Voice-mismatch reciprocals in Indonesian as binary predicate conjunction

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Overview

Voice-mismatch reciprocals in Indonesian:

(1) Ani dan Ana jimpit-**men**jimpit
ani and ana UV+pinch-AV+pinch
'Ani and Ana pinched each other'

- This construction may appear at first to be one of Indonesian's many **reduplication** constructions (Mistica et al., 2009).
- We argue instead that this construction involves **coordination**, in agreement with Udayana et al. (2024).
- We argue in particular that it is **binary predicates** that are coordinated; cf. Staroverov (2007) on *brother and sister*.

Selected examples

Active voice (AV):

(2) Amir **mem**baca boku itu
Amir AV+read book this
'Amir read this book'

Passive voice (PV):

(3) Boku itu **di**baca oleh Amir
book this PV+read by Amir
'This book was read by Amir'

Undergoer voice (UV), a.k.a. 'bare passive' (Nomoto 2021):

(4) Temannya dia pukul
his.friend he UV+hit
"He hit his friend"

Voice-mismatch reciprocal with collective subject

(5) Tono dan Tini pukul-**mem**ukul
Tono and Tini UV+hit-AV+hit
'Tono and Tini hit each other' (Udayana et al. ex. 52a)

Discontinuous voice-mismatch reciprocal

(6) Tono pukul-**mem**ukul dengan Tini
Tono UV+hit-AV+hit with Tini
'Tono and Tini hit each other' (Udayana et al. ex. 52a)

Reduplicated pluractional:

(7) Dia **mem**ukul-mukul temannya
he AV+hit-hit his.friend
1. "He was (repeatedly) hitting his friends."
2. "He hit each of his friends"

(8) Saya **mem**ukul-**mem**ukul dia
1sg AV+hit-AV+hit 3sg
'I was hitting him' / 'I repeatedly hit him.'

(9) Saya **mem**bunuh-**mem**bunuh binatang
1sg AV+kill-AV+kill animal
'I killed animal after animal'

Other Reciprocal Strategies

1. *saling*: *Mereka selalu **saling** memukul*
2. *satu sama lain*: *Mereka memukul **satu sama lain***
3. *ber-an*: *John dan Jane **ber**pukulan*
4. *ber* (small class of intransitive verbs): *Tono dan Tini **ber**kelahi*

Option I: Reduplication + θ-role Merger

Hypothesis: Voice-mismatch reciprocals involve reduplication.

- *pukul-**mem**-ukul* and ***mem**-ukul-mukul* "differ on the order in which the reduplication and *meN* affixation are applied" (Mistica et al., 2009)

Challenges:

1. How does the reciprocal meaning arise?
2. How are selection requirements determined?

Mistica et al. (2009):

- **reciprocal word forming sublexical rules** in LFG reducing subcategorization list:
pukul <agent,theme> → *pukul-memukul* <agent&theme>
- f-structure for *Mereka pukul-memukul* 'they hit each other' has PRED 'RECIP⟨[4:mereka], 'pukul⟨[4:mereka], [4:mereka]⟩'⟩'

Critique: This operation is ad-hoc.

Option IIa: Unary predicate conjunction

Hypothesis: Monadic predicates are conjoined.

- *pukul* combines with ***mem**-ukul* via (asyndetic) coordination (Udayana et al., 2024)
- Suppose that it is unary predicates that are conjoined, e.g.:
pukul $\rightsquigarrow \lambda x.\lambda e.\,\mathrm{th}(e) = x \wedge {}^*\mathrm{hit}(e)$
& *mem-ukul* $\rightsquigarrow \lambda x.\lambda e.\,\mathrm{ag}(e) = x \wedge {}^*\mathrm{hit}(e)$
= *pukul-memukul* $\rightsquigarrow \lambda x.\lambda e.\,\mathrm{ag}(e) = x \wedge \mathrm{th}(e) = x \wedge {}^*\mathrm{hit}(e)$

Challenge 1: How does reciprocal meaning arise?

✓ A reciprocal interpretation falls out elegantly, assuming default non-overlap of agent and theme.

Challenge 2: How are selection requirements determined?

- Monadic coordination requires monadic predicates as input.
- Such predicates are not generated by the syntax. Like AV, UV is dyadic; it requires both a theme and an overt agent.

(10) Rumah itu akan *(saya) jual
house that FUT *(1sg) sell
'That house, I will sell.' (Arka & Manning, 1998)

Option IIb: Binary predicate conjunction

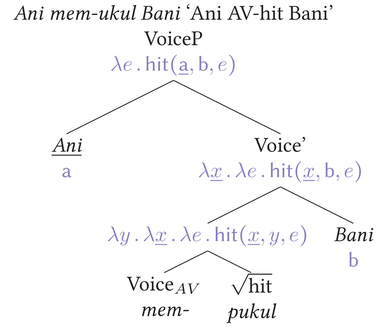
Hypothesis: Dyadic predicates are conjoined.

- When two fully unsaturated binary predicates get coordinated, their four total arguments are reduced to two.
- Staroverov's collectivity operator further reduces the arity to one ⇒ reciprocal semantics.

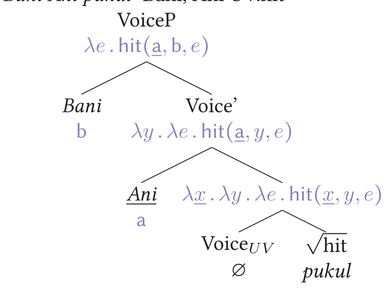
Step 0: Assumptions about Voice

- Functional heads introduce thematic relations (Legate, 2014)
  - Voice$_{AV}$ projects first a theme, then an agent
  - Voice$_{UV}$ projects the agent first, and then the theme.
- Indonesian Voice heads merge directly with verbal roots

Ani mem-ukul Bani 'Ani AV-hit Bani'



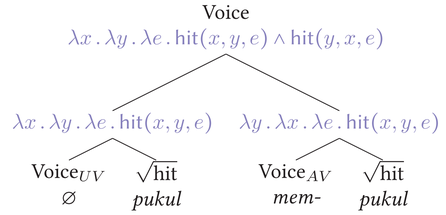
Bani Ani pukul 'Bani, Ani UV.hit'



(hit(x, y, e) abbreviates $\mathrm{hit}(e) \wedge \mathrm{ag}(e) = x \wedge \mathrm{th}(e) = y$)

Step 1: Binary predicate conjunction

Given R_1 and R_2 of type $\langle e, \langle e, \langle v, t\rangle\rangle\rangle$
$R_1 \& R_2 = \lambda y \lambda x \lambda e.\, R_1(x, y, e) \wedge R_2(x, y, e)$



✓ Works for discontinuous voice-mismatch reciprocal.
- Step 2 needed for collective subject

Step 2: Collectivity operator

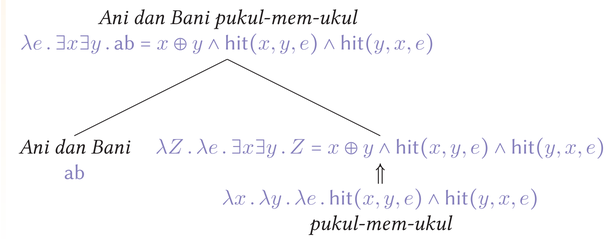
Cf. syndetic coordination of relational nouns:

(11) Ani and Bani are brother and sister

Staroverov (2007): binary pred. conjunction → collectivity operator:

(12) $\lambda R \lambda Z \exists x \exists y [Z = x \oplus y \wedge R(x)(y)]$

(flattens a binary symmetric predicate into a predicate of pluralities)



Conclusion & Outlook

In favor of the binary coordination analysis:

- It offers a non-ad-hoc compositional route to the reciprocal meaning that is compatible with the selection requirements of the Voice heads involved.
- Another happy consequence of this analysis is that passives are correctly predicted *not* to participate, assuming Indonesian passives project only a theme (Legate, 2010).
- This analysis may extend to reciprocals formed through active-passive juxtaposition in Nicaraguan Sign Language (Gleitman et al., 2019), if NSL's passive is dyadic.

Outstanding challenge:

(13) Mereka beli-**mem**bilikan mobil
they buy-AV+buy+KAN car
'They bought cars for each other'

Broader theoretical implications:

- The notion that Voice heads may combine directly with the root, and project multiple arguments at once, may be novel.
- Indonesian Voice heads are strongly 'bundled' in the sense of Pylkkänen (2008), if we are right.
- **(Correct?) Prediction:** Absence of High Appl and other phenomena indicating 'splitting' of int. and ext. arg introduction.
- **Typological implication:** Given that bundling is possible, could there then be a language that has Indonesian-like UV but not AV – a deep ergative language?
  - If the absence of such languages is not an accidental gap, then UG may impose hierarchical constraints on bundling.

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