Yṳn Shan (Southwestern Tai) internally headed relative clauses (IHRCs) have a non-maximal interpretation available, unlike IHRCs in languages like Japanese.

Of current IHRC analyses, Shimoyama’s (1999) E-type analysis fits the data best if it can allow for a non-maximal interpretation.

This non-maximal interpretation is similar to the non-maximal interpretation of anaphoric bare nouns in Inuttut (Gillon 2015).

1 Non-maximal IHRCs in Yṳn Shan

In the IHRC literature there are several analyses for Japanese (Grosu & Landman 2012; Erlewine & Gould 2016; Grosu & Hoshi 2018; Kitagawa 2019; a.o.), and some for Korean (Kim 2004; a.o.).

There have been fewer analyses for IHRCs in other languages (see, e.g., Williamson 1987 for Lakhota; Hastings 2004 for Quechua, and Bogal-Allbritten & Moulton’s (2018) analysis of Navajo.

This means that there is a gap in the literature about what analyses to use for internally headed clauses in other languages.

Moroney (2018) introduced Yṳn Shan IHRCs, which are CNPC-island sensitive, non-maximizing IHRCs.

In Japanese sentence (1), the numeral ‘three’ only tells the number of apples that were peeled.


NO-ACC ‘Mary peeled three apples and John ate them all.’

- Apples Mary peeled: 3
- Apples John ate: 3

In the corresponding Yṳn Shan sentence in (2), the numeral ‘three’ only tells the number of apples that were peeled.

(2) Nan Lĩ cĩn pẽn [ʔān Saŋ Kham pǐk mànɔ sãam hwĩ naŋ]

‘Nan Li ate up apples that Saj Kham peeled of which there are three.’

- Apples S.K. peeled: 3
- Apples N.L. ate: some of the peeled apples

The difference: at the matrix clause level, the noun phrase denoted by the IHRC is maximal for Japanese but need not be for Y说实 Shan.

Road map

2 Analyses for Japanese

3 Y说实 Shan Relative Clauses

4 Adapting Analyses for Y说实 Shan

5 Implications

6 Conclusions
2 Analyses for Japanese.

- For Lakhota, another language with non-maximal IHRCs, an uns-selective binding analysis has been proposed (Bonneau 1993).

- The problem: relies on overt determiners, which Shan lacks, and predicts no IHRC island-sensitivity, which Shan has.

- This section discusses the analyses for Japanese in Shimoyama 1999 (S), Grosu & Landman 2012 (G&L), and Erlewine & Gould 2016 (E&G).

- Accounts of Japanese have focused on accounting for
  - maximality of the RC
  - construal of quantifiers inside the relative clause
  - island sensitivity of IHRCs

- Analyses for Japanese attribute this definite/maximal interpretation to a ‘THE’ or $\sigma$ operation at the top of the relative clause, though the source of this definiteness operation is not agreed upon.

- Examples (3a-3c) represent my interpretation of how each of these previous accounts would each analyze the IHRC in (1).


- NO-ACC ate
- ‘Mary peeled three apples and John ate them all.’ (Shimoyama 1999, citing Hoshi 1995)
  - Apples Mary peeled: 3
  - Apples John ate: 3

Japanese

(3) a. $\sigma(\lambda x \exists e [PEEL(e) \land Ag(e)] = m \land Th(e) \in ^*APPLE \land |Th(e)| = 3 \land Th(e) = x)$
   (G&L style: see (48))

b. (THE)[$\lambda X . X$ apple(s) $\land$ $m$ peeled 3[apple parts of $X$]]
   (E&G style: see (46c))

c. the maximal individual $a$ such that $\lambda x \in D_e. x$ is apples $m$ peeled ($a$) = 1
   (S style: see (37-38))

- Grosu & Landman (2012)
  1. Chose Role (ChR) projection: chooses salient role in event VP to abstract over
  2. SpecChR: launches operator to capture island sensitivity
  3. $\sigma$: maximal interpretation

- Erlewine & Gould (2016)
  1. Copy DP and late-merge CP to copied DP by adjoining to NP
  2. Trace conversion (Fox 2002) of lower copy or Inverse trace conversion (Erlewine 2014) of the higher copy:
  - variable insertion ($\lambda y . y = x$ or $\lambda y . y \subseteq x$) at lower copy
  - determiner replacement for quantifier of lower (Trace conversion) or higher (Inverse trace conversion) copy
  4. Definiteness from THE modeled as maximal informativeness

- Shimoyama (1999)
  1. IHRC moves from SpecDP to adjoin to IP at LF
  2. null pro-form in N: gets $\langle e, t \rangle$ denotation from assignment function
  3. -no: occupies D and generates maximal interpretation
3 Yṳn Shan Relative Clauses

- Yṳn Shan is an SVO, classifier language.
- This language has post-nominal externally headed relative clauses (EHRCs), which can have the same interpretation as the IHRC.

(4) Nan Lī čin pën māmô [ʔǎn  Saj Kham pỳk sāam hwí
Nan Li eat up apple COMP Saj Kham peel 3 CL.RND nǎj].
this
‘Nan Li ate up apples that Saj Kham peeled of which there are three.’
- Apples S.K. peeled: 3
- Apples N.L. ate: some of the peeled apples

- The internal head might be quantified or bare, as in (5).

(5) Nan Lī khaj čin [ʔǎn  Saj Kham tě lǎaq māmô nǎj]. Mǎn
Nan Li want eat COMP Saj Kham IRR wash apple this 3.SG
khaj čin hwí.
want eat CL.RND
‘Nan Li wants to eat apples that Saj Kham will wash. She wants to eat one.’
- Apples S.K. peeled: 3
- Apples N.L. ate: some of the peeled apples

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4 Adapting analyses for Shan.

- Analyses that assume a maximal IHRC interpretation cannot be applied directly to this new data.
- Kotek & Erlewine (2016) proposed that for indefinite free relatives, the presence/absence of a DP layer leads to the maximal/non-maximal interpretation.
- (7a–7c) are possible IHRC interpretations for (2) adapted from (3a–3c) to exclude the definiteness operation.

Yṳn Shan

(7) a. λx.∃e[PEEL(e) ∧ Ag(e) = sk ∧ Th(e) ∈ *APPLE ∧ |Th(e)| = 3 ∧ Th(e) = x]
b. [λX.X apple(s) ∧ sk peeled 3[apple parts of X]]
c. λx ∈ De. x is apples sk peeled

- Grosu & Landman (2012): (7a)
  - The problem: each x in the set has to have the measure 3, meaning the matrix clause verb must apply to all three peeled apples.
  - We want it to be possible for only 1 or 2 apples to be eaten.
- Erlewine & Gould (2016): (7b)
  - The problem: Each X described would have to contain at least 3 apples.
  - No salient set reading has been found in Yṳn Shan.
- Shimoyama (1999): (7c)
  - IHRC is interpreted separately from the matrix clause
  - Does not make reference to number of apples peeled
  - Can work if definiteness operator is removed

Workshop on (Non-)Complementation
My proposal:

- The IHRC DP moves at LF to a higher projection.
- In place of the IHRC, a free variable that receives its denotation from an assignment function in the utterance context.
- Unlike in Japanese, there is no definiteness operator like -no.
- Then, the argument of the matrix clause would be something of type \langle e, t \rangle, that would function as a bare argument.
- The IHRC would be in an independently used topic position.

\[ (8) \]

\[ \text{TopP} \]
\[ \text{DP} \]
\[ \text{IHRC} \]
\[ \text{this} \]
\[ \text{Nan Li} \]
\[ \text{Saj Kham peeled three apples} \]
\[ \text{NP} \]
\[ \text{ate} \]
\[ P(3, (e, t)) \]

This topic position is usually filled by a noun or a dependent clause.

(9) shows the IHRC from (10) in the topic position.

\[ (9) \]

\[ \text{[?án Saj Kham pòk màak-moŋ sì hòj náŋ] Náaŋ ?ón COMP Mr. Kham peel fruit-mango 4 CL.RND that Ms. Orn kin prt. eat DETR} \]

\[ \text{‘Nan Orn ate mangoes that Saj Kham peeled of which there are four.’} \]

- Mangoes S.K. peeled: 4 mangoes
- Mangoes N.O. ate: some peeled mangoes

Both varieties of Shan have a topic position available.

The difference: Southern Shan has no IHRCs in object position.

Outside of this data, I have not found that other varieties of Shan or Thai—the best studied Southwestern Tai—have IHRCs.

This could be because IHRCs in Southern Shan cannot raise at LF.

4.1 Other Shan Varieties: Southern Shan

- Southern Shan—a variety of Shan spoken in southern Shan State—has what looks like IHRCs in topic position, as in (10).

Southern Shan

\[ (10) \]

\[ \text{[?án Tsáaj Khám pòk màak-moŋ sì hòj náŋ] Náaŋ ?ón COMP Mr. Kham peel fruit-mango 4 CL.RND that Ms. Orn kin prt. eat DETR} \]

\[ \text{‘Nan Orn ate mangoes that Saj Kham peeled of which there are four.’} \]

- Mangoes S.K. peeled: 4 mangoes
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4.2 Internal IHRC structure

- Yūn Shan IHRCs and EHRCs are sensitive to CNPC islands:

\[ (11) \]

\[ *[?án Nan Lí waa kán tājhen [?án kón ?àan lik COMP Nan Li spoke together with COMP person read book náŋ] mán lër. this 3 red} \]

\[ \text{Intended: ‘The book that Nan Li spoke with the people who read (it) is red.’} \]

(\text{Moroney 2018: (16)})

- As (12) shows, multiply embedded IHRCs are acceptable.
\(12\) [？ān Nan Lī cvk [？ān kōn sū lik nāj]] mān kēj.
COMP Nan Li like COMP person buy book this 3 clever
Intended: ‘The person that Nan Li likes who bought the books is smart.’

- **Raising account**: Head or operator raises, causing island violation.
- **Topic account**: it is not possible to identify the topic since there are two?
- If there is no IHRC internal raising going on it is harder to predict why (11) is ungrammatical and (12) is grammatical.

### 5 Implications of indefinite E-type analysis

- Is it a problem that this ‘E-type’ analysis involves \(\langle e,t \rangle\) type anaphora? —Perhaps not.
- Bare nouns do not always have to refer anaphorically to the maximal entity, as Gillon (2015) shows for Inuttut.
- Yūn Shan allows non-maximal bare nominal anaphora, as in (13).

\(13\) Mǎa haa tō  tāŋheŋ mjaw sāam tō khópkǎn.
dog five CL.ANML and cat three CL.ANML fight
pejāwne Mǎa nāj ?ēn pēn
then dog this run be
‘Five dogs and three cats were fighting. Then, dogs ran away.’
Consultant comment: Could be all dogs or some that ran away.

- Mǎa ‘dog’ in the second clause refers back to the five dogs described in the first, yet the interpretation can be non-maximal.

### 6 Conclusion

**Yūn Shan**
- Topic position: \(\langle e,t \rangle\) anaphora
- IHRCs can move at LF to topic position: non-max interpretation
- Covert head raising: island effect

**Southern Shan**
- Topic position: \(\langle e,t \rangle\) anaphora
- Neither IHRCs nor heads can move at LF: no IHRCs

**Broader Questions**
- What kinds of anaphora are available?
- How does anaphora type affect other semantic properties?

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### Data notes

The Yūn Shan data comes from fieldwork with a speaker in Ithaca, NY from January 2016 to September 2017. My consultant is from Mei Wai village, near Papun in Kayin (Karen) State, Myanmar. She also speaks Karen, Burmese, and English and live in the United States. The Southern Shan (Tái Lǒng) speaker is from Keng Tawng City, Southern Shan State, Myanmar and lives in Chiang Mai, Thailand. Data was collected from short stories, grammaticality judgments, and felicity judgments.
Glossing conventions

References


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Externally Headed Relative Clauses (EHRCs)

- EHRCs in Yūn Shan can have quantificational material outside (14) or inside (15) the relative clause.

14) Nan Lǐ cǐn pèn màmò khun [tān Saj Kham pǐk nāj].
Nan Li eat up apple half COMP Saj Kham peel this
‘Nan Li ate up half the apples that Saj Kham peeled.’
- Apples S.K. peeled: apples
- Apples N.L. ate: half of the peeled apples

15) Nan Lǐ cǐn pèn màmò [tān Saj Kham pǐk sāam hwí]
Nan Li eat up apple COMP Saj Kham peel 3 CL.RND nāj].
this
‘Nan Li ate up apples that Saj Kham peeled of which there are
- Apples S.K. peeled: 3
- Apples N.L. ate: some of the peeled apples

- We can incorporate the internal into the semantics by having the
  the raised head or operator trace to be type ⟨e, t⟩ instead of e.

Alternative Analysis

- Instead of covert movement to topic position, change the quantifier
to be a relation between sets rather than a predicate.

- This allows for the denotation of the IHRC to contain atomic enti-
ties in addition to sums.

- This would require that the set measure function to count the num-
  ber of unique atoms that the set contains.

- The structure of the IHRC in (2) can be seen in (16).

16) DP this
   CP
   apple
   λy. "APPLE(y)
   λz
   C'
   Saj Kham peeled
   NumP
   three
   ti
   λP, λQ. |λx.P(x) ∩ Q(x)| = 3  λy, y = z

- If the head raise, this allows for a uniform analysis of Shan IHRCs
  and EHRCs: the head moves covertly or overtly.

- In Southern Shan, covert head movement is not possible.

- The apparent topical IHRCs would then be subordinate clauses
  where the ‘head’ is anaphorically retrieved in the main clause.
A Trees

G&L

\[ \sigma(\lambda y \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \wedge \text{Th(e)} = y) \]

\[ \sigma \]

\[ \lambda y \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \wedge \text{Th(e)} = y \]

\[ \text{Op}_{\lambda y} \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \wedge \text{Th(e)} = y \]

\[ \cdots \]

\[ \text{ChRP} \]

\[ \lambda \lambda e \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \wedge \text{Th(e)} = y \]

\[ t \]

\[ \text{ChR'} \]

\[ y \]

\[ \lambda \lambda e \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \wedge \text{Th(e)} = y \]

\[ \text{ChR} \]

\[ \lambda E \lambda \lambda e [E(e) \wedge C_e (e) = x] \]

\[ \lambda e \exists_! \text{PEEL(e)} \wedge \text{Ag(e)} = m \wedge \text{Th(e)} \in \exists \text{APPLE} \wedge |\text{Th(e)}| = 3 \]

E&G

\[ \text{THE}(\lambda X [\exists_! \text{peeled(m,y)} \wedge y \subseteq X \wedge \exists \text{APPLE(y)} \wedge |y| = 3] \wedge \exists \text{APPLE(X)})] \]

\[ \text{DP} \]

\[ \text{D} \]

\[ \lambda X [\exists_! \text{peeled(m,y)} \wedge y \subseteq X \wedge \exists \text{APPLE(y)} \wedge |y| = 3] \wedge \exists \text{APPLE(X)}] \]

\[ \text{NP} \]

\[ \lambda X [\exists_! \text{peeled(m,y)} \wedge y \subseteq X \wedge \exists \text{APPLE(y)} \wedge |y| = 3] \]

\[ \text{THE} \]

\[ \lambda y [\exists \text{APPLE(y)}] \]

\[ \lambda X \exists_! \text{peeled(m,y)} \wedge y \subseteq X \wedge \exists \text{APPLE(y)} \wedge |y| = 3 \]

\[ \text{DP} \]

\[ \lambda X [\exists_! \text{peeled(m,y)} \wedge y \subseteq X \wedge \exists \text{APPLE(y)} \wedge |y| = 3] \]

\[ \lambda y [\text{three}] \]

\[ \lambda y [\text{peeled(m,y)}] \]

\[ \lambda X [\exists_! \text{APPLE(y)}] \]

\[ \lambda X [\exists_! \text{APPLE(X)}] \]

\[ \lambda y [\text{apple}] \]

\[ \lambda x [\exists \text{APPLE(x)}] \]