Discontinuous Reciprocal in Japanese

Feb.7,2010; mid-atlantic snow! (image from nationalgeographic)

Masahiro Yamada

University of Delaware (-Mar.31)
Research Fellow of the Japan Society for the Promotion of Science
at Kyoto University (Apr.1-)

Discontinuous Reciprocal (the name from Dimitriadis 2004)

(1) Japanese

a. [**Hiroki** **to** **Yasu**]-ga home-**at**-ta.
[**Hiroki** **and** **Yasu**]-N_{OM} praise-$\mathbf{R_{ECIP}}$-P_{ST}
'Hiroki and Yasu praised each other.'

b. **Hiroki**-ga (kinoo) **Yasu-to** home-**at**-ta.
Hiroki-N_{OM} (yesterday) **Yasu-with** praise-$\mathbf{R_{ECIP}}$-P_{ST}
'Hiroki and Yasu praised each other (yesterday).'
Literally 'Hiroki did a reciprocal praising with Yasu (yesterday).'

It has been noted that the verbal reciprocal allows a discontinuous plural argument for its argument crosslinguistically.

The discontinuous plural arguments consist of a noun phrase at a canonical argument position and an oblique or comitative noun phrase.

(2) Malagasy (Keenan and Razafimamonzy 2004)

a. m+if+aN+enjika (Mifanenjika) **Rabe sy Rakoto**.
   P_{RES}+R_{ECIP}+A_{CT}+chase **Rabe and Rakoto**
   'Rabe and Rakoto are chasing each other.' (KR1a)

b. Mifanenjika **amin-dRabe Rakoto**.
   P_{RES}+R_{ECIP}+A_{CT}+chase **with-Rabe Rakoto**
   'Rakoto is engaged in mutual chasing with Rabe.' (KR20)

(3) Chichewa (Mchombo 1993)

a. **Mbĭdzi ndí nkhandwe** zi-ku-mény-an-a
   10-zebras and 10-foxed 10SM-P_{RES}-hit-R_{ECIP}-F_V
   'The zebras and the foxed are hitting each other.' (M15b)

b. **Mbĭdzi** zi-ku-mény-án-a **ndí nkhandwe**.
   10-zebras 10SM-P_{RES}-hit-R_{ECIP}-F_V **with 10-foxed**
   'The zebras are hitting each other (fighting) with the foxes.' (M15c)

(4) Greek (Dimitriadis 2004)

a. [**Ta agorja kje ta koritsja**] anagaljastikan.
   the boys and the girls hugged.Rcp
   'The boys and the girls hugged each other.' (D95a)

b. **Ta agorja** anagaljastikan **me ta koritsja**.
   the boys hugged.Rcp **with the girls**
   'The boys were in a hugging relation with the girls.' (D96a)

(5) Hebrew (Rubinstein (to appear), Siloni 2001 "fifth verbal template *hitpa'el*")

a. yosi ve-dʒager **hit**χabk-u.
   Yossi and-Jagger **R_{CP}**.embraced-P_L (R1a)
   'Yossi and Jagger embraced.'

b. **dan ve-dina** hitnašku.
   Dan and-Dina kissed(*rec*) (S29b)

c. **dan** hitnašek **im dina**.
   Dan kissed(*rec*) **with Dina** (S29a)

Issue: The verbal reciprocal predicate requires a plural subject

(6) Reciprocal *-aw* requires a plural subject
a. **Kodomo-tachi**-ga home-**at**-ta.
child-P_L-N_{OM} praise-**R_{ECIP}**-P_{ST}
'The children praised each other.'
b,***Hiroki**-ga home-**at**-ta.
Hiroki-N_{OM} praise-**R_{ECIP}**-P_{ST}
Literally 'Hiroki praised each other.'

(7) A singular subject appears with a comitative phrase
a. [**Hiroki to Yasu**]-ga home-**at**-ta.
[**Hiroki and Yasu**]-N_{OM} praise-**R_{ECIP}**-P_{ST}
'Hiroki and Yasu praised each other.'
b. **Hiroki**-ga (kinoo) **Yasu-to** home-**at**-ta.
Hiroki-N_{OM} (yesterday) **Yasu-with** praise-**R_{ECIP}**-P_{ST}
'Hiroki and Yasu praised each other (yesterday).'
Literally 'Hiroki did a reciprocal praising with Yasu (yesterday).'

- What is going on?

- Is there a uniform underlying mechanism that allows the discontinuous reciprocals across languages?

Claim: The comitative phrase of Japanese discontinuous reciprocal is analyzed on a par with the one in (9), which is different from those in (8) and (10). Type 2 comitative forms a discontinuous plural argument.

(8) Type 1: Special predicate (a la Dimitriadis 2004)
   a. [Those five cars] collided.
   b. *[**Stan**] collided.
   c. [**Stan and Kyle**] collided.
   d. [**Stan**] collided [**with Kyle**].

(9) Type 2: Special comitative (part of a discontinuous plural argument)
   a. **The children** built one raft.
   b. **Stan** built one raft.
   c. [**Stan and Kyle**] built one raft.
   d. **Stan** built one raft **with Kyle**.

(10) Type 3: Participant comitative (“he is just there”)
   a. **Shelly** cooked **with her baby**.
   b. **Shelly and her baby** cooked. (≠(10)a)

Type 1: Special predicate as Dimitriadis' (2004) irreducibly symmetric predicate

Dimitriadis' (2004) analysis consists of a series of lexical operations, each defined below. The irreducibly symmetric predicate is defined in (11)a: for example, the verb *kiss* that takes *x* and *y* is irreducibly symmetric iff there is an event that is x kissing y ***and*** y kissing x.[1] *SRecip* in (11)b turns a transitive verb *V* into a symmetric reciprocal relation; the reflexivization is defined in (11)c.

(11) a. Symm(V)(x,y) iff $\exists$e[V(e,x,y) & V(e,y,x)] (D98)
e.g. "*x* symmetrically-kisses *y* if $\exists$e, e is *x* kissing *y* **and** *y* kissing *x*."
b. SRecip(V) = λX.λY. $\forall$x$\in$ X $\forall$y$\in$ Y[x$\neq$y $\rightarrow$ Symm(V)(x,y)] (D99)
c. Refl(λx.λy. V(x,y)) = λx. V(x,x) (D100)

(12) a. Stan and Wendy kissed.
b. Stan cannot kiss Wendy without Wendy kissing him, and Wendy cannot kiss Stan without Stan kissing her.

[1] The irreducibly symmetric relation *R* could be defined as (i) using the material-part-whole relation of events (Bach 1986). When *R* takes *x* and *y*, it denotes a set of events *e* such that *e* is made up of its material-parts *e'* and *e"*, which have the properties *R(x)(y)(e')* and *R(y)(x)(e")*, respectively (see Rubinstein (to appear)).

i) Symm(R) = λx.λy.λe. $\exists$e',e"[e={e',e"} & e',e" are material-parts of e & R(x)(y)(e) & R(y)(x)(e) & x$\neq$y]

The result of applying the *SRecip* and *Refl* operations to a verb is a one-place predicate, as in (13)a. The verb *anagaljastikan* 'hugged.Recip' in (13)b is an instance of this one-place predicate. It takes a coordinated NP, as in the Greek verbal reciprocal sentence in (13)b.

(13) a. $\text{Refl}(\text{SRecip}(V)) = \lambda X.\ \forall x \in X\ \forall y \in X[x \neq y \rightarrow \text{Symm}(V)(x,y)] \quad \in D_{<e,t>}$ (D101)

b. [**Ta agorja kje ta koritsja**] anagaljastikan.
the boys and the girls hugged.Recip
'The boys and the girls hugged each other.' (Greek, D95a)

On the other hand, the discontinuous plural argument appears if *Refl* does not apply to *SRecip(V)*. *SRecip(V)* is a two-place predicate that takes two individual arguments, as in (14)a. Thus, the verb in (13)b is analyzed as *Refl(SRecip(hug))*, while that in (14)b is analyzed as *SRecip(hug)*, where *hug* is analyzed as a two-place predicate of individuals.

(14) a. $\text{SRecip}(V) = \lambda X.\lambda Y.\ \forall x \in X\ \forall y \in Y[x \neq y \rightarrow \text{Symm}(V)(x,y)] \quad \in D_{<e,et>}$ (D99)

b. **Ta agorja** anagaljastikan **me ta koritsja**.
the boys hugged.Rcp **with the girls**
'The boys were in a hugging relation with the girls.' (Greek, D96a)

In sum, the verbs in (13)b and (14)b are pronounced the same, *anagaljastikan* ‘hugged.Recip’, but they are analyzed as a one-place predicate in (13)b and a two-place predicate in (14)b due to the presence and absence of the Reflexivization operation.

The optionality of the reflexivization component of the irreducibly symmetric predicates leads to the alternation between a plural NP and discontinuous NPs.

- Is this analysis of the discontinuous reciprocal applicable to the Japanese verbal reciprocal?

Extending Dimitriadis (2004) to Japanese sounds plausible, but…

Similarities
- The comitative NP and the subject NP are independent constituents

Scope of *-dake* 'only', *-shika* 'NPI only', *-mo* 'also' with *collide*-type verbs

(15) a. [Hiroki to Yasu]-**dake**-ga butsukat-ta.
[Hiroki and Yasu]-only-N_{OM} collide-P_{ST}
'[Only [Hiroki and Yasu]] collided.'
="Hiroki and Yasu collided and no other people collided."

b. Hiroki-**dake**-ga Yasu-to butsukat-ta.
Hiroki-only-N_{OM} Yasu-with collide-P_{ST}
'[Only [Hiroki]] collided with Yasu.'
="No one else but Hiroki collided with Yasu."

c. Hiroki-ga Yasu-to-**dake** butsukat-ta.
Hiroki-N_{OM} Yasu-with-only collide-P_{ST}
'Hiroki collided only with Yasu.'
="Hiroki collided with no one else but Yasu."

Scope of *-dake* ‘only’, *-shika* ‘NPI only’, *-mo* ‘also’ with the Japanese verbal reciprocal

(16) a. [Hiroki to Yasu]-**dake**-ga home-**at**-ta.
[Hiroki and Yasu]-**only**-N_{OM} praise-$\mathbf{R_{ECIP}}$-P_{ST}
‘[Only [Hiroki and Yasu]] praised each other.’
=“Hiroki and Yasu praised each other and no other people praised each other.”

b. Hiroki-**dake**-ga Yasu-to home-**at**-ta.
Hiroki-**only**-N_{OM} Yasu-with praise-$\mathbf{R_{ECIP}}$-P_{ST}
‘[Only [Hiroki]] did a reciprocal praising with Yasu.’
=“No one else but Hiroki did reciprocal praising with Yasu.”

c. Hiroki-ga Yasu-to-**dake** home-**at**-ta.
Hiroki-N_{OM} Yasu-with-only praise-$\mathbf{R_{ECIP}}$-P_{ST}
‘Hiroki did a reciprocal praising only with Yasu.’
=“Hiroki did a reciprocal praising with no one else but Yasu.”

- Subgrouping is restricted for discontinuous reciprocal

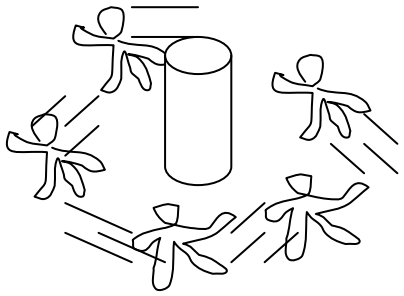
(17) a. **O Yanis,o Nikos kje i Maria** tsakothikan.
the John the Nick and the Maria argued.Recip
'John, Nick, and Maria argued.'
b. **O Yanis kje o Nikos** tsakothikan **me i Maria**.
the John and the Nick argued.Recip **with the Maria**
'John and Nick argued with Maria.' (Greek, D13)

(18) a. [Gakusee-tachi-no daremo to Tanaka-sensee]-ga hihanshi-**at**-ta.
[student-P_L-G_{EN} all and Tanaka-prof.]-N_{OM} criticize-$\mathbf{R_{ECIP}}$-P_{ST}
'All the students and Prof. Tanaka criticized each other.'
b. a –T, b – T, c – T
c. a – T, b – c

(19) a. [Gakusee-tachi-no daremo]-ga Tanaka-sensee-to hihanshi-**at**-ta.
[student-P_L-G_{EN} all]-N_{OM} Tanaka-prof.-with criticize-$\mathbf{R_{ECIP}}$-P_{ST}
Lit. 'The students all did a reciprocal criticizing with Prof. Tanaka.'
'All the students and Prof. Tanaka criticized each other.'
b. a – T, b – T, c – T
c. * a – T, b – c

However, the verbal reciprocals in Japanese and Hebrew-type languages are different

- Japanese verbal reciprocal is not irreducibly symmetric

(20) a. Kodomo-tachi-ga ([boo-no mawari]-de guruguru) oikake-**at**-ta.
child-P_L-N_{OM} ([pole-G_{EN} around]-at circlewise) chase-$\mathbf{R_{ECIP}}$-P_{ST}
'The children chased each other (running around the pole).'
b. Every child chased another child, and every child was chased by another child.
c. 

(21) a. Hiroki-ga Yasu-to oikake-**at**-ta.
Hiroki-N_{OM} Yasu-with chase-$\mathbf{R_{ECIP}}$-P_{ST}
'Hiroki and Yasu chased each other.'
b. Hiroki chased Yasu, (and then) Yasu chased Hiroki.

- Productivity (see Siloni 2001 (16)), Accusative case, Complex predicate (Dimitriadis 2004, Section 2.3)

(22) Accusative case is not available in the verbal reciprocal of a ditransitive verb
dan ve-ron hitkatvu **(*mixtavim)**.
Dan and-Ron wrote(*rec*) **(letters)**
[MY. Intended. 'Dan and Ron wrote to each other.'] (Hebrew, Siloni 2001 (18d))

(23) Accusative case is available in Japanese
a. Kodomo-tachi-ga **Eli-o** shookaishi-**at**-ta.
child-P_L-N_{OM} **Eli-Acc** introduce-$\mathbf{R_{ECIP}}$-P_{ST}
'The children introduced Eli to each other.'
b. Kodomo-tachi-ga Eli-ni shookaishi-**at**-ta.
child-P_L-N_{OM} Eli-to introduce-$\mathbf{R_{ECIP}}$-P_{ST}
'The children introduced each other to Eli.'
c. Hiroki-ga Yasu-to **Eli-o** shookaishi-**at**-ta.
Hiroki-N_{OM} Yasu-with **Eli-A_{CC}** introduce-$\mathbf{R_{ECIP}}$-P_{ST}
'Hiroki did a reciprocal introduction of Eli with Yasu.'

Reciprocal in complex predicate

(24) a. Reciprocal of causative
Kodomo-tachi-ga __ nin'jin-o tabe-**sase**-**at**-ta.
child-P_L-N_{OM} carrot-A_{CC} eat-$\mathbf{C_{AUSE}}$-$\mathbf{R_{ECIP}}$-P_{ST}
'The children made each other eat carrots.'

b. Causative of reciprocal
Hiroki-ga kodomo-tachi-o __ hihanshi-**aw**-**ase**-ta.
Hiroki-N_{OM} child-P_L-A_{CC} criticize-$\mathbf{R_{ECIP}}$-$\mathbf{C_{AUSE}}$-P_{ST}
'Hiroki made the children$_1$ criticize each other$_1$.'

→ "Syntax" (not "Lexicon") and not irreducibly symmetric, but discontinuous reciprocal is possible

Proposal: Type 2 comitative forms a discontinuous plural argument

The discontinuous reciprocal in Japanese employs the comitative phrase that is generally available for the plural predication.

Note the difference between Type 2 and Type 3 comitatives, both are generally available for predicates (cf. Dmitriadis (2004, Section 4.1), Siloni 2001 (37)).

(25) Type 2: Special comitative (part of a discontinuous plural argument)
a. [**Stan and Kyle**] built one raft.
b. **Stan** built one raft **with Kyle**.

(26) Type 3: Participant comitative ("he is just there")
a. **Shelly** cooked **with her baby**.
b. **Shelly and her baby** cooked. (≠(10)a)

While the NP with Type 2 comitative is a part of the plural argument, the NP with Type 3 is not. So, let us set aside Type 3 by assuming that it assigns a generic participant role to its NP argument.

(27) $[\![\textbf{with}_{\textbf{Type3}}]\!] = \lambda x.\lambda e.$ Participant(x)(e)

Back to Type 2 comitative

(28) Collective and Distributive readings
a. Stan built rafts with Kyle.
b. Stan and Kyle built rafts.

(29) Collective and Distributive readings
a. Yasu-ga Hiroki-to ikada-o tsukut-ta.
Yasu-N_{OM} Hiroki-with raft-A_{CC} build-P_{ST}
'Yasu built rafts with Hitoki.'
b. [Yasu to Hiroki]-ga ikada-o tsukut-ta.
[Yasu and Hiroki]-N_{OM} raft-A_{CC} build-P_{ST}
'Yasu built rafts with Hitoki.'

The Type 2 comitative is not a "collectivizing" element (the term from Lasersohn (1990, 1995 Ch. 11), but more like a "plural argument forming" element. The Type 2 comitative semantically, not syntactically via movement operation, forms a plural argument that consists of the comitative NP and another NP argument of the verb.

A function in (30)a captures this idea and is a good candidate for the denotation of the Type 2 comitative. This function would take an individual argument *x*, an intransitive predicate *P*, and another individual argument *y* and return an event property. The two individual arguments are fed into the individual argument slot of *P* as one plural argument *{x,y}*. If this is the denotation of the Type 2 comitative, the sentence in (30)b is represented as a plural predication over the discontinuous plural argument *{Stan,Kyle}*, as in (30)c (see Brisson (2003, (86)) for the definition of the distributive operator with the event variable).

(30) a. "Plural argument former" view of Type 2 comitative
$\lambda x.\lambda P_{evt}.\lambda y.\lambda e.\ ^*P(\{x,y\})(e)$
b. Stan built rafts with Kyle.
c. $\lambda e.\ ^*[\lambda x.\lambda e'.$ e' is builing rafts by x$](\{Stan,Kyle\})(e)$
$= \lambda e.\ \forall x[(x \subseteq \{Stan,Kyle\} \ \&\ x \in Cov_1) \rightarrow$
$\exists e'[e' \subseteq e \ \&\ e' \in Cov_2 \ \&$ e' is building rafts by x$]$

The representation in (30)c allows both distributive and collective readings depending on the value of the cover *Cov*$_1$. If it is *{{Stan}, {Kyle}, …}*, then (30)c is interpreted distributively; if it is *{{Stan,Kyle}, …}*, then the collective reading is obtained.

The representation in (30)c is identical to the one for the sentence with a coordinated NP. This is not the right result because of the following observation concerning the subgrouping effect. Namely, the coordinated NP (31)a and the discontinuous NPs (31)b have different statuses with respect to the subgrouping. The situation described in (32)b, where *Yasu* does, but *Hiroki* does not, form a pair with *Eli* in lifting a piano, does not make (31)b with the discontinuous NPs true.

(31) a. [**Hiroki to Yasu to Eli**]-ga piano-o mochiage-ta.
[**Hiroki and Yasu and Eli**]-N_{OM} piano-A_{CC} lift-P_{ST}
'Hiroki, Yasu, and Eli lifted pianos.'

b. [**Hiroki to Yasu**]-ga **Eli-to** piano-o mochiage-ta.
[**Hiroki and Yasu**]-N_{OM} **Eli-with** piano-A_{CC} lift-P_{ST}
'Hiroki and Yasu lifted pianos with Eli.'

(32) a. Hiroki&Yasu lifted one, Eli lifted one
√ Coodinate NPs (31)a, √ Discontinuous NPs (31)b

b. Hiroki lifted one, Yasu&Eli lifted one
√ Coodinate NPs (31)a, * Discontinuous NPs (31)b

The same subgrouping effect as the verbal reciprocal is observed with non-reciprocal predicates.

I propose this subgrouping effect is due to the *VS* component of the Type 2 comitative, encoded as a presupposition in (33). *VS(x)(y)(e)* requires a substantive plurality, or a meaningful pair of *x* and *y* to be present throughout the event *e* (see Kratzer (2003, Ch.4)).

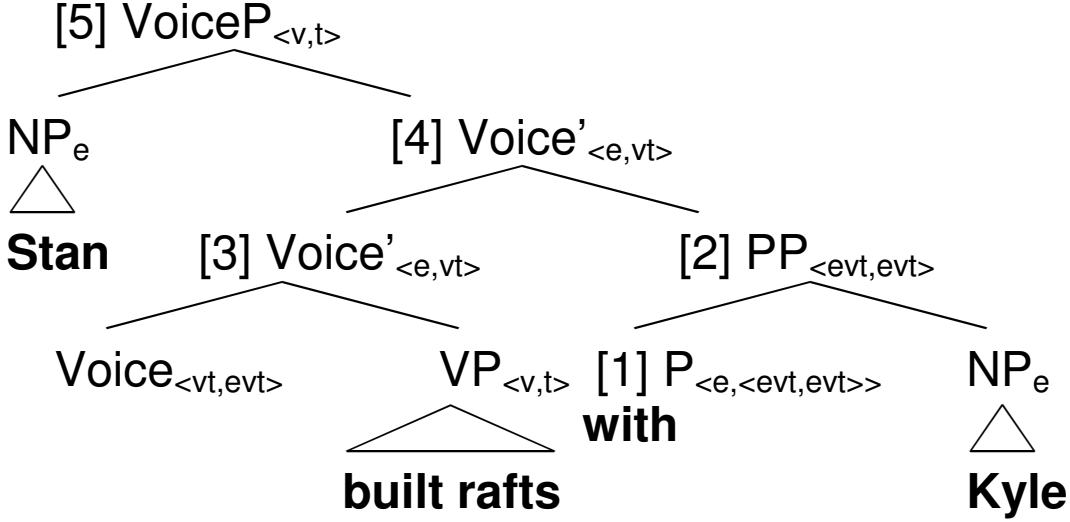
(33) $[\![\textbf{with}_{\textbf{Type2}}]\!] = \lambda x.\lambda P_{evt}.\lambda y.\lambda e{:}VS(x)(y)(e).\ {}^*P(\{x,y\})(e)$
where VS(x)(y)(e)=1 iff ∃s(s<e & s is a state of x and y, each being the other member of a pair)

(34) a. Hiroki and Yasu lifted pianos with Eli.
b. λe:VS(Eli)({Hiroki,Yasu})(e).
*[λx.λe'. e' is lifting pianos by x]({Hiroki,Yasu, Eli})(e)
= λe:VS(Eli)({Hiroki,Yasu})(e).
∀x[(x⊆{Hiroki,Yasu,Eli} & x∈ Cov_1) →
∃e'[e'⊆e & e'∈ Cov_2 & e' is lifting pianos by x]

Due to *VS*, there is a state of *{Eli}* on the one hand and *{Hiroki,Yasu}* on the other, each being the other member of a meaningful pair. Hence, the reading such as (32)b where Yasu is, but Hiroki is not, a member of a pair with Eli, is not available with the discontinuous NPs in (34).

(35) a. Stan built a raft with Kyle

b.



[1] $\lambda x.\lambda P_{evt}.\lambda y.\lambda e$:VS(x)(y)(e). *P({x,y})(e) — Lex

[2] $\lambda P_{evt}.\lambda y.\lambda e$:VS(Kyle)(y)(e). *P({Kyle,y})(e) — [1],[[NP]];FA

[3] $\lambda x.\lambda e$. build(raft)(e) & Agt(x)(e)

[4] $\lambda y.\lambda e$:VS(Kyle)(y)(e). *[$\lambda x.\lambda e$. build(rafts)(e) & Agt(x)(e)]({kyle,y})(e) — [2],[3];FA

= $\lambda y.\lambda e$:VS(Kyle)(y)(e). [$\lambda X.\lambda e'$. $\forall x[(x \subseteq Pow(X) \,\&\, x \in Cov_1) \rightarrow$
$\exists e'' \in e'$[build(raft)(e") & Agt(x)(e")]]]({kyle,y})(e) — unfold *

= $\lambda y.\lambda e$:VS(Kyle)(y)(e). $\forall x[(x \subseteq Pow(\{kyle,y\}) \,\&\, x \in Cov_1) \rightarrow$
$\exists e'' \in e$[build(raft)(e") & Agt(x)(e")]] — λ-conversion

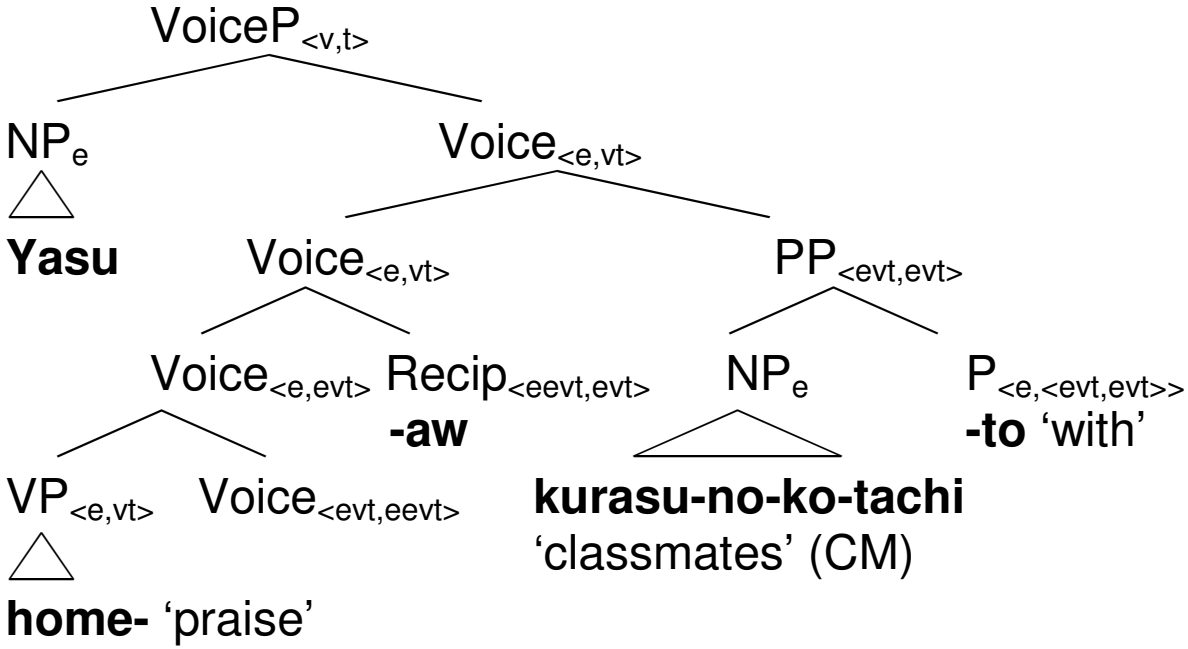
[5] λe:VS(Kyle)(Stan)(e). $\forall x[(x \subseteq Pow(\{Kyle,Stan\}) \,\&\, x \in Cov_1) \rightarrow$
$\exists e'' \in e$[build(raft)(e") & Agt(x)(e")]] — [4],[[NP]];FA

Back to Japanese verbal reciprocal

(36) $[\![\textbf{with}_{\textbf{Type2}}]\!] = \lambda x.\lambda P_{evt}.\lambda y.\lambda e$: VS(x)(y)(e). *P({x,y})(e) $\in D_{<e,<evt,evt>>}$
where VS(x)(y)(e)=1 iff ∃s(s<e & s is a state of x and y each being the other member of a pair)

(37) a. Yasu-ga kurasu-no-ko-tachi-to home-**at**-ta.
Yasu-N_{OM} class-G_{EN}-child-P_L-with praise-$\textbf{R}_{\textbf{ECIP}}$-$P_{ST}$
'Yasu engaged in reciprocal praising with his classmates.'

b.



If the classmates are Eli, Hiroki and Ai, then (a simplified) final result is this;

(38) λe:VS({Eli, Hiroki, Ai})(Yasu)(e).
***[λx.λy.λe. praise(x)(e) & Agt(y)(e) & x≠y](X)(X)(E)
= ∀x[(x⊆Pow({Eli, Hiroki, Ai, Yasu})&x∈Cov_1) →
∃y∃e_1[y⊆Pow({Eli, Hiroki, Ai, Yasu}) & y∈Cov_2 & e_1⊆Pow(e) & e_1∈Cov_3 &
praise(x)(e_1) & Agt(y)(e_1) & x≠y]] &
∀y[(y⊆Pow({Eli, Hiroki, Ai, Yasu})&y∈Cov_2) →
∃x∃e_2[x⊆Pow({Eli, Hiroki, Ai, Yasu}) & x∈Cov_1 & e_2⊆Pow(e) & e_2∈Cov_3 &
praise(x)(e_2) & Agt(y)(e_2) & x≠y]] &
∀e_3[(e_3⊆Pow(e)&e_3∈Cov_3) →
∃x∃y[x⊆Pow({Eli, Hiroki, Ai, Yasu}) &
x∈Cov_1 & y⊆Pow({Eli, Hiroki, Ai, Yasu}) & y∈Cov_2 &
praise(x)(e_3) & Agt(y)(e_3) & x≠y]]

Further simplification of the reciprocal part;

(39) λe:VS({Eli, Hiroki, Ai})(Yasu)(e).
reciprocal-praising-among({Eli, Hiroki, Ai, Yasu})(e)

This correctly captures the syntactic independence of the comitative NP and the restricted subgrouping effect seen in (19).

Concluding Remarks

- The discontinuous plural argument in the Japanese verbal reciprocal sentences is formed by the Type 2 comitative, which is generally available for the plural predication. (different from Type 3 “general participant/accompaniment comitative”)

- Extending Dimitriadis’ (2004) analysis to the Japanese verbal reciprocal yields incorrect predictions (Japanese verbal reciprocal is not irreducibly symmetric, productive, retains accusative case, etc).

- The Japanese data argues for non-uniformity of the crosslinguistically observed phenomenon of discontinuous reciprocals: the observation that the verbal reciprocal allows a singular entity to be its subject that is a part of the discontinuous plural argument.

- Dimitriadis (2004, Section 3.7) noted that Bantu languages are major exceptions to his theory of discontinuous reciprocals. The current proposal could be extended to these languages (and perhaps Malagasy seen above).

- Isn’t this Type 2 strategy available for Hebrew/Greek type languages? Probably without the meaning shift?

Thank you!

I would like to thank my dissertation committee members, Satoshi Tomioka, Benjamin Bruening, Fred Adams, and Roger Schwarzschild for their constant support; Alexis Dimitriadis for his 2004 manuscript and a future appointment sometime today; SySeL participants at University of Delaware; and MACSIM organizers!

References

Bach, Emmon. 1986. The Algebra of Events. In *Linguistics and Philosophy* 9: 5-16.

Brisson, Christine. 2003. Plurals, All, and the Nonuniformity of Collective Predication. *Linguistics and Philosophy* 26: 129-184.

Dimitriadis, Alexsis. 2004. Discontinuous Reciprocals. Ms. Utrecht institute of Linguistics OTS. [http://www.let.uu.nl/~alexis.dimitriadis/personal/papers/discon-long-ms04.pdf, Last Accessed. Mar.1, 2010]

Keenan, Edward L. and Jean-Paulin Razafimamonjy. 2004. Reciprocals in Malagasy. *Oceanic Linguistics*. 43;1: 177-207.

Lasersohn, Peter. 1990. Group Action and Spatio-Temporal Proximity. In *Linguistics and Philosphy* 13: 179-206.

Lasersohn, Peter. 1995. *Plurality, Conjunction and Events*. Kluwer Academic Publishers, Boston.

Mchombo, Sam A. On the Binding of the Reflexive and the Reciprocal in Chichewa. In *Theoretical Aspects of Bantu Grammar*: 181-207.

Rubinstein, Aynat. To appear. Groups in the Semantics of Reciprocal Verbs. in *Proceedings of NELS38*.

Yamada, Masahiro. 2010. *Plurality, Reciprocity, and Plurality of Reciprocity*. Ph.D. dissertation. University of Delaware.

Again-ambiguity (No comitative-less presupposition)

(40) a. Stan collided with Kyle again.
b. Stan collided again with Kyle.
i) Stan collided with Kyle before, and…
ii)*Stan collided with Cartman before, and…

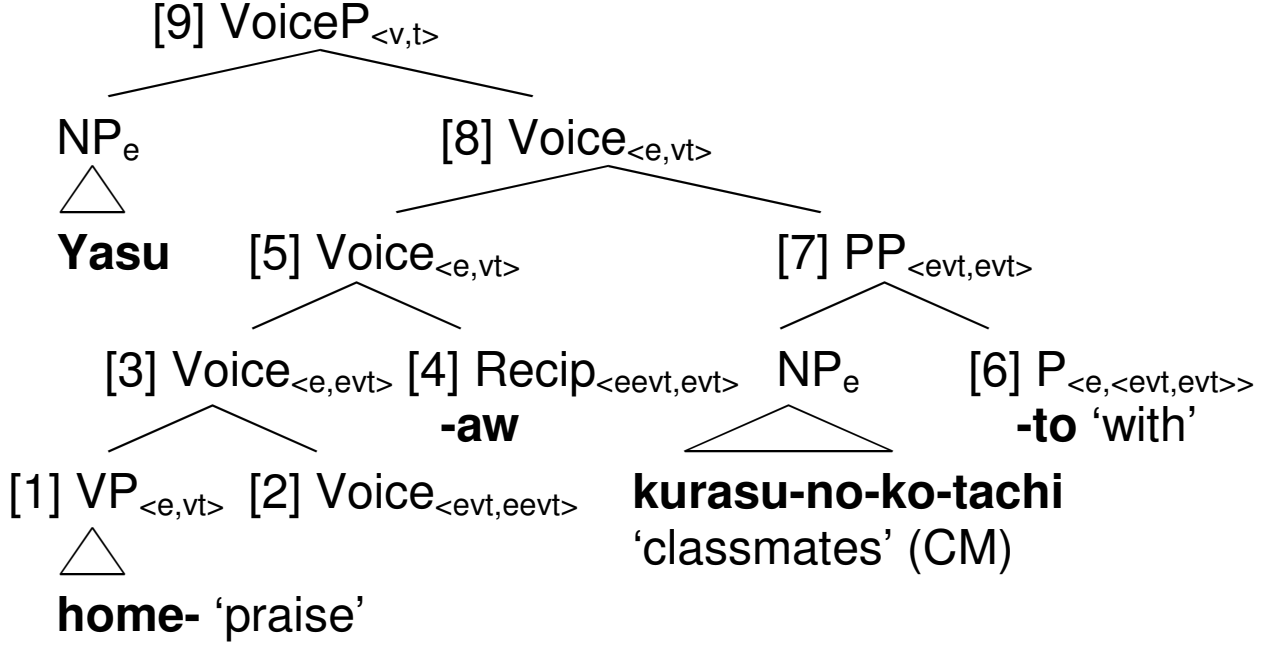
(41) a. Hiroki-ga Yasu-to **mata** home-at-ta.
Hiroki-N_{OM} Yasu-with **again** praise-R_{ECIP}-P_{ST}
'Hiroki did a reciprocal praising with Yasu again.'
i) Hiroki and Yasu praised each other before, and…
ii)*Hiroki did a reciprocal praising with someone before, and…

Accounted for by the syntactic structures presented above (no <v,t> node for *again* in either structure)

Compositional analysis of the Japanese verbal reciprocal with Type 2 comitative

(42) a. Yasu-ga kurasu-no-ko-tachi-to home-**at**-ta.
Yasu-N_{OM} class-G_{EN}-child-P_L-with praise-$\mathbf{R_{ECIP}}$-P_{ST}
'Yasu engaged in reciprocal praising with his classmates.'

b.



[1] λx.λe. praise(x)(e) = [[V]]

[2] $\lambda P_{evt}.\lambda x.\lambda y.\lambda e.$ P(x)(e) & Agt(y)(e) via type-shift ("pass-up" the internal arg.)

[3] λx.λy.λe. praise(x)(e) & Agt(y)(e) [1],[2];FA

[4] $\lambda R_{eevt}.\lambda Z.\lambda E.$ ***[λx.λy.λe. R(x)(y)(e) & VS(x)(y)(e)](Z)(Z)(E) Lex

[5] λX.λE. ***[λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)](Z)(Z)(E) [3],[4];FA

< Substitute *λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)* with *R* >

= λZ.λE. ***R(Z)(Z)(E)

[6] $\lambda x.\lambda P_{evt}.\lambda y.\lambda e$: VS(x)(y)(e). *P({x,y})(e) Lex

[7] $\lambda P_{evt}.\lambda y.\lambda e$: VS(CM)(y)(e). *P({CM,y})(e) [2],[[NP]];FA

[8] λy.λe:VS(CM)(y)(e). *[λZ.λE. ***R(Z)(Z)(E)]({CM,y})(e) [1],[3];FA

[9] λe:VS(CM)(Yasu)(e). *[λZ.λE. ***R(Z)(Z)(E)]({CM,Yasu})(e) [4], [[NP]];FA

<*-unfold>

= λe:VS(CM)(Yasu)(e). [λZ.λE. $\forall z[(z \subseteq Pow(Z) \& z \in Cov_4) \rightarrow$
$\exists e'[e' \subseteq Pow(E) \& e' \in Cov_5$ & ***R(z)(z)(e')]]({CM,Yasu})(e)

<λ-conversion: Z→{CM,Yasu}, E→e>

= λe:VS(CM)(Yasu)(e). $\forall z[(z \subseteq Pow(\{CM,Yasu\}) \& z \in Cov_4) \rightarrow$
$\exists e'[e' \subseteq Pow(e) \& e \in Cov_5$ & ***R(z)(z)(e')]]

<Substitute *R* with *λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)*>

= λe:VS(CM)(Yasu)(e). $\forall z[(z \subseteq Pow(\{CM,Yasu\}) \& z \in Cov_4) \rightarrow$
$\exists e'[e' \subseteq Pow(e) \& e' \in Cov_5$ &
***[λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)](z)(z)(e')

<***-unfold, λ-conversion>

= λe:VS(CM)(Yasu)(e). ∀z[(z⊆Pow({CM,Yasu})&z∈Cov_4) →
∃e'[e'⊆Pow(e)&e∈Cov_5 &
∀x[(x⊆Pow(z)&x∈Cov_1) → ∃y∃e_1[y⊆Pow(z) & y∈Cov_2 & e_1⊆Pow(e') & e_1∈Cov_3 &
praise(x)(e_1) & Agt(y)(e_1) & VS(x)(y)(e_1)]] &
∀y[(y⊆Pow(z)&y∈Cov_2) → ∃x∃e_2[x⊆Pow(z) & x∈Cov_1 & e_2⊆Pow(e') & e_2∈Cov_3 &
praise(x)(e_2) & Agt(y)(e_2) & VS(x)(y)(e_2)]] &
∀e_3[(e_3⊆Pow(e')&e_3∈Cov_3) → ∃x∃y[x⊆Pow(z) & x∈Cov_1 & y⊆Pow(z) & y∈Cov_2 &
praise(x)(e_3) & Agt(y)(e_3) & VS(x)(y)(e_3)]]

Suppose z={CM, Yasu}, e'=e, then [9] is a reciprocal praising among Yasu and his classmates, essentially identical to the following. This is equivalent to having the cover value as *Cov_4={{CM, Yasu}, …}*.

(43) λe:VS(CM)(Yasu)(e). ***[λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)]
({CM, Yasu})({CM, Yasu})(e)

If *Eli*, *Hiroki*, and *Ai* are the members of the classmates (i.e. CM={Eli, Hiroki, Ali}), then any subgoupings among *Eli, Hiroki, Ai,* and *Yasu* seem to be possible for the reciprocal relation.

(44) λe:VS(CM)(Yasu)(e). ***[λx.λy.λe. praise(x)(e) & Agt(y)(e) & VS(x)(y)(e)]
({Eli, Hiroki, Ai, Yasu})({Eli, Hiroki, Ai, Yasu})(e)

However, the presupposition *VS(CM)(Yasu)(e)* from the meaning of the comitative encourages the reading that *Yasu* forms a pair with the classmates. Therefore the reciprocal praising relation holds only between Yasu and the classmates, and any reciprocal praising among the classmates excluding Yasu is not asserted.

(45) λe:VS(CM)(Yasu)(e).
$\forall x[(x \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \& x \in Cov_1) \rightarrow$
$\exists y \exists e_1[y \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \& y \in Cov_2 \& e_1 \subseteq Pow(e) \& e_1 \in Cov_3 \&$
$praise(x)(e_1) \& Agt(y)(e_1) \& VS(x)(y)(e_1)]] \&$
$\forall y[(y \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \& y \in Cov_2) \rightarrow$
$\exists x \exists e_2[x \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \& x \in Cov_1 \& e_2 \subseteq Pow(e) \& e_2 \in Cov_3 \&$
$praise(x)(e_2) \& Agt(y)(e_2) \& VS(x)(y)(e_2)]] \&$
$\forall e_3[(e_3 \subseteq Pow(e) \& e_3 \in Cov_3) \rightarrow$
$\exists x \exists y[x \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \&$
$x \in Cov_1 \& y \subseteq Pow(\{Eli, Hiroki, Ai, Yasu\}) \& y \in Cov_2 \&$
$praise(x)(e_3) \& Agt(y)(e_3) \& VS(x)(y)(e_3)]]$

(I originally proposed *VS* for the non-reciprocal use of *-aw* in Chapter 3 of my dissertation. It plays the role of the distinctness/non-overlapping condition in its reciprocal use.)