

Covert reciprocals

Overview: Predicates like *date* and *hug* participate in alternations between seemingly 1-place variants in (1a) and (2a) and 2-place variants in (1b) and (2b). Analyses of these alternations can be grouped into syntactic analyses (e.g. Hackl, 2002) and lexical analyses (e.g. Winter, 2019). On the syntactic analysis, these predicates are always 2-place predicates, and the LF for (1a) and (2a) involves a covert reciprocal in object position. On the other hand, the lexical analysis assumes that the predicates *date* and *hug* in (1a) and (2a) are collective 1-place predicates, and that the 2-place versions are derived from the 1-place variants in the lexicon. A major challenge for the syntactic account comes from cases when the covert and overt reciprocal are not truth-conditionally equivalent, as in (3) (Winter, 2019). In this paper, I propose a version of the syntactic account that predicts this truth-conditional difference compositionally. Furthermore, I provide evidence for the account and against a lexical account from the behavior of these predicates in downward-entailing environments and in the Lebanese Arabic double subject construction.

- (1) a. John and Mary dated. (2) a. Jane and Mary hugged.
 b. John dated Mary. b. Jane hugged Mary.
- (3) Context: John hugged Mary while she was sleeping and then she hugged him later while he was sleeping.
 a. #John and Mary hugged. b. John and Mary hugged each other.

Modified syntactic account: I will assume decompositional account for reciprocals (Heim et al., 1991), where they involve a distributivity operator interpreted above the predicate and a *the other* DP in object position. The LF and corresponding truth-conditions from the implementation in Sauerland (1998) are given in (4): (3b) is predicted to be true iff John hugged Mary and Mary hugged John.

- (4) a. $[[\text{John and Mary}[1[t_1[*[2[t_2[\text{hugged}[\text{the other } t_2 t_1]]]]]]]]]$
 b. $[[\text{the other}]] = \lambda x.\lambda y. y \ominus x$, where $y \ominus x$ is the maximal individual z s.t. $z \leq y \wedge \neg \exists x' : x' \leq x \wedge x' \leq z$
 c. $[[4a]] = 1$ iff $\lambda y. ((*\lambda x. [[\text{saw}]](x)(y \ominus x))(y)$ ($m \oplus j$) = 1 iff $([[\text{hug}]](m)(j) \wedge [[\text{hug}]](j)(m))$

I take the main truth-conditional difference between overt and covert reciprocals to be that the latter bear a simultaneity requirement while the former allow for non-simultaneity: (3b) can be true even when the events of John hugging Mary and of Mary hugging John happen at different times, while (3a) requires the two events to be simultaneous. This extends beyond *hug* to other predicates, like *kiss*, *fall in love* etc. I argue that this truth-conditional difference is due to the different scope of distributivity in the two cases, where with the covert reciprocal distributivity has to take scope below tense and aspect. I assume that predicates take a time interval as their first argument (5a). Furthermore, I assume that tense is referential, as shown in the lexical entry for PAST in (5b). Finally, the perfective aspect standardly picks out a time within the time interval that tense refers to (5c). To see this with a concrete example, consider (5). Note that predicate abstraction has to take place below aspect, giving rise to a predicate of times that *pfv* can apply to.

- (5) a. $[[\text{hug}]] = \lambda t.\lambda x.\lambda y. y$ hugged x at t c. $[[\text{Pfv}]] = \lambda t \lambda P. \exists t' \subseteq t : P(t')$
 b. $[[\text{Past}]]^{t_c} = \lambda P \lambda t : t < t_c. P(t)$
- (6) a. John hugged Mary: $[[[\text{Past } t][[\text{Pfv}[3[\text{John}[[\text{hug } t_3] \text{ Mary}]]]]]]]$
 b. $[[\text{TP}]]^{t_c} = \exists t' \subseteq t : [[\text{hug}]](m)(j)(t')$, defined iff $t < t_c$

Turning to the overt reciprocal, I propose that the * operator can take scope either below or above aspect, giving rise to the two different LFs in (7a) and (8a) respectively. The resulting truth-conditions are given in (7b) and (8b). When distributivity scopes below aspect, (3b) is true iff John hugged Mary and Mary hugged John simultaneously (7b). On the other hand, when distributivity scopes above aspect, (3b) is true as long as John hugged Mary at some time and Mary hugged John at some time (8b).

- (7) a. $[[[\text{Past}][[\text{Pfv}[3[\text{John and Mary}[1[t_1[*[2[t_2[[\text{hug } t_3][\text{the other } t_2 t_1]]]]]]]]]]]]]]]$
 b. $[[7a]] = 1$ iff $\exists t' \subseteq t : [[\text{hug}]](t')(m)(j) \wedge [[\text{hug}]](t')(j)(m)$, defined iff $t < t_c$
- (8) a. $[[[\text{Past } t][4[\text{John and Mary}[1[t_1[*[2[[\text{Pfv } t_4][3[t_2 [[\text{hug } t_3][\text{the other } t_2 t_1]]]]]]]]]]]]]]]]]$
 b. $[[8a]] = 1$ iff $\exists t' \subseteq t : [[\text{hug}]](t')(j)(m) \wedge \exists t' \subseteq t : [[\text{hug}]](t')(m)(j)$, defined iff $t < t_c$

I propose that in covert reciprocals, distributivity has to take the lowest possible scope (9). This predicts that the only possible LF for the covert reciprocal is the one that gives rise to the simultaneous reading in (7a) and therefore that (3a) is not true if John hugged Mary and Mary hugged John at different times.

(9) **Restriction on Covert Reciprocity:** The *each other* in a reciprocal can be ellided only if the pluralization operator * (*each*) takes the lowest scope possible.

Note that the restriction on the scope of *each* in (9) can be seen as a special case of a more general principle requiring implicit arguments to take narrow scope. One prominent case which was first discussed by Fodor and Fodor (1980) is the implicit existential objects of certain transitive verbs like *eat*: while the existential in (10a) can take scope above *every*, the implicit existential in (10b) has to take lowest scope.

(10)a. Everyone ate something.

b. Everyone ate.

Homogeneity The syntactic account and the lexical account make different predictions with respect to how covert reciprocals interact with negation. The lexical account predicts that (3a) and its negated counterpart in (11) have complementary truth-conditions. Therefore, (11) is incorrectly predicted to be true in the scenario in (3), where John and Mary hugged each other at different times. In fact, (11) is only true if neither of John and Mary hugged the other. The fact that (3a) and (11) don't have complementary truth-conditions is predicted by the account proposed above. In particular, plural predication gives rise to a truth-value gap known as homogeneity, where a distributive predicate is false of a plurality iff it is false of all atomic subparts of it (12a) (Fodor, 1970; Križ, 2015 a.o.). This can be accounted for by assuming the falsity conditions for * in (12b) (Schwarzschild, 1994; Bar-Lev, 2019). Since the LF for covert reciprocals in (7a) involves a pluralization operator *, we expect to get homogeneity over the subject *John and Mary*. The truth-conditions in (13) are therefore predicted for covert reciprocals under negation: (11) is correctly predicted to be true iff neither John hugged Mary nor Mary hugged John.

(11) John and Mary didn't hug \Leftrightarrow John didn't hug Mary and Mary didn't hug John.

(12)a. Mary didn't talk to John and Bill. \Leftrightarrow Mary didn't talk to John and Mary didn't talk to Bill.

b. $*P(x)=0$ iff $\neg\exists y \leq_{AT} x : P(y) = 1$

(13) $\llbracket \text{John and Mary didn't hug} \rrbracket = 1$ iff $\llbracket (7a) \rrbracket = 0$ iff $\neg\exists t' \subseteq t : \llbracket \text{hug} \rrbracket (m)(j)(t') \vee \llbracket \text{hug} \rrbracket (j)(m)(t')$

Double subject construction The Lebanese Arabic double subject construction has been argued to allow only for collective readings over the lower subject (Wehbe, 2023). This is illustrated for *dance* in (14) which can't be true in a distributive scenario where Karim and Hadi danced with different people. Note that collective predicates are felicitous in this construction (15). The lexical and syntactic analyses make different predictions with respect to how covert reciprocals behave in the double subject construction. For the lexical analysis, since covert reciprocals are in fact 1-place collective predicates, they should be licensed in this construction, like the collective predicate *gather* in (15). On the other hand, the LF for covert reciprocals on the syntactic analysis requires distributing over the subject (7a), which is not possible in the double subject construction. As shown in (16), covert reciprocals are ungrammatical in the double subject construction, thus providing straightforward evidence for the analysis proposed here and against a lexical analysis.

(14) Karim raʔas howwe w Hadi.

Karim danced him and Hadi.

Karim and Hadi danced together.

(15) Karim jtamaʕ howwe w Hadi.

Karim met him and Hadi.

Karim and Hadi met.

(16) *Karim ʕabat howwe w Hadi.

Karim hugged him and Hadi.

Conclusion: I proposed a novel syntactic account for covert reciprocals which predicts the fact that unlike their overt counterpart, they require simultaneity. Furthermore, I provided two test-cases where the predictions of my proposal and the lexical approach from Winter (2019) make different predictions. In both cases, the predictions of the syntactic approach are borne out.

References: Bar-Lev, 2019: Specification and Homogeneity in Plural Predication; Fodor, 1970: The linguistic description of opaque contexts; Fodor and Fodor 1980: Functional Structure, Quantifiers, and Meaning Postulates; Hackl 2002: The Ingredients of Essentially Plural Predicates; Heim et al. 1991: Reciprocity and Plurality; Križ 2015: Aspects of homogeneity in the semantics of natural language; Sauerland 1998: Plurals, derived predicates and reciprocals; Schwarzschild 1994: Plurals, presuppositions and the sources of distributivity; Wehbe 2023: Against the lexical view of cumulative inferences; Winter 2019: Symmetric predicates and the semantics of reciprocal alternations.