On Relativizing Adverbials
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This paper addresses the issue how adverbial expressions are relativized. We identify two types of strategies for this task across languages: One has to do with the height of the extraction site: In certain constructions, only adverbials merged outside the vP phase are subject to relativization, as it is less likely for them to be blocked by nominative arguments. The other is based on the categorial status of the participants involved in relativization: Namely, they need to be nominal to survive a certain type of construals. It is argued that Chinese headless relatives are headed by an empty pronominal, constituting an NP by default, while Austronesian headless relatives are headed by a (nominative) marker, forming a full-fledged DP. This move, in conjunction with the above strategies, offers a straightforward explanation of various pseudocleft-relative asymmetries observed in Chinese and Austronesian languages.

Keywords: Relativization, Adverbials, Pseudocleft, Headless Relative Clause
Head-internal Relative Clause

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In Chinese, there is a rather curious asymmetry between pseudoclefts and ordinary relative clauses. Chinese pseudocleft constructions are often analyzed as equational sentences with a headless relative clause as its subject, as exemplified by (1a,b):

(1) a. [[[zuotian zai jiaoshi yong saoba henhendi da Xiaodi] de] yesterday at classroom with broom fiercely beat Xiaodi DE shi Akiu. be Akiu
'(The one) who beat Xiaodi fiercely at the classroom with a broom yesterday is Akiu.' [AGENT]

b. [[[zuotian Akiu zai jiaoshi yong saoba henhendi da] de] yesterday Akiu at classroom with broom fiercely beat DE shi Xiaodi. be Xiaodi
'(The one) whom Akiu beat fiercely at the classroom with a broom yesterday is Xiaodi.' [PATIENT]

This usage is very restricted in that headless relatives are compatible only with typical argument such as the AGENT in (1a) and the PATIENT in (1b). The same construal, however, is not available for all sorts of adjuncts, e.g., the temporal adverbial in (2a), the locative adverbial in (2b), the instrumental adverbial in (2c), the manner adverbial in (2d), and the reason adverbial in (2e):

(2) a. *[[[Akiu zai jiaoshi yong saoba henhendi da Xiaodi] de] Akiu at classroom with broom fiercely beat Xiaodi DE shi zuotian. be yesterday
'(The time) when Akiu beat Xiaodi fiercely at the classroom with a broom is yesterday.' [TIME]

b. *[[[zuotian Akiu yong saoba henhendi da Xiaodi] de] yesterday Akiu with broom fiercely beat Xiaodi DE shi (zai) jiaoshi. be at classroom
'(The place) where Akiu beat Xiaodi fiercely with a broom yesterday is the classroom.' [LOCATION]
In contrast to the pseudocleft constructions illustrated above, their ordinary relative counterparts do not show the same argument-adjunct asymmetry: For the AGENT argument of (3a) and the PATIENT argument of (3b), relativization is not a problem, as predicted:

DE person be Akiu  
'The person who beat Xiaodi fiercely at the classroom with a broom yesterday'  
[AGENT]

DE person be Xiaodi  
'The person whom Akiu beat fiercely at the classroom with a broom yesterday is Xiaodi.'  
[PATIENT]

However, unlike those adjunct pseudoclefs in (2a-e), it is perfectly ok to relativize
quasi-arguments such as TIME in (4a), LOCATION in (4b), INSTRUMENT in (4c), MANNER in (4d), and REASON in (4e):

(4) a. [[Akiu zai jiaoshi yong saoba henhendi da Xiaodi] de shijian] Akiu at classroom with broom fiercely beat Xiaodi DE time shi zuotian. be yesterday 'The time when Akiu beat Xiaodi fiercely at the classroom with a broom is yesterday.' [TIME]

b. [[zuotian Akiu yong saoba henhendi da Xiaodi] de didian] yesterday Akiu with broom fiercely beat Xiaodi DE location shi (zai) jiaoshi. be at classroom 'The location where Akiu beat Xiaodi fiercely with a broom yesterday is at the classroom.' [LOCATION]

c. [[zuotian Akiu zai jiaoshi henhendi da Xiaodi] de fangshi] yesterday Akiu at classroom fiercely beat Xiaodi DE way shi (yong) saoba. be with broom 'The way how Akiu beat Xiaodi fiercely at the classroom yesterday is with a broom.' [INSTRUMENT]

d. [[zuotian Akiu zai jiaoshi yong saoba da Xiaodi] de yangzi] yesterday Akiu at classroom with broom beat Xiaodi DE manner hen hen. very fierce 'The manner with which Akiu beat Xiaodi at the classroom with a broom yesterday is very fierce.' [MANNER]

e. [[zuotian Akiu zai jiaoshi yong saoba henhendi da Xiaodi] de yuanyin] shi zuobi. DE reason be cheating '(The reason) why Akiu beat Xiaodi fiercely at the classroom with a broom yesterday is cheating.' [REASON]

In this paper, we propose to account for this pseudocleft-relative asymmetry in Chinese by comparing it to relevant phenomena in Austronesian languages such as Malagasy, Squi
Atayal, and Tsou. Based on evidence from this comparison, we show that there are two major strategies to relativize an adverbial: The first strategy is for the target of relativization to merge high in the syntactic projection, presumably well beyond the vP phase. The other strategy is for the target to appear either as a nominal operator (in the case of pseudoclefts) or a nominal variable (in the case of head-internal relatives). In section 2, we show that Malagasy pseudoclefts allow subjects and certain adjuncts to extract, while relativization is strictly limited to subjects through voice morphology. Section 3 addresses issues surrounding the linguistic variations among Chinese and Austronesian languages. Section 4 proceeds to examine the extractability of temporal adjuncts in pseudoclefts and relative clauses in Squiliq Atayal, whose behavior is unique among adverbials or adjuncts. In section 5, we put forth the claim that Tsou seems to employ the head-internal relative strategy to construct instrumental and reason pseudoclefts. Section 6 concludes this paper.

2. Pseudoclefts vs. Relatives in Malagasy

In Malagasy, there is also an asymmetry between pseudoclefts and ordinary relative clauses. As Potsdam (2006) argues quite forcefully, Malagasy wh-constructions such as (5) involve a headless relative clause in subject position with a nominal predicate iza 'who' (also cf. Dahl 1986, Paul 2001):

(5) iza no nividy ny akoho?
who PRT buy.ACT the chicken
‘Who bought the chicken?’

In other words, (5) is not an instance of wh-movement as in European languages. Rather, it is a pseudocleft in disguise, as illustrated in the following diagram:

(6)

As is well-known since the seminal work of Keenan (1976), only subjects and certain types
of adjuncts can undergo relativization (see also Keenan & Comrie 1977; Keenan 1995; Paul 2000, 2002; Pearson 2001; Sabel 2002). Take (7a) for instance: the active voice picks the Agent as the subject, so there is no problem to extract the subject, i.e., the buyer:

(7) a. iza no nividy ny akoho? [AGENT subject with active voice] who PRT buy.ACT the chicken ‘Who bought the chicken?’

b. * iza no novidina ny akoho? [AGENT subject with passive voice] who PRT buy.PASS the chicken ‘Who was the chicken bought by?’

However, if we change the voice to passive, or more accurately, a Patient/Undergoer voice, as in (7b), then it becomes impossible to pick the Agent as the subject, and the headless relative construal is blocked. On the other hand, (8a) and (8b) show the reverse pattern: if the voice morphology picks the Theme as the subject, then we are not allowed to extract the Agent argument:

(8) a. inona no novidin’ i Bao? [THEME subject what PRT buy.PASS CL Bao with passive voice] ‘What was bought by Bao?’


Adverbials supposedly display the same trait. As illustrated by (9a), the locative argument is picked by the so-called circumstantial voice, hence subject to the headless relative construal:

(9) a. taiza no nanafenan’ ny zaza ny lakile? [locative subject where PRT hide.CIRC the child the key with circumstantial voice] ‘Where did the child hide the key?’

b. taiza no nanafina ny lakile ny zaza? [locative adjunct where PRT hide.ACT the key the child with active voice]

c. taiza no nafenin’ ny zaza ny lakile? [locative adjunct where PRT hide.PASS the child the key with passive voice]

The curious thing is that a locative adjunct may be the target of pseudocleft construals
without the blessing from the voice morphology, as evidenced by (9b,c). The same observation obtains for temporal adjuncts as well. The following restriction can thus be spelled for Malagasy pseudocleft construals (cf. Potsdam 2006):

(10) *Malagasy extraction restriction*

   Only subjects and some adjuncts can be extracted.

By contrast, ordinary relativization in Malagasy is much more restricted, marked by the linker *izay* rather than by the particle *no*, as illustrated in (11a) and (12a):

(11) a.  ny lehilahy izay nividy ny akoho.  [AGENT subject with
      the man REL  buy.ACT  the chicken active voice]
    ‘the man who bought the chicken’

    b.  * ny lehilahy izay novidina ny akoho.  [AGENT subject with
      the man REL  buy.PASS  the chicken passive voice]
    ‘the man who the chicken was bought by’

(12) a.  ny akoho izay novidin’ i Bao.  [THEME subject with
      the chicken REL  buy.PASS CL Bao passive voice]
    ‘the chicken that was bought by Bao’

    b.  * ny akoho izay nividy i Bao.  [THEME subject with
      the chicken REL  buy.ACT CL Bao active voice]
    ‘the chicken that Bao bought’

Here only subjects can be relativized, and there is no exception for adverbials, as evidenced by the ungrammaticality of (11b) and (12b). For adverbials to undergo ordinary relativization, they must raise to subject position first through the choice of voice. For instance, the circumstantial voice picks a locative expression as the subject of the headless relative clause in (13a):

(13) a.  ny toerana izay nianjeran-dRabe  [locative subject with
      the place REL  fall.CIRC-Rabe circumstantial voice]
    ‘the place where Rabe fell’

    b.  * ny toerana izay nianjera Rabe  [locative adjunct with
      the place REL  fall.ACT Rabe active voice]

Once the voice is changed into active, relativization is blocked, and (13b) is ruled out. The same pattern obtains for the temporal expressions in (14) and the reason expressions in (15):
(14) a. ny andro izay nanapahan-dRasoa bozaka [temporal subject with the day REL cut.CIRC-Rasoa grass circumstantial voice]
   ‘the day Rasoa cut the grass’
   b. * ny andro izay nanapaka bozaka Rasoa [temporal adjunct with the day REL cut.ACT grass Rasoa active voice]

(15) a. ny antony izay nandehanan-dRabe [reason subject with the reason REL go.CIRC-Rabe circumstantial voice]
   ‘the reason Rabe left’
   c. * ny antony izay nandeha Rabe [reason adjunct the reason REL go.ACT Rabe with active voice]

Now the question is why Chinese and Malagasy both sport a systematic distinction between pseudoclefts and ordinary relative clauses, but differs in the way adverbials contrast with arguments in one construction but not the other. In the next section, we are to locate typological features responsible for the parallel between pseudoclefts and ordinary relatives on the one hand, and the discrepancy of their extraction patterns on the other.

3. Two Types of Headless Relatives

By comparing Chinese relativization with its Malagasy counterpart, we found a sharp contrast between them with respect to the extraction patterns of pseudoclefts. As noted by Potsdam (2006), headless relatives marked by no in Malagasy fail to occupy most of the typical NP loci, as shown by the predicate position of (16a), the direct object position of (16b), the prepositional object position of (16c), and the topic position of (16d):

(16) a. * [no mihomehy] Rabe. [predicate]
      PRT laugh Rabe
      ‘Rabe is the one who is laughing.’

   b. * mahalala [no mihomehy] aho. [direct object]
      know PRT laugh 1SG.NOM
      ‘I know the one who is laughing.’

   c. * nipetraka tao ankaikin’ [no mihomehy] aho. [object of preposition]
      sit LOC beside PRT laugh 1SG.NOM
      ‘I sat beside the one who was laughing.’
The same observation, by contrast, does not apply to their Chinese counterparts, as illustrated in (17a-d):

(17) a. na-ben shu shi [[wo mai] de].
    that-CL book be I buy DE
    ‘That book is what I bought.’

b. wo zhi fuze [[wo mai] de].
    I only responsible I buy DE
    ‘I am only responsible for what I bought.’

c. ni ba [[wo mai] de] reng le!
    you BA I buy DE throw.away Inc
    ‘You throw away what I bought!’

d. [[wo mai] de] a, wo fuze.
    ‘As for the stuff I bought, I will be responsible for it.’

This indicates that Chinese headless relatives are quite different from their Malagasy counterparts in pseudoclefts. More specifically, we would like to propose that Chinese headless relative clauses are actually headed by an empty pronominal, as illustrated in the following diagram:

(18) \[
\begin{array}{c}
\text{NP} \\
\text{CP} \\
\text{Op}_k \\
\text{CP'} \\
\text{C'} \\
\text{e}_k \\
\text{IP} \\
\text{C} \\
\text{de} \\
\end{array}
\]

To match the empty head noun above, the operator in the Spec of relative CP must also be a nominal in accordance with the categorial status of its head. As a result, no adverbs are

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1 As noted by Potsdam (2006), ordinary relatives marked by izay can also be left headless, in which case they pattern with Chinese headless relative clauses in displaying no distribution restriction.
allowed in this configuration, as in (2a-e), and only nominal arguments are subject to pseudocleft construals in Chinese, as in (1a,b).

For one thing, a reviewer noted that a lexical pronoun such as ta 'he' cannot head a relative clause, as evidenced by the grammaticality of (i):

   Ahua love DE he be Akiu
   '(The one) whom Ahua loves is Akiu.'

This behavior is in sharp contrast with the empty pronominal in question. The solution, in our opinion, lies in the fact that full-fledged DPs like proper names or lexical pronouns are not subject to further modification. Therefore, the empty head of a headless relative is more likely to be a pro-form of an NP, akin to the pronominal usage of *one* in English. Along this line, it becomes clear that Chinese headless relatives are NPs by default, while their Malagasy counterparts (marked by *no*) are full-fledged DPs clinging to the subject position, as is evident from the contrast between (16a-d) and (17a-d).

Our treatment thus provides a plausible account of why adverbial extraction is less restricted in Malagasy pseudoclefts, as we have seen in (9a-c). This is because there is no empty pronoun to match for the headless relatives in Malagasy, as we have already seen in the diagram (6).

The other factor involved has to do with the "launching site" of operator extraction. In ordinary Austronesian relative constructions, only a subject may undergo extraction, as is already well-established in the literature. In the Minimalist terms, this means that only the nominative argument picked by the voice morphology is subject to further operator movement through the "escape hatch" of the vP phase, while others would be blocked by the nominative argument in question, which is always closer to the probe/attractor (cf. Chomsky 2000, 2001; Paul 2002; Pearson 2001, among others). This move provides an explanation for the active-passive contrasts of (11a,b) and (12a,b), as well as those circumstantial-active asymmetries throughout (13-15).

For Chinese relative constructions, however, there does not seem to be such a "nominative restriction", as seen in (3a,b) and (4a-e). Ordinary relativization is available for arguments and adjuncts alike. In other words, there is no empty head pronoun for relative operators to match here. Consequently, expressions subject to ordinary relativization do not have to be a nominal.

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2 The reason for this "subject addiction" may have to do with the historical development of pseudoclefts in the Austronesian family in general. In Formosan languages, headless relatives are typically marked by a nominative case marker the same way their Malagasy counterparts are marked by *no* (see, for instance, *qu* in Squiliq Atayal in (24) and *na* in Tsou in (26)). This suggests that *no* may have a nominative origin, which in turn accounts for the subject addiction in a straightforward manner.
4. Relativizing Temporal Adverbials in Squliq Atayal

The next step is to see if there is any independent evidence for the two strategies to relativize adverbials. First we examine a rather peculiar phenomena from Squliq Atayal, an Austronesian language spoken in northern part of Taiwan. It differs from Malagasy in one important aspect: Locative expressions in Squliq Atayal cannot undergo either pseudocleft construals or ordinary relativization, as evidenced by the ungrammaticality of (20-22):³

(20) * inu [qu [m-usa suxan qu-Temu]]? [wh-pseudocleft]
    where Nom AV-go tomorrow Nom-Temu
    ‘Where is (the place) Temu will go tomorrow?’

(21) * Sincik [qu [m-usa suxan qu-Temu]]. [pseudocleft]
    Hsinchu Nom AV-go tomorrow Nom-Temu
    ‘(The place where) Temu will go tomorrow is Hsinchu.’

(22) * [[m-usa suxan qu-Temu] ka slaq]-ga krahul yal. [relativization]
    AV-go tomorrow Nom-Temu Rel wet.field-Top big very
    ‘As for the wet field where Temu will go tomorrow, (it) is very big.’

On the other hand, temporal adverbials are subject to both headless and ordinary relativization (cf. Tsai 2004), as shown by (23-25):

(23) knwan [qu [m-usa Sincik qu-Temu]]? [wh-pseudocleft]
    when Nom AV-go Hsinchu Nom-Temu
    ‘When is (the time) Temu will go to Hsinchu?’

(24) suxan [qu [m-usa Sincik qu-Temu]]. [pseudocleft]
    tomorrowNom AV-go Hsinchu Nom-Temu
    ‘(The time when) Temu will go to Hsinchu is tomorrow.’

(25) [[m-usa Sincik Temu] ka riax]-ga byacing-ka-nial [relativization]
    AV-go Hsinchu Temu Rel time Top month-of-coming
    ‘The time Temu will go to Hsinchu is the coming month.’

This unique behavior of temporal expressions is also observed in Seediq and Tsou, as noted by C.-L. Chang (1996), Y.-L. Chang (1997), and M. Chang (2004).

³ This difference further suggests that Malagasy locative expressions are merged above the vP phase along with temporal adverbials, while their Atayal counterparts are not.
Now we have a mystery at hand: That is, why do Formosan languages show an extraction pattern distinct from Malagasy? The answer comes from the strategy based on the height of extraction mentioned above. That is, temporal expressions in Squliq Atayal, as an sentential adverbial, are able to merge to a projection beyond the vP phase. As a result, extraction of temporal adverbials will not violate the Phase Impenetrability Condition (PIC) in the sense of Chomsky (2000:108).

(26) **Phase Impenetrability Condition:**
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

Locative expressions, by contrast, are merged as VP-adverbials. Hence the contrast between (20-22) and (23-25).

5. Relativizing Reason/Instrumental Adverbials in Tsou

In Tsou, there is yet another piece of evidence for the nominality strategy: On the one hand, the extraction pattern of pseudoclefts is no different from their counterparts in Squliq Atayal. On the other hand, Tsou does employ a head-internal strategy toward pseudoclefting reason/purpose expressions, where an indefinite NP such as kua 'reason' plays a crucial role (cf. Tsai & Chang 2003), as illustrated below:

(27) cuma [na [kua te-ta uh ne Tapangu ta Pasuya]]?
    what Nom reason Irr-3S go Loc Tapang Nom Pasuya
    'For what reason/purpose will Pasuya go to Tapang?'

Similarly, the indefinite NP hia 'way' is instrumental in forming an adjunct pseudocleft, whether the sentence is in Actor voice (AV), as in (28a), or in Patient voice (PV), as in (28b):

(28) a. m-i-ta m-ainenu [na [hia-ta eobak-o ta Mo'o 'e Pasuya]]?
    AV-Rea-3S AV-how Nom way-3S hit-AV Obl Mo'o Nom Pasuya
    'How did Pasuya hit Mo'o?'

    b. i-ta y-ainenu [na [hia-ta eobak-a ta Mo'o 'e Pasuya]]?
    NAV.Rea-3S PV-how Nom way-3S hit-PV Obl Mo'o Nom Pasuya
    'How was Pasuya hit by Mo'o?'

As a matter of fact, kua 'reason' and hia 'way/manner' may not be adjuncts at all in the traditional sense: They pattern with modals and verbs in their ability of hosting agreement, as already shown above. It is also instructive to note that their usage is not limited to headless
relative clauses: As illustrated by the following examples from Tung (1964), *kua* and *hia* may serve as adverbial indefinites to instantiate their corresponding quasi-arguments, i.e., Reason and Instrument respectively:

(29)  hoci aa te-la meemeesi, te-la **kua** mcoi.
    if not Irr-Hab sacrifice Irr-Hab reason die
    'If we do not sacrifice, that would be the reason we are to die.'

(30)  ho la maaseu, oa mo mai to macmo ci la **hia** eaoska
    when Hab net-fish not Irr like Obl other Lnk Hab way fishing
    ho o’te skoeu.
    and not worry about danger
    'When (one) net-fishes, (it) is not like other ways of fishing,
    and (one) doesn't worry about danger.'

As a working hypothesis, one may reasonably assume that *kua* and *hia* are predicate nominals, which are indefinite by virtue, and as such they are subject to head-internal relativization through operator binding along the line of Basilico (1996) and Aldridge (2004). The configuration is sketched in the diagram below:

(31)  

Based upon the above observations, it seems reasonable to suggest that to relativize an

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4 A similar case can also be found in Squliq Atayal. The following sentence is an interrogative construal of the degree of fatness, where an indefinite *kin* 'degree' is prefixed to the embedded predicate *qthuy* 'fat':

(i)  ktwa [qu [kin-qthuy qu Tali]]?
    how Nom degree-fat Nom Tali
    'How fat is Tali?'
    Lit. 'How is Tali's fatness?' or 'What is the degree of Tali's being fat?'

Along the line of our analysis, this would mean that the indefinite *kin* is licensed in the way depicted in (31), constituting a head-internal degree relative in the subject position.
reason/purpose adverbial in Tsou is to relativize a nominal predicate, forming a head-internal relative as a result. On the other hand, to relativize a temporal adverbial in Squiliq Atayal is to extract an adjunct merged to a vP-external position which cannot be blocked by a nominative argument.

5. Concluding Remarks

To conclude our discussion, we compare adverbial relativization in the four languages in question, as summarized in the following cross-linguistic synopsis:

a. **Chinese-type languages**
   Ordinary Relativization: typical null operator construals
   Pseudoclefts: headless relatives headed by an empty pronominal, allowing no adverbial construals

b. **Malagasy-type languages**
   Ordinary Relativization: observing the subject restriction on null operator construals
   Pseudoclefts: headless relatives headed by a lexical determiner no, allowing temporal and locative adverbial construals

c. **Atayal-type languages**
   Ordinary Relativization: observing the subject restriction on null operator construals
   Pseudoclefts: headless relatives headed by a nominative case marker qu, allowing only temporal adverbial construals

d. **Tsou-type languages**
   Ordinary Relativization: observing the subject restriction on null operator construals
   Pseudoclefts: 1) headless relatives headed by a nominative case marker na, allowing only temporal adverbial construals
   2) head-internal relatives headed by a predicate nominal such as kua 'reason' or hia 'way/manner'

Here we can see that both nominality and structural height play a central role in shaping the restrictions on relativizing adverbials. Although our analysis is far from conclusive, it does serve as a working hypothesis for spelling out the internal mechanism behind both pseudoclefting and ordinary relativization across languages.
References


