Chamorro head-internal relative clauses*

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1 Introduction

1.1 Why?

This research examines so-called head-internal (a.k.a. circumnominal) relative clauses in Chamorro.

- The modified “head” noun surfaces inside of the modifying clause
- Cross-linguistically rare construction (WALS feature search: 10 out of 2,679 languages have internally headed RCs as nondominant type (Dryer, 2013))
- What kind of derivation might this unusual structure require?
- Derivation of this construction also relates to derivation of the linker, a particle that ordinarily appears between lexical categories and their modifier(s) in many Austronesian languages
- Smaller languages should contribute just as much to our understanding of the human language faculty as bigger languages

1.2 Background

- Chamorro is an Austronesian language from the Mariana Islands (in Micronesia)
- Predicate-initial word order (default but not rigid: VSOX)
- Heads of phrases precede their complements
- Chamorro has three configurations for relative clauses, with respect to the position of the head noun:

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1. \textbf{Head-initial:}
\begin{itemize}
  \item Agaga’i [ni ha sâkki nigap i taotao].
  \underline{red the car COMP 3S.AGR steal yesterday the man}
  ‘The car that the man stole yesterday was red.’
\end{itemize}

2. \textbf{Head-final:}
\begin{itemize}
  \item Agaga’i [ha sâkki nigap i taotao] [na kareta].
  \underline{red the 3S.AGR steal yesterday the car LK car}
  (same meaning)
\end{itemize}

3. \textbf{Head-internal:}
\begin{itemize}
  \item Agaga’i [ha sâkki na kareta nigap i taotao].
  \underline{red the 3S.AGR steal LK car yesterday the man}
  (same meaning)
\end{itemize}

The head-internal type has the following basic properties:
\begin{itemize}
  \item Linker particle \textit{na} appears immediately to the left of the head noun (like head-final type)
  \item Can be used to form subject-, object-, or oblique-extracted relative clauses
  \item Dispreferred to other types, but produced in spontaneous speech and confirmed as acceptable
       by native speakers
\end{itemize}

1.3 \textbf{Research questions}
\begin{itemize}
  \item What is an appropriate formal derivation for Chamorro relative clauses, especially internally-
       headed relative clauses (IHRC)?
    \begin{itemize}
      \item Can relative clauses both left-adjoin (head-final) and right-adjoin (head-initial) to NP?
      \item Do relative clauses only right-adjoin (with head-final RCs being derived by move-
            ment)?
      \item Are relative clauses complements to D, à la Kayne (1994), Bhatt (2002), Aldridge (2004)?
      \item Which of these analyses are Chamorro IHRCs most compatible with?
    \end{itemize}
  \item How does the linker surface? What does its presence on the internal head noun tell us about
       how it should be derived?
  \item What are the constraints on the internal head, with respect to its size/contents and position-
       ing?
  \item How do the grammatical patterns of Chamorro’s IHRCs compare to those shown by Aldridge
       (2004) for the related Austronesian languages Tagalog and Seediq?
\end{itemize}
1.4 Possible analyses

1.4.1 Hypothesis #1: Internal head noun is base-generated

(4) \[ \begin{array}{c}
\text{CP} \\
\text{Op}_j \\
\text{C'} \\
\text{C} \\
\text{TP} \\
\text{T'} \\
\text{DP} \\
\text{T} \\
\text{VP} \\
\text{V} \\
\text{DP/NP}_j \text{ yesterday} \\
\text{ha sakki} \\
\text{AGR-steal} \\
\text{na kareta} \\
\text{LK-car}
\end{array} \]

- Assumptions:
  - Linker inserted at morphology
  - Relative clauses could be complements to D or adjoined to NP

- This base-generated hypothesis is similar to a proposal made by Aldridge (2004) for IHRCs in Austronesian languages Tagalog and Seediq

  - Aldridge assumes the [D CP] analysis of relative clauses; all relative clauses begin as head-internal; head-initial RCs formed by raising NP to [Spec, CP]; head-final formed by further raising of the relative clause TP to [Spec, DP]

1.4.2 Hypothesis #2: External head noun lowers into left-adjoined CP

(5) \[ \begin{array}{c}
\text{NP} \\
\text{CP} \\
\text{Op}_j \\
\text{C'} \\
\text{C} \\
\text{TP} \\
\text{T'} \\
\text{DP} \\
\text{T} \\
\text{VP} \\
\text{V} \\
\text{NP}_i \text{ yesterday} \\
\text{na kareta} \\
\text{AGR-steal} \\
\text{Lk-car}
\end{array} \]

- Assumptions:
  - Linker is inserted at morphology
  - CP is sometimes left-adjoined to NP, sometimes right-adjoined

- This lowering hypothesis is proposed by Chung (1991) for Chamorro’s IHRCs

  - Would echo subject lowering in Chamorro (Chung, 1998)
1.4.3 Hypothesis #3: Head noun is external; raising of constituents from the relative clause give appearance of head-internality

(6)

Assumptions:
- Linker is a head in the syntax that selects for NP and raises a VP to its specifier
- Relative clauses always right-adjoined to NP
- This VP-raising hypothesis is novel
  - Could also be used to derive head-final relative clauses—Lnkr raises entire CP to its specifier
  - Would explain the fact that only one relative clause can precede NP but more than one can follow NP
  - Could also be used to derive prenominal AP modifiers—Lnkr raises AP to its specifier

1.5 Preview of conclusions
- This research finds the most empirical support for the Hypothesis #2 (NP lowering), with the Hypothesis #3 (VP raising) a somewhat close second. Hypothesis #1 (base-generated head noun) is found to be the least likely to be correct.
  - Support found in size and positioning constraints, especially patterns in RC-internal VP coordination; issues with the derivation of the linker; WH-agreement
1.6 Road map of presentation

Section 2: What can be an internal head?
Section 3: Are there positioning constraints on internal heads?
Section 4: What does WH-agreement in Chamorro contribute?
Section 5: What patterns do we see when the NP is quantified?
Section 6: Issues with linkers
Section 7: Summary
Section 8: Implications and directions for future research

2 What is the size of the internal head?

► The internal head is at least NP

• Single nouns can be internal heads (as in (3))

• Noun-noun compounds can be internal heads (level of adjunction could be at N or NP)

(7) Chumâlik i [matâ`chung na `patgun `pala`o`an gi siya].
    SG.AGR-laugh the SG.AGR-sit LK child woman LOC chair
    ‘The girl who sat in the chair laughed.’

• Noun-adjective adjunct structures can be internal heads (level of adjunction is at NP)

(8) Chumâlik i [matâ`chung na `patgun dikiki` gi siya].
    SG.AGR-laugh the SG.AGR-sit LK child little LOC chair
    ‘The little child who sat in the chair laughed.’

NOTE: Pre-nominal modifiers can’t occur on internal (or final) heads, for the independent reason that the linker prefers to be followed by a noun

► The internal head is probably no bigger than NP, i.e. not DP

• No determiners on internal heads; definite determiner i appears outside of the construction and has the same semantic interaction with head nouns internal to the RC as with head nouns external to the RC

❖ These facts seem to weakly favor either Hypothesis #2 (NP lowering) or Hypothesis #3 (VP raising left of external NP); we might expect a base-generated head to be a full DP (with a determiner)
3 WH-agreement

► Chamorro is a language with (optional) WH-agreement (for all RC configurations shown here), in which the relative clause verb has overt morphology that corresponds to the kind of constituent that is relativized (subject, object, oblique) (see Chung (1998))

[NomCase]: -um- when the [+V] predicate is realis and transitive

[ObjCase],[Obj2Case]: (optional) nominalization, plus -in- when the [+V] predicate is transitive

[OblCase]: nominalization, plus (optional) -in- when the [+V] predicate is unaccusative

(9) Hu apasi i taotao ni fuma’gasi i kareta-hu.
   1S.AGR pay the person COMP WH[NOM].wash the car-1S.POSSR.AGR
   ‘I paid the man who washed my car.’ (Chung, 1998: 236)

► Chung (1998) argues that this morphology is triggered by movement of a silent WH-word from the argument position in the relative clause to [Spec, CP]

► If it were true that the internal head nouns were in their base-generated position, we wouldn’t expect to see WH-agreement in Chamorro IHRCs, since nothing has moved to [Spec, CP]; but we do see it

 eiusmod Hypothesis #1 (base-generated head noun)

4 Where can the internal head go?

► The internal head can appear anywhere inside the relative clause, from immediate post-verbal position (10) to any position between other arguments (11) or modifiers (12)

(10) I ha sākki [na kareta] i taotao nigap, agaga’
   the 3S.AGR steal LK car the man yesterday red
   ‘The car that the man stole yesterday was red.’

(11) i [chumochotchu donnī’ pika na palā’o’an ni kannai-ña]
   the WH.AGR-PROG-eat pepper hot LK woman OBL hand-3S
   ‘the woman who was eating hot peppers with her (bare) hands’ (Chung, 1991: 228)

(12) Hu taitai i [ha fāhan nigap na lepblu si Maria]
   1S.AGR read the 3S.AGR buy yesterday LK book UNM Maria
   ‘I read the book that Maria bought yesterday.’

► This order flexibility contrasts with what Aldridge (2004) observes for Tagalog and Seediq, whose internal head nouns must appear in immediate post-verbal position

► This word-order freedom is reminiscent of main clauses in Chamorro, in which the subject can lower (presumably from [Spec, TP]) and right-adjoin to any part of the verbal projection (see
Chung (1998: ch. 4))

Facts compatible with all three hypotheses

4.1 Coordinated VPs inside the relative clause

Observing location possibilities of internal heads in coordinated VPs will help us.

- If the internal head can appear inside a coordinated VP at all, Hypothesis #1 (base-generated head noun) is further disfavored

- If internal head can appear in the first VP conjunct but not the second, Hypothesis #3 (VP raising) is favored (there is no single constituent that includes the first VP, the coordinator, and the second verb but excludes the PP gi Damenggu—see (16) below)

- If internal head can appear in either VP conjunct, Hypothesis #2 (NP lowering) is favored

Surprisingly, the internal head can appear in either conjunct of a coordinate VP structure

(13) Agaga’i [[mafahan na kareta gi Sabalu] yan masåkki gi Damenggu].
red the AGR-PASS-buy LK car LOC Saturday and PASS-steal LOC Sunday
‘The car that was bought on Saturday and stolen on Sunday was red.’

(14) Agaga’i [[mafahan gi Sabalu na kareta] yan masåkki gi Damenggu].
red the AGR-PASS-buy LOC Saturday LK car and PASS-steal LOC Sunday
‘The car that was bought on Saturday and stolen on Sunday was red.’

(15) Agaga’i [mafahan gi Sabalu yan [masåkki na kareta gi Damenggu]].
red the AGR-PASS-buy LOC Saturday and PASS-steal LK car LOC Sunday
‘The car that was bought on Saturday and stolen on Sunday was red.’

(13) and (14) are compatible with Hypothesis #3: Lnkr would raise the higher or lower VP from the left conjunct to its specifier (including or excluding the adjunct gi Sabalu)

But (15) is incompatible with Hypothesis #3: there is no constituent that includes the material mafahan gi Sabalu yan masåkki (without gi Damenggu)

Strongly favors Hypothesis #2 (NP lowering)
5 Interaction with numeral quantifiers

- Interaction of relative clauses with numerically quantified head nouns formed an important part of Aldridge (2004)’s analysis. In Tagalog:

  - Numerals appear adjacent to the modified head noun for relative clauses preceding and following the head noun (17), (18)

  - Numeral appears directly before head-internal relative clauses, apart from head noun (19)

(17) **tatlo-ng mangga-ng** b-in-ili ni Maria

  three-LK mango-LK -Perf-buy Erg Maria

  ‘three mangoes that Maria bought’

  Aldridge (2004: 102)

(18) b-in-ili ni Maria-ng **tatlo-ng mangga**

-Perf-buy Erg Maria-LK three-LK mango

  ‘three mangoes that Maria bought’

  Aldridge (2004: 105)

(19) **tatlo-ng** b-in-ili-ng mangga ni Maria

  three-LK -Perf-buy-LK mango Erg Maria

  ‘three mangoes that Maria bought’

  Aldridge (2004: 102)

- The patterns are different for Chamorro

  - Data suggests that numerals modifying the head noun can only occur in the head-initial configuration

(20) Chumålik i **dos påtgun** [ni kumuekuentus gi egga’an].

  SG.AGR-laugh the two child COMP DU.AGR-PROG-speak LOC morning

  ‘The two children who were speaking in the morning laughed.’

(21) *Chumålik i [kumuekuentus gi egga’an] na **dos påtgun**.

  SG.AGR-laugh the DU.AGR-PROG-speak LOC morning LK two child

  (‘The two children who were speaking in the morning laughed.’)

  ⇒ Badness unexpected if Aldridge’s analysis held for Chamorro

(22) *Chumålik i [kumuekuentus na dos påtgun gi egga’an].

  SG.AGR-laugh the DU.AGR-PROG-speak LK two child LOC morning

  (‘The two children who were speaking in the morning laughed.’)

  ⇒ Badness expected if Aldridge’s analysis held for Chamorro

(Ungrammaticality of (21) and (22) likely due to separate constraints of the linker)

  - The numeral can’t remain in front of the relative clause while the head noun is internal

(23) *Chumålik i **dos** [kumuekuentus na påtgun gi egga’an].

  SG.AGR-laugh the two DU.AGR-PROG-speak LK child LOC morning

  (‘The two children who were speaking in the morning laughed.’)

  ⇒ Badness unexpected if Aldridge’s analysis held for Chamorro
Rather than saying much about the best hypothesis for deriving Chamorro IHRCs, this data suggests that the weak quantifiers in Chamorro are below NP; if they were, say, heads of QP that selected for NP, we’d expect (23) to be acceptable via one of the derivations below.

(24) Aldridge (2004):

(25) Also not correct (for numeral Q’s):

6 The linker

Ordinarily the linker occurs between a modified phrase and its modifier, whether the modifier precedes or follows:

→ realized *na* when modifier follows — (MOD *na* NOUN)

→ realized -*n* (or -∅ if noun ends in consonant) when modifier precedes — (NOUN-*n* MOD)

- Adjective-modified NPs (26)
- Nominal-modified NPs (27)
- Head-final relative clauses (as seen above)
- Certain adverbs
- Weak quantifiers (incl. mandatorily for numeral quantifiers greater than 2) (28)

(26) *i agaga’ na kareta* ~ *i kareta-n agaga’*

the red LK car the car-LK red

‘the red car’

(Chung, 1998: 231)
The linker in IHRCs, however, is not separating a head from a modifier. Instead, it (along with the head noun) is within the modifier, and it seems to be marking what’s the internal head.

It is unlikely that the linker is a head in the syntax. Hypothesis #3 (in which the linker is in the syntax) has difficulty accounting for the whole distributional range of the linker.

• If the linker were a syntactic head that raised a right-adjointed modifier, as in Hypothesis #3, it couldn’t account for the fact that multiple AP modifiers can precede a noun

• The complementizer ni may be a fusion of the linker and C_{[+R]}; if the linker were a syntactic head as shown we should only expect to see one linker surface when relative clauses are stacked (after a head noun), but in this case we see ni in front of each relative clause

• Analyses of the linker such as Scontras and Nicolae (2014) (for Tagalog), which makes the linker the head of ModP, are implausible because they require e.g. prenominal modifiers to be analyzed as the modified head that sits in the argument position in the clause

A more plausible hypothesis is that the linker is inserted via an operation in the morphology.

• When modifiers are left-adjointed to NP, the linker na is left-adjointed to NP

This operation would need to be sensitive to the environments in which we observe the linker—adjunction structures

Under the hypothesis that the linker is inserted and sensitive to modification environments, its presence on the internal head noun of Chamorro IHRCs would indicate that at some level in the syntactic representation (i.e. before NP lowering), the head noun has a left-adjointed relative clause

Puzzle: lowering occurs before linker insertion, but linker needs to be inserted local to the modification structure
- Linker is left-adjoined to the NP to which the CP is left-adjoined but the Linker-NP complex is pronounced in the lower (adjoined) position

Favors Hypothesis #2 (NP lowering)

7 Summary

- This research finds the most support for Hypothesis #2 (NP lowering)
  - Internal heads are NPs
  - Positioning of the internal head is free—even in coordinated VPs
  - The linker is likely not a head in the syntax; its insertion would need to be sensitive to modification (adjunction) structures
  - Chung (1998)’s mechanism for WH-agreement argues that overt internal head nouns are not true arguments within the relative clause

8 Onwards

8.1 Directions for future research

- Explicit account of morphological insertion of the linker is needed

- The linker has the same distribution in Tagalog’s IHRCs, but Aldridge ignores it completely. Her analysis should be reviewed, taking the linker into account.

- It is apparently more natural for head-final relatives to be definite in Chamorro, as well as Tagalog and Seediq. Do IHRCs follow this pattern too? And is this simply a processing factor?

- Could internal noun heads surface inside of islands and improve island violations?

- Are there any minute semantic or pragmatic distinctions between the three different relative clause configurations?

8.2 Implications

- Lowering operations such as the one proposed here are unorthodox
  - If the analysis proposed here for IHRCs in Chamorro is correct, we need to expand the inventory of possible movements allowed for in our theory of natural language syntax
  - Need to attempt to fill out a picture of why and when such movements can occur

- Smaller and/or understudied languages need to have a place in our research
References


