A Compositional Analysis of Scattered Reciprocals in Brazilian Portuguese

Filipe Hisao Kobayashi (MIT)

Overview This presentation investigates reciprocal constructions found in Brazilian Portuguese I call Scattered Reciprocals (SRs). Building on novel data, I develop a compositional analysis of SRs.

Scattered Reciprocals SRs are constructions in which the phrases *one* and *the other* are distributed across the sentence. While *the other* occupies an argument position, *one* can appear in a wide range of different positions (1). The dependency between *one* and the reciprocal's antecedent is locally constrained: it requires c-command and clause-boundedness (2).

(1) Os estudantes vão (**um**) ter (**um**) falado (**um**) com o orientador d-**o outro**.
  the students will one have one spoken one with the supervisor of-the other
  'The student will have spoken with each other's supervisor.'

(2) Os estudantes vão (**um**) dizer que a Maria falou (***um**) com o orientador d-**o outro**.
  the students will one say that the Maria spoke one with the supervisor of-the other
  'The student will each say that Maria spoke with the other's supervisor.'

Syntactic Complexity A defining property of SRs, unnoticed by Belletti (1982) on her pioneering work on Italian reciprocals, is that the dependency between *one* and *other* is not constrained by locality: (3-4) show that this dependency can cross syntactic islands. This suggests that these two phrases are not linked via syntactic operations such as movement or Agree, given that these are locally constrained. Furthermore, it also rules out analyses of SRs as idioms or collocations.

(3) Eles leram **um** [o artigo que **o outro** escreveu]. (4) Eles perguntaram **um** [o que **o outro** leu].
  they read one the paper that the other wrote   they asked one what the other read
  'The students each read the paper the other wrote.'   'The students each asked what the other read.'

Number Features on 'one' and 'the other' The singular number features in both *one* and *the other* are semantically interpreted: in (5) we see that the agent of each subvent of the main reciprocal event must be singular; and in (6) that the theme of each such subvent must also be singular. I take this to support an analysis in which both *one* and *other* contribute to the truth conditions of sentences with SRs.

(5) **Context**: There are three friends. This year, whenever it is the birthday of the daughter of one of them,
    the other two friends will *together* buy her one car
  False Esses amigos vão (**um**) comprar um carro (**um**) para a filha d-**o outro**.
      these friends will one buy a car one to the daughter of-the other
      'These friends will each buy a car to the other's daughter.'

(6) **Context**: There are three friends. Each friend will see the other two friends meeting up at the park.
    *Esses amigo vão **um** ver **o outro** se encontrar no parque.
    these friends will one see the other SE meet in-the park
  'These friends will see each other meet up in the park.'

There's evidence that the singular features of *one* and *the other* are also syntactically present: (7) shows that *pluralia tantum* nouns, such as *costa-s* 'back', cannot be antecedents of SRs.

(7) *As costas d-o João e d-a Maria estão **uma** encostando n-**a outra**.
    the backs of-the João and of-the Maria are one touching on-the other
    'João and Maria's backs are touching each other.'

Division of Labor between 'one' and 'the other' The pieces of SRs seem to individually contribute to the overall meaning of sentences containing them: *the other* is positioned in the second argument of the relation being reciprocated and introduces a non-identity condition, and *one* tracks down the scope of distributivity in these sentences. (8) shows that the scope of distributivity is always at least as low as the position of *one*. Note that floating *one* is not usually a distributor and cannot appear without *the other* (9).

(8) a. Eles vão comprar dois presentes **um** pr-**o outro**.
      they will buy two presents one to-the other
      'They each bought the other person {one, two} presents.'   (two > DIST, DIST > two)

   b. Eles vão **um** comprar dois presentes pr-**o outro**.
      they will one buy two presents to-the other
      'They each bought the other person two presents.'   (*two > DIST, DIST > *two*)

(9) *Os estudantes vão **um** escrever um artigo.
    the students   will one write   one article

Proposal I analyze *one* as a floating quantifier: *one* is a quantifier stranded by A-movement of its antecedent (Sportiche 1989). This accounts for both its distribution and the fact that *one* and its antecedent must be in the same clause. I furthermore take *one* and *the other* to have elided (singular) NP restrictors, which accounts for the unacceptability of *pluralia tantum* nouns as antecedents.

(10) [D NP$_{PL}$]$_i$ ... [um <NP$_{SG}$> [t_i]]$_k$ ... [the [other *pro$_i$*] <NP$_{SG}$>]

The interpretation of *one* and *other* in SRs are the same as the ones found elsewhere: the former is a predicate of singular entities, and the latter is a relation between non-identical individuals (11a-b). Thus, as in Arregi (2001), distributivity in SRs is not due to either *one* or *the other*, but to the independently motivated covert distributivity operator (Link 1987, Schwarzschild 1993). The obligatory presence of this operator in SRs is due to the fact that *one* and the reciprocal's antecedent mismatch in number: the sentence would be contradictory if such operator wasn't there.

(11) a. $[[\text{one}]] = \lambda x_e. |x| = 1$ b. $[[\text{other}]] = \lambda x_e.\lambda y_e. x \neq y$

The phrase *the other* will be taken to be interpreted compositionally, i.e., as a singular definite description. To avoid unwarranted uniqueness presuppositions in sentences in which the SRs antecedent is composed of more than two atomic individuals (in such cases, for each member of such plurality, there will be more than one member not identical to it), the present analysis will be framed within the framework of situation semantics, which, by relativizing descriptions to situations, allows for uniqueness to be weakened. The entry of a situation-semantics-friendly distributive operator is given in (12), and an LF and truth conditions for (1) is given in (13).

(12) $[[\text{DIST}_C]]^s = \lambda x_e.\lambda P_{set}.\ \forall y[y < x\ \&\ C(y) \rightarrow \exists s'[s' < s\ \&\ P(s')(y)]]$

(13) a. the boys λy DIST$_C(y)$ λx [[ι one boy [IDENT x]] speak with [the supervisor of [the [other x] <boy>]]]

     b. $\forall x[x <$ **the.boys**(s_0) & $C(x) \rightarrow \exists s'[s' < s_0$

         & **speak-with**$(\iota x'[$**boy**$(x')(s')$ & $|x'| = 1$ & $x' = x])(\iota u[$**supervisor-of**$(u)(\iota y[$**boy**$(z)(s')$ & $y \neq x])])]]$

Extension to Other Reciprocals Brazilian Portuguese has another similar construction which also involves the phrases *one* and *the other*, shown in (14). There are two key differences between such constructions and the SRs presented above: (i) they do not require an overt sentential antecedent, and (ii) *one* occupies an argument position.

(14) **Um** (menino) falou com o   orientador d-**o**   **outro**.
    one boy   spoke with the supervisor of-the other
    'They/those boys spoke with each other.' *Lit*: 'One (boy) spoke with the other.'

An interesting property of such constructions is that *one* does not need to c-command *other*, as shown in (15). To the extent that one might want to give a unified analysis of these two reciprocal constructions, this supports one aspect of the analysis of SRs given above: *one* is not quantificational - it is only interpreted as a variable. If *one* was a quantifier, it would have to scope out a relative clause in (15), an environment known to be a scope island.

(15) [O   livro que **um** escreveu] agradou **o   outro**.
    the book that one wrote   pleased the other
    'The book that A wrote pleased B and the book that B wrote pleased A.'

The present analysis of SRs can be easily extended to these constructions if one assumes that the covert distributive operator also has "referential uses." An LF and truth conditions for (14) are given in (16).

(16) a. DIST$_C(pro_1)$ λx [[ι one boy [IDENT x]] speak with [the supervisor of [the [other x] <boy>]]]

     b. $\forall x[x < g(1)$ & $C(x) \rightarrow \exists s'[s' < s_0$

         & **speak-with**$(\iota x'[$**boy**$(x')(s')$ & $|x'| = 1$ & $x' = x])(\iota u[$**supervisor-of**$(u)(\iota y[$**boy**$(z)(s')$ & $y \neq x])])]]$

Significance SRs are a kind of reciprocal constructions which are essentially complex. I've argued that, not only should they be treated as syntactically complex, but also semantically so. SRs are also not specific to Portuguese: they can also found in at least Italian and Greek. If the above analysis is on the right track, it goes against Dalrymple et al.'s (1998) proposal that reciprocals are universally mapped to the same polyadic quantifier RECIP.