Faller 2007: The Ingredients of Reciprocity in Cuzco Quechua

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1 Introduction

In Cuzco Quechua, reciprocity is marked on verbs with both the suffix *-na*, which Faller argues is a pluractional marker, and the reflexive marker *-ku*. Faller pursues an account that composes reciprocity from the these more basic pieces in Cuzco Quechua (henceforth CQ).

(1) Hayt'a -na -ku -n -ku
kick PA REFL 3 PL
'They kick each other.'

There are four central properties that reciprocals like (1) have, both in English and in CQ:

There are a number of (possibly) distinct reciprocal meanings. Faller is concerned with just one: weak reciprocity, which this list describes. A more formal characterization is provided in (13) below.

Plurality
: There are at least two kicking events.

Distinctness
: The agent and the theme of each event must be distinct.

Reflexivity
: The agent and theme must be drawn from the same group, consisting of at least two members.

Universal Quantification
: Each of the members of this group must be the agent of at least one event and the theme of another.

English encodes these facts with *each other*; CQ, with *-na* and *-ku*. But how, then, is a cross-linguistically uniform semantics derived from these notably different morphosyntactic units? Faller's premise is that, since each of the of these properties is an independent part of grammar, "languages may differ in the compositional derivation of this complex semantic notion."

Faller does not engage the debate about how best to account for English reciprocals, the facts are clearly different there.

In CQ the verbal morphology will buy us two of these properties for free.

- The reflexive marker *-ku* is responsible for… well reflexivity.
- The pluractional marker *-na* ensures the plurality of events.

This means that universal quantification and distinctness must come from somewhere else.

- Universal quantification can be shown to derive from the properties of plural predication.

- Distinctness is argued to be a general condition on coarguments, following Reinhart and Reuland (1993).

2 Data

These are some examples of reciprocals in CQ. CQ is *pro*-drop, so reciprocal marking is possible with only person suffixes (2). It is also possible with overt plural argument (3), or with conjoined nominals (4). The relation may hold between agent and theme (2) or agent and recipient in ditransitives (3). It may also hold between agent and causer (5).

(2) Kunan-qa chay-lla-ta-raq tapu-**na**-yu-**ku**-nchik
now-TOP this-LIM-ACC-CONT ask-PA-INT-REFL-1INCL
'For now we only ask each other this.'
'Eso nomás por ahora nos preguntaremos.'

It's not always clear what the providence of these Spanish translations is. She notes that many of the examples in the paper are translated from Spanish (presumably into CQ by one of her consultants). This one, though, is from a book.

(3) Pay-kuna pura qu-**na**-**ku**-sha-n-ku.
(s)he-PL amongst give-PA-REFL-PROG-3-PL
'They are giving each other (things).'

(4) Qusqu kay-man-qa ham-pu-ra-ni, chicu-cha-y-pa
Cuzco this-ILLA-TOP come-DEF-PST-1 boy-DIM-1-GEN
papa-n-wan t'aqa-**na**-**ku**-spa.
father-3-COM separate-PA-REFL-NMLZ.SS
'I came here to Cuzco after the father of my boy and I separated from each other.'

The comitative is used to conjoin nominals in CQ, but it doesn't make a plural subject. This is a strategy for reciprocal formation in other languages, though (see Faller, fn. 4).

(5) Chay-pi tawa runa-kuna
this-LOC four person-PL taste-CAUS-PA-REFL-PROG-3-PL
malli-chi-**na**-**ku**-sha-n-ku imaymana-ta.
whatever-ACC
'There, four people make each other taste different things.'

It is worth noting that some grammar writers treat *-naku* as a single suffix, but they may be split by an intervening suffix as in (2).

3 The meaning of *-ku*

The suffix *-ku* straightforwardly marks reflexivity:

-ku can also mark middles and anticausatives.

(6) Asnu-n hayt'a-ku-n.
donkey-DIR kick-REFL-3
'The dokney kicks itself.'

(7) Asnu-ta-n ranti-ku-rqa-ni.
donkey-ACC-DIR buy-REFL-PST-1
'I bought myself a donkey.'

As this shows, the reflexive relation can hold between an agent and a benefactive.

4 The meaning of *-na*

The meaning of *-na* is slightly less straightforward. Faller argues that it is a pluractional marker. The problem is that purely distributive uses of *-na* in CQ are not very common. She adduces the following naturally occurring examples:

(8) mana-n saru-**na**-wa-na-nchis-chu ka-sqa-nchis-wan.
not-DIR step.on-PA-1O-NMLZ-1INCL-NEG be-NMLZ-1INCL-COM
'… (that) they must not discriminate against us for what we are.'
'que no nos discriminen por lo que somos.'

(9) Maskha-**na**-ri-ku-spa puri-sha-n alqu.
search-PA-INC-REFL-NMLZ.SS walk-PROG-3 dog
'The dog walks, searching (for food) all over the place.'

A few remarks:

- Faller remarks that in (8), *saru-* is translated by consultants as Spanish *pisotear*, 'to trample', and act that involves stepping on something repeatedly (the original example is cited from elsewhere; the translation is rather free). Thus, the sentence describes a plurality of (stepping) events.
- (9) is interpretable as distribution over locations, though it is also compatible with the weaker notion of events. Not that the use of *-ku* is apparently the benefactive use mentioned above. The sentence, however, "could out of context mean that the dog is engaged in a mutual searching activity with other dogs ('searching for each other'), and this would in fact be the more common interpretation," but the context in which it was uttered made clear that there was one dog searching for food.

It is also worth observing that not all of her consultants accepted the examples above. However, when *-na* precedes the causative marker, or when it occurs in a passive participle, it alone can convey reciprocity (but only in these situations).

She notes that *-na* also appears to be a pluractional marker in Bolivian Quechua. When she presented CQ speakers with equivalents to BQ examples that allegedly have pluractional and not reciprocal readings, though, the CQ speakers did not accept them as such.

(10) Hayt'a-**na**-chi-rqa-ni.
kick-PA-CAUS-PST-1
'I made them kick each other.'

(11) Piña-chi-**na**-sqa puri-ri-n-ku
anger-CAUS-PA-PRTC walk-INC-3-PL
'They walk being in a state of anger with each other.'

No formal analysis of this fact is given. Faller returns to these examples at the end of the paper, noting that it is impossible for *-ku* to appear in these forms.

Thus, *-na* seems to introduce the sort of event plurality inherent of reciprocals. It cannot be a reciprocal marker on its own, though, since examples (8) and (9) do not receive reciprocal readings.

Faller hypothesizes that *-na* is a pluractional marker. The reason that it is so rare may be because it is in competition with other sorts of pluractional markers, like *-paya*, for repetitive action, and *-(y)kacha*, for actions scattered in space.

In fact, (8) becomes completely acceptable with *-paya*.

Something to wonder about: What happens when these other pluractional markers combine with reflexive *-ku*?

5 Cumulativity and reciprocity

Now that we understand *-ku* and *-na* somewhat informally, we turn to trying to the semantic interpretation of reciprocals.

As a starting observation, it is worth noting the similarity of the interpretations of (weak) reciprocity and relational plurals:

(12) The women released the prisoners.
$(\forall x \in A)(\exists y \in B)(xRy) \wedge (\forall w \in B)(\exists z \in A)(zRw)$

(13) The women released each other.
$(\forall x \in A)(\exists y \in A)(xRy \wedge x \neq y) \wedge (\forall w \in A)(\exists z \in A)(zRw \wedge x \neq y)$

A = the set denoted by *the women*
B = the set denoted by *the prisoners*
R = the relation denoted by *release*

- (12) is true if (i) each woman released some prisoner and (ii) each prisoner was released by some woman.
- (13) is true if (i) each woman releases some other woman and (ii) each woman is released by some other woman.

There are two key differences between these representations:

- All instances of B in (12) are replaced with A in (13)—A and B are identified in (13).
- A distinctness condition ($x \neq y$ and $w \neq z$) is added to both conjuncts in (13). Thus, (13) will not be true if some women only release themselves.

Given their similarities, Faller treats reciprocals as special cases of relational plurals.

Relational plurals and reciprocals on this account will get their interpretation by culminating the relevant relation. Culmination is achieved by closing the relation under the sum operation. Enter the $*$ operator (following Kratzer 2007):

(14) Let P be a set of n-tuples ($\langle x_1, \ldots, x_n \rangle$). Then $*P$ is the smallest set such that (i) $P \subseteq *P$, and (ii) if $\langle x_1, \ldots, x_n \rangle$ and $\langle y_1, \ldots, y_n \rangle$ are elements of $*P$, then so is $\langle x_1 + y_1, \ldots, x_n + y_1 \rangle$.

Faller does not use Kratzer's generalized $*$ operator, but instead Link's $*$ and a special $**$ operator, which pluralizes two participant arguments and an even argument. Using Kratzer's general operator is a bit more straightforward.

Pluralizing the predicate is an important part of this formulation of reciprocals: It buys us the universal quantification over participants that we desire. A sentence like (15) will receive a denotation as in (16a), which is equivalent to the denotation in (16b).

(15) The donkeys kicked the dogs.

(16) a. $\exists e. *[\text{kick}'(e) \wedge Ag(e) = a \wedge Th(e) = b] \Leftrightarrow$
b. $\exists e.[\forall x \leq_{AT} a.\exists y \leq b.\exists e' \leq e[\text{kick}'(e') \wedge Ag(e') = x \wedge Th(e') = y] \wedge \forall y \leq_{AT} b.\exists x \leq a.\exists e' \leq e[\text{kick}'(e') \wedge Ag(e') = x \wedge Th(e') = y]]$

Faller goes on to revise this equivalence to deal with situations in which individuals act collectively. I will put that aside today.

a = the sum individual denoted by *the donkeys*
b = the sum individual denoted by *the dogs*

In (16b), we can see the $\forall\exists$ sequence necessary for reciprocity. We only have to add the distinctness condition and identify a and b:

(17) The donkeys kicked each other.

(18) a. $\exists e.*[\text{kick}'(e) \wedge Ag(e) = a \wedge Th(e) = a] \Leftrightarrow$

b. $\exists e.[\forall x \leq_{AT} a.\exists y \leq a.\exists e' \leq e[\text{kick}'(e') \wedge Ag(e') = x \wedge Th(e') = y \wedge x \neq y] \wedge \forall y \leq_{AT} a.\exists x \leq a.\exists e' \leq e[\text{kick}'(e') \wedge Ag(e') = x \wedge Th(e') = y \wedge x \neq y]]$

Note that this is essentially the interpretation we see in (13).

Let's assume, following Kratzer, that all predicates are inherently cumulative. With this assumption, we can proceed to composing reciprocity.

6 Pluractionality

Faller adopts a somewhat simplified version of Lasersohn's (1995) semantics for pluractionality. Recall that this is responsible for the plurality of events in reciprocals.

I have simplified it as well, for expository purposes. See Faller, p. 274 fn. 27 for everything.

(19) $\textsc{pa} = \textsc{pa}_{vi} \vee \textsc{pa}_{vt}$
$\textsc{pa}_{vi}$: $\lambda P.\lambda x.\lambda e.[\neg AT(e) \wedge P(x)(e) \wedge \forall e', e'' \leq e \neg[f(e') \circ f(e'')]]$
$\textsc{pa}_{vt}$: $\lambda R.\lambda x.\lambda y.\lambda e.[\neg AT(e) \wedge R(x)(y)(e) \wedge \forall e', e'' \leq e \neg[f(e') \circ f(e'')]]$

This simply requires that events be non-atomic (*i.e.*, that they have subevents) and that its subevents not overlap.

Faller claims that CQ-*na* denotes PA without setting f to a specific value.

- If set to the temporal trace function, a repetitive interpretation arises as in (8).
- If set to the spatial trace function, a scattered space interpretation arises as in (9).

f can be set to distinguish participants too. In order to derive the reciprocal interpretation, Faller claims that it must be set to $\langle \text{Ag}, \text{Th} \rangle$. This function requires subevents to have distinct either a distinct agent or a distinct theme. It is not enough to distinguish events by their only their agent or only their theme. As the scenario in (20) is meant to show, there are four distinct events, though e_1 and e_3 share an agent, and e_1 and e_4 share a theme. However, (20) clearly represents a (weak) reciprocal scenario: *a*, *b*, and *c* are each agents of at least one kicking event, and *a*, *b*, and *c* are all themes of at least one kicking event.

(20)

Kicking	Agent	Theme
e_1	a	b
e_2	b	a
e_3	a	c
e_4	c	b

One worry is that this requirement is too strong; for instance, if we added a distinct event e_5 where *a* kicks *b* (again), it might seem as though this requirement would incorrectly predict reciprocals to be false in this scenario. However, there would still be a plural event that excludes e_5 (or e_1) that would satisfy $\langle \text{Ag}, \text{Th} \rangle(e)$, so even

this extended scenario would be true.

Combining (19) with our definition of *kick* in (21) yields (22).

(21) $[\![\text{kick}]\!] = *[\lambda x.\lambda y.\lambda e.\text{kick}'(e) \wedge Ag(e) = y \wedge Th(e) = x]$

(22) $[\![\text{kick-PA}]\!] = \lambda s.\lambda t.\lambda e'.[\neg AT(e') \wedge *[\lambda x.\lambda y.\lambda e.\text{kick}'(e) \wedge Ag(e) = y \wedge Th(e) = x](s)(t)(e') \wedge \forall e'', e''' \leq e' \neg[\langle \text{Ag}, \text{Th}\rangle(e'') \circ \langle \text{Ag}, \text{Th}\rangle(e''')]]$

7 Reflexivity

Reflexivity involves co-indexing two of a verb's arguments. The definition provided here is a simple way of doing this:

Again, I am simplifying Faller's discussion and definition. As she discusses, reflexivity can hold at the level of the individuals making up the plural, but sometimes it holds at the level of the group. See her discussion, pp. 276–278.

(23) $[\![\text{REFL}]\!] = \lambda R.\lambda x.\lambda e.R(x)(x)(e)$

Combining this with the (22) yields the following:

(24) $[\![\text{kick-PA-REFL}]\!] =$
$\lambda s.\lambda e'.[\neg AT(e') \wedge *[\lambda x.\lambda y.\lambda e.\text{kick}'(e) \wedge Ag(e) = y \wedge Th(e) = x](s)(s)(e') \wedge \forall e'', e''' \leq e' \neg[\langle \text{Ag}, \text{Th}\rangle(e'') \circ \langle \text{Ag}, \text{Th}\rangle(e''')]]$

8 The distinctness condition

The distinctness condition is usually built in to the semantics of the reflexive marker itself. Faller, however, explores the hypothesis that the distinctness condition is added to any relation unless it is explicitly marked as reflexive. This follows Reinhart and Reuland's (1993) reformulation of binding Condition B:

(25) If a predicate is reflexive it is reflexive marked.

From this, it follows that any predicate that is not reflexive marked is not reflexive. In CQ, it is the case that (null) co-arguments are always interpreted as distinct unless the verb is marked with *-ku*

(26) Hayt'a-n
kick-3
'(S)he$_i$ kicks him/her$_j$.' ($i \neq j$)

(27) Hayt'a-ku-n
kick-REFL-3
'(S)he$_i$ kicks her-/himself$_i$.'

With this observation in mind, let us revise the definition in (21):

(28) $[\![\text{kick}]\!] = *[\lambda x.\lambda y.\lambda e.\text{kick}'(e) \wedge Ag(e) = y \wedge Th(e) = x \wedge x \neq y]$

With this revised definition, we should now be able to derive the whole reciprocal meaning without having to stipulate the distinctness property. It comes for free:

(29) $[\![\text{kick-PA-REFL}]\!] = \lambda s.\lambda e'.[\neg AT(e') \wedge *[\lambda x.\lambda y.\lambda e.\text{kick}'(e) \wedge Ag(e) = y \wedge Th(e) = x \wedge x \neq y](s)(s)(e') \wedge \forall e'', e''' \leq e' \neg[\langle \text{Ag}, \text{Th}\rangle(e'') \circ \langle \text{Ag}, \text{Th}\rangle(e''')]]$

This predicate has all the properties we described at the onset:

- Plurality is encoded by the non-atomicity condition on the event argument and the non-overlap condition on the subevents (19).
- Reflexivity is encoded by the fact that the same plural entity must be used in the agent and theme for a relation (23).
- The universal quantification derives from plural predication (16).
- Distinctness is a property of all non-reflexively marked predicates (25).

References

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