A Comparison between Japanese and Chinese Relative Clauses

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1. Introduction

Fukui and Takano (1999) argue that a variety of differences between English and Japanese relative clauses fall out in an elegant fashion, based solely on the following parametric difference between the two languages: English exhibits N-to-D raising, while Japanese does not.

Chinese relative clauses are head-final like Japanese relative clauses are, but we will see in this paper that for other properties they behave like English relative clauses. I claim that Fukui and Takano’s (1999) generalization can be extended to Chinese, once we propose that in this language N moves to D covertly. I will first review Fukui and Takano’s (1999) theory (section 2), and then illustrate the basic properties of relative clauses in Chinese (section 3). In section 4 I will provide an account for relative clauses in Chinese, as well as for the differences between Chinese and Japanese relativization. In section 5 I re-define the N-to-D parameter to include Chinese and provide a summary of the properties it accounts for.

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2. Japanese vs. English relative clauses

Fukui and Takano (1998, 1999), following Chomsky (1995), propose that linear order is determined in the phonological component, according to the following principle:

(1) Symmetry Principle of Derivation

Pre-Spell-Out computations and post-Spell-Out (and pre-Morphology) computations are “symmetric”, in the sense that they form mirror images of each other.

Fukui and Takano (1998) propose that the Linearization process consists of two operations: Demerge and Concatenate. Demerge applies to a single root and breaks it in two; Concatenate then assigns the linear order of the two maximal projections made available by Demerge. Of the two projections, the one that is already a maximal one at the point of application of Demerge “precedes” the other. Hence, the linearization process predicts that Spec-Compl-Head is the basic order (vs. Spec-Head-Compl, as proposed by Kayne (1994)). In the verbal domain, the VO/OV distinction is based on the presence vs. absence of V-raising.

The Symmetry Principle of Derivation together with the Linearization process also has consequences for the nominal structure. Fukui and Takano (1999) argue that a variety of differences between English and Japanese depend on a single parametric difference between the two languages: English exhibits N-to-D raising, Japanese does not.¹ In fact, according to Fukui (1986, 1988), Japanese lacks the functional category D:

(2) Japanese

```
NP
\|-- compl N
```

(3) English

```
DP
\|-- det D'
   \|-- N D'
      \|-- NP D
         \|-- compl N
```

¹ In Fukui and Takano (1998) head movement is treated as “substitution into Spec” rather than adjunction to head.
The above tree diagrams show that Japanese nominals are NPs, not DPs; given that the basic word order, according to Fukui and Takano (1998), is Spec-Compl-N, the surface order of English is derived by movement of the nominal head, N, to [Spec, D]. The trigger for this movement is the need to check features in D.

As for relative pronouns, they are not allowed in Japanese because they would not be bound by the “head” of the relative:

(4) \[
\begin{array}{c}
\text{Japanese} \\
\text{CP} \quad N_1 \\
\downarrow \quad \text{syasin} \\
\text{“picture”}
\end{array}
\]

(5) \[
\begin{array}{c}
\text{English} \\
\text{DP} \\
\text{a} \quad D' \\
\text{N}_1 \quad D' \\
\downarrow \quad \text{picture} \quad N_1 \quad D \\
\text{CP} \quad t_{N_1} \\
\text{which …}
\end{array}
\]

Given the following definition of c-command, the relative pronoun is c-commanded in (5) but not in (4):

(6) Definition of C-command:
- X c-commands Y iff X excludes Y and every element that dominates X dominates Y;
- X excludes Y iff no segment of X dominates Y.

Fukui and Takano (1999) suppose that there is a general requirement on the licensing of the relative pronoun of the following kind (see also Cinque 1982):

(7) The relative pronoun must be bound by the relative head.
It follows that Japanese relative clauses cannot be licensed syntactically, since a relative pronoun cannot be bound in the structure in (4). Fukui and Takano (1999) and Takeda (1999) propose that Japanese clauses are licensed semantically, through an “aboutness” relationship.

In addition, Fukui and Takano (1999) propose that the relative clause in Japanese is TP and not CP. Following Diesing (1990) in spirit, they adopt the following principle:

(8) A functional category is present in the structure only when it is necessary.

This condition allows subordinate clauses both in English and in Japanese to have CPs: subordinate clauses are always marked for the declarative/interrogative distinction, hence the CP as a functional category is present since it is necessary. The relative clause in English is also allowed to project up to the CP level, given that it is “operator-oriented” and thus its CP contains a relative pronoun or a relative operator. But Japanese relative clauses do not need to project up to the CP level, because they are not licensed syntactically, i.e. they are not introduced by a null operator or a relative pronoun.

Fukui and Takano (1999) also investigate the difference between English and Japanese with respect to internally-headed relatives. English doesn’t allow them, while Japanese does²:

(9) John-wa [Mary-ga sandoitti-o tukutta no]-o tabeta.
   John-TOP Mary-NOM sandwich-ACC made NM-ACC ate
   ‘John ate the sandwich Mary had made.’

(10) *John ate [Mary had made sandwich].

(11) \[
\begin{array}{c}
N_1 \\
TP \\
\vdots \text{sandoitti} \ \vdots \text{pro}
\end{array}
\]  \[Japanese\]

² In the examples I use the following abbreviations: WA for the topical marker, NOM for the nominative marker, NM for the nominalizer, ACC for the accusative marker, for Japanese. For Chinese, I use CL for classifier, DE for the modification particle, ASP for the aspect particle,
Following Cole (1987), Fukui and Takano (1999) analyze internally-headed relative clauses as in (11). At LF, the external “head” pro is interpreted as coreferential with the internal “head” {\textit{sandoitti}}, ‘sandwich’. This is allowed, given that neither [N₁, N₁] not the lower N₁ c-command the internal “head”. If English had internally-headed relative clauses, its structure would have been as in (12). Through raising of the nominal head, the external “head” pro is located in [Spec, D]. In that position, the external head pro binds the internal head X, violating condition C of the Binding Theory. Hence, English cannot have internally-headed relative clauses because of the existence of N-raising.

Summarizing, Fukui and Takano (1999) show that the theory of phrase structure and linear order proposed by Fukui and Takano (1998) deduces the differences concerning relative clauses – given in (13) – between English and Japanese from the single parametric property in (14):

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>order</td>
<td>N-initial</td>
<td>N-final</td>
</tr>
<tr>
<td>relative pronoun</td>
<td>present</td>
<td>absent</td>
</tr>
<tr>
<td>licensing of relative gap</td>
<td>syntactic</td>
<td>semantic</td>
</tr>
<tr>
<td>gap</td>
<td>trace</td>
<td>pro</td>
</tr>
<tr>
<td>island effects</td>
<td>present</td>
<td>absent</td>
</tr>
<tr>
<td>gapless relatives</td>
<td>absent</td>
<td>present</td>
</tr>
<tr>
<td>relative Comp</td>
<td>present</td>
<td>absent</td>
</tr>
<tr>
<td>internally-headed relatives</td>
<td>absent</td>
<td>present</td>
</tr>
</tbody>
</table>
(14) The nominal head overtly raises to [Spec,D] in English but stays in place in Japanese.

3. Adding Chinese to the picture

Given that Chinese shows head-finality in the structure of nominals the same way Japanese does, one would expect its relative clauses to pattern alike with Japanese relative clauses. Instead, Chinese relative clauses seem to have the same characteristics of the English ones. A question that arises is then how Fukui and Takano’s (1999) theory can account for the Chinese facts. The solution I propose lies in the availability of N-to-D raising in LF for Chinese nominals.

3.1. Characteristics of Chinese relative clauses

3.1.1. Relative pronouns

Chinese doesn’t have relative pronouns, but it has been claimed that relative operators are present (see among others: Huang 1982, Ning 1993, Del Gobbo 2000, A. Li 1997, Huang, A. Li and Y. Li 2000, Aoun and Li 2003):

(15) a. \([CP \text{ Op}_i \text{ wo kanjian } t_i \text{ de}] \text{ guniang}
       \quad \text{I see DE girl}
       \quad \text{‘the girl I see/saw’}

   b. \([CP \text{ shei}_i \text{ wo kanjian } t_i \text{ (de)}} \text{ guniang}
       \quad \text{who I see DE girl}

The example above shows that a wh-pronoun, in this case an interrogative pronoun, cannot be used in Chinese relative clauses, differently from what happens in English:

(16) a. the girl I met
   b. the girl who I met

---

3. No overt relative pronoun exists in Chinese.
But we know that the gap in (15a) is due to wh-movement because we see island effects. In fact, Huang (1990) notes that although the formation of wh-questions in Chinese does not involve an overt process of A’-movement, two familiar structures – topicalization and relativization structures – do display dependency chains that are typically associated with wh-movement. To begin with, Huang (1990) observes that it is possible to relativize an element deeply embedded in a complement clause:

(17) Wo zhidaolisi juedenimen dou hui xihuan t, de ren, laile.
    I know Lisi feel you all will like DE people come ASP
    ‘The person that I know that Lisi feels that you all will like came.’

In (17) movement may proceed successive-cyclically crossing one bounding node at a time. Consider now extraction from a complex NP. The sentence in (18b) shows that an object inside the relative clause cannot be relativized:

(18) a. [IP Wo renshi [NP hengduo [CP [IP xihuan Lisi] de] ren]]
    I know many like Lisi DE people
    ‘I know many people who like Lisi.’

    I know many like DE people DE that-CL professor call Wang *
    ‘The teacher who I know many people who like has the surname Wang.’

The other island constraints (Left Branch and Adjunct) apply as well. Chinese doesn’t exhibit wh-island constraint effects, since no overt wh-movement exists in this language. Also, A’-chains in Chinese do not seem to exhibit Subject Constraint effects. Huang’s (1990) proposal is that certain syntactic islands cease to be such in sentence-initial position because this is the only position where a given empty category can be base-generated as a pro and properly coindexed in accordance with the Generalized Control Rule (Huang 1984).
3.1.2. Licensing of relative clauses

Differently from Japanese, Chinese is an operator-variable oriented language. Various authors (Ning 1993, Del Gobbo 2000, A. Li 1997 and Huang, A. Li and Y. Li 2000, Aoun and Li 2003) maintain that Chinese has a syntactic, not a semantic licensing of relative clauses. But, given the existence of subject/object asymmetries in relative clauses and the need to resort to the Generalized Control Rule (Huang 1982) in order to account for them, a few words need to be spent in order to clarify what is usually intended for a pro strategy in Chinese. The proposal that Chinese resorts to a semantic vs. a syntactic licensing has been made in the literature with respect to the so-called “gapless” relative clauses. In the next section I briefly review different proposals on this topic. In the end, we shall see that relative clauses in Chinese are uniformly licensed in a syntactic way: either through an operator-variable construction or through a control structure. The so-called “gapless” relatives will be analyzed, following Huang, Li and Li (2000), as having a complementation structure.

3.1.2.1. Gapless relative clauses

Fukui and Takano (1999) argue that the existence of the so-called gapless relative clauses follows from the fact that in Japanese relative clauses are licensed through an “aboutness relation” with the relative “head”:

(19) [syusyoky-ga taihen na] buturigaku
employment-NOM difficult is physics
Int.: ‘Physics (that) finding a job is difficult.’

As we saw above, they propose that the availability of a semantic licensing is a consequence of the non-raising of the noun to D in Japanese.

Gapless relatives seem to exist in Chinese as well, but their licensing is controversial.

3.1.2.2. Tsai (1992)

Tsai (1992) reports the well-known fact that in certain topic constructions no gap appears in the comment clause (“topic-in-situ”):
(20) [na chuang huo], [xingkui xiaofangdui lai-de zao]
that CL fire fortunately fire-brigade come-DE early
‘(About) that fire, fortunately the fire brigade came early.’

The relationship between the topic and the comment is sometimes called “aboutness”. According to Tsai (1992), the “aboutness” relationship can be characterized as a predication relation between a discourse topic and a comment clause with a pro, functioning as a variable in William’s (1980) sense:

(21) [na chuang huo], [pro [xingkui xiaofangdui lai-de zao]
that CL fire fortunately fire-brigade come-DE early
‘(About) that fire, fortunately the fire brigade came early.’

Tsai (1992) maintains that the existence of “sloppy relatives” can be taken as evidence for an “aboutness relationship”. In “sloppy relatives” no gap can be found, therefore the null operator analysis is not viable, since there is no variable to operate upon:

(22) [[pro [Akiu tan ganqin]] de shengyin]
Akiu play piano DE sound
‘the sound which (is produced by) Akiu’s playing piano’

(23) [[pro [Akiu sha ren]] de jiama]
Akiu kill people DE price
‘the price which (is charged in hiring) Akiu to kill people’

(24) [[pro [Akiu zuobi]] de xiachang]
Akiu cheat DE consequence
‘the consequence which (results from) Akiu’s cheating’

(25) [[pro [Akiu jiu ren]] de huibao]
Akiu save people DE reward
‘the reward which (is gained by) Akiu’s saving people’

Tsai (1992) furthermore points out – following a suggestion by Jim Huang – that similar sloppy construals can be found in English, but in the form of gerunds:
(26) the price of his killing Bill
(27) the price of him killing Bill
(28) the consequence of his cheating Bill
(29) the consequence of him cheating Bill

Since “sloppy gerunds” are typically associated with actions or events, Tsai (1992) expects the Chinese counterparts to show the same trait. In fact, no stative predicate can head a sloppy relative in Chinese:

(30) *[Akiu (hen) congming] de haochu] hen duo.
    Akiu very intelligent DE benefit very much
(31) *[Akiu (hen) guzhi] de xiaocheng] hen can.
    Akiu very stubborn DE consequence very miserable

The suggestion he makes then is that in a “sloppy relative” it is an implicit event argument which is relativized, and it is represented by pro in the examples in (22)-(25). It serves as the open place that makes the sloppy contrual possible.

Nevertheless, if the sloppy relative is embedded as a sentential subject, there is strong deviance:

(32) *[Akiu tan ganqin] hen heshi] de shengyin]
    Akiu play piano very appropriate DE sound
    ?‘the sound of it being good that Akiu plays the piano’

Tsai (1992) proposes that (33) is out either because of compositionality on semantic grounds (Srivastav 1991) or by the adjacency requirement on syntactic grounds (Chomsky 1986a, Safir 1986).
3.1.2.3. Ning (1993)

According to Ning (1993), the analysis provided by Tsai (1992) triggers a violation of the requirement of ‘non-vacuous quantification’. In his view, relatives as the ones in (22)-(25) are not gapless, since there is no thematically subordinate relation that can be established between the NP “head” and the argument inside the relative clause (Argument Condition, Na and Huck 1991). According to his proposal, they contain an adjunct gap. Ning (1993) assumes that the NP “head” is linked to a resultative VP in adjunct position:

(33) \[\text{[Op, } [\text{ta } [\text{VP [v· chang ge [VP [v· ?] t₁] de ]] shengyiₙ₁}] \]

\[\text{he sing-song DE voice} \]

‘the voice of his singing’

The above relative is then an operator-variable construction with a single-word adjunct operator whose internal composition contains an empty verb having the general meaning of “obtain”: 

(34) \[\text{[CP [VP [v e ] Op], [ta mai shu [VP e ] de] [qian]]} \]

\[\text{he buy book DE money} \]

‘the money he got from selling books’

The following example shows that the meaning of the verb is confined to “obtain”:

(35) *\[\text{[ta mai che de] [zhang]} \]

\[\text{he sell car DE bill} \]

*‘the bill he (paid) by selling the car’

The operator is recoverable by being theta-marked by the empty verb having the designated meaning of “obtain”.

3.1.2.4. Li (2000)

Below are some of the examples provided by Li (2000):
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(36) zhe jiu shi [[ta kaoshi de] jieguo
   this just is he take-exam DE result
   ‘This is the result of his exam-taking.’

(37) zhe jiu shi [[ta zuo-e de] houguo
   this just is he do-evil DE consequence
   ‘This is the consequence of his evil doing.’

Li (2000) observes that the relative “head” cannot be related to any position within
the relative clause: it is related to the entire relative clause. The following examples
show that the “head” noun cannot be related to an embedded clause:

(38) *zhe jiu shi [[wo xihuan ta chang-ge de] shengyin]
   this just be I like him sing-song DE voice
(39) *zhe jiu shi [[wo tingshuo ta zuo-e de] houguo]
   this just be I hear he do-evils DE consequence

Notice that the adjacency requirement in (38) and (39) is actually satisfied.
According the Li (2000), the above relatives pattern like [NP [P XP]] in English:

(40) [the voice [of his singing]]

(41) [the consequence [of his evil doing]]

Gapless relatives are licensed through a direct modification relation between the “head”
noun and the entire XP that modifies it.

3.1.2.5. Huang et. al. (2000)

According to Jim Huang (p.c.) “gapless” relatives cannot be licensed by an
“aboutness” relationship, because if it were the case, then we should always have a
topic-comment counterpart of a “gapless” relative:

(42) [ni chang ge de shenying]
   you sing song DE voice
   ‘the voice of your singing’
(43) *shenying, ni chang ge  
  voice you sing song

According to Huang et. al. (2000), gapless relatives are structures of complementation, not modification. Nouns like consequence, price, condition are ‘relational nouns’ with argument places to be saturated. The so-called gapless relatives are in fact complements that saturate these argument places. They observe the following contrast:

(44) *ta tiaowu de guniang  
  he dance DE girl  
  Int. ‘the girl with whom he danced’

(45) ta tiaowu de banyu  
  he dance DE companion  
  ‘the partner of his dancing; his dancing partner’

They observe that (45) should not be analyzed as a relative clause involving a comitative adjunct operator meaning with whom. If that were possible, there is no reason why (44) could not be grammatical as well. Their proposal is that guniang is a one-place predicate, therefore (45) is ungrammatical because of theta-theory, since tiaowu, ‘danced’ does not bind any argument position. Banyu, ‘companion’ instead is a two-place predicate, therefore (46) is grammatical.

3.1.2.6. Summary: Gapless relatives

In conclusion, we do have gapless relatives in Chinese, but their licensing is syntactic (complementation structure) and not semantic (“aboutness” relation). The fact that a subset of gapless relatives are ungrammatical can’t be related to island violations, since no gap seems to be involved in this kind of relatives.

3.1.3. Relative complementizers

Chinese doesn’t lack a complementizer in relative clauses the way Japanese does. Following Huang (1982), Cheng (1986) and Bao (1989), Ning (1993) takes de as the
functional head of CP, whose selected complement clause is a predicate structure. As we saw above, Fukui and Takano (1999) maintain that Japanese relative clauses are TP and not CP. No complementizer is present in Japanese relative clauses since there is no need for it, the relatives being licensed semantically. Instead, Chinese relative clauses are operator-variable contructions, hence CPs.

3.1.4. Internally-headed relatives

Internally-headed relatives are not available in Chinese:

(46) *Zhangsan kan le [Lisi xie le shu].
    Zhangsan read LE Lisi write LE book
    Int. ‘Zhangsan read the book that Lisi wrote.’

The unavailability is intuitively linked to the fact that internally-headed relatives are usually present in well-behaved SOV languages. Chinese, as we know, is SOV in the nominal system, but SVO in the verbal one.4

3.2. Chinese nominals as DPs

Following Li (1997), in Del Gobbo (1999a, b), I claim that the DP hypothesis is correct for the Chinese nominal system. In particular, in Del Gobbo (1999b) I provide evidence for the existence of DP in Chinese from the domain of nominal apposition in Mandarin, from the comparison of definite and indefinite nominals in Mandarin and Cantonese, and finally from the similarities between Mandarin and Cantonese proper names and bare nouns. On the basis of the results of the above mentioned research, here I take for

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4. Aoun and Li (1993) propose that Japanese but not Chinese allows an operator to be base-generated with the NP it is associated with and to be subsequently moved away from this NP. According to Watanabe (1991), in internally-headed relatives an abstract operator is base-generated with the internal head and is subsequently moved to the Spec of Comp of the relative clause. In Chinese this is not possible, hence the language doesn’t allow internally headed relatives. I follow here Takeda (1999) and maintain that relative clauses in Japanese are uniformly licensed through an “aboutness” relationship and I won’t adopt Aoun and Li’s (1993) proposal.
granted that Chinese nominals always project at least up to the DP level, and in this respect they are different from Japanese nominals, for which Fukui and Takano (1999) claim that there is no D projection.

3.3. Summary of Chinese relative clauses

Chinese makes use of an operator-variable strategy to license relative clauses; no relative pronouns are present in the language, but we can detect the existence of relative operators. The relative operator raises to Spec of CP, hence Chinese relatives are CPs and not TPs. The complementizer \textit{de} can never be omitted. Gapless relatives in Chinese are not licensed by a semantic mechanism: Huang, A. Li, and Y. Li (2000) show that gapless relatives in Chinese are nothing other than complements. I recapitulate the situation in the schema below:

\begin{tabular}{|l|l|l|}
\hline
 & \textit{Chinese} & \textit{Japanese} \\
\hline
order & \textbf{N-final} & \textbf{N-final} \\
relative operator & \textbf{present} & absent \\
relative pronoun & \textbf{absent} & absent \\
licensing of relative & \textbf{syntactic} & semantic \\
gap & \textbf{trace/pro} & \textbf{pro} \\
islund effects & \textbf{present} & absent \\
gapless relatives & \textbf{present} & present \\
relative Comp & \textbf{present} & absent \\
iarnally-headed relatives & \textbf{absent} & present \\
\hline
\end{tabular}

In the following section I propose a way to capture the differences between Chinese and Japanese relative clauses: N-to-D movement applies covertly in Chinese and doesn’t apply at all in Japanese.
4. An account of Chinese relative clauses

4.1. N-to-D in LF

Fukui and Takano (1999) link the difference between Japanese and English relative clauses to the parameter in (14), repeated below:

(14) The nominal head *overtly* raises to [Spec, D] in English but stays in place in Japanese.

Notice that because of its head-finality, it is not possible to assume that the head noun in Chinese raises overtly to D. For Italian, Longobardi (1994) shows that the following paradigm is to be understood in terms of overt movement of N to D, since when the noun raises, it crosses the possessive:

(48) a. Il mio Gianni
    the my Gianni
b. Il Gianni mio
    the Gianni my
c. Gianni mio
    Gianni my
d. *Mio Gianni
    my Gianni
   ‘My Gianni’

Because of their semantic similarities (48a) and (48c) are related by movement of the nominal head up to the determiner position. This pattern is not available in Chinese, since the nominal phrase is strictly head-final:

(49) a. wo de Zhangsan
    I DE Zhangsan
b. *Zhangsan wo de
    Zhangsan I DE
   ‘My Zhangsan’
Nevertheless, Li (1997), Cheng and Sybesma (1999) and Del Gobbo (1999a, b) independently show the existence of movement of N to D (or Cl, for Cheng and Sybesma 1999). I claim that such movement applies at LF. This explains the head-finality of the Chinese nominal system – for which the language is like Japanese – and the properties of its relative clauses – for which the language is different from Japanese and more similar to English. If we assume with Li (1997) and Del Gobbo (1999a, b) that Chinese has a category D, the covert nature of the N-to-D movement allows us to account both for word order and for the characteristics of relative clauses in this language.

I therefore maintain that the correlation made by Fukui and Takano (1999) still holds: certain properties of relative clauses follow from the absence of N-raising in overt syntax. Chinese has N-raising up to D, but only at LF. In the following section, I analyze the characteristics of Chinese relative clauses, with reference to the N-to-D movement in LF.

4.2. Analysis of Chinese relative clauses

4.2.1. Relative pronouns

Chinese doesn’t have relative pronouns, but as we saw, it has relative operators. On the assumption that Binding Theory applies at LF, raising of N-to-D in LF is sufficient to c-command the null operator within CP:

\[(50)\] 

```
      DP
  det   D'
     /   /   |
N1    D'   N1
  /   /   |   |
N1   D   t_{N1}
 CP
```

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4.2.2. Licensing of relative clauses

Differently from Japanese, Chinese is an operator-variable oriented language: in Chinese, relative clauses are licensed syntactically, not semantically. Chinese does have gapless relatives. Their licensing is syntactic and not semantic: they are generated as complementation structures, but they do not give rise to an ‘aboutness’ relation. Since the language allows N-to-D movement and the relative operator can be bound by the noun raised in LF to D, there is no need to resort to a semantic licensing, differently from Japanese.

4.2.3. Relative complementizers

As for the presence of a complementizer, I follow the traditional literature (Huang 1982, Cheng 1986, Bao 1989 and Ning 1993) and take de to be the functional head of the CP.

4.2.4. Internally-headed relatives

Internally-headed relative, we saw, are not available in Chinese. In Japanese, Fukui and Takano (1999), following Kayne (1994) and Cole (1987), assume that an internally headed relative has a pro “head”. At LF, the external “head” is interpreted as coreferential with the internal one, given that the external “head” does not c-command the internal one. In English, instead, since the nominal head raises to [Spec, D], a c-command relation is established and Principle C of the Binding Theory is violated. Assuming that Binding Theory holds at LF as well, the same explanation can be used to explain the unavailability of internally-headed relatives in Chinese:

(51)  

\[
\text{DP} \\
| \text{det} \\
| \text{N}_1 \\
| \text{pro} \\
| \text{N}_1 \\
| \text{D} \\
| \text{CP} \\
| t_{\text{N}_1} \\
| \text{which} \ldots \text{X} \ldots
\]
5. Conclusion

Fukui and Takano (1999) propose that a variety of differences between English and Japanese relative clauses derive solely from the following parametric difference between the two languages: English exhibits N-to-D raising, Japanese does not. Here I propose that the same parameter can explain the differences between Chinese relative clauses on one side, and both Japanese and Chinese relative clauses on the other one. Let me restate the parameter so to include Chinese:

(52) The nominal head overtly raises to [Spec, D] in English, but it does not in Japanese and Chinese.

The fact that the head doesn’t raise overtly in Japanese and Chinese leaves two possibilities open:
1. that it stays in-situ through LF;
2. that it raises to D in LF. The first option is chosen by Japanese, and the second by Chinese.

The head-finality of the nominal phrase is then straightforwardly accounted for: in Japanese the head noun doesn’t move at all; in Chinese it does, but at LF. The rest of the properties of relative clauses all follow from the existence or absence of movement. In Chinese, the existence of movement allows a relative operator to be bound, it provides syntactic licensing for the relative clause, leaves a trace, explains the presence of island effects and the absence of internally-headed relatives, and indirectly supports the analysis of the modifier particle de as the complementizer.

To conclude, the N-to-D movement parameter, interpreted in its entirety, i.e. with the addition of the LF option, is able to account for the variation we observe within relativization in Chinese, Japanese and English.

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5. But we saw that the gap can also be a pro in Chinese, still syntactically licensed.
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