

Some issues in English and Chinese relative clauses

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1. Reconstruction in English

As is well-known, there are two major analyses of relative clauses. According to **the adjunction analysis**, the head of the relative clause, *man* in (1), is base-generated with the relative clause adjoining it. According to **the head-raising analysis**, the relative clause is a complement to a determiner, and the head of the relative clause is raised from within the relative clause:

- (1) a. The man [John saw] (the adjunction analysis)
b. The [man_i [John saw t_i]] (the head-raising analysis)

Movement of the head *man* in (1b) accounts straightforwardly for the island effects, which are assumed to involve movement:

- (2) a. *Who_i did John go to New York [because he wanted to meet t_i]?
b. *The [man_i [John went to New York [because he wanted to meet t_i]]

To explain the island effects, the adjunction analysis assumes movement of an empty operator, an empty version of the overt relative pronoun:

- (3) a. The man [who_i [John saw t_i]]
b. The man [O_i [John saw t_i]]

A major argument for the head-raising analysis is **the reconstruction effects**. **Idiom chunks** have very restricted distribution; usually they occur as sisters to the predicate that licenses them:

- (4) a. They made/*manufactured headway on the project.
b. They made [the problem/*headway disappear]

But their occurrence in passive, questions and relative clauses seems to fall outside of this pattern:

- (5) a. Headway_i was made t_i on the project.
b. [how much headway]_i did they make t_i on the project?
c. The [headway]_i [that they made t_i]

If the idiom chunk headway in (5) originates from object position of the predicate *make*, then we can maintain the generalization that it is licensed in the object position of the predicate that licenses it.

Anaphor and pronominal binding facts point to the same conclusion. Anaphors and bound pronouns usually must be c-commanded by their antecedents:

- (6) a. Mary expected John_i to buy pictures of himself_i.
 b. *Mary expected pictures of himself_i to be bought by John_i.
- (7) a. Everyone likes pictures of his_i friends.
 b. *Pictures of his_i friends are liked by everyone.

Again, their distribution in questions and relative clauses again appears to fall outside of this pattern:

- (8) a. [how many pictures of himself]_i did Mary expect John to buy t_i ?
 b. The [[pictures of himself]_i that Mary expected John to buy t_i]
- (9) a. [how many pictures of his friends]_i does everyone like t_i ?
 b. The [[pictures of his friends]_i that everyone likes t_i]

If the anaphor or pronoun in (8)-(9) is in fact c-commanded by its antecedent at some point in the derivation, then the c-command condition for binding would be satisfied just as it is in (6a)-(7a).

Quantifier scope works the same way. A quantifier usually c-commands another quantifier if it is to have wide scope over it:

- (10) a. Each student attended two talks.
 b. The [two talks]_i that each student attended t_i

On some analyses, the moved phrase in the examples above is restored to the trace position, hence the term **reconstruction**. A variant of this idea is copying. A full copy of the moved phrase is left in the trace position, where the anaphor or pronoun in the copy may be bound. The phonetic property of the copy is then deleted at PF.

Points of discussion

It seems clear that if idiom chunks can only be licensed in the object position of the predicate that licenses them, and anaphor binding, pronominal binding by a quantifier as well as quantifier scope require c-command, then the head-raising analysis of relative clauses is the only possible analysis. There are alternatives, binding through traces, i.e. A may bind B if A c-commands the trace related to B. Similarly for idiom chunks. An idiom chunk may be licensed by a predicate licensing it via a trace related to it. But it seems to me that all these ideas are notional variants of each other; there seem to be no empirical difference between the two. Do you agree? This issue has been unsettling for a long time, to my knowledge.

Questions to be discussed

- (i) If binding of anaphors and pronouns requires c-command, then is it true that the head-raising analysis is the only possible analysis of the binding facts in relative clauses?
- (ii) If binding is formulated differently, e.g. A may bind B if A c-commands B or a trace of B, then is it true that the head-raising analysis is not forced on us to account for the binding facts?
- (iii) Are there empirical differences between the head-raising and the adjunction analyses? This question may be discussed in the context of Safir's (1998)

paper, which has data that seem to show the different empirical predictions of the two analyses.

- (iv) Can we independently justify either the head-raising analysis or the adjunction analysis, and argue that one of them is the preferable analysis of relative clauses?

2. Reconstruction in Chinese

Chinese is similar to English in some respects. Idiom chunks may be the head of the relative clause:

- (11) [[ta chi t_i de] cu_i] bi shei dou da.
Lit. the vinegar he eats is greater anyone else' s
'His jealousy is greater than anyone else' s'

Anaphors or pronouns in the head of the relative clause may be bound without being c-commanded by their antecedents:

- (12) wo jiao Zhangsan quan [[meige ren_j kai lai t_i] de [ziji_j de chezi]_i]
'self' s car that I asked Zhangsan to persuade everyone to drive over.'
(13) [meige ren_j dou xihuan t_i de] [guanyu ta_j de gushi]_i
'stories about him that everyone likes'

Like in English, if the head of the relative clause moves from the position of the trace co-indexed with it, then we can maintain the same conditions for licensing of the idiom chunk, and binding of the anaphor or pronoun. That is, the idiom chunk is licensed by the predicate in object position before it raises. Analogously, an anaphor or pronoun is c-commanded by its binder before it raises along with the head of the relative clause.

Chinese differs from English, however, in that a quantifier in the relative clause may not have wide scope over a quantifier in the head of the relative clause. Thus in (14), the head of the relative clause *sanben shu* 'three books' in its surface position is not c-commanded by the quantifier *meige ren* 'everyone' in the relative clause, just like in English):

- (14) [meige ren dou xihuan t_i de] [san ben shu]_i (three > every; *every > three)
'Three books that everyone likes.'

The scope fact in (14) is apparently a problem for the head-raising analysis. If the head of the relative clause is moved from a trace position over which the quantifier in the relative clause has wide scope, as shown in (15):

- (15) meige ren dou xihuan san ben shu (every > three)
'Everyone likes three books.'

and given that the quantifier in the relative clause may bind a pronoun in the head of the relative clause (before it raises along with the head of the relative clause) in (13),

then apparently there is no reason why the quantifier in (14) may not have wide scope over the head of the relative clause (before it raises along with the head of the relative clause).

I think this is also a problem for the adjunction analysis, if scope is subject to the same conditions as binding, i.e. c-command. If *meige ren* may bind *ta* in (16) since it c-commands the trace of the operator related to the head of the relative clause, then *meige ren* ought to be able to have wide scope over *san ben shu* ‘three books’ in (17), since it also c-commands the trace of the operator related to the head of the relative clause:

(16) [[*meige ren_j dou xihuan t_i de*] O_i] [*guanyu ta_j de gushi*]
 ‘stories about him that everyone likes’

(17) [[*meige ren dou xihuan t_i de*] O_i] [*san ben shu*]_{*i*}
 (three > every; *every > three)
 ‘Three books that everyone likes.’

Points of discussion:

Are there any other differences between English and Chinese that may bear on their difference with respect to quantifier scope? It is well-known, perhaps controversially, that in Chinese quantifier scope is fixed by the surface positions of the quantifiers. That is, while it is possible for the object to have wide scope over the subject in English, the same is quite difficult, if not impossible, in Chinese:

(18) a. Everyone loves someone. (every > some; some > everyone)
 b. *meige ren (dou) xihuan yige ren.* (every > some; *some > everyone)

If the reason why *yigen ren* may not have wide scope over *meige ren* in (18) is because the former does not c-command the latter, then can we say the same for (17)? That is, can we say that since *meige ren* doesn’t c-command *san ben shu* in (17), therefore the former may not have wide scope over the latter? But the same explanation would fail to account for why the anaphor *ziji* in (12) may be bound by its antecedent *meige ren* even though the former is not c-commanded by the latter. The same question arises for (13). The quantifier in the relative clause does not c-command the pronoun in the head of the relative clause, and yet it may bind it. The obvious way out is to say that binding and scope have (slightly) different conditions. But the question is whether we can justify independently that binding and scope have different conditions. What are the facts, if any, bearing on these different conditions?

Examples relevant to binding and quantifier scope would be those in which the head of the relative clause contains a pronoun and a quantifier, like (19):

(19) [*meige ren_j dou xihuan t_i de*] [*guanyu ta_j de sanjian gushi*]_{*i*}
 ‘Three stories about him that everyone likes.’

Judgment questions: (i) can *meigeren* binds *ta*? (ii) can *meige ren* have wide scope over *sanjian gushi*? What of cases like (20) where the classifier is separated from the head noun:

(20) *sanjian* [*meige ren_j dou xihuan t_i de*] [*guanyue ta_j de gushi*]_{*i*}
 ‘Three stories about him that everyone likes.’

The questions (i) and (ii) for (19) hold for (20) as well. What are the judgments? Hopefully, the judgments for (19)-(20) would shed some lights on binding and scope.

As far as I can tell, Cantonese relative clauses don't differ from those in Mandarin. Is this true? If not, It'd be interesting to see if there are other differences that may be brought to bear on relative clauses.

Questions to be discussed:

- (i) Chinese differs from English with respect to quantifier scope. Scope is pretty much fixed by the surface positions of the quantifiers in Chinese, but not in English (cf. examples (18)). However, an anaphor or pronoun in the head of the relative clause (cf. examples in (11)-(13)) may be bound by an antecedent that does not c-command it. How is it possible that Chinese is similar to English with respect to binding in relative clauses, but not in other cases, e.g. (18b).
- (ii) What the judgments in (19) and (20)? Can the quantifier bind the pronoun in the head of the relative clause? Can the quantifier inside the relative clause *meigeren* have wide scope over the quantifier in the head of the relative clause *san ben shu*? Can we tell whether the head-raising analysis or the adjunction analysis makes the correct predictions for the binding judgments in (19) and (20)? If not, what assumptions do we need to make?

3. Adjuncts vs. arguments

Audrey Li points out that a quantifier may bind a pronoun in the head of the relative clause, if the head is related to an argument position in the relative clause, but a quantifier may not bind a pronoun in the head of the relative clause, if the head is related to an adjunct in the relative clause, whence the grammatical difference in (21):

- (21) a. [meige xuesheng_j dou neng dai t_i lai de] [wo gei ta_j de liwu]_i
 'The gift that I gave him that every student can bring'
- b. *[meige xuesheng_j dou neng t_i xiu-hao che de] [wo jiao ta_j de fangfa]_i
 'The way I taught him with which every student can fix the car.'

The example in (21b) is presumably related to (22), hence the trace after the modal *neng*:

- (22) meige ren_j dou neng [yong wo jiao ta_j de fangfa] xiu-hao che.
 'everyone can use the method I taught him to fix the car.'

There's a ready explanation for (21b), quite independently of binding, if it is indeed related to (22). The predicate *yong*, presumably a preposition assigning the manner theta-role to the head noun *fangfa*, is missing, a fact that can be seen by comparing it with the grammatical example in (22) where the predicate *yong* occurs. In fact, (21b) is a clear problem for the head-raising analysis. While the head of the relative clause in (21a) may be restored to the trace position, and the result (without the relative clause marker *de*) is a grammatical sentence, as in (23a), (21b) is ungrammatical if the head is restored to the trace position, as in (23b):

- (23) a. meige xuesheng_j dou neng dai wo gei ta_j de liwu lai.
 ‘Everyone can bring the gift that I gave him.’
 b. *meige xuesheng dou neng wo jiao ta de fangfa xiu-hao che.
 ‘Every student can fix the car with the method I taught him.’

That is, there would be no grammatical source structure from which the relative clause in (21b) can be said to be derived.

I made a similar point in my talk in Irvine for relativization of comitatives:

- (24) *Zhangsan tiao-wu de gunyang.
 ‘The girl Zhangsan danced with.’

Thus, the example in (21b) is independent of binding, since it’s still bad if the pronoun is not bound by the quantifier.

Notice that the example in (21b) has two relative clauses, it’s kind of stacked relatives. One is *wo jiao ta de* and the other is *meige xuesheng dou neng xiu-hao che de*. If either relative clause is omitted, the example is grammatical:

- (25) a. [meige xuesheng dou neng xiu-hao che de] fangfa.
 ‘The way everyone can fix the car.’
 b. [wo jiao ta de] fangfa.
 ‘The way I taught him.’

So it seems clear that it is the cooccurrence of the two relative clauses that is the cause for the ungrammaticality of the example in (21b). This problem seems related to an asymmetry between time and place adjuncts on the one hand, and manner and reason adjuncts on the other. We will return to this asymmetry below.

If we choose examples with place and time adjuncts, then it seems possible for a quantifier in the relative clause to bind a pronoun in the head of the relative clause. The examples in (26), though not perfect, don’t seem totally impossible (an overt pronoun sounds much worse than a null pronoun, I don’t know why. I put the quantifier in the leftmost relative clause in English, since it can’t really bind backwards, a fact irrelevant here):

- (26) a. ?[meige ren_j (dou) xihuan he bijiu de] [pro_j gen pengyou huimian de difang]
 ‘The place where everyone meets friends where he likes to drink beer.’
 b. ?[meige ren_j (dou) yao gen Zhangsan shuohua de] [pro_j lai zhe-er de] de shihou.
 ‘The time when everyone comes here when he wants to talk to Zhangsan.’

In the head-raising analysis, the examples in (26) would presumably have the derivations in (27):

- (27) a. ?[meige ren_j (dou) xihuan t_i he bijiu de] [pro_j gen pengyou huimian de difang]_i.
 ‘The place where everyone meets friends where he likes to drink beer.’
 b. ?[meige ren_j (dou) yao t_i gen Zhangsan shuohua de] [pro_j lai zhe-er de shihou]_i
 ‘The time when everyone comes here when he wants to talk to Zhangsan.’

The structures in (27) are presumably related to those in (28), whence the positions of the traces in (27) (they are related to the interrogatives since these involve *wh*-movement (at LF), and relative clauses appear to involve *wh*-movement as well, as can be observed in the island effects. We can discuss this issue in the meeting, if you like):

- (28) a. meige ren (dou) xihuan (zai) nali he bijiu?
 ‘Where does everyone like to drink beer?’
 b. meige ren (dou) yao sheme shihou gen Zhangsan shuohua?
 ‘When does everyone want to talk to Zhangsan?’

The representations in (27) are identical to that in (21b) in relevant respects, i.e. the structural relationship between the quantifier and the pronoun is exactly the same. I thus think that it is quite possible for a pronoun in the head of the relative clause to be bound by a quantifier in the relative clause, contrary to Li’s claim.

Points of discussion:

There are several issues in connection with the discussion above. First, the explanation I gave for (21b) apparently doesn’t work for cases like (25). I said that (21b) is impossible since the predicate *yong* assigning a manner theta-role to the adjunct is missing. But in (29), the predicate *yong* is also missing, and the example is perfect:

- (29) ta xiu-che de fangfa.
 ‘the way he fixed the car.’

I think (29) possibly has a non-relative clause analysis (it may have other analyses as well) where *xiu-che* is some sort of gerund, like English (30), with no movement of any sort:

- (30) [his [[way [of fixing the car]]]

Note that *his* in (30) or *ta* in (29) is not the syntactic subject of the gerund. It is the possessor of the head noun *way* or *fangfa*.

Returning now to (21b). The gerund analysis for (29) is not possible for (21b). Here, what precedes *fangfa* is a clause with a modal, and gerunds usually don’t tolerate modals (cf. **a way for John caning fix the car*, but this may be just a strange fact about English that modals can’t take *-ing*. But replacing *can* with *be able to* still gives a bad result, cf. **a way for John’s being able to fix the car*). Moreover, although the pronoun *ta* in (29) can easily be taken to be the possessor of *fangfa* (cf. *wo de fangfa bi ta de fangfa hao* ‘my way is better than his’), it is hard to imagine how *meige xuesheng dou neng xiu-hao che* can be a possessor the way *ta* in (29) can; it simply doesn’t have the distribution of NPs:

- (31) a. ta lai-le.
 ‘He came’
 b. *meige xuesheng dou neng xiu-hao che lai-le.
 ‘Every student can fix the car came.’

In sum, (21b) is ungrammatical, because (i) the predicate *yong* assigning a manner theta-role to the head of the relative clause is missing and (ii) the gerund analysis, not requiring *yong* to assign an adjunct theta-role to the head of the relative clause, is not possible. I wonder what everyone thinks about this account.

There seems to be an interesting **asymmetry between time/place adjunct relatives and reason/manner adjunct relatives with respect to the stacked relatives**. While time/place adjunct relative clauses may be stacked, as in (30a), but reason/manner adjunct relative clauses may not, as in (30b):

- (32) a. The several times [when John came to the shop] [when he saw Sue]
 b. The place [where John meets his friends] [where he likes to drink beer]
- (33) a. *The reason [why John fixed the car] [why he wanted to impress Bill]
 b. ?*The way [John drives the truck] [that he drives the car]

The example in (34b) may be related to two conflicting requirements in English. Manner adjunct relative clauses don't occur with an overt complementizer in most dialects (cf. ??*the way that he drives the car*), but a relative clause appearing farther to the right in a sequence of stacking relative clauses requires an overt complementizer or a relative pronoun (cf. *This is the book John bought *(that) was shown to everyone*). But it's not immediately clear why reason adjunct relative clauses may not be stacked even though an overt relative pronoun is present, as in (33a).

In this light, let us return to the manner relative clause in (21b). The complication here is that we cannot directly account for the ungrammaticality of this example by using the explanation for the marginality of stacked manner adjunct relative clauses in English, since the latter is plausibly due to the two conflicting requirements as we just discussed. But these two conflicting requirements do not seem to hold for Chinese (cf. Chinese relative clauses always have *de*). The best we can do is to assimilate (21b) to (33a), but it is not clear to me if that is correct, until we have an account for the difference between (32) and (33). We can think about this before we meet.

Note also a small complication in (21b). The example is actually ambiguous between the reading where *fangfa* is related to the object of the verb *jiao*, and the reading where *fangfa* is related to a modifier, i.e. adjunct, of the predicate *jiao*. The first reading is related to the sentence 'everyone uses what I taught him to fix the car.' and the second reading is related to the sentence 'everyone uses the way I taught him something or another to fix the car.' It is the second reading that is most directly pertinent to the discussion of (32)-(33). In any event, we need to exclude (21b) on both readings.

Questions to be discussed:

- (i) Do you agree that a pronoun in the head of a relative clause related to the place/time adjunct modifying the predicate inside the relative clause may be bound by a quantifier inside the relative clause (cf. examples in (26))?
- (ii) How do we explain why manner relative clauses may not be stacked in Chinese?
- (iii) How do we explain why reason relative clauses may not be stacked in both Chinese and English?

4. A subject/object asymmetry

Hou and Kitagawa (1987, LI squib) notes the contrast in (1), where the head of the relative clause is related to a subject gap:

- (34) a. neixie/henduo dai yanching de xuesheng.
'Those/many students who wear glasses.'
b. dai yanching de neixie/*henduo xuesheng.

The contrast disappears if the gap to which the head of the relative clause is object position, as in (35):

- (35) a. neixie/henduo wo renshi de xuesheng.
'those/many students that I know.'
b. wo renshi de neixie/henduo xuesheng.

They thus suggest that in (34a) the subject position is occupied by null pronoun *pro*, while that in (34b) is occupied by a trace of a phonetically empty operator. For both examples in (35), like (34b), a trace of the empty operator fills the object position. Relevant to the analysis are the island effects. They show that island effects show up when (34b) and (35) are embedded in a syntactic island, but not that in (34a). I refer you to the paper for the examples.

A possible topic for discussion:

Is there principled reason for the different treatment of (34a) on the one hand and (34b)-(35) on the other? That is, what principle of grammar requires that a null pronoun may occur in the subject position in (34a), but not in (34b)?

5. *suo*

Niina Zhang brought to my attention a very intriguing problem for the analysis of Chinese relative clauses (Niina Zhang 'Short movement of relativization', Ms., ZAS.). The relevant example is in (36):

- (36) ni suo shuo de neige ren.
'the person you mentioned.'

The intrigue is that there is no obvious gap that can be said to be related to the head *neige ren*. While the example in (37a) can be said to be related to that in (37b), there is no declarative sentence related to (36), (38) is ungrammatical:

- (37) a. ni suo shuo de neiju hua.
'the claim that you said/claimed.'
b. ni shuo neiju hua.
'you said the claim.'

- (38) *ni shuo neige ren.
'you mentioned that person.'

Another property of *suo* that is also of interest is that it occurs only if the head of the relative clause is the direct object (modulo the problem in (36)):

- (39) zai chufang-li (*suo) chi fan de ren shi wo-zhangfu.
'the person who is eating meal in the kitchen is my husband.'

Bonnie Chiu has a paper on *suo* (JEAL 1995:77-117). She suggests that *suo* is actually the head of a functional projection, pretty much like the projection of clitics in Romance. Descriptively, *suo* can occur if there is a direct object gap left by syntactic movement (*sou* is impossible with a null pronoun), but it cannot appear in a higher clause than that containing the gap. Chiu argues that these follow from *suo* being the head of a functional projection, in her words, triggered by *wh*-movement to the Spec of this projection. The paper has many facts bearing on word order with respect to aspectual marker, negation, preverbal object, the existence of null expletive, whether Chinese has raising verbs. These raise many theoretical issues as well.

Possible topics of discussion:

- (i) Since *suo* is not obligatory, Chiu analyzes cases of relativization without *suo* as involving no movement. I think this is probably incorrect, as we still have island effects without *suo*. If so, then how do we account for the occurrence of *suo*? i.e. when is it possible, and when not? What principle of grammar excludes its appearance?
- (ii) I think it is unexpected in Chiu's account that *suo* may occur when the object is in a *ba*-phrase. There's a direct object gap, *suo* is nonetheless impossible. Do you agree? Is there a way out in Chiu's analysis.
- (iii) The ungrammaticality of the example in (38) suggests that there is no plausible gap related to the head of the relative clause in (36). In light of this fact, should we look for an alternative analysis for (36)? Perhaps, it does not have a relative clause structure at all?

6. Non-restrictive relative clauses

Huang (1982) points out the grammatical contrast in (40) (not all speakers share his judgment, though):

- (40) a. Niujué, zhè gè [rén rén dōu zhī dào] de chéng shì, ...
'New York, the city that everyone knows, ...'
b. *Niujué, [rén rén dōu zhī dào] de zhè gè chéng shì, ...

The difference in (40) is often taken to show that non-restrictive relative clauses do not exist in Chinese. On closer inspection, it's not clear what it shows.

As the examples in (40) without *Niujué* 'New York' are both possible, the problem is the relation between *Niujué* and what to its right. But then there is no issue of whether what follows *Niujué* is a non-restrictive relative clause, since it isn't a relative clause at all (cf. the English translation), although it contains a relative clause (surrounded by the square brackets) as part of its structure.

The different positions of the relative clause in (40) recalls those noted by Hou and Kitagawa in (34). Connecting the grammatical contrast in (34) to the fact that

non-restrictive relative clauses in English do not co-occur with quantifiers, as shown in (41), then the ungrammaticality of the example in (34b) is suggestive that the left-peripheral relative clause is non-restrictive:

- (41) a. *Every student, who I know, came to the party.
b. *Two students, who finished the exam early, left the room.

If this is correct, then the bracketed phrase in (40b) should be a non-restrictive relative clause as well. But this conclusion is independent of *Niujue* appearing on its left.

Possible topics of discussion:

It seems to me that that the real problem is not whether Chinese has non-restrictive relative clauses, but rather:

- (i) What is the condition for a relative clause to appear in the left-peripheral position, cf. (34b)?
(ii) Why should (i) hold?