat
 i. Jean and Pierre beat each other.
 ii. Jean and Pierre fought.

Moreover, it turns out that when *se battre* occurs in the discontinuous construction, it can only mean 'fight' (36). As this is the drifted meaning, it means that only the lexical *se battre* licenses the construction. Note that this means that the lexical reciprocal *se battre* has lost the original meaning of *battre*, otherwise it would also be able to mean 'beat' in the discontinuous construction. (This is not always the case: sometimes items acquire a drifted meaning in addition to the original one.) The fact that it has lost the original meaning allows us to

determine that only the lexical (not the syntactic) alternate can feed the discontinuous construction, thus supporting my claim that discontinuity cannot be fed by syntactic outputs.

- (36) Jean s'est battu avec Pierre. (French)
i. Jean and Pierre fought.
ii. *Jean and Pierre beat each other.

Next, one does not find ECM predicates in the discontinuous construction. Thus, while (37a) is grammatical in Romanian, (37b), which involves an ECM reciprocal, is completely impossible.

- (37) a. Ana s-a sărutat cu Ion. (Romanian)
Ana SE-has kissed with Ion
'Ana and Ion kissed'
b. *Ana s-au auzit cu Ion cantand Marsilieza.
Ana SE-has heard with Ion singing Marseillaise

This is expected, if discontinuous reciprocals are enabled by lexical - not syntactic - reciprocals. ECM reciprocals involve two distinct predicates and therefore can only be formed in the syntax (see section 4). As they are syntactic outputs, they cannot feed the discontinuous construction.

In Czech we find a minimal pair of the kind. Czech allows a set of reciprocals to appear in the discontinuous construction, among them the verb *vidět se*. The verb *vidět* means 'see'. The reciprocal *vidět se* means 'see each other' or 'meet'. When *vidět se* appears in the discontinuous construction, it predominantly means 'meet' (the drifted meaning), and can also mean 'see each other' at least for some speakers.

- (38) Dan se viděl s Petrem.
Dan SE saw with Petr
'Dan and Petr saw/met each other'

Crucially, when *vidět se* functions as an ECM predicate, reciprocal discontinuity is ruled out (39b). Again, this is expected if only lexical reciprocals can give rise to the discontinuous construction.

- (39) a. Dan a Petr se viděli tančit.
Dan and Petr SE saw dance
b. *Dan se viděl s Petrem tančit.
Dan SE saw with Peter dance
Intended reading: 'Dan and Petr saw each other dance'

In sum, we must conclude that there are instances of lexical reciprocals in syntax languages. The set may be smaller or larger. Its members tend to correspond to the members of the core set typical of lexicon languages.¹⁴ But there are variations, and the exact choice of verbs allowing lexical reciprocals in the various syntax languages seems to be somewhat idiosyncratic. In lexicon languages, in contrast, we never find instances of syntactic reciprocals, e.g., ECM reciprocals. This is expected, because when the operation is syntactic it is productive.

Dimitriadis (2004a) entertains the idea that the lex-syn parameter (16) should, in fact, determine whether an operation can apply in the syntax or not, whereas lexical application is

¹⁴ David Hron (p.c.) reports that the set seems larger in Czech.

always possible. I do not think the direction is promising. First, in certain syntax languages we find only isolated instances of lexical reciprocals and not the core set of lexical reciprocals. Second, other valence reducing operations (Reinhart and Siloni 2005) do not seem to be applicable in the lexicon in syntax languages.

Additional evidence that discontinuous reciprocals are restricted to lexical reciprocals is offered in the next section. The evidence has to do with the notion of symmetry.

6.3 Symmetry – more evidence for the lexical approach

Dimitriadis (2002, 2004b) argues that the discontinuous construction is possible only with predicates denoting irreducible symmetric events.¹⁵ To understand what a symmetric event is, consider the examples in (40). (40a), which expresses reciprocity using the reciprocal *hitnašek* 'kiss', necessarily refers to five mutual kissing events, each of which involves Dan kissing Ron and vice versa. That is so, because *hitnašek* can only denote a symmetric event of kissing. (40b), in contrast, which expresses reciprocity using a reciprocal pronoun, is ambiguous between five symmetric kissing events and ten nonsymmetric kissing events - five by Dan and five by Ron. Under the latter reading (40bii), the relation between Dan and Ron is symmetric, but the events are not: there were 10 nonsymmetric events of kissing, which establish a symmetric relation between Dan and Ron.

- (40) a. dan ve-ron hitnašku xameš pe'amim. (Hebrew)
 Dan and-Ron kissed five times
 i. There were five symmetric kissing events.
 b. dan ve-ron nišku exad et ha-šeni xameš pe'amim.
 Dan and-Ron kissed each *acc* the-other five times
 i. There were five symmetric kissing events.
 ii. There were ten nonsymmetric kissing events: five by Dan and five by Ron.

The notion of symmetric event is indeed very relevant to our discussion. As shown in Siloni 2002, whether a reciprocal must have a symmetric event interpretation or not is determined by its locus of formation. Lexical reciprocals necessarily denote a symmetric event, while syntactic reciprocals can denote weaker forms of reciprocity, as will be discussed shortly. Moreover, not only lexical reciprocals but all predicates denoting reciprocity in the lexicon impose a symmetric event interpretation, whether their reciprocity is the result of the operation deriving them (as in the case of lexical reciprocals) or it is inherent (as in the case of underived symmetric predicates and inherent reciprocals, to be discussed later).

In lexicon languages - Hebrew, Hungarian and Russian in my sample - reciprocals must denote a symmetric event. Thus, only the five symmetric kissing events reading is available with the reciprocal 'kiss' in Russian (41a) and Hungarian (41b), just like in the corresponding Hebrew example (40a) .

- (41) a. Masha i Dima pocelovalis' pjat' raz. (Russian)
 Masha and Dima kissed(rec) five times
 There were five symmetric kissing events between Masha and Dima.
 b. János és Mari öt-ször csókol-óz-t-ak. (Hungarian)
 János and Mari five-times kissed-rec-past-3Pl
 There were five symmetric kissing events between János and Mari.

Notice that even a lexical reciprocal such as *hitkatev* 'write(rec)', whose reciprocity must be composed of separate writing events, necessarily refers to exchanges of letters, and not to the

¹⁵ Dimitriadis notes that Bantu languages constitute an exception to this generalization.

separate writing events. Thus, to the extent that it is possible to modify *hitkatev* by the adverb 'five times' (42a), the only available reading is that there were five events of letter exchanging between Dan and Ron (five 'units' of corresponding). The parallel sentence with a reciprocal pronoun (42b) entails that each individual of the pair Dan and Ron wrote to the other five times, the ordering of these writing events in time is not determined.

- (42) a. dan ve-ron hitkatvu xameš pe'amim. (Hebrew)
 Dan and-Ron wrote(rec) five times
 b. dan ve-ron katvu exad la-šeni xameš pe'amim
 Dan and Ron wrote to each other five times

Syntactic reciprocals, in contrast, can denote a symmetric event but do not have to. In French, the inherently nonsymmetric verb *follow* can appear as a reciprocal (43).¹⁶

- (43) Les enfants se sont suivis. (French)
 the children SE are followed
 'The children followed each other'

Similarly, the verb *s'embrasser* in (44), which most naturally denotes five symmetric kissing events, can also denote ten nonsymmetric events in the appropriate context. Imagine the following scenario: Jean and Marie are playing a game; the loser at each turn has to kiss the other. At the end we can announce the final score using (44a). Moreover, when a reciprocal pronoun is added to the sentence, this reading becomes more salient (44b). Addition of a reciprocal pronoun to the parallel Hebrew reciprocal does not change the interpretation of the verb: only the five symmetric events reading is available, as the verb necessarily denotes a symmetric event (45).^{17,18}

- (44) a. Jean et Marie se sont embrassés cinq fois. (French)
 Jean and Marie SE are kissed five times
 b. Jean et Marie se sont embrassés l'un l'autre cinq fois.
 Jean and Marie SE are kissed each other five times

- (45) dan ve-ron hitnašku exad im ha-šeni xameš pe'amim. (Hebrew)

¹⁶ Thanks to Alexis Dimitriadis (p.c) for suggesting this predicate to me.

¹⁷ Reciprocal pronouns can be added to reciprocals. In Romance languages, in case the accusative argument is suppressed, they are added bare, and in case a dative is suppressed, they are introduced by the dative preposition. In Hebrew and Hungarian, they can only be added introduced by *with*. Russian does not allow them readily but to the extent it does, they must be introduced via *with*. The generalization seems to be that with lexical reciprocals, reciprocal pronouns can only be added introduced by *with*. Syntactic reciprocals in Serbo-Croatian and Czech do not avail themselves of the Romance option, but their lexical reciprocals seem to pattern with Hebrew and Hungarian, as expected if the *with* option is available to lexical but not syntactic reciprocals. Note that this provides further support to the claim that there are lexical reciprocals in syntax languages, and that they systematically pattern with lexical reciprocals. The difference between Romance on the one hand and Serbo-Croatian and Czech on the other may be related to the different ways they realize emphatic pronouns, along lines entertained in Siloni 2001. I will not pursue this any further here.

¹⁸ Note that we have a three way distinction: lexical reciprocals allow only symmetric events ((40a), (41)), syntactic reciprocals allow a symmetric and sequential nonsymmetric event reading (44), and reciprocal pronouns allow symmetric events, sequential nonsymmetric events, and distribution over a long-distant subject (as in (3a)). The long-distance reading entails that the predicate allows the sequential reading, but not vice versa. When the reciprocal reading is incorporated in the predicate, as in the case of syntactic reciprocals, long-distance distribution seems impossible. When reciprocity holds between more than two entities, we get additional differences regarding the level of reciprocity. For instance, *The roommates kissed* can either denote strong reciprocity (if there were kissing events between all possible pairs of roommates) or weak reciprocity (any roommate participated in a mutual kissing, but not with all other roommates). See Langendoen (1978), for discussion. These differences are irrelevant for our purposes.

Dan and-Ron kissed(*rec*) with each other five times

Both *s'embrasser* ((34a) repeated in (46a)) and *se suivre* (46b) do not allow discontinuity.

- (46) a. *Jean s'est embrassé avec Marie. (French)
Jean SE is kissed with Marie
b. *Les enfants se sont suivi avec les filles.
The boys SE is followed with the girls

The reciprocal 'kiss' in Romanian and Czech, just like their French equivalent, most dominantly denotes a symmetric event of kissing (five kissing events in (47)), but can also denote ten nonsymmetric events if the context enforces it.

- (47) a. Ana și Ion s-au sărutat de cinci ori. (Romanian)
Ana and Ion SE-have kissed five times
b. Dan a Petr se pětkrát políbili. (Czech)
Dan and Petr SE five times kissed

Crucially, however, as shown in (37) above - repeated in (48a) - and in (48b), in both languages, the reciprocal 'kiss' licenses the discontinuous construction, in sharp contrast with its French equivalent.

- (48) a. Ana s-a sărutat cu Ion. (Romanian)
Ana SE-has kissed with Ion
'Ana and Ion kissed'
b. Dan se políbil s Petrem. (Czech)
Dan SE kissed with Petr.
'Dan and Petr kissed'

Given that, the factor determining whether discontinuity is possible or not cannot be the kind of reciprocity (symmetry) specific verbs denote. The crucial factor is whether the reciprocal predicate is a lexical entry or an output of a syntactic operation. The former – but not the latter - entails a symmetric event and allows the discontinuous construction. The difference between the French reciprocal 'kiss' and its equivalents in Romanian and Czech must be that the latter can be formed in the lexicon, while the former cannot. This difference is most probably idiosyncratic, but as shown in 6.2, the evidence for that is solid. Below I offer additional evidence to the same effect.

If the present view is correct, we expect reciprocals in the discontinuous construction to necessarily denote a symmetric event not only in lexicon languages, where this is the only reading reciprocals have, but also in syntax languages, as the construction is based on lexical reciprocals.

The prediction is borne out. The reciprocal 'kiss' in Romanian and Czech, when appearing in the discontinuous construction, necessarily denotes a symmetric event. In contrast with (47), the sentences in (49) allow the five symmetric events reading only. Although Romanian and Czech are syntax languages, and their reciprocals do not necessarily denote a symmetric event, the discontinuous construction must have a symmetric event reading, as it is fed by lexical reciprocals.

- (49) a. Ana s-a sărutat cu Ion de cinci ori. (Romanian)

- Ana SE-has kissed with Ion five times
'Ana and Ion kissed five times'
- b. Dan se pětkrát políbil s Petrem. (Czech)
Dan SE five times kissed with Petr
'Dan and Petr kissed five times'

Likewise, when the French verb *se battre* (see discussion in section 6.2) is used in the discontinuous construction, it can only denote symmetric events of fighting (50), as it is a lexical reciprocal.

- (50) Jean s'est battu avec Pierre cinq fois.
Jean fought with Pierre five times
'Jean and Pierre fought five times'

The symmetric event reading is not a peculiarity of lexical reciprocals only. All predicates denoting reciprocity in the lexicon entail a symmetric event interpretation. Consider predicates such as *play* or *shake hands*. They neither bear morphology typical of valence reducing operations, nor have a two place alternate from which they could be derived. In this sense, these are underived predicates. While *shake hands* must denote reciprocity, *play* can, but does have to. Importantly, however, both *play*, in its reciprocal reading, and *shake hands* entail a symmetric event. (51a) and (51b) entail five symmetric events of shaking hands and playing chess respectively.

- (51) a. John and Mary shook hands five times.
b. John and Mary played chess five times.

Such verbs constitute, thus, an additional set of verbs able to denote a symmetric event in the lexicon. As expected, they allow discontinuity.

- (52) a. John shook hands with Mary.
b. John played chess with Mary.

In the last section, I will examine two additional sets of verbs denoting reciprocity in the lexicon. They, too, will turn out to entail a symmetric event and allow discontinuity. Prior to that, however, let us examine the properties of the oblique, discontinuous phrase.

6.4 The discontinuous phrase

The discontinuous phrase is reminiscent of the so-called comitative *with* phrase, which can be added rather freely to sentences, as in (53). A conceivable analysis, then, is that the discontinuous construction simply utilizes a comitative phrase.

- (53) John rode to the store (with Mary).

There are however important distinctions between the comitative phrase and the discontinuous one. For one thing, the comitative phrase can be freely dropped, while the discontinuous one does not readily allow omission (54). Further, the interpretation of the comitative phrase is vaguer than that of the discontinuous phrase. Dimitriadis 2002 observes that in (53), for instance, Mary may have been given a ride rather than herself riding a bike. Dimitriadis 2002, Komlósy 1994, and Rákosi 2003 convincingly argue that while the comitative phrase is an adjunct, the discontinuous phrase is an argument. If so, then discontinuous reciprocals must be two-place predicates, unlike regular reciprocals

(nondiscontinuous). This explains why the discontinuous phrase is not readily dropped and why its interpretation is stricter. Moreover, to the extent that the discontinuous phrase can be omitted, it is implicit, as expected if it is an argument (54). But if we drop the comitative phrase in (53), the sentence, obviously, would not imply the participation of any additional entity in the event (Komlósy 1994, Rákosi 2003).

- (54) ??dan hitnašek.
 Dan kissed(*rec*)
 'Dan and someone kissed'

An additional test the comitative phrase passes but the discontinuous phrase fails is the addition of the modifier 'together' (Komlósy 1994 and Rákosi 2003). (55a), which contains a discontinuous phrase, does not allow insertion of 'together' but (55b), which includes a comitative phrase, does.

- (55) a. *dan hitnašek yaxad im dina.
 Dan kissed(*rec*) together with Dina.
 b. dan halax habayta yaxad im dina.
 Dan went home together with Dina

One may suggest that (55a) is bad because 'together' is redundant, as it is clear that if Dan and Dina kissed they were together. But it is equally clear in (55b) that they were together, and nonetheless modification by 'together' is possible. Moreover, writing to each other does not entail being together, and still (56) is impossible. The modifier 'together', thus, serves as an additional test distinguishing between the comitative and discontinuous phrases.¹⁹

- (56) *dan hitkatev yaxad im dina.
 Dan wrote(*rec*) together with Dina

In sum, the discontinuous phrase is an argument, whose participation in the event is equal to that of the subject. Given that, we would expect it to pass tests diagnosing Agenthood. However, Rákosi (2003) observes that when an infinitival adjunct and an Agent oriented

¹⁹ Although I do not deal here with the modifier 'together', let me enrich the picture. The modifier 'together' is also impossible in the regular (nondiscontinuous) construction (i). But when reciprocity is denoted via a reciprocal pronoun, 'together' can be added (ii) (outside the 'with' phrase, 'together' sounds better with the prepositional prefix *be-* 'in').

- (i) *dan ve-dina hitkatvu (be-)yaxad.
 Dan and-Dina wrote(*rec*) together
 (ii) dan ve-dina katvu exad la-šeni širim (be-)yaxad.
 Dan and-Dina wrote to each other poems together

I believe the generalization is that 'together' cannot refer to (modify) the arguments of a symmetric event. Notice that when a *with* phrase appears with a reciprocal verb, the construction must be interpreted as discontinuous (iii), even if the subject set is not a singleton, and reciprocity could have held between members of the subject set (and the 'with' phrase could have been interpreted as comitative). Hence, (iv) is expected to be ungrammatical, owing to the addition of 'together'. However, it is possible to add an additional *with* phrase that can be modified by 'together' (Rákosi 2003) since it is comitative, and not an argument of the symmetric event (v).

- (iii) ha-yeladot hitnašku im dan.
 The-girls kissed(*rec*) with Dan.
 (meaning: A symmetric event of kissing held between Dan and the girls)
 (iv) *ha-yeladot hitnašku yaxad im dan.
 The-girls kissed(*rec*) together with Dan
 (v) dan hitnašek im dina yaxad im ron.
 Dan kissed(*rec*) with Dina together with Ron
 (meaning: Ron accompanied Dan to some extent in his symmetric kissing event with Dina)

adverb, which both detect Agenthood, are added to the discontinuous construction, they can refer to the subject only, and not the discontinuous phrase. This is illustrated in (57a-b). If both arguments are interpreted as Agents, why do these Agent diagnostics diagnose the subject only?

- (57) a. dan hitnašek im dina bli le-hit'ayef.
 Dan kissed with Dina without to-be+tired
 b. dan hitnašek im dina be-xavana.
 Dan kissed with Dina in-intention

It may be argued that it follows from the structural inferiority of the discontinuous phrase with regard to the subject. Consider, for instance, the French causative construction in (58). It is a biclausal structure containing two Agents, that of the higher predicate, Jean, and that of the lower predicate, Paul. Only the higher predicate can control the subject of the infinitival in (58a) and be referred to by *exprès* 'on purpose' in (58b).

- (58) a. Jean a fait courir Paul sans avoir peur.
 Jean has made run Paul without being afraid
 'Jean has made Paul run without being afraid'
 b. Jean a fait courir Paul exprès.
 Jean has made run Paul deliberately
 'Jean has made Paul run deliberately'

But the Instrument diagnostic of Agents is not equally sensitive to structural hierarchy. An Instrument requires the explicit or implicit presence of an Agent. As shown in (59), the Instrument 'with a cane' can refer to the Agent of either *faire* 'make' or *marcher* 'walk', despite the structural superiority of the former.

- (59) Jean a fait marcher Paul avec une canne. (French)
 Jean has made walk Paul with a cane
 'Jean made Paul walk with a cane'

An Instrument added to the discontinuous construction also diagnoses the subject only, and not the discontinuous phrase. Sentence (60a) states that Dan used a fountain pen to write to Dina. As to Dina, (60a) does not supply any information regarding the instrument she used. Hence, the addition of 'and she wrote to him with a pencil' does not give rise to a contradiction (60b).

- (60) a. dan hitkatev im dina be-et nove'a.
 Dan wrote(rec) with Dina in-pen fountain
 'Dan corresponded with Dina using a fountain pen'
 b. dan hitkatev im dina be-et nove'a ve-hi katva lo be-iparon.
 Dan wrote(rec) with Dina in-pen fountain and-she wrote to him with pencil
 'Dan corresponded with Dina using a fountain pen and she wrote to him with a pencil'

Despite the fact that the discontinuous phrase is an argument whose participation in the event is equal to that of the subject, it fails to be diagnosed as Agent.²⁰ This seems very puzzling. But it turns out that this behavior is typical of predicates denoting a symmetric event in the lexicon.

Consider again the underived symmetric predicates mentioned in 6.3: *shake hands* and *play* (in its reciprocal reading) clearly take a discontinuous argument, not a comitative adjunct. To the extent that *with Mary* can be omitted in (61a), the participation of an additional entity in

²⁰ Note that there are no parallel Theme diagnostics, which we can apply to the discontinuous phrase.

the event is implicit. Likewise, as arguments are not readily dropped, the preferred reading of (61b) without the oblique phrase is not reciprocal.

- (61) a. John shook hands ??(with Mary).
 b. John played (with Mary).

Now, although (62) states that both Dan and Dina played, the Instrument 'red pen' modifies Dan's playing only. We have no information as to which instrument Dina used in the game: it may be the same pen but it may also be another. The addition of 'and she used a blue pen' does not give rise to a contradiction.

- (62) dan sixek *x-mix-drix* im dina be-et adom ve-hi hištamša be-et kaxol.
 Dan played *x-mix-drix* with Dina in-pen red and-she used in-pen blue
 'Dan played *x-mix-drix* with Dina with a red pen and she used a blue pen'

Lexical reciprocals and underived symmetric predicates assign their respective θ -role exclusively to the subject. The discontinuous phrase is not assigned the role. Hence, the Instrument diagnostic does not detect it. It is nonetheless an argument. How is it licensed? Below I sketch my ideas, which I will not develop here as the paper does not deal with the semantics of reciprocals.

Predicates denoting reciprocity in the lexicon must denote symmetric events. We can call them symmetric predicates. They can either be mapped to the syntax as one-place predicates or as two-place predicates. As one-place predicates, they assign their respective θ -role to the subject, and require a symmetric relation between members of the subject set. As two-place predicates, they also assign their role to the subject, but they take in addition a symmetric argument introduced by a *with* type element. A symmetric argument is only possible with symmetric predicates. It is by definition in a symmetric relation with another participant in the symmetric event (a co-argument). In the cases examined so far, this participant is realized as subject. In the next section, it will be shown that a symmetric argument can also be in a symmetric relation with the object. The symmetric argument, then, is not assigned the same role assigned to the relevant participant. This should be the reason why it is not diagnosed as Agent. I believe syntactic reciprocals do not license a discontinuous argument, as they are not symmetric predicates. Their reciprocity can be construed as nonsymmetric (for instance, *se suivre* 'follow(rec)') or symmetric. A symmetric construal can be either sequential (say, sequential hugging events) or simultaneous (a simultaneous hugging). The latter construal is identical to that of symmetric predicates. Crucially, however, syntactic reciprocals do not involve a symmetric event.

7. Inherent Reciprocals

Consider the reciprocal verbs in (63-64). They bear morphology typical of valence reducing operations, and have a transitive alternate (65-66).

- (63) a. ha-cva'im hit'arbevu. (Hebrew)
 the-colors mixed
 'The colors mixed'
 b. šney ha-neharot hitxabru.
 two the-rivers merged
 'The two rivers merged'

- (64) Les forces ouvrières et les forces intellectuelles se sont unies à cette occasion.
 The forces working and the forces intellectual SE are united at this occasion
 'The working forces and the intellectual forces united at this occasion'

(French)

- (65) a. ha-yeled irbev et ha-cva'im.
the-child mixed *acc* the-colors
'The child mixed the colors'
b. ha-po'alim xibru et šney ha-neharot.
the-workers merged *acc* two the-rivers
'The workers merged the two rivers'
- (66) Le chef a uni les forces ouvrières et les forces intellectuelles.
the leader has united the forces working and the forces intellectual
'The leader united the working forces and the intellectual forces'

The reciprocal verbs in (63-64) differ from the reciprocals discussed so far in several respects. First, their reciprocity is inherent and not the result of the operation they undergo. I therefore call them *inherent reciprocals*. Thus, not only do they denote reciprocity (symmetry), but so do their transitive alternates (65-66). The latter denote reciprocity (symmetry) between members of the object set. I call them *object symmetric* predicates. The reciprocals discussed in previous sections acquire their reciprocal meaning as a result of the operation they undergo. Their transitive alternate does not denote reciprocity. 'John kissed Mary' obviously does not entail that Mary kissed John as well, as in its reciprocal counterpart 'John and Mary kissed'. But if the child mixed the colors, as in (65a), then the colors mixed. The reciprocal meaning of inherent reciprocals is independent of the valence reducing operation they undergo.

Second, the operation deriving inherent reciprocals must be suppressing the realization of the external (not the internal) role of their transitive alternate, 'the boys', 'the workers', and 'the leader' in the above examples.

Following Chierchia 2004 and Reinhart 2002, I assume universal grammar avails itself of an operation that reduces the external role. Reinhart (2002) shows that external role reduction always targets a Cause role, that is, a role that can be realized by an animate or inanimate entity, as it is underspecified regarding the mental state of the argument it is assigned to, unlike the Agent, which requires an animate entity. The operation has been consequently labeled by Reinhart and Siloni (2005) *decausativization*. Indeed, the operation forming inherent reciprocals targets a Cause role, as shown by the fact that the subject of their transitive alternates is underspecified with regard to animacy (67-68).

- (67) a. ha-gšamim irbevu et ha-cva'im.
the-rains mixed *acc* the-colors
'The rains mixed the colors'
b. ha- gšamim xibru et šney ha-neharot.
the-rains merged *acc* two the-rivers
'The rains merged the two rivers'
- (68) La situation a uni les forces ouvrières et les forces intellectuelles.
the situation has united the forces working and the forces intellectual
'The situation united the working forces and the intellectual forces'

Reinhart further shows that when the argument remaining after decausativization is a Theme, the decausativized verb is unaccusative.²¹ The subject of inherent reciprocals is a Theme, and indeed it passes tests diagnosing internal arguments, unlike the subject of reciprocals (see section 3). In Hebrew, it can appear post-verbally (69a) and can be modified by a possessive dative (69b); the inherent reciprocal itself can appear in the *nitpa'el* form (which is possible only with verbs whose subject is an internal argument).²²

- (69) a hit'arbevu šney cva'im. (Hebrew)
 mixed two colors
 'The two colors mixed'
 b le-mi hit'arbevu ha-cva'im?
 to-whom mixed the-colors
 'Whose colors mixed?'
 c šney cva'im nit'arbevu.
 Two colors mixed
 'Two colors mixed'

In Siloni 2002, I argue that operations that change the thematic information of predicates are illicit in the syntax, as stated in the Lexicon Interface Guideline (70).²³

- (70) The Lexicon Interface Guideline
 The syntactic component cannot manipulate θ -grids: Elimination, modification and addition of a θ -role are illicit in the syntax.

If the guideline is correct, then decausativization can only apply in the lexicon. Indeed, no crosslinguistic variation of the type attested by reciprocals can be detected with regard to the outputs of the decausativization. As far as inherent reciprocals are concerned, we expect them to show properties typical of lexical reciprocals. Indeed, not only in Hebrew (or other languages that forms reciprocals in the lexicon) but also in French (or other syntax languages), inherent reciprocals ought to allow the discontinuous construction, as in both types of languages they are derived in the lexicon. This prediction is borne out.

- (72) a. ha-adom hit'arbev im ha-šaxor.
 The-red mixed with the-black.
 'The red mixed with the black'
 b. ha-nahar ha-ze hitxaber im ha-nahar ha-hu.
 The-river the-this merged with the-river the-that
 This river merged with that river'
- (73) Les forces ouvrières se sont unies avec les forces intellectuelles.
 The working forces SE are united with the intellectual forces
 'The working forced united with the intellectual forces'

²¹ This is not a vacuous generalization, as it is not the case that all one-place predicates whose argument is a Theme are unaccusatives, only derived predicates of the kind are unaccusative (see Horvath and Siloni 2002, for some discussion of Theme-unergatives).

²² When the remaining argument after decausativization is an Experiencer, the resulting predicate is unergative (Reinhart 2002). Rubinshtein 2002 observes that there are also instances of inherent Experiencer reciprocals, which are indeed unergatives, e.g. *hitkarev* 'become closer'.

²³ Dimitriadis (2004a) suggests deriving a similar insight from the basic properties of the semantic representation.

We equally predict object symmetric predicates to allow discontinuity in the complement domain. The prediction is borne out.

- (74) a. ha-yeled / ha-gešem irbev et ha-adom im ha-šaxor.
the-child / the-rain mixed *acc* the-red with the-black
'The child/
b. ha-po'alim / ha-gšamim xibru et ha-nahar ha-ze im ha-nahar ha-hu.
the-workers / the-rains merged *acc* the-river the-this with the-river the-that
'The workers/the rains merged this river with that river'
- (75) Le chef/ la situation a uni les forces ouvrières avec les forces intellectuelles.
the leader/the situation has united the working forces with the intellectual forces

Finally, as inherent reciprocals denote reciprocity in the lexicon, we expect them to be symmetric predicates. This is indeed so, and more than that: as their reciprocity is inherent, it is even impossible to imagine an event of unification or mixing that will not be symmetric. Thus, the addition of the modifier 'five times' to inherent reciprocals always entails five symmetric events.

The behavior of inherent reciprocals provides support in favor of the validity of the lexicon interface guideline. Further, it reinforces my claim that predicates denoting reciprocity in the lexicon necessarily involve a symmetric event, and allow the discontinuous construction, unlike predicates whose reciprocity is acquired in the syntax. The data discussed in the paper supply strong evidence that the lexicon is an active component of grammar.

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