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The event structure of reciprocal verbs and its implications for bidirectionality

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La estructura eventiva de los verbos recíprocos y sus implicaciones en la bidireccionalidad

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Abstract

In this article we present a detailed description of the event structure of the reciprocal situations expressed lexically in Spanish. The description is based on the sentences extracted from a Spanish corpus. We put forward a proposal that involves differentiating between the simple or multiple nature of the reciprocal event and also between the independent or dependent relation of the subevents that make up a reciprocal situation. We characterize reciprocal verbs according to an aspectual typology and we also contribute a new analysis of the so-called collective verbs in order to distinguish them from reciprocal predicates. Finally, we propose a redefinition of the condition of bidirectionality for reciprocal situations.

Key Words: Reciprocal verbs, symmetric verbs, event structure, strong/weak reciprocity, collective verbs.

Resumen

En este artículo se presenta una descripción detallada de la estructura eventiva de las situaciones recíprocas expresadas léxicamente en español. La investigación se ha realizado a partir del estudio de oraciones extraídas de un corpus de español. Presentamos una propuesta que implica la diferenciación entre eventos recíprocos simples y múltiples y también entre subeventos dependientes o independientes dentro de la situación recíproca. Además caracterizamos los verbos recíprocos de acuerdo con una tipología aspectual y proporcionamos un nuevo análisis de los llamados verbos colectivos con el fin de distinguir estos de los predicados recíprocos. Finalmente, proponemos una redefinición de la condición de bidireccionalidad para las situaciones recíprocas.

Palabras Clave: Verbos recíprocos, verbos simétricos, estructura eventiva, reciprocidad débil/fuerte, verbos colectivos.

INTRODUCTION[1]

The study of reciprocity has been an important topic of research in the last decades. While some researchers have been interested in analyzing the way reciprocal actions are formally expressed in languages (Frajzyngier & Curl, 1999; Dimitriadis, 2008; Evans, 2008), other scholars are more interested in the study of reciprocity from a semantic point of view (Langendoen, 1978; Darlympe, Kanazawa, Kim, Mchombo & Peters, 1998; Beck, 2001; Dotlacil, 2013). Reciprocity has also been studied in relation to other semantically connected constructions, such as reflexive or collective constructions (e.g. Lichtenberk, 1985; Kemmer, 1993; König & Gast, 2008).

Reciprocity, as a semantic concept, is usually understood as a relation in which at least two participants are in a situation of a symmetric nature whose main semantic characteristic is bidirectionality (Faller, 2007; Evans, 2008). The symmetric nature of these situations explains their complexity: it entails at least two subevents and two participants both acting as Agent and Patient of the main event. Most of the works only take into account basic reciprocal events (BRE), that is, those where only two participants can be identified and, to our knowledge, the event structure (ES) of multiple reciprocal events (MREs) has not been exhaustively studied.

The main objective of this paper is to analyze in depth reciprocal situations in Spanish from a semantic perspective, focalizing on the event structure. We put forward a proposal that involves differentiating between the simple (BRE) or multiple nature (MRE) of the reciprocal event and also between the independent or dependent relation of the subevents. We characterize reciprocal verbs according to an aspectual typology and we also contribute a new analysis of the so-called collective verbs in order to distinguish them from reciprocal predicates. Finally, we propose a redefinition of the condition of bidirectionality for reciprocal situations.

From a methodological point of view, we would like to highlight three aspects. First, we have chosen a corpus linguistics approach to data analysis and have consulted real sentences extracted from a corpus.[2] Since the language under analysis is Spanish we provide a translation of each example.

Secondly, even though in Spanish reciprocity can be expressed either lexically, by using a reciprocal verb such as *intercambiar* 'exchange', or syntactically, by using reciprocal constructions as in *Se consolaron mutuamente* 'They comforted one another', we decided to focus only on the former, lexical reciprocal verbs (also called symmetric verbs, inherent reciprocal predicates or covert reciprocal predicates), which have received considerably less attention in the literature than grammatical reciprocal constructions. In order to carry out the search for examples we needed a list of Spanish symmetric predicates. We had to create our own since there is not such a list in this language. In order to perform this task, we proceeded to extract the verbs mentioned in the most relevant bibliography in the field covering several languages (Borillo, 1971; Lichtenberk, 1985; Ginzburg, 1990; Kemmer, 1993; Arellano, 2004; Knjazev, 2007; Nedjalkov, 2007; Dimitriadis, 2008; Evans, 2008; Siloni, 2012). The final list includes 90 Spanish lexically reciprocal verbs and contains both verbs whose only sense is reciprocal (e.g. *intercambiar* 'exchange') and polysemous verbs that present at least one sense that can only be interpreted reciprocally (e.g. *encontrarse* 'meet' vs. *encontrarse* 'find').

The third methodological point we would like to make is that formal linguistic issues have only been considered when they affect the aspectual interpretation of the sentence, for example, some complements that express frequency might transform a BRE into a MRE. Nevertheless, not every syntactic expression or morphologic element affects aspectual interpretation. For instance, the presence of an anaphoric expression like *el uno con el otro* ('each other'), even though sometimes possible, is neither compulsory nor very frequent with lexical reciprocal verbs. A similar case is the use of clitic pronouns with reciprocal verbs. It should be noted that sometimes verbs that are lexically reciprocal in Spanish require a pronominal form (*se*), but this is not always the case. Thus, we can find symmetric verbs that require the clitic pronoun *se* (like *avenirse* 'get on well with') whereas others do not (like *convivir* 'live together'), regardless their ES.[3]

The paper is organized as follows. Section 1 is devoted to review the main characteristics of reciprocity. In Section 2 we put forward a classification of BREs according to the nature of the subevents they contain. Section 3 is devoted to the description of MRE. In Section 4, we review the most common aspectual types identified in reciprocal sentences and describe the durative nature of both, BREs and MREs. Section 5 analyzes the degree of compliance with bidirectionality in reciprocal situations, differentiating between strong and non-strong reciprocity, and we propose

Fernández-Montraveta & Vázquez

a reformulation of this requirement from the data observed. Finally, we present our conclusions.

1. Characteristics of reciprocity

In this section we present the main characteristics of reciprocity by reviewing the most relevant literature on the field. Authors such as Beck (2001) and Faller (2007) relate reciprocity with pluriactionality. Newman (1990) presents five possible situations that denote pluriactionality, which we have organized in two groups:

[A] Plurality of the nominal argument:

  a. Plurality of the subject: there are a plural number of subjects in the action.
  b. Plurality of the object: there are a plural number of objects in the action.

[B] Plurality of actions:

  a. The action is carried out habitually.
  b. The action can go on for a period of time.
  c. The action can happen in several places.

Plurality of the nominal arguments ([A]) is considered one of the requirements reciprocal sentences must always fulfill. In our study, we only take into consideration reciprocal sentences (1) that typically present a plural subject ([Aa]). We do not consider plurality of objects [Ab] since there is no consensus about the reciprocal nature of such sentences (2). Conversely, the type of plurality of actions described in [B] is not considered an intrinsic property of reciprocity, although it is present in some reciprocal events (see Section 3).

(1) *A su vez, el ordenador se «expresa» mediante su pantalla (...): el cerebro humano y la computadora <u>interactúan</u> en milésimas de segundo.* ['In turn, the computer expresses itself through the screen (...) the human brain and the computer <u>interact</u> in milliseconds.']

(2) (…) *ellas <u>mezclan</u> mucho el francés con el español* (…) ['… they get their French and Spanish quite mixed up…']

Nevertheless, having a plural subject is not a sufficient requirement for an action to be considered reciprocal. For example, consider (3), which can be understood as a reciprocal event (3‴) but may also be given other interpretations (3' and 3").

(3) (…) *dos adolescentes que <u>se compraron</u> un libro de hipnosis.*[4]

3' (…) two teenagers who <u>bought</u> themselves a book about hypnosis. (Each teenager bought a book for himself.)

3" (…) two teenagers who <u>bought</u> a book about hypnosis. (Both teenagers bought a book.)

3‴ (…) two teenagers who <u>bought</u> each other a book about hypnosis. (Each teenager bought a book for the other.)

In this example, the reciprocal interpretation (3‴) implies that each member of the plural subject participates in a different action of buying and acts at the same time as the Agent and the Patient; i.e., teenager A buys a book for another teenager, B, and B buys a different book, in a different action of buying (later or simultaneously - time is irrelevant), for teenager A. Nevertheless, the other two non-reciprocal interpretations are more feasible in this particular example. In the case of (3'), there are two independent reflexive actions (each boy buys himself a book). (3″) describes a single event, which Quirk, Greenbaum, Leech and Svartvik (1985) call 'joint participation' and Kemmer (1993) and others call 'collective', with a plural subject acting collaboratively as an individual (see Section 2.2).

For an interpretation to be considered reciprocal Faller (2007) identifies three other requirements besides pluriactionality of the subject ([Aa]), First, the subject has to present a distributive interpretation; that is, universal quantification is applied independently over each part of the subject. This requirement is met in (3‴), but it is also met in (3'), the reflexive interpretation. In (3″), which denotes a collective event, the distributive interpretation is not possible since the subject acts as a single unit.

Second, the role of the arguments of each subevent has to be different so that there is not a coincidence of roles. In (3‴), there are two separate actions of buying and the two participants play a different role in each one.[5] Thus, A is the Initiator and B the Endpoint in action 1 while B is the Initiator and A the Endpoint in action 2. Also, the acquired object is different in each event. In (3') this requirement does not apply since there are two reflexive actions. In the first one, A is the Initiator and the Endpoint whereas, in the second, B is also both Initiator and Endpoint. The acquired object is different in each action. (3‴) does not fulfill since there is only one event in which two participants act collectively as Initiators and there is just one object.

Finally, for a sentence to be considered reciprocal, we must find coindexation of arguments in the two actions: the Initiator of one of the actions must be the Endpoint of the other and the Endpoint of the first must be the Initiator of the second. This condition is only fulfilled in (3‴). In (3″) this requirement is not met at all and in (3') we have a double reflexive structure and, thus, coindexation of arguments falls within the scope of each single action.

As we have seen, of the four characteristics of reciprocal structures, only one of them identifies true reciprocity: crossed coindexation. Neither the presence of a plural subject nor the distributive interpretation of the sentence or the coincidence of roles are sufficient conditions to identify reciprocal actions since there are sentences that fulfill some of these requirements and nevertheless are not truly reciprocal. In conclusion, crossed coindexation of arguments is more restricted to reciprocity than

the other features reviewed and, in fact, it presupposes them. In addition, it is directly related to bidirectionality or mutuality, which is the core feature of reciprocity from a semantic point of view.

We can conclude for the moment that reciprocity denotes situations in which one individual acts over another and that this other acts over the first in just the same manner. Thus, a BRE requires two participants and includes two subevents executed in a symmetric manner. That is, both participants hold the same semantic roles and are both Initiator or Endpoint depending on the subevent. As we will see in Section 3, some reciprocal situations can include more than one reciprocal event, that is, more than two subevents. This happens mostly for one of the following two reasons: either there are more than two participants in the event or a subevent is repeated on several occasions. In Section 5 we adapt the above condition about bidirectionality so that it accounts for all types of reciprocal situations, including MREs, since in these cases double directionality is not always compulsory for every reciprocal event portrayed in them.

2. Characterization of the subevents in a basic reciprocal event

Little has been said in the literature about the deconstruction of reciprocal events. Some authors, such as Lichtenberk (1985), Dimitriadis (2008) or Evans (2008), suggest that, even though the conceptualization of a reciprocal event is that of a single event, it can be broken down into subevents. Some other authors, such as Siloni (2012), consider that this decomposition is part of shared knowledge and does not have a linguistic basis.

In Section 2.1 below, we will confine ourselves to the analysis of reciprocal situations with only two subevents and suggest two types of BREs according to the nature of the subevents. In Section 2.2, we review joint verbs and their relation to symmetric verbs.

2.1. Autonomy and temporality

We propose two types of BRE: non-comprehensive reciprocal verbs, represented by *intercambiar* 'exchange' and comprehensive reciprocal verbs, exemplified by *chocar* 'collide'.

In the analysis of our examples, we have delimited these two subclasses taking into account two parameters, (i) the degree of autonomy and (ii) the temporal distance between the subevents that make up the reciprocal event. By autonomy, we refer to the perception of their independence by speakers (Kemmer, 1993 labels this 'visibility'). As for temporal distance, we find different approaches. Lichtenberk (1985) and Evans (2008) consider that reciprocal situations can be either simultaneous or

sequential. Nevertheless, Kemmer (1993) and Dimitriadis (2008) consider that this is only the case with verbs that are not naturally reciprocal (i.e. non-symmetric predicates); naturally reciprocal events are always simultaneous. From our analysis of Spanish symmetric predicates, we observe three types of temporal restrictions: verbs that impose a simultaneous interpretation, verbs that impose a sequential interpretation and, finally, verbs with no temporal restrictions specified.

We shall now proceed to see how these subclasses behave with respect to autonomy and temporality. First, the class of non-comprehensive verbs (*intercambiar* 'exchange') includes verbs with autonomous subevents (i). As can be seen in sentences in (1) and (4), subevents are conceptualized as independent actions taking place.

(4)   a. *Sale de su hilera y llega hasta donde está la amiga. <u>Se besan</u> en las mejillas.* ['She steps out of the line of people and comes up to her friend. They <u>kiss each other</u> on the cheek.]

      b. *Y ambos <u>se abrazaron</u> en silencio.* ['And they <u>embraced</u> in silence.']

Regarding temporality (ii), there is heterogeneity in this first subgroup of symmetric verbs. For example, in verbs such as *intercambiar* 'exchange' the subevents can be performed simultaneously or not. This is also the case with *interactuar* 'interact': in (1) the action is not simultaneous, but in other cases it could be. In (4a) and (4b), the two subevents of kissing and hugging are independent but necessarily carried out simultaneously. In this subgroup, even if there is simultaneity of actions, such as in (4a) and (4b), the two subevents are depicted individually because they are not dependent.

Second, the ES of comprehensive verbs (*chocar* 'collide') is different from the one just described in that subevents are not autonomous (i), i.e. they are always dependent on each other and, as a consequence, they always take place simultaneously (ii), as in (5).

(5) a. *Delante de ellos viajaba un camión (…). No lograron frenar a tiempo y <u>chocaron</u>.* ['In front of them there was a trailer (…). They couldn't stop in time and <u>crashed</u>.']

     b. *(…) acercan sus labios, <u>se besan</u> y comparten la hazaña (…).* ['(…) their lips come closer, they <u>kiss</u> and share their daring exploit (…).']

In (5a), we cannot identify two separate subevents of crashing: the crashing of A into B can only take place if B also crashes into A. In (5b), the event of kissing is different from (4a) in that A cannot carry out the first subevent unless B also carries out the second subevent. So we consider both examples in (5) dependent subevents.

Other verbs that denote comprehensive reciprocal events are avenirse 'get on well with', *compartir* 'share', *competir* 'compete', *convivir* 'live together', *encontrarse* 'meet', *reconciliarse* 'be reconciled', etc. From our study we have concluded that this second

type of reciprocal verb is the most common: 63.33% against 36.67%. Authors such as Quirk et al. (1985), Kemmer (1993) and Lasersohn (1990), for English, and Sánchez López (1999), Felíu (2003) and Siloni (2012), for Spanish or other Romance languages, have studied this subclass of reciprocal events.
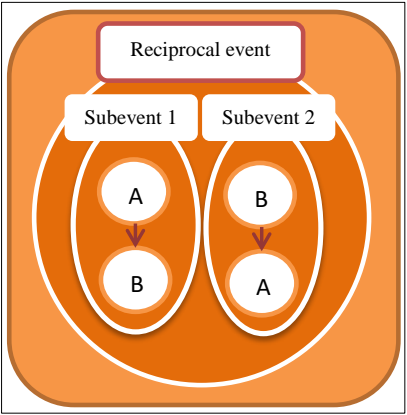
Figure 1. Non-comprehensive reciprocal event. Sentences (4).
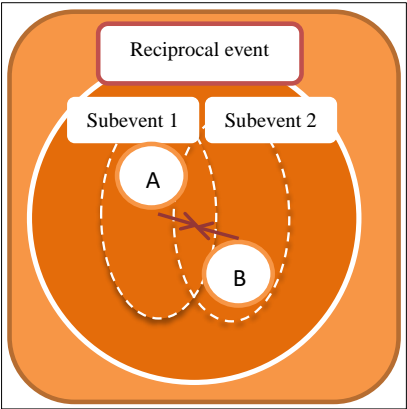
Figure 2. Comprehensive reciprocal event. Sentences (5).

In Figures 1 and 2 we represent the two subclasses of reciprocal verbs described above. A and B are the two participants in the main event. The continuous and broken lines indicate respectively the greater and lesser degree of independence of the subevents. The intersection of the two subevents also emphasizes the interconnection between them. In Figure 2, we can also see other important features: 1) the absence of an Endpoint in the ellipse that represents each subevent and 2) the point signaled by each arrow in the intersection of the two subevents. It represents the association of the Endpoint in each subevent to a common place, in contrast with Figure 1, where the Endpoints are clearly identified with only one participant.

2.2. Joint actions

Comprehensive reciprocal situations, represented in (5), have some similarities with collective events, that is, the so-called cases of joint participation (Quirk et al. 1985). We have already seen an example of joint action in (3″); in (6) we see another instance:

(6)   (…) *estas dos personas <u>hacen</u> el presupuesto de la facultad cada año.* ['(…) these two people <u>draw up</u> the faculty budget every year']

The possibility of a sentence being assigned a distributive reading is the main criterion we have used to distinguish between both kinds of events. In (5), it could be said that there is an event jointly executed by two participants in the sense that both act together, but it is not a truly joint action because the interpretation is distributive, not collective. In neither (3″) nor (6) is a distributive interpretation possible; they can only be interpreted collectively since there is only one single event.

In Spanish some predicates express this collective meaning lexically, like *coeditar* 'co-edit' or *codirigir* 'co-direct'. We propose to use the label 'naturally collective events' (Kemmer, 1993), or 'lexical joint events', only for them, and not for verbs like assemble and meet, for which the distributional interpretation applies. In this sense, we disagree with this author, who considers that the participants found with these verbs act as a group. In our analysis, however, these kinds of verbs (*reunirse* 'meet', *agruparse* 'group', *unirse* 'join', *separarse* 'separate') are reciprocal and not joint verbs because they denote a complex event made up of different subevents with mutual directionality, like other symmetric verbs such as *chocar* 'collide' or *besarse* 'kiss' (5). As we can see in (7), one participant joins with others and *vice versa*, just as in (5a), where one participant collides with another and *vice versa*, and in (5b), where one participant kisses the other and *vice versa*. Another similar case is *compartir* 'share' (8), which at first glance behaves similarly to verbs in (3″) and (6). The differences lie again in the bidirectionality of the action and role distribution: in (8) each participant acts individually over the other.

(7)   *Días después, los esposos y su hijo Plácido <u>se reunieron</u> en el salón.* ['Some days later, the couple and their son Placido <u>met</u> in the living-room.']

(8)   (…) *el Bird y la AIF <u>comparten</u> el mismo personal laboral* (…). ['(…) Bird and AIF <u>share</u> the same personnel (…).']

Thus, verbs like *reunirse* 'meet' or *compartir* 'share' denote reciprocal events with low visible subevents, that is, dependent subevents, and this is the reason why in our study they are included in the subgroup of comprehensive reciprocal verbs. Moreover, they make up a special subgroup since they do not accept a Melee interpretation (see Section 5.2.1), unlike other verbs in the same group, such as *chocar* 'collide'.

Finally, we would like to point out that when we identify more than two participants in a reciprocal event not necessarily all of them have to participate as individuals: some of them might act as a group. For example, in (9) we have two separate groups of individuals (A and B) acting together as the two members of a simple reciprocal event. In Figure 3, we represent the group participant A with a circle containing several individuals identified as A1, A2… In (9), this group corresponds to *portugueses* 'Portuguese'. Group B is exemplified in (9) by *holandeses* 'Dutch', which could be represented graphically in the same way (B1, B2…).

(9) *Portugueses y holandeses <u>compitieron</u> por la influencia en la región* (…). ['The Portuguese and Dutch <u>competed</u> for dominance of the region (…).']
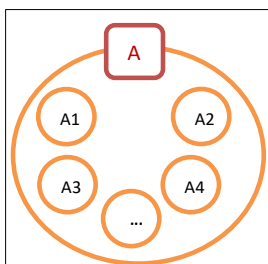
Figure 3. Representation of a group participant.

We have observed that many reciprocal Spanish verbs allow a group participant in subject position. Few Spanish symmetric predicates (18.89%) present lexical restrictions in this regard, some examples are *besarse* 'kiss', *casarse* 'get married', *copular* 'copulate' or *darse la mano* 'shake hands'.

3. Reciprocity and multiplicity of events

In this section, we focus on the case of reciprocal situations expressing more than just one BRE, which we call a MRE. In general terms, we can say that MREs are constituted by a number of plural events and that each one is reciprocal.

In order to analyze MREs, we investigate how the so-called instances of plurality of actions described in Newman (1990) (Section 1 [B]) relate to them. The definitions of these types of actions have been adapted as follows:

a. An action is carried out habitually by the same participants at specific times.
b. An action is carried out by the same participants but is repeated for a period of time.
c. The same kind of action is carried out by several participants but can take place in different places.

In sentences (10), (11) and (12) we exemplify three cases of MREs which correspond respectively to the three characteristics.

(10) *Julia <u>conversaba</u> ya a menudo con el cadete o <u>intercambiaba</u> con él apasionadas cartas de amor* (…). ['Julia often <u>conversed</u> with the cadet now or <u>exchanged</u> passionate love letters with him…']⁶

(11) *A cada instante, los hombres <u>se turnaban</u> para llevar la imagen.* ['The image was passed among them as each man <u>took a turn</u> to carry it.']

(12) *A finales de la década de 1990* (…) *cada vez <u>se intercambia</u> más material por correo electrónico.* ['By the end of the 1990s (…) as information <u>was</u> increasingly <u>exchanged</u> via email.']

We have proposed three parameters that may change in a plural action: participants, places and time. Table 1 summarizes how these parameters act in the three situations we have just analyzed. We use the symbol = to indicate that the parameter is the same in each of the different acts that compose the MRE and the symbol <> to indicate that it is not. As can be observed in Table 1, the difference between (a) and (b) lies only in the fact that in (a) there is a temporal distance between one event and its repetition, whereas in (b) there is no temporal gap between the repetition of events. Our proposal is that in order to identify a MRE at least one of the three parameters must be <> (in (10) and (11) time, in (12) participants).

Table 1. Interaction of parameters in action plurality.

	Participants	Place	Time	*Temporal distance between events*
a - (10)	=	<>/=	<>	Yes
b - (11)	=	<>/=	<>	No (concatenation)
c - (12)	(<>)	<>/=	<>/=	

Another interesting pattern that can be seen in the Table is that there are three differences between (c) and the other two cases:

- In (a) and (b) a maximum of only two parameters may change while in (c) the three parameters may be different at the same time. Sentence (12) exemplifies this case: the pairs that exchange information by email are varied, and the different events can be carried out at different moments and in different places.

- Regarding time, it may or may not be the same in (c) but in (a-b) it must be different.

- Different participants must be involved in each repeated action in (c) but not in (a-b). In (a) and (b) the 'same kind of action' is repeated (maybe at different times and different places) because the participants are the same. In (c), the action is not the same but it is the 'same kind of action' because the participants can be 'totally' or 'partially' different, since one of the members of one pair could be a member of another pair. For this reason we use the symbol <> between parentheses. This is exemplified in (13), where the subject (an unknown football player) is the participant that interacts with the others in

Fernández-Montraveta & Vázquez

different events. Therefore, coincident events take place but in all of them one player is always the same. This kind of reciprocal interpretation will be analyzed in greater detail in Section 5.2.

(13) (…) *fue contratado por el BARCELONA, club en el que <u>coincidió con</u> grandes jugadores como* A. Ramallets, L. Kubala y Z. Czibor. ['… he was signed on by [Football Club] Barcelona, (…) where he <u>played alongside</u> [coincided with] various great footballers like A. Ramallets, L. Kubala and Z. Czibor.']

When a MRE is identified, the conceptualization of a unique reciprocal event is kept. Thus, in a MRE the internal identification of more than one reciprocal event does not disfigure the interpretation of the event as a whole. By way of illustration, each of the sentences analyzed in this section expresses just one reciprocal situation, but each of these situations implies a set of different reciprocal events.

In order to describe holistically the ES of a MRE we need to take into account three different levels of eventuality and not just two (as was the case with single reciprocal events; see Figures 1 and 2). These three levels are represented in the Figure 4: the whole event (MRE), the reciprocal events that are part of the first (I, II, etc.) and the subevents that are part of each reciprocal event (I1, I2; II1, II2; etc.).

The lines used in Figure 4 to represent subevents are continuous. Therefore, strictly speaking, this diagram is appropriate for illustrating MREs with independent subevents and should be adapted to represent MREs with dependent subevents (see Figure 2). More specifically, this figure corresponds to situations (a) and (b), since in these cases we have the same participants. To represent situation (c) we may need to change some (or all) the letters in reciprocal event II, because the participants of each event in (c) are completely or partially different. Furthermore, in this figure, neither the number of reciprocal events nor the number of subevents is stipulated (this is represented with the use of a dotted line). In fact, in sentences (10), (11) and (12) we see an unbounded MRE that is happening in the present and continuing in the future.
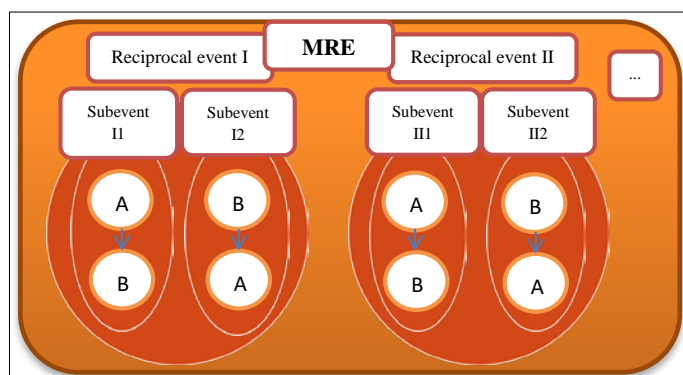
Figure 4. Representation of a MRE.

In contrast to Siloni's (2012) analysis, based on Link (1998), we observe that some verbs incorporate lexically this type of multiple reciprocity: a total of 20 predicates out of the 90 verbs under study (22.22%) express lexically plural reciprocity. These verbs can be grouped into three different types: communication verbs (*charlar* 'talk', *conversar* 'converse', *cotillear* 'gossip', etc.), fighting verbs, which can also include some sort of communication (*pelear(se)* 'fight', *reñir* 'fight, squabble', etc.), and verbs expressing a shift (*alternarse* 'alternate', *turnarse* 'take turns', etc.). It is worth noting that all the members of this group denote non-comprehensive reciprocal situations (see Section 2.2.1) even though comprehensive verbs can also denote MRE (14).

(14) *En 1996 todos se han <u>reconciliado</u>, se han perdonado las culpas, las traiciones, las defecciones.* ['In 1996, they have all been <u>reconciled</u>, and all the accusations, betrayals and defections have been forgiven.']

4. *Aktionsart* of reciprocal verbs

In order to complete the description of the event structure of reciprocal situations, we analyzed reciprocal verbs with respect to (i) the internal temporal information and (ii) the duration of each subevent.

First, even though there are some reciprocal predicates that denote states in Spanish, only a few of them are expressed by a lexical item (e.g. *parecerse* 'be alike', 'look alike', *asemejarse* 'resemble', *diferenciarse* 'be different'). This is the reason why we concluded to just include processes (such as *competir* 'compete' or *luchar* 'fight') and events (like *casarse* 'marry' or *unirse* 'join') in our analysis.

Second, if subevents happen simultaneously (ii) the duration of the subevents (iii) will be transferred to the reciprocal event. For example, in (15a) the interpretation of the reciprocal event is punctual and in (15b) durative since the subevents are punctual (*cruzarse* 'crosse') and durative (*convivir* 'cohabit') respectively.

(15) a. *Ambos <u>se cruzaron</u> en algún momento por el «campus», pero rehusaron saludarse.* ['On occasion they <u>crossed</u> paths on campus, but they refused to greet each other.']

b. *El mundo de la ortodoxia, el islámico, el católico y el judío <u>convivían</u> allí y creaban una sociedad multicultural que vivía en paz.* ['In the world of orthodoxy, the Muslim, the Catholic and the Jew <u>cohabit</u> there and create a multicultural society which lives in peace.']

As for MREs, they can only be punctual if three conditions are met: (a) the events that made them up happen simultaneously, (b) said events contain punctual subevents and (c) said subevents are carried out simultaneously. It is difficult for these three conditions to be found in the same situation. Moreover, as we have seen in Section 3 (Table 1), time is the most changeable characteristic in MREs and, thus, requirement (c) for MREs would be difficult to fulfill. As a result, most MREs will present a durative interpretation (10, 11 and 12).

Finally, we observe that the difference between punctual and durative events in Spanish is neither representative for BRE nor for MRE: 37.78% can be considered punctual events (e.g. *cruzarse* 'come across'), but 38.89% can be considered durative (e.g. *relacionarse* 'be related with'). Last, 24.44% are not lexically defined in terms of this semantic feature (e.g. *comunicarse* 'communicate').

## 5. Typology of reciprocal interpretations

In this section we review the reasons that have lead us to reconsider the condition of bidirectionality as the core concept of reciprocity. In Section 5.1, we review the concept of strong reciprocity upon which the conception of bidirectionality as a core characteristic is based. Section 5.2 describes the problems that imply to use the condition of bidirectionality to identify reciprocity in some MRE, because of the multiple nature of these reciprocal situations.

5.1. Strong reciprocity

In Figures 5 and 6 we represent schematically[7] strong reciprocity in cases of BRE. This is the only possible type of reciprocity in BRE since bidirectionality is mandatory.
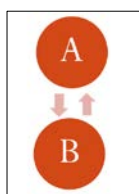
Figure 5. Simple reciprocal event with non-comprehensive subevents.
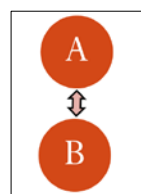
Figure 6. Simple reciprocal event with comprehensive subevents.

In contrast, MRE can express either strong or weak reciprocity. In fact, as we will see, strong reciprocity is less common than weak (see Section 5.2). Sentence (16) is an example of a MRE composed of several instances of strong BRE. This interpretation is possible because the phrase *cada vez que…* ('whenever…') triggers an interpretation in which the same participants repeat the BRE (Figure 6) on several occasions. We could also find cases of this type of MRE with non-comprehensive events, such as (17). In this case, the representation would be the reiteration of Figure 5.

(16) *Experimentaba la misma emoción particular cada vez que se encontraba con Gabriela.* ['He experienced the same particular emotion whenever he ran into Gabriela.']

(17) *Así se saludaban y despedían en los contados segundos de encuentro diario.* ['Thus they greeted each other and bade each other farewell in the brief seconds of their daily encounter.']

The other situation identified as a strong reciprocal MRE is one in which the participants are more than two. In this case, each individual acts over each of the

members that make up the whole reciprocal event and is also the Endpoint of all the actions initiated by each one of the other participants. This can happen with both non-comprehensive MREs (18) and comprehensive MREs (19).

(18) *Después que todos <u>nos saludamos</u> entre sí subimos a la nave* (…).[8] ['After <u>we all greeted each other</u>, we boarded the ship (…).']

(19) (…) *las revistas, los suplementos literarios, la radio y la tele <u>se unen</u> para aconsejarnos libros de lectura fácil* (…) ['(…) magazines, literary supplements, radio and television all <u>come together</u> to recommend us easy-to-read books (…)']

In Figure 7, we represent graphically the MRE exemplified in sentence (18). In this figure we have identified *todos* 'we all' with 5 participants (A, B, C, D and E). In this case, 10 reciprocal events with 2 subevents each one (a total of 20 subevents) would take place. Thus, each participant would take part in 8 subevents with 4 different pairs (2 subevents with each member of the set of participants in the MRE). In 4 subevents it acts actively (Initiator) and in the other 4 passively (Endpoint). As can be deduced from (18), the events represented by Figure 7 do not take place at exactly the same time, but they happen in the same place in a short period of time.
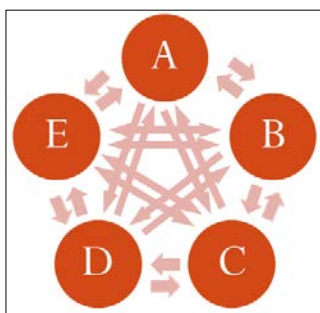
Figure 7. MRE with dependent subevents. Strong reciprocity.
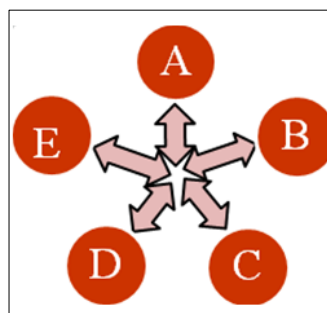
Figure 8. MRE with independent events. Strong reciprocity.

In the case of comprehensive MREs with pairs consisting of different participants, represented in example (19), we have opted for using a different kind of arrow to better reflect the relationship established (see Figure 8). In this diagram, there are the same number of reciprocal events as there are participants, that is 5, and twice the number of subevents (10).

5.2. Weak reciprocity

In the cases we have just reviewed (Section 5.1) both participants in each reciprocal event need to hold an Initiator role and an Endpoint role at the same time, which determines their bidirectional interpretation. However, there are other MREs for which this requirement no longer fully applies. We refer to these situations with the term 'weak reciprocity' in a broader sense than Langendoen (1978).

In our proposal, we maintain bidirectionality as the defining feature of reciprocity. Nevertheless, in order to account for weak reciprocity, the use of this property as a condition to identify reciprocity is conceived in a more comprehensive way, as we will see. The proposal we put forward is that not every reciprocal event that makes up a MRE must necessarily be bidirectional.

In Section 5.2.1 we present the types of weak reciprocity considered in this work and we further elaborate on how bidirectionality as a key feature is defined in this work. Section 5.2.2 is devoted to present some data from our study to quantify tendencies and restrictions of Spanish verbs in relation to those types of reciprocity.

5.2.1. Types of weak reciprocity

Next we review the four interpretations cited in Evans (2003), and also in Dimitriadis (2008), that we consider express weak reciprocity.[9]

a)   Pairwise relation: several reciprocal relationships are established. Reciprocal relations are grouped in pairwise of bidirectional events and participants are not found in more than one event (Fig. 9). This relationship is exemplified in (20).[10]
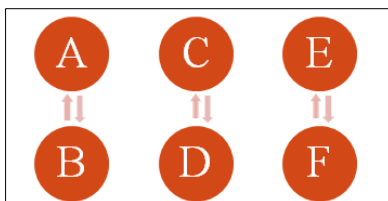
Figure 9. MRE: Weak Pairwise reciprocity.

(20) *Creía que esos novios viejos (que ocasionalmente salen en la prensa) se casaban por aburrimiento. Pues no. Es venganza, y es mejor.* ['I thought that those old lovers (that occasionally appear in the papers) got married out of boredom. Well, that turns out not to be the case. They do it out of revenge, and that's a better reason.']

b)   Adjacent relation: several reciprocal events are linked in a chain such that a participant will be found in two different events participating in both as an Initiator and as an Endpoint. If the Initiator and Endpoint of the chain are unrelated, then two participants will participate in only one reciprocal event (Fig. 10). This relationship is exemplified in sentence (21).


Figure 10. MRE: Weak Adjacent reciprocity.

(21) *En la orilla del río amarraba sus tres canoas (…). Si el tiempo estaba inestable, él se levantaba una y otra vez a verificar (…) que las canoas no <u>chocaran</u> entre sí (…).* ['At the riverbank he tied his three canoes (…). If the weather was fickle, he would get up every once in a while to make sure that (…) the canoes (…) <u>would</u> not <u>crash</u> into each other.']

c) Chained relation: several participants are linked in a chain and interact in a way in which each participant holds two roles, either as an Initiator or as an Endpoint, but always with different participants. It is the case of sentence (11). If the first Initiator and last Endpoint of the chain are unrelated, as in sentence (12), then two participants will hold only one role (see Figure 11).

(22) *Sí, una de las principales dificultades que tiene uno como profesor de literatura es (…) seleccionar los libros (…) porque se encuentra uno con esos problemas: (…) que hay dos... dos ejemplares de una edición, y toda la clase se lo tiene que <u>turnar</u>.* ['One of the greatest difficulties one faces as a literature teacher is (…) to select the (…) because one runs into these problems: (…) there are two… two different copies of one edition, and all the class <u>has to take turns</u>.']
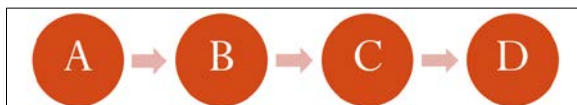
Figure 11. MRE: Weak Chained reciprocity.

d) Melee relation: several reciprocal relations are established in a disorderly manner among several participants. Prototypically, each participant is found in at least one of the bidirectional relations but it can also participate in more than one (Fig. 12). This relationship is exemplified in (12) and (23). It should be mentioned that in some cases it is possible that some participants hold only one role, i.e. they can be either Initiators or Endpoints.

(23) (…) *en momentos en que había una escasa visibilidad (…) <u>colisionaron</u> tres camiones y dos vehículos particulares (…)* ['(…) at a moment when there was poor visibility (…) three trucks and two vehicles private cars <u>collided</u> (…)']
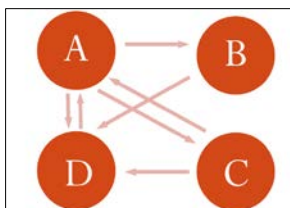
Figure 12. MRE: Weak Melee reciprocity.

In addition, we propose a new type of MRE relation, based on the data extracted from our corpus study, which we have called a One-to-many or Many-to-one relation (Figure 13). In this weak reciprocal situation, there is only one participant related with

all the other pairs in the MRE and all the other participants relate bidirectionally only with the first one. This kind of reciprocal interpretation is only possible with reciprocal sentences where the so-called discontinuous structure is used (see note 6) and if one of the constituents (subject or object) is plural and the other is singular. This interpretation corresponds to sentences (13) and (24).
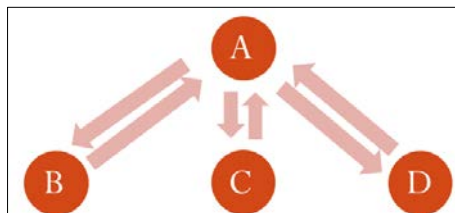
Figure 13. MRE: Weak One-to-many reciprocity.

(24) (…) *este tipo de cuerpos estelares <u>chocaron</u> contra la Tierra* (…) ['(…) these kind of stellar bodies <u>crashed</u> into the Earth (…).']

Once all the types of MRE have been presented we are going to see for which types bidirectionality is a necessary requirement. First, in the relations known as Pairwise relation, Adjacent relation and One-to-many/Many-to-one relation, all the participants play a double role and, therefore, bidirectionality and coindexation are true for each subevent. Still, they cannot be considered cases of strong reciprocity since reciprocal relations are not established among all the participants. Second, the situations called Chained and Melee relations, unlike the ones just seen, do not pass the test of bidirectionality since in some cases some of the participants play just one role. Nevertheless, as a whole, Chained and Melee situations are conceptualized as unique reciprocal events.

For this reason we propose to modify this condition and consider that for a MRE to be considered reciprocal it is mandatory that at least one of the events be strictly reciprocal, and not necessarily all the others. This implies that in that specific event bidirectionality necessarily applies and, therefore, there is a double relation between two participants holding each one a double role in the limits of that relation. For the rest of the events in the MRE participants may have only one role (as participants A or D in Figure 11) or it may have the two roles but each one in a different relation (the same participant can be Initiator of one of the events and Endpoint of another; as participant B in Figure 12).

5.2.2. Frequency of the weak reciprocity in Spanish reciprocal verbs

In this section we provide some data regarding the frequency of the weak interpretations presented in Section 5.2.1. First, note that not all reciprocal verbs admit all these interpretations. Only Paired and One-to-many interpretations are always possible with all lexical reciprocal verbs. The main difference between them is

that, in Paired interpretations, the various reciprocal events can be simultaneous since the pairs are always different. This is not the case in One-to-many interpretations: only 1/3 of the verbs analyzed that can participate in a sentence with a One-to-many interpretation present simultaneous subevents.

Second, from the data observed, we may conclude that the Chained interpretation is the least likely interpretation and has only been found applicable to 3 verbs; all of them closely related to *turnar* 'take turns'.

Third, another interesting fact is that approximately 1/3 of the verbs under study can be used in sentences allowing Adjacent or Melee interpretations. Regarding the former, all reciprocal verbs that denote events in which participants can be placed lineally should admit this interpretation. This happens in 34 of the verbs in the reciprocal class (37.78% of the total). Besides the verb used in example (21) (*chocar* 'collide'), this interpretation is possible with communication verbs like *hablar* 'talk' or *cotillear* 'gossip' and greeting verbs like *estrecharse la mano* 'shake hands' or *saludarse* 'greet each other'. The majority of verbs expressing Adjacent interpretations (75%) are non-comprehensive reciprocal verbs.

Regarding Melee interpretation, 38.89% of the total number of verbs can denote this meaning. In this case, non-comprehensive verbs prove to be proportionally more productive. In fact, 78.78% of the verbs in the non-comprehensive subclass can express this meaning. By contrast, only 15.78% of the verbs in the comprehensive subclass allow this interpretation. This low figure can be explained by the fact that verbs in this latter class imply an interpretation from which all participants are acting *together* simultaneously and this kind of action cannot have a correspondence with the meaning of Melee interpretation. Some of the verbs that admit this interpretation are *chocar* 'collide', in contrast to *reunirse* 'gather'. In the former, all participants must not necessarily collide with all others whereas in the latter the requirement is that all the participants act together.

Regarding the subclass of non-comprehensive verbs, it is worth mentioning the case of communication predicates. On the one hand, verbs such as *conversar* 'converse' trigger easily the Melee interpretation, because it is a disorganized reciprocal event. On the other hand, verbs such as *debatir* 'debate' do not allow this interpretation since the kind of communication established among the participants in a debate is structured since it is always one participant talking to the rest, with turns being taken.

Like other authors (e.g. Nedjalkov 2007, Evans 2008), we can confirm, from the data analyzed in this study, that weak reciprocity is the most common interpretation in MREs. By way of example, we analyzed 46 sentences containing the verb *exchange*. We found that 10 out of 46 of these cases denoted MREs and that all 10 sentences constituted instances of weak reciprocity.

Finally, we have observed that some interpretations related to weak reciprocity are more plausible than others depending on each verb. In the case of the verb *intercambiar* ('exchange'), we analyzed 10 sentences representing a weak MRE, 5 of which have been assigned a Melee interpretation, 3 a One-to-many relation and the last 2 a Pairwise-relation.

CONCLUSIONS

In this article we described the semantic characteristics of 90 lexical reciprocal (or symmetric) verbs in Spanish by examining sentences extracted from corpora. We focused on several aspects related to the analysis of the event structure.

First, we presented a detailed description of the ES of BREs and MREs. Regarding BREs, one of the most important issues dealt with in this paper is the difference between comprehensive (dependent) and non-comprehensive (independent) reciprocal situations, depending on the degree of autonomy of their subevents. We also contributed a new analysis of the so-called collective verbs (join participation) in order to be able to distinguish reciprocal from non-reciprocal collective verbs. Another interesting aspect of the ES of reciprocal situations is the analysis of plurality as in Newman (1990). Specifically, we reviewed MREs and how three different parameters (plurality of participants, places and moments) interact.

Second, we were particularly interested in analyzing how MREs behave with respect to the concept of bidirectionality, since this concept is believed to be the core semantic feature that defines a reciprocal situation. We reviewed several reciprocal interpretations proposed from the field of logic. As a result of our analysis, we reformulated the conditions that MRE must fulfill in order to be considered reciprocal: (i) not all the events in a MRE need to be reciprocal but at least one of them has to be; (ii) in all the other events, the participants holding the double role do not need to be the Initiator and Endpoint of the same event, they might be Initiator of one event and Endpoint of different events.

Third, though we describe the class of reciprocal verbs in Spanish as a compact group characterized by the lexical property of bidirectionality, we found different behaviors with respect to different semantic aspects of ES such as the aspectual verb class, their durative or punctual nature and the simultaneity of the subevents. Another issue reviewed is the existence of lexical restrictions in relation to joint or individual participation and the expression of multiplicity of reciprocal events. We also observed tendencies in relation to the possibilities of the expression of Melee, Adjacent, or other types of reciprocal interpretations, depending on the subtype of reciprocal verb.

Finally, even though we work with just one language, Spanish, we expect many of the conclusions presented in this paper be valid cross-linguistically given that we have focused on semantic properties rather than on formal characteristics. At the same

time, although we have centered our analysis on lexical reciprocity, we believe that some of the conclusions drawn in this work are also applicable to other reciprocal constructions of non-symmetric verbs. Nevertheless, we would not claim to have proved either of these two assumptions and therefore propose they should be tested as future challenges.

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NOTES

[1] This work has been funded by Ministerio de Ciencia e Innovación (FFI2011-27774).

[2] Unless stipulated otherwise, we have used *Corpus del Español* by Mark Davies and more specifically the subcorpus pertaining to the 20th century.

[3] Authors such as Kemmer (1993) have a more restricted vision of lexical reciprocity: for this author if a reciprocal pronoun is used in a sentence then the verb cannot be symmetric because he considers that lexically reciprocal verbs do not need this anaphoric element. In our approach what identifies a symmetric verb is the meaning and not the form.

[4] http://blogs.lavanguardia.com/el-arquero/2009/11. Accessed 6-2-2014.

[5] Since not all reciprocal events are agentive, following Kemmer (1993), we will talk about Initiators rather than Agents and Endpoints rather than Patients.

[6] As can be seen, the syntactic structure of this example does not correspond with the prototypical reciprocal sentence in which a lexical reciprocal event is expected. This structure is known as "discontinuous construction" (Bosque, 1989; Arellano, 2004). There is no agreement in the bibliography about its reciprocal nature since as is generally agreed on one of the

participants gets a more prominent role and, therefore, the other participant becomes a secondary actor.

[7] Diagrams in this section are a simplification of the kind of figures used in Section 2, since we represent the two subevents in a reciprocal event by means of two arrows pointing in opposite directions (for independent subevents) or an arrow with two heads (for dependent subevents). We do not repeat the nomenclature of each participant in the subevent.

[8] https://www.fanfiction.net/s/9266479/6/El-Viaje-en-el-Tiempo. Accessed 6-2-2014.

[9] Evans (2008) also mentions 'radial reciprocity', which we consider a subtype of Melee reciprocity. Also, she considers 'asymmetric reciprocity', which from our point of view can also be understood as strong reciprocity.

[10] For the purpose of simplification, diagrams used in this section always correspond to non-comprehensive subevents.