Reflexivity and Reciprocity with(out) Underspecification

0. Introduction. Syntactic theories generally treat English reflexives such as (1a) and reciprocals like (1b) as a natural class. Yet, the semantic connection between these constructions has received little attention in formal semantics, with most studies focusing on reciprocals ([4], [6], [3], a.o.).

(1) a. The children scratched themselves b. The children scratched each other

However, many languages express reflexivity and reciprocity with a single construction (see [5], a.o.). One such language is Cheyenne, which expresses both with the verbal suffix –ahte. For instance, the Cheyenne sentence in (2) can be translated as either (1a) or (1b).

(2) ka'êsḵónehō éaxeenahtseo'o.
ka'êsḵóne-ho é-axeen-ahte-o'o.
child-PL.AN 3-scratch.AN-ahte-3PL.AN

This paper presents a crosslinguistic surface-compositional analysis of reflexivity and reciprocity in Dynamic Plural Logic ([1]). This dynamic system, which models the dependencies between pluralities, makes it possible to draw a semantic parallel between English reflexives and reciprocals. In addition, Cheyenne –ahte can be analyzed as underspecified for reflexivity and reciprocity – not lexically ambiguous. Underspecification extends the semantic parallel from English to Cheyenne and accounts for some otherwise puzzling facts about Cheyenne –ahte.

1. Mixed Elaboration Puzzle. In addition to allowing both a reflexive and a reciprocal construal, Cheyenne (2) allows a mixed construal, which is partially reflexive and partially reciprocal. Relatedly, (2) can be elaborated in subsequent discourse in a way that English (1a) and (1b) cannot. Consider the following continuation of (2), where the children denotes a set of a boy and two girls.

(3) i. hetanēka'êsḵónehō éaxeenahtse
hetanē-ka'êsḵónehō é-axeen-ahte
man-child 3-scratch.AN-ahte
ii. nā na he'êka'êsḵónehō nonámē'tó'e éaxeenahtseo'o.
naa he'ê-ka'êsḵónehō ho noná-mē'tó'e é-axeen-ahte-o'o
CNJ woman-child-PL.AN noná-NON.ID 3-scratch.AN-ahte-3PL.AN

‘(i) The boy scratched himself (ii) and the girls scratched each other.’

The conjoined sentence (3) is a mixed elaboration of (2), specifying a reflexive relation for the subgroup of the boy and a reciprocal relation for the subgroup of the girls. However, it is difficult to translate the entire Cheyenne discourse (2) – (3) into English. Perhaps the least awkward translation is The children were scratching. The boy scratched himself and the girls scratched each other. The object of (2) cannot be translated with a reciprocal, as in (4), or a reflexive, as in (5), since both English constructions render the mixed elaboration incoherent.

(4) # The children scratched each other. The boy scratched himself and the girls scratched each other.
(5) # The children scratched themselves. The boy scratched himself and the girls scratched each other.

2. Solution. I propose a largely unified account of the English and Cheyenne constructions by appealing to underspecification. I assume that the input to semantic composition is an indexed string of morphemes, interpreted left to right by dynamic conjunction (adapting [2]). For instance, (6a) is the indexed form of the verb in (2) and (6b) is the translation of scratch for both languages.

(6) a. 3x-ahte \rightarrow scratch_{y} \rightarrow scratch_{y} \rightarrow scratch_{y} \rightarrow scratch_{y}
b. δx(εx) \land δy(Sxy)

Superscripts introduce a new value for that variable while subscripts indicate dependence on the value for that variable. In (6a) and (6b), the index x stands for the subject set, y for the object set, and δ, for distribution over x (defined in [1]).
I propose that Cheyenne –ahte presupposes (+) global identity, (7), which requires that two arguments of the verb (here, the subject \( x \) and the object \( y \)) denote the same set.

(7) \(-ahte_{x,y} \leadsto [+y = x]\)

When the antecedent set is a plurality, (7) does not specify the relation between the individual members of that set. For example, (2) does not specify the relation between the individual children (i.e., who scratched whom). Therefore, mixed elaboration is allowed: (3i) can specify a reflexive relation for one subgroup (the boy) and (3ii) a reciprocal relation for another subgroup (the girls). That is, the underspecification of Cheyenne –ahte allows for mixed elaboration in subsequent discourse.

In English, reflexive and reciprocal anaphors presuppose global identity, just like Cheyenne –ahte. In addition, the English anaphors presuppose specific relations between the individual members of the antecedent set – to wit, distributive overlap (8) and distributive non-overlap (9).

(8) \(\text{themselves}_{y,x} \leadsto +[PLy] \land [+y = x] \land +[\delta(y \circ x)]\)
(9) \(\text{each other}_{y,x} \leadsto [+y = x] \land +[\delta(y \circ x)]\)

This accounts for the incoherence of English discourses (4) and (5). Mixed reflexive/reciprocal elaborations are disallowed by the relation specified in the first sentence – distributive overlap for (4) and distributive non-overlap for (5).

3. Further Predictions. The (under)specification analysis of Cheyenne and English accounts for several other facts. For Cheyenne –ahte, it correctly predicts the specification to reflexivity if the antecedent is singular, as in (3i). With a singular antecedent, global identity yields reflexivity. Reciprocity in Cheyenne can be specified by a preposed modifier nonámé’tô’e, as in (3ii). I analyze this modifier as presupposing distributive non-overlap (+[\delta y(y \circ x)]), the second half of English each other.

For English, the proposed basic meanings capture the fact that English reflexives are compatible with singular antecedents while reciprocals are not. The singular reflexive pronoun himself has a translation parallel to (8), except for the singular number (i.e., +[SGy] \land [+y = x] \land +[\delta y(y \circ x)]). The incompatibility of each other with a singular antecedent arises from conflicting presuppositions. The distributive non-overlap presupposition of each other indirectly requires a plurality. (It requires that each member of the antecedent set be related to a non-overlapping subset – impossible with a singleton set.)

4. Conclusion. Cheyenne –ahte is analyzed as underspecified for a reflexive or reciprocal construal. This accounts for the mixed elaboration puzzle and, more generally, mixed construal as well as the specification to a reciprocal construal by a preposed modifier and the interaction with singular antecedents. English themselves and each other are analyzed as fully specified. They presuppose global identity, like Cheyenne –ahte, but further presuppose distributive overlap or distributive non-overlap, which specifies a reflexive or reciprocal relation, respectively.

**References**


