Lexical reciprocity vs. grammatical reciprocity: the case of Italian [*]

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1.   Introduction

Cross-linguistically, two different strategies give rise to reciprocity. One strategy, *lexical reciprocity*, is due to the meaning of simple predicates that undergo the reciprocal alternation (Levin 1993). These predicates denote a mutual configuration in their intransitive entry (1a).[1] This strategy is not productive, as shown by (1b): English verbs may have a transitive entry but not a reciprocal intransitive entry.

(1)   a.   Mary and Lisa hugged/ kissed
       b.   *Mary and Lisa punished/ thanked

Another strategy, *grammatical reciprocity*, involves operators like *each other* that occupy the NP position. This productive strategy is available with all transitive verbs (2).

(2)   a.   Mary and Lisa hugged/ kissed each other
       b.   Mary and Lisa punished/ thanked each other

Lexical and grammatical reciprocity are easily distinguished in English thanks to the existence of the two different forms illustrated in (1) and (2). Similar distinctions appear in more languages, including Dutch, Hebrew, Russian and Arabic (Reinhart and Siloni 2005). By contrast, in other languages including German, Czech, and Romance languages, only one reciprocal form is typically available with transitive verbs. In Italian, the primary way to convey verbal reciprocity involves the clitic *si*. (3).[2]

[1]The verbs that we describe here as *lexical reciprocals* (Haspelmath 2007) have also been referred to as *natural reciprocals* (Kemmer 1993).

[2]Other Romance languages convey reciprocity in the same way, but with different realizations of *si*, e.g. *se* in French and Spanish. Henceforth, we will refer to this cross-linguistic paradigm as *si/se*.

(3) Mary e Lisa si abbracciano/ consultano/ puniscono/ ringraziano
Mary and Lisa SI hug-PRES-3P consult-PRES-3P punish-PRES-3P thank-PRES-3P
'Mary and Lisa hug/ consult/ punish/ thank each other'[3]

The availability of only one reciprocal form raises the question of whether lexical reciprocity, grammatical reciprocity or both are available in Italian. While previous studies have occasionally suggested that both types of reciprocity are available in Romance languages (Reinhart and Siloni 2005, Doron and Rappaport Hovav 2009), this claim has not been systematically substantiated. Furthermore, typological work has shown that meanings like "meet", "hug" or "quarrel" are quite stable cross-linguistically in their manifestation of lexical reciprocity (Haspelmath 2007). We may reasonably expect such meanings to also support lexical reciprocity in Italian and similar languages. From this point of view, Italian verbs like *abbracciare* 'hug' and *consultare* 'consult' are likelier to have a lexical reciprocal entry than verbs like *punire* 'punish' and *ringraziare* 'thank'. A study of this hypothesis requires systematic criteria to clarify how these verbs differ despite the similarity between their reciprocal forms (3). In this paper, we use such criteria for providing new evidence for a lexical/grammatical reciprocity distinction in Italian. This reveals a class of lexical reciprocals in Italian that corresponds well with the classes that are more easily discerned in other languages.

According to our proposal, both lexical and grammatical reciprocity can be expressed in the construction in (3). This immediately raises a question regarding the contribution of *si*. With regards to French *se* and reflexivity, some works have argued that this clitic has a different role than that of ordinary syntactic arguments (Reinhart and Siloni 2005, Labelle 2008). Other works (e.g. Doron and Rappaport Hovav 2009) suggested a syncretism, where *se* functions as a pronoun with transitive verbs but as a marker with lexical reflexives. Our data contribute to this discussion, showing that in Italian causative constructions, both lexical and grammatical reciprocity may appear without *si*. Following Labelle, we conclude that the obligatory presence of *si* with reciprocal interpretations of sentences like (3) is determined by syntactic requirements on finite clauses, rather than by the lexical meaning of *si* itself. Accordingly, we propose that both lexical and grammatical reciprocity are not fully overt in Italian: lexical reciprocity is due to the meanings of verbal roots, while grammatical reciprocity is due to a semantic operator that may also act covertly.

The paper is structured as follows: in §2 we focus on the distinction between lexical and grammatical reciprocals in Italian, based on semantic and structural properties that distinguish the two classes. In §3 we formally account for some central semantic properties of this distinction. In §4 we focus on the realization of lexical and grammatical reciprocity in Italian and on the contribution of *si*. General conclusions are provided in §5.

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[3]Abbreviations used in this paper: PRES = present tense; PP = past participle; 3S = third person singular; 3P = third person plural; AUX = auxiliary; INF= infinitive.

2.   Lexical and grammatical reciprocity in Italian

2.1   Reducible vs. irreducible meanings

Lexical and grammatical reciprocity differ semantically, as they lead to different interpretations. In (4), the intransitive entry of *hug* suggests that Mary and Lisa must have been involved in one mutual simultaneous hug: the sentence excludes an interpretation according to which Mary hugged Lisa, and Lisa reciprocated in a different moment. On the other hand, grammatical reciprocity in (5) describes multiple sub-events: Mary hugging Lisa and Lisa hugging Mary. These two events can either take place in different moments or at the same time, but they are always reducible to separate unidirectional events.[4]

(4)   Mary and Lisa hugged

(5)   Mary and Lisa hugged each other

We describe such semantic judgements by saying that lexical reciprocity requires *irreducible* events: mutual events that cannot always be reduced to different sub-events. By contrast, grammatical reciprocity describes *reducible* events that are composed of multiple unidirectional relations.[5]

Although in Italian only one reciprocal form seems available on the surface, the distinction between reducible and irreducible interpretations can nonetheless be observed. All transitive verbs in Italian give rise to reciprocal readings when they appear with the clitic *si*.[6] The same construction also leads to reflexivity: (6) can either be interpreted with Mary and Lisa punishing each other or themselves. The interpretation of this construction can

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[4]As pointed out by Winter (2018), different lexical reciprocals show different entailments between the collective intransitive form and the two unidirectional statements. For instance, with *divorce*, one unidirectional relation is sufficient for collectivity (e.g. if Mary single-handedly divorced Lisa, we still conclude that Mary and Lisa divorced), while the collective form entails neither direction of the divorce (if Mary and Lisa divorced, we cannot infer that each of them actively divorced the other person). By contrast, for verbs like *meet*, the two unidirectional relations and the collective form are equivalent.

[5]Dimitriadis (2008), Siloni (2012) link this distinction to the notion of *symmetry*, assuming that lexical reciprocals express binary relations between participants that have the same contribution to the event. Recent experimental work in Kruitwagen, Poortman, and Winter (2017) challenged this assumption, showing that with some lexical reciprocals, this "symmetric participation" is not required but preferential.

[6]In this paper we will only focus on verbs with a transitive binary entry, although *si* also combines with verbs taking a dative object, (Labelle 2008). Furthermore, it is worth noting that a restricted set of Italian intransitive verbs, which only allow an indirect object introduced by the preposition with con (ia), can denote reciprocity in their intransitive entry (ib), without *si*. Due to space limitations, these verbs will not be included in the discussion.

(i)   a.   Mary collabora/   discute   *(con) Lisa
               Mary collaborate-PRES-3S/ discuss-PRES-3S   with Lisa
               'Mary collaborates/ discusses with Lisa'

       b.   Mary e   Lisa collaborano/   discutono
               Mary and Lisa collaborate-PRES-3P/ discuss-PRES-3P
               'Mary and Lisa collaborate/ discuss'

always be disambiguated as reciprocal, using the adverbial *a vicenda* 'mutually, in turns': the reflexive interpretation is ruled out in (7).[7]

(6)   Mary e   Lisa si puniscono
        Mary and Lisa SI punish-PRES-3P
        i. 'Mary and Lisa punish themselves'
        ii. 'Mary and Lisa punish each other'

(7)   Mary e   Lisa si puniscono   a vicenda
        Mary and Lisa SI punish-PRES-3P mutually
        'Mary and Lisa punish each other'

Crucially, not only does *a vicenda* systematically select reciprocity, but it can also disambiguate the reciprocal interpretation of some verbs towards a reducible reading. The sentence in (8) is ambiguous: firstly, it allows an irreducible interpretation, with Mary and Lisa being involved in a mutual hugging/breaking up event. In this reading, we do not need the two of them to be active: Mary could have decided to hug Lisa or break up with her, while Lisa was passive with respect to the act. Secondly, (8) is also consistent with an interpretation reducible to multiple sub-events: it would still hold true in a scenario where Mary hugs/breaks up with Lisa and Lisa reciprocates at a different moment. The expression *a vicenda* disambiguates this sentence: (9) is only consistent with a reducible interpretation. Now, the scenario where Mary hugs or leaves a passive Lisa does not make (9) true: both individuals are necessarily active, either simultaneously or in different moments.[8]

(8)   Mary e   Lisa si sono   abbracciate/ lasciate
        Mary and Lisa SI be-AUX-3P hug-PP   leave-PP
        i. 'Mary and Lisa hugged/ broke up'
        ii. 'Mary and Lisa hugged/ left each other'

(9)   Mary e   Lisa si sono   abbracciate/ lasciate a vicenda
        Mary and Lisa SI be-AUX-3P hug-PP   leave-PP mutually
        'Mary and Lisa hugged/ left each other'

The contrast illustrated above cannot be generalized to all verbs. In fact, with most transitive verbs, the reciprocal interpretation is not affected by the presence of *a vicenda*:

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[7]We only discuss *a vicenda* due to its widespread use in spoken language (and hence the easy availability of judgements from native speakers). Other elements that select reciprocity are: *l'uno con l'altro* 'one with the other', *reciprocamente* 'reciprocally', *tra (di) loro* 'among them'.

[8]With reciprocals like *incontrare* 'meet' and *sposare* 'marry' the addition of *a vicenda* reinforces the implication that the action was carried out in both directions, thus resulting in an awkward interpretation:

(i)   #Mary e   Lisa si sono   incontrate/ sposate a vicenda
          Mary and Lisa SI be-AUX-3P meet-PP/   marry-PP mutually

in (10) the only possible reading requires Mary and Lisa to punish/thank the other person, either at the same time or in different moments.

(10)   Mary e   Lisa si sono   punite/   ringraziate (a vicenda)
        Mary and Lisa SI be-AUX-3P punish-PP thank-PP   mutually
        'Mary and Lisa punished/ thanked each other'

Thus, some Italian verbs, such as *abbracciare* 'hug' or *lasciare* 'leave/break up', allow both a reducible and an irreducible interpretation (8). We therefore propose that these verbs have two entries: a lexical reciprocal entry, which always denotes reciprocity thanks to the meaning of the verb root, and a transitive entry which get a grammatical reciprocal meaning from a reciprocal operator (REC). On the other hand, verbs such as *punire* 'punish' and *ringraziare* 'thank' in (10) are only consistent with a reducible interpretation: we propose that they do not have a lexical entry, and they are transitive predicates which get a reducible reciprocal meaning from a REC operator.[9] In the rest of this section, we will provide further evidence in favour of this proposal, showing that the verbs allowing an irreducible interpretation have some structural and semantic properties that are cross-linguistically associated with lexical reciprocals.[10]

2.2   Discontinuous reciprocal construction

It has been observed (Kemmer 1993, Dimitriadis 2004, Siloni 2012) that only lexical reciprocals can appear in the discontinuous reciprocal construction, i.e. a construction where the logical subject of a reciprocal predicate is split into two parts: one part is encoded as syntactic subject, while the other is in a complement introduced by the preposition *with*. As illustrated in the Hebrew examples below, the lexical reciprocal verb in (11) is acceptable in the discontinuous reciprocal construction. By contrast, this construction leads to ungrammaticality with grammatical reciprocals (12).

(11)   ha-yeladim hitnašku   im   ha-yeladot
        the-boys   kissed_REC with the-girls
        'The boys kissed with the girls'
        (example from Siloni 2012, p. 297)

(12)   *ha-yeladim nišku exad et ha-šeni im   ha-yeladot
        the-boys   kissed each other   with the-girls

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[9]The question of what element functions as a REC operator in Italian will be addressed later in this paper: although from the data it might seem legitimate to assume that the operator is *si*, we will provide evidence against this assumption.

[10]We will only focus on a limited number of constructions. More properties that might contribute to a lexical/grammatical distinction are presented in Doron and Rappaport Hovav (2009), Siloni (2012), Authier and Reed (2018), but they will not be discussed here because in Italian they are either unavailable or do not lead to clear-cut judgements.

Dimitriadis (2004) claims that discontinuous reciprocity generates an irreducible interpretation: in fact, (11) is only consistent with an interpretation according to which the boys and the girls were involved in a mutual kiss. It follows that this construction is only available with lexical reciprocals, which require an irreducible reading.

In Italian, the number of verbs that can appear in the discontinuous reciprocal construction is rather restricted. (13a) is fully grammatical and has an irreducible interpretation: for instance, the sentence can refer to a situation where Mary consulted or broke up with a passive Lisa, and it cannot describe different unidirectional events taking place in different moments. A slight difference appears with the verbs in (13b), whose acceptability in the discontinuous reciprocal construction is not unanimously accepted, and it is generally associated with a colloquial register.[11]

(13)   a. Mary si è   consultata/ lasciata con Lisa
              Mary SI be-AUX-3S consult-PP leave-PP with Lisa
              'Mary consulted/ broke up with Lisa'

          b. %Mary si è   abbracciata/ baciata con Lisa
              Mary SI be-AUX-3S hug-PP   kiss-PP with Lisa
              'Mary hugged/ kissed with Lisa'

Despite the questionable acceptability of (13b), most speakers agree that this sentence is only consistent with an irreducible reciprocal interpretation, which is particularly evident in the case of *baciare* 'kiss': (13b) can only describe a mutual erotic kiss between the two participants, not two unidirectional kisses. By contrast, discontinuous reciprocity is completely ruled out with other transitive verbs, where no possible collective interpretation arises (14).

(14)   *Maria si è   ringraziata/ punita   con Lisa
            Mary SI be-AUX-3S thank-PP   punish-PP with Lisa

These data provide support for our proposal: the Italian verbs that can appear in the discontinuous reciprocal construction are those that we propose to have a lexical reciprocal entry. The semantic rationale for this assumption is explained in §3.

2.3   Group NPs

Another property that characterizes lexical reciprocal verbs is the possibility to generate a collective interpretation with morpho-syntactically singular group NPs, as noted by Authier and Reed (2018). In the definition given by Barker (1992), a group noun is a noun

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[11]Mocciaro (2011) intertwines the notions of *reciprocity* and *symmetry*, proposing that only symmetric reciprocals are fully acceptable in discontinuous reciprocity. According to this proposal, (13b) is not fully acceptable, given that *abbracciare* 'hug' and *baciare* 'kiss' do not necessarily denote symmetric events. However, the grammaticality of the verbs *consultare* 'consult' and *lasciare* 'leave/break up' (which can describe non-symmetric events) in (13a) calls for a different explanation, which we leave for further research.

that can take a plural but not a singular *of*-complement.[12] When combined with group nouns and a singular predication, lexical reciprocals generate an interpretation according to which the members of the group were mutually involved in the action described by the verb, for instance with the members of the committee hugging or meeting (15). By contrast, grammatical reciprocity is incompatible with singular predication, as shown by the ungrammaticality of (16).[13]

(15)   The committee has hugged/met

(16)   *The committee has punished/ thanked each other

A parallel pattern can be observed in Italian, where only a limited number of verbs allow a reciprocal interpretation with singular group NPs. (17) yields an interpretation according to which the members of the committee conferred or hugged. The interpretation is irreducible: in the case of *consultare* 'consult', for instance, (17) necessarily denotes a conferring event, and it cannot possibly describe a scenario where, in multiple unidirectional events, each part of the committee consulted the other. On the other hand, most transitive verbs cannot generate a collective reading with singular predication. The only possible (marginally acceptable) interpretation of (18) is reflexive, with the committee (as a whole) punishing or thanking itself.

(17)   Il comitato si è   consultato/ abbracciato
        the committee SI be-AUX-3S consult-PP/ hug-PP
        'The committee conferred/ hugged'

(18)   ?Il comitato si è   punito/   ringraziato
        the committee SI be-AUX-3S punish-PP/ thank-PP
        '#The committee punished/ thanked itself'

The contrast between (17) and (18) provides support in favour of a lexical/grammatical distinction in Italian: the possibility of some verbs to generate a collective interpretation with singular group NPs is in line with the assumption that they must have a lexical reciprocal entry. We will account for this semantic property in §3.

2.4   Causatives and reciprocal interpretations without *si*

An immediate way of identifying lexical reciprocals in English is by looking at verbs that generate a reciprocal interpretation in their intransitive entry. Given the data presented so

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[12]Some examples of English group nouns include *team, couple, committee*, as witnessed by the pattern *a team/couple/committee of women/*woman*.

[13]In British English, grammatical reciprocity is available with group NPs and a plural predication (e.g. *The couple (have) hugged each other*), but still unavailable with a singular predication (e.g.*The couple has hugged each other*). See de Vries (2015) for further discussion of this topic.

far, this does not seem applicable to Italian: the systematic presence of *si* suggests that the use of this clitic is obligatory in order to convey reciprocity with all verbs.

However, it is possible to show that lexical reciprocity is also available without *si*, if we look at a context where this clitic does not appear. One such case is the *causative construction*, used by Doron and Rappaport Hovav (2009) to identify lexical reflexives in French. The causative construction consists of a sentence embedded under the causative verb 'make', and it is attested in all Romance languages (Guasti 2006). With most transitive verbs, causatives are interpreted with the object of the embedded verb as the patient of the action described by the verb, while the agent is unspecified; let us call it a *passive* interpretation. Accordingly, (19) is interpreted with Sara causing Mary and Lisa to be punished/ thanked by an unspecified agent.

(19)   Sara ha   fatto   (*si) punire/   ringraziare (*si) Mary e   Lisa
       Sara have-AUX-3S make-PP   SI   punish-INF/ thank-INF   SI   Mary and Lisa
       'Sara caused Mary and Lisa to be punished/ thanked'

Although in this construction *si* is disallowed, the lexical meaning of verbs seems still available. In fact, on top of the passive reading, (20) allows an irreducible reciprocal interpretation: the sentence denotes a single hug/break up, and it could not be uttered in a context where, due to Sara, Mary hugged/left Lisa, while Lisa reciprocated in a different moment. Note that the reciprocal reading is completely unavailable in (19).

(20)   Sara ha   fatto   (*si) abbracciare/ lasciare   (*si) Mary e   Lisa
       Sara have-AUX-3S make-PP   SI   hug-INF   leave-INF   SI   Mary and Lisa
       i. 'Sara caused Mary and Lisa to be hugged/ left'
       ii 'Sara caused Mary and Lisa to hug/ break up'

These data are consistent with the idea that the verbs in (20) must have two entries: a transitive one (linked here to the passive interpretation) and a lexical reciprocal one, responsible for the reciprocal interpretation. Moreover, the absence of *si* provides robust evidence for the reciprocal interpretation in (20) to arise from the lexical meaning of the verb roots.

2.5   The class of Italian lexical reciprocal verbs

In order to identify lexical reciprocity in Italian, we have looked at four effects: (i) irreducible interpretation; (ii) licensing of discontinuous reciprocity; (iii) collective interpretations with singular group NPs; and (iv) reciprocal interpretations without *si* in causatives. These criteria, applied on several verbs, have led to fairly consistent results. Thus, we can distinguish between transitive verbs for which all four tests fail, such as *ringraziare* 'thank' and *punire* 'punish', and other verbs that generally pass the four tests:

(21)   *abbracciare* 'hug', *lasciare* 'leave/break up', *consultare* 'consult/confer', *baciare*
        'kiss', *incontrare* 'meet', *coccolare* 'cuddle', *salutare* 'greet', *sposare* 'marry',
        frequentare 'date', *incrociare* 'bump into', *battere* 'fight', *intrecciarsi* 'intertwine',[14]
        sovrapporsi 'overlap', *confondersi* ' confuse/blend with', *alternarsi* 'alternate',
        unirsi 'merge'.

This classification has certain limitations. First, as we saw, some (e.g. *abbracciare* 'hug'
and *baciare* 'kiss') are not unanimously accepted in the discontinuous reciprocal construc-
tion. Second, the expression *a vicenda* is not helpful for distinguishing reducible interpreta-
tions from irreducible interpretations with verbs like *incontrare* 'meet', where the collective
form and the two unidirectional binary statements entail each other (see footnote 4). These
limitations definitely justify looking for more criteria. At the same time, our four criteria
already support an approximate identification of a class of Italian verbs whose meanings
correspond well with those of lexical reciprocals in other languages. Thus, it is justified to
look to a unified account that explains the semantic effects that we have characterized for
Italian. This is the subject of the next section.

3.   A semantic account

We have seen that lexical and grammatical reciprocals differ semantically: the former re-
fer to events that we intuitively called "irreducible", while the latter are associated with
events that are reducible to multiple unidirectional relations. Accordingly, we follow Dim-
itriadis (2004) and use different semantic treatments of these two types of reciprocity. For
lexical reciprocal, we assume predication over single, "irreducibly reciprocal" events. By
contrast, grammatical reciprocity is treated using quantification over multiple "unidirec-
tional" events. Specifically, the two interpretations of Italian sentences like (4) and (5) are
associated with different entries for the verbs classified as lexically reciprocal. Morpho-
syntactically, lexical reciprocal entries like *hug* in sentence (4) are intransitive predicates,
with only one thematic argument. This meaning is denoted $\mathbf{hug}_1$. Adding a Davidsonian
event argument, we analyze such denotations as *binary* predicates between events and enti-
ties. As we saw, these entities may either be impure atoms (group-denoting entities) or sum
entities. To highlight that, we denote the type of predicates like $\mathbf{hug}_1$ by $\varepsilon(\hat{e}t)$, where 'ε' is
the type of events, and '$\hat{e}$' is the type of atom/sum entities. Using this type, we analyze the
sentence *Mary and Lisa hugged* as follows, where the subject denotes the sum $m+l$:

(22) $\exists e.\mathbf{hug}_1(e, m+l)$.

Grammatical reciprocals as in *the boys hugged/thanked each other* involve transitive verbs.
In the case of the verb *hug*, we let the transitive entry denote the predicate $\mathbf{hug}_2$. Such
denotations of transitive verbs are treated as predicates over events and *pairs* of atoms.
This still allows thematic arguments to denote sums, but their semantic interaction and the

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[14]We keep *si* in the citation form of verbs that undergo the causative/inchoative alternation (Levin 1993)
and express a reciprocal configuration among the objects of the binary entry (e.g. *I intertwined the strings*)
and the subjects of the unary entry (*e.g. The strings intertwined*).

verb must be mediated by an operator, especially the meaning of reciprocal expressions like *each other*. Based on this assumption, we use the type $\varepsilon(e(et))$ for transitive predicates: the type of trinary relations between events and pairs of atomic entities. When combined with a reciprocal operator REC, such a $\varepsilon(e(et))$-type denotation is mapped to an *êt* predicate over sums. The REC operator that we use here involves two processes simultaneously: reciprocal quantification over pairs of entities, and existential closure of the event argument. For instance, in *Mary and Lisa thanked each other*, the *êt* verb phrase denotation applies to the sum $m+l$. This is interpreted as "*each* entity among Mary and Lisa thanked the *other* entity in *some* event". More generally, using the operator of *strong reciprocity* (Dalrymple et al. 1998), we get the following definition:

(23) $\quad$ REC $= \lambda R_{\varepsilon(e(et))}.\lambda x_{\hat{e}}.\forall y_e \in x.\forall z_e \in x.\ y \neq z \rightarrow \exists e.R(e,y,z)$

In words: the REC operator maps any trinary relation R between events and pairs of atoms to the unary predicate that holds of the sums x such that every member of x is in the relation R to any other member of x in some or other event.

$\quad$ In this definition of the REC operator, quantification over members of the sum x takes scope over the event quantifier. Accordingly, transitive verbs lead to a reducible interpretation. For instance, for the sentence *Mary and Lisa hugged each other* we get:

(24) $\quad$ REC$(\mathbf{hug}_2)(m+l)$

$\quad\quad = \forall y \in m+l.\forall z \in m+l.\ y \neq z \rightarrow \exists e.\mathbf{hug}_2(e,y,z)$

$\quad\quad = \exists e.\mathbf{hug}_2(e,m,l) \wedge \exists e.\mathbf{hug}_2(e,l,m)$

In words: there is an event in which Mary hugged Lisa, and there is an event in which Lisa hugged Mary. This reading is distinguished from the reading "there is a hug event between Mary and Lisa" that we assigned above to the sentence *Mary and Lisa hugged*.

$\quad$ In section §2.2 we saw that the preposition *con* ('with') leads to discontinuous reciprocity with lexical reciprocal verbs, but not with grammatical reciprocals. To account for this distinction, we propose that the denotation of *con* is a function that adds a participant (x) to the argument (y) of any one-place predicate (P). Formally:

(25) $\quad$ CON $= \lambda x_{\hat{e}}.\lambda P_{\varepsilon(\hat{e}t)}.\lambda e'.\lambda y_{\hat{e}}.P(e',x+y)$

Note that the event argument e' of the complex predicate formed by CON is only abstracted over and applied to for technical reasons, with no pregnant semantic effect of this operation. Lexical reciprocal meanings can now be directly modified by CON, without a REC operator. For instance, in a sentence like "Mary hugged with Lisa" we get:

(26) $\quad$ $\exists e.\text{CON}(l)(\mathbf{hug}_1)(e,m) = \exists e.\lambda e'.(\lambda y_{\hat{e}}.\mathbf{hug}_1(e',l+y))(e,m) = \exists e.\mathbf{hug}_1(e,l+m)$

In words: the entity for *Mary* is treated as an argument of CON that is added to the entity for the subject *Lisa*, to derive a reading equivalent to "Lisa and Mary hugged".[15]

In sentences with grammatical reciprocity, as in (14), the REC operator takes scope over the existential closure of the event, like other quantifiers (Higginbotham 1985). In such cases the denotation of *con Lisa* is CON(l), which takes an argument of type $\varepsilon(\hat{e}t)$. Such a function can apply neither to the input of REC (type $\varepsilon(e(et))$) nor to its output (type t). As a result, we explain the unacceptability of (14) as a type-mismatch anomaly. In a fuller system, the meaning of the REC operator should be detached from existential closure, to allow event modification in cases like *they hit each other in the garden*.

Let us now move on to the possibility of generating reciprocity with morpho-syntactically singular group NPs, as illustrated in §2.3. It has been proposed that although the denotations of such NPs are constituted of multiple elements (similar to sum entities), the internal structure of such "groups" is inaccessible to grammar, as it is the case with atomic entities. Such "groups" are also referred to as *impure atoms* (Link 1983). In an analysis along these lines, we still need to make sure that every hug (or break up/conferring event) of a sum $y + z$ constitutes a hug (or break up/conferring event) of an impure atom x that is made of that sum, and vice versa. For instance, if *the couple* refers to Mary and Lisa, we must make sure that the sentence *Mary and Lisa hugged* is equivalent (or close to equivalent) to the sentence *the couple hugged*. This is a necessary assumption in systems where impure atoms are distinguished from sums, which we model using the following meaning postulate:

(27) $\quad \forall e. \forall x_e. \forall y_e. \forall z_e. [\mathbf{hug}_1(e, y + z) \wedge x = \uparrow (y + z)] \leftrightarrow \mathbf{hug}_1(e, x)$

In words: a collective hug between a sum $y + z$ occurs if an only if such a hug occurs between any impure atom x that is constituted by y and z. This meaning postulates accounts for the possibility of getting reciprocal meanings with lexical reciprocals whose argument is a singular group NP. With grammatical reciprocals this process is not available, as the REC operator does not access sub-elements of impure atoms.

4.   How lexical and grammatical reciprocal meanings are conveyed

In §3, we have established a distinction between lexical and grammatical reciprocity in Italian. However, the contribution of *si* to these meanings is still unclear at this point.

We have seen that *si* is always necessary in finite clauses in order to generate a reciprocal interpretation. Yet, in causative constructions, verbs with a lexical reciprocal entry allow a reciprocal interpretation without *si*. The availability of lexical reciprocity without *si* in Italian is a new finding, but it is not unexpected: it is in line with our assumptions and already predicted by the literature.

More surprising data from causatives concern grammatical reciprocity: any transitive verb can generate a reciprocal interpretation without *si* in this construction, if *a vicenda* is present (28). Note that the reciprocal interpretation is necessarily reducible: just like in

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[15]We here adopt Dimitriadis's assumption about such equivalence. See Rákosi (2008) for a different view.

finite clauses, *a vicenda* selects a reading that is reducible to multiple sub-events, with both Mary and Lisa actively punishing/ thanking/ hugging/ leaving the other person.

(28) Sara ha   fatto   (*si) punire/   ringraziare/ abbracciare/ lasciare
      Sara have-AUX-3S make-PP SI   punish-INF thank-INF   hug-INF   leave-INF
      (*si) Mary e   Lisa a vicenda
      SI   Mary and Lisa mutually
      'Sara caused Mary and Lisa to punish/ thank/ hug/ leave each other'

While in causatives *si* is not used to convey grammatical reciprocity, which is generated by *a vicenda* alone, recall that in finite clauses *si* is obligatory for reciprocal meanings, even in the presence of *a vicenda* (29).

(29) Mary e   Lisa *(si) puniscono   (a vicenda)
      Mary and Lisa SI punish-PRES-3S mutually
      'Mary and Lisa punish each other'

As for lexical reciprocity, the data clearly suggest that *si* does not contribute to lexical reciprocal meanings, and it seems a semantically vacuous marker when associated to verbs with a lexical reciprocal entry. We suggest that *si* is a marker of intransitivity. Following Labelle's analysis of French *se*, and assume that *si* appears in the Voice position. This explains the obligatory use of *si* in finite clauses, where the Voice position is available, but the impossibility of this element to appear in infinitival causatives, where Voice is not available.[16] Lexical reciprocity is in either case due to the lexical meaning of the verbs, as shown by the parallel interpretations generated by lexical reciprocals in both syntactic contexts.

With respect to grammatical reciprocity, we exclude the possibility that grammatical reciprocal meanings can be generated by both *si* and *a vicenda*, given the co-occurrence of these two elements: if they were both REC operators, one of them would have been ruled out in (29). Moreover, such an approach would not be economical, as it would associate two functions to one element (syntactic marker and REC operator for *si*).

We propose instead that *si* is always a syntactic marker located in Voice, whether it appears with lexical or grammatical reciprocals. On the other hand, *a vicenda* denotes a REC operator. We account for the distribution of these two elements proposing that grammatical reciprocity can be overt or covert. Overt reciprocity takes place when a REC operator like *a vicenda* is spelled out. This is possible either in finite or causative clauses, regardless of the presence of *si*. Covert reciprocity may only be licensed when *a vicenda* is not present. We propose that the marker *si* is a licenser of covert reciprocity. Accordingly, covert reciprocity is licensed in finite clauses but not in causative clauses. A systematic overview of this distribution is provided in (30), with pointers to the relevant examples.

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[16]The possible or obligatory omission of *si/se* in causative clauses is not general among Romance languages. Therefore, this can account for the distribution of *si* in Italian causatives, but not in other languages.

This proposal explains the different realizations of lexical and grammatical reciprocity, and it also accounts for the existence of only one reciprocal form in finite clauses, based on a unified analysis of *si* as a syntactic marker, which also licenses covert reciprocity with transitive verbs.

(30)   *Distribution of lexical and grammatical reciprocity*

Type of clause	Realization	L. recip.	G. recip.	ex.
finite	$[_{\text{VoiceP}}$ *si* $[V_{\text{REC}}]]$	+	-	(8)
	$[_{\text{VoiceP}}$ *si* $[_{\text{VP}}V \varnothing_{\text{REC}}]]$	-	+	(8),(10)
	$[_{\text{VoiceP}}$ *si* $[_{\text{VP}}V$ *a vicenda*$_{\text{REC}}]]$	-	+	(9),(10)
non-finite	$[_{\text{VP}}V_{\text{REC}}]$	+	-	(20)
	$[_{\text{VP}}V$ *a vicenda*$_{\text{REC}}]$	-	+	(28)
	*$[_{\text{VP}}V \varnothing_{\text{REC}}]$	-	n.a.	(19)

5.   Conclusions

Italian finite clauses only show one predominant reciprocal form, involving the clitic *si*. This paper focused on two questions: (i) Are both lexical and grammatical reciprocity available in Italian? (ii) How are the meanings of these reciprocal strategies conveyed and what is the semantic contribution of the clitic *si*? Based on syntactic and semantic criteria, we identified a class of Italian lexical reciprocals, whose meanings closely resemble those of lexical reciprocals in languages where the lexical/grammatical distinction is more manifest than in Romance. Following Labelle (2008), we proposed that *si* is a syntactic marker that appears in Voice when this position is available. Accordingly, neither lexical nor grammatical reciprocals are directly denoted by this element. We proposed that lexical reciprocity is due to the lexical meaning of verb roots, while grammatical reciprocity is due to a REC operator that may be overt or covert. This study of a language where only one form of reciprocity is visible on the surface can be a starting point for the analysis of more languages where reciprocity is expressed similarly. We believe that this can lead to important conclusions about the semantics and morpho-syntax of reciprocal constructions cross-linguistically, with potential implications for the relation between grammar and collective concepts.

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