Gapless Relative Clauses as Clausal Licensers of Relational Nouns

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ABSTRACT This paper presents a novel analysis of so-called gapless relative clause constructions such as *xiangpi ranshao de weidao* 'Lit: the smell that rubber burns' in Chinese. The constructions have been observed in East Asian languages. It is claimed that the Head noun of such relative clauses are relational nouns, and the clauses are their licensers. Syntactically, the Head nouns are predicates and the clauses are subjects. Compared to regular relative clause constructions, gapless relative clause constructions denote a reversed predication relation between the Head nouns and the clauses. Compared to complement clauses of nouns, gapless relative clauses denote the external rather than internal argument of nouns. The new analysis explains a series of differences of the constructions from either regular relative clause constructions or noun-complement construction. Analyzing such constructions helps us to recognize a new type of complex nominals, in addition to the modification and complementation types. The absence of such constructions in English is accounted for by the fact that there is no clausal subject in English. The paper shows that clauses in Chinese and gerund forms in English may occur in true subject positions, and thus may license relational nouns.

Keywords: gapless, relative clause, relational noun, clausal subject

1. Introduction

Relative clause (RC, henceforth) constructions in Chinese have the following internal-order: the adnominal clause, the functional particle *de*, and the modified noun (called Head noun):

(1) [tan ganqin] de nühai

    play piano   DE girl

    'the girl that played the piano'

Since Tang (1979:243,289), it has been noted that Chinese has a special type of RC constructions, as shown in (2).

(2) a.   [Lulu tan gangqin] de shengyin

        Lulu play piano   DE sound

        'the sound which (is produced by) Lulu's playing piano'

    b.   Wo wendao-le [[mama chao cai]   de weidao].

        I   smell-PRF   Mom   fry vegetable DE smell

        'I smelled the smell from Mom's vegetable-frying.'

    c.   Wo jisuan-chu-le   [[qiche zhengzai xingshi] de sudu].

        I calculate-out-PRF car   PROG   run   DE speed

        'I calculated the current speed of the car's running.'

    d.   [Lulu bu gen wo hezuo]   de daijia

        Lulu not with I   co-operate DE price

        'the price which (is charged in) Lulu's not cooperating with me'

    e.   [Lulu zuobi] de xiachang

        Lulu cheat   DE consequence

        'the consequence which (results from) Lulu's cheating'

    f.   [Lulu jiu ren]   de huibao

        Lulu save people DE reward

        'the reward which (is gained by) Lulu's saving people'

    g.   Ta shou-shang you [du-she   yao] de shang]]

        he hand-on   have poisonous-snake bite DE wound

        'There is a wound that results from a poisonous snake's biting on his hand.'

Such constructions may not be translated into RC constructions in English. Instead, they can be expressed in the form of gerunds in English:

(3) a.   *the sound that Lulu played a piano

      b.   *the consequence that Lulu cheated

(4) a.   the sound from Lulu's playing a piano

      b.   the consequence of Lulu's cheating

Gapless RC constructions are also observed in other East Asian languages, such as Japanese (Murasugi 1991, Matsumoto 1997) and Korean (Yoon 1993, Cha 1997, 1999) as in (5). They are also called *pseudo relative clause* (Kim 1998, Chung and Kim 2003), and *sloppy relative clause* constructions (Tsai 1997).

(5) a.   [sakana-ga yakeru] nioi   (Japanese)

            fish-NOM   burn   smell

            'the smell of fish burning'

      b.   [komwu-ka   tha-nun] naymsay   (Korean)

            rubber-NOM   burn-ADN smell

            'the smell of rubber burning'

So far, gapless RC constructions have been analyzed either in a similar way as regular RC constructions, such as (1) (Murasugi 1991, Tsai 1997, Cha 1999, Chang 2006), or in a similar way as noun-complement constructions, such as (6) (Kim 1998, Huang et al. 2000). One can see that in all of the three nominal constructions in Chinese, a clause is followed by *de* and then by a noun.

(6)   [Lulu hui tan ganqin] de yaoyan

           Lulu can play piano   DE rumor

           'the rumor that Lulu can play piano'

Putting aside the operations to derive the surface order of ta gapless RC construction in the relevant language, in the RC approach, in both regular and gapless RC constructions, the Head noun is analyzed as the subject and the clause as the predicate, in a nominal-internal predication relation, whereas in the noun-complement approach, in both noun-complement constructions and gapless RC constructions, the Head noun is assumed to take the clause as its complement. In this paper, I present differences of gapless RC constructions from both regular RC constructions and noun-complement constructions. Some of these differences are reported for the first time, as far as I know. The differences do not support the two approaches.

Instead of treating the clause of a gapless RC construction as either a modifier or complement of the Head noun, I will claim that the clause is in fact the subject of the Head noun, which is a predicate. In other words, gapless RC constructions express a predication

relation that is just in the opposite direction to the one that is expressed by regular RC constructions.

Before I start my argumentation, I clarify that I do not discuss a kind of pseudo-gapless RC constructions, as in (9) ((9b) is a near Chinese counterpart of a Japanese example mentioned in Kuno 1973 and (9c) is from Riemsdijk 2003).

(7) a.   liang ge bian xiangdeng de sanjiaoxing
            two   CL side equal   DE triangle
            'a triangle such that two of its sides have the equal length'
      a.   Mei ge zhou dou bi   Riben hai   da de na   ge guojia
            each CL state all than Japan even big DE that CL country
            'the country such that each of its states is bigger than Japan'
      a.   a rectangle such that the long sides are twice the length of the short sides

In data like (9), the Head noun and an argument in the RC have a part-whole relation, with the Head noun as the whole-denoting element and the clause-internal argument as the part-denoting element. In (9a), for example, the Head noun *sanjiaoxing* 'triangle' expresses the whole, and the subject in the RC, *liang ge bian* 'two sides' means the two sides of the triangle, and thus part of the triangle. The part-denoting elements in such RCs do not have any denotation independent of the Head noun. They belong to the B-type of E stated in Na & Huck's (1993) following *Argument Condition* of RCs:

(8) *The Argument Condition* (Na & Huck 1993:200):
     A relative clause must contain an element E that the clause predicated something of, where E is either
     A: a gap coindexed with the clause head, or
     B: a nominal whose denotation is thematically subordinate to that of the clause head.

I assume that this E is associated with a possessor-denoting gap, and it is this gap that is related to the Head noun of a pseudo-gapless RC construction. Therefore, the construction is not a gapless RC construction. Such a construction exhibits the full range of properties of regular RCs. For instance, they can be stacked, as in (9a), and can be conjoined with regular RCs, as in (9b):

(9) a.   liang ge bian xiangdeng de mianji dengyu 45 pingfang limi de   sanjiaoxing
            two   CL side equal   DE area   be   45 square   cm   DE triangle
            'a triangle such that its two sides are equal, its the area is 45cm^2'

a.   bei   hua zai shangfang de he liang ge bian xiangdeng de sanjiaoxing

       PASS draw at high-part DE and two CL side equal   DE triangle

       'the triangles which were drawn on the upper part (of the paper) and of which the two sides are equal'

I assume that the computation of the construction is similar to that of regular RC constructions. In this paper, I analyze real gapless RC constructions only.

This paper is structured as follows. In Section 2 and Section 3, I present how gapless RC constructions are different from regular RC constructions and noun-complement constructions, respectively. In Section 4, I propose my own analysis. I then explain in Section 5 why English does not have the construction. Section 6 is a summary.

2. Differences between gapless and regular RC constructions

Five differences between gapless RC constructions and regular RC constructions are presented in this section.

2.1 The Heads of gapless RCs must be relational

As noted by Huang et al. (2000), the Head nouns of gapless RC constructions are relational (contra Cha 1999:29), whereas those of regular RC constructions are not relational. The Head noun of a gapless RC construction must express certain intrinsic characteristics of an eventuality. Terms of intrinsic characteristics, such as *speed* and *distance,* as well as terms of kinship and other social relationships, picture nouns, measure nouns, terms of part of a whole such as *handle* (vs. the whole-denoting nouns or possessor such as the noun *rectangle* in (9c)), and so on, are relational (see de Bruin & Scha 1988, Déchaine 1993:sec.2.4.3.7, among others). In the regular RC construction in (10a), the Head noun is *ren* 'person', which is not a relational noun. This noun may not be the Head of a gapless RC construction, as seen in (10b), regardless of how reasonable the intended meaning might be.

(10) a.   chao cai   de na ge ren

          fry   vegetable DE that CL person

          'the person who fried vegetables'

     b.   *Mama chao cai   de na   ge ren

           Mom   fry vegetable DE that CL person

          Intended: 'the person who was with Mom when the latter fried vegetables'

             Or: 'the person for whom Mom fried vegetables'

2.2 Optionality

Different from regular RCs, the clauses of gapless RC constructions are obligatory:

(11) a.   Ta bu xihhuan (wo mai de) shouji.

          he not like   I   buy DE   cell-phone

          'He does not like the cell-phone that I bought.'

     b.   Ta bu xihuan (*wo chao cai   de) weidao.

          he not like   I   fry   vegetable DE smell

          'He does not like the mell of my frying vegetable.'

2.3 Gapless RCs indeed have no gaps

The clauses of gapless RC constructions, by definition, contain no syntactic gaps that are semantically associated with the Head nouns. There is simply no syntactic position for such a gap, as argued in Cha (1999). If the position were available, we would expect either a copy of the Head noun, as in (12b), or a pronoun co-indexed with the Head noun, as in (12c), to occur in the clause. However, we see that both (12b) and (12c) are unacceptable.

(12) a.   [qiche xingshi] de sudu

           car it run   DE speed

          'the speed of the car's running'

     b,   *[qiche sudu   xingshi]

           car   speed run

     c.   *[qiche ta_i xingshi] de $sudu_i$

           car   it run   DE speed

This is the third difference between gapless RC constructions and regular RC constructions: the latter have, but the former do not have, any gap in the clauses that is semantically related to the Head noun.

One might wonder whether the Head noun of a gapless RC is related to a clause-internal silent event argument. The answer is negative, for the following reasons. First, the Head noun does not encode an event at all. Thus there is no way to co-index the Head noun with any event argument in the clause of a gapless RC construction. Second, the gapless clauses allow non-event readings (contra Tsai 1997, Cha 1999). Both individual and stage-level states can be encoded by the clauses of gapless RC constructions:

(13) a. [Xiao Li congbai Lulu] de chengdu   (IL state)[1]
        Xiao Li   admire Lulu DE degree
        'the degree of Xiao Li's admiring Lulu'

     b. [[Lulu rezhong-yu yundong] de haochu] xianeryijian.   (IL state)
        Lulu   wild-about sport   DE benefit   obvious
        'The benefit from Lulu's being wild about sport is obvious'

     c. Zhe jiushi [[Lulu gangcai shengqi] de houguo].   (SL state)
        this be   lulu   just   angry   DE consequence
        'This is the consequence of Lulu's being angry just now.'

One might insist that the assumed silent event argument may also denote a state, and this argument is related to certain silent element in the Head noun. However, it seems that the exactly same dependency might also be assumed to occur in regular RC constructions, in which the adnominal clauses express either events or states. If this were the case, both gapless and regular RC constructions would have this event argument dependency between the clause and the Head noun, and they differ only in the fact that there is a clause-internal gap in one construction but not in the other construction. Then we are back to the original observation. Nothing new has been said.

2.4 Coordination

Generally speaking, the semantic types of conjuncts are the same. In (14a), the two regular RCs are conjoined, and in (14b), the two gapless RCs are conjoined. The example in (14c) shows that the regular RC may not be conjoined with a gapless RC.

(14) a. Wo tingdao-le Mama chao cai   de gen shouyinji de shengyin.
        I   hear-PRF   Mom fry   vegetable DE and radio   DE sound
        'I heard the sound of Mom's frying vegetables and the radio.'

     b. Wo wendao-le Mama chao cai   de gen xiangpi ranshao de weidao.
        I smell-PRF   Mom   fry   vegetable DE and rubber burn   DE smell
        'I smelled the smell of Mom's frying vegetables and rubber's burning.'

     c. *Wo wendao-le Mama chao cai   de gen Lulu bu xihuan de weidao
         I smell-PRF   Mom   fry   vegetable DE and Lulu not like   DE smell
        Intended: 'I smelled the smell of Mom's frying vegetables and the smell that Lulu does not like.'

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[1] Data like (13a) and (2c) show that, as pointed out by Chang (2006:49), gapless RC constructions do not have to express a cause-effect relation (contra Cha 1999). Moreover, gapless RCs in Chinese allow negation, as in (2d), and temporal expressions such as aspect markers, as in (2c). According to Cha (1999), no negation nor certain types of tense markers may occur in gapless RC constructions in Korean.

Not only the clauses of different types may not conjoin, the Head nouns of the different types may not conjoin, either. The following examples are from Chang (2006:46-47) (see Cha 1997:10-11 for parallel examples in Korean):

(15) a.　Zhangsan changchang sanbu de [*shijian* he *defang*]　　Adjunct gap & Adjunct gap
　　　　Zhangsan often　　　walk　DE time　　and place
　　　　'the time when and the place where Zhangsan often take a walk'
　　b.　Ta　zuo-e　de [*daijia* he *houguo*]　　　　　　Gapless & Gapless
　　　　he　do-evil DE price and consequence
　　　　'the price and the consequence for his evil doing'
　　c.　*Zhangsan sanbu de [*houguo*　　he *shijian*]　　Gapless & Adjunct gap
　　　　Zhangsan　　walk DE consequence and time
　　　　'the price for his talking a walk and the time when he take a walk'

Furthermore, no whole gapless RC construction may be conjoined with a whole regular RC construction:

(16)　　*Wo ganjuedao-le [[Lulu mai de cai]　　he [ta　chao cai　　de weidao]]
　　　　 I　feel-PRF　　Lulu buy DE vegetable and she fry　vegetable DE semll

2.5 Stacking
Regular RCs may be stacked (Jackendoff 1977:185), whereas gapless RCs may not be stacked:

(17) a.　[Mama chao] de [[Lulu xi　de cai]
　　　　Mom　fry　DE　Lulu wash DE vegetable
　　　　'the vegetable that are washed by Lulu and fired by Mom'
　　b.　*[Mama chao cai]　　de　[[Lulu xi　cai]　　de shengyin]
　　　　　Mom fry　vegetable DE　Lulu wash vegetable DE sound

3. Differences between gapless RC and noun-complement constructions
Three differences between gapless RC constructions and noun-complement constructions are reported in this section.

3.1 The occurrence of evaluative adverbs
No evaluative adverb is allowed in gapless RCs, as noted by Chang (2006:73). This is shown in (18a). However, no such a constraint is found in noun-complement constructions, as seen in (18b).

(18) a.　*Wo wendao-le [Lulu {xingkui/juran}　　　　zhu-fan　de weidao]
　　　　　I　smell-PRF Lulu　fortunately/unexpectedly cook rice DE smell
　　　　　Intended: 'I smelled the smell of Lulu's {fortunately/unexpectedly} cooking.'
　　　b.　Wo tingshuo-le [Lulu juran　　　qiang-le yinhang] de baodao
　　　　　I　hear-PRF　　Lulu unexpectedly rob-PRF bank　　DE report
　　　　　'I heard the report that Lulu unexpectedly robbed a bank.'

3.2 Coordination

The Head noun of a gapless RC construction may not be conjoined with the Head noun of a complement clause:

(19)　　　*xiangpi ranshao de weidao he　yaoyan
　　　　　　rubber　burn　DE smell　and rumor

　　　Moreover, no whole gapless RC construction may be conjoined with a whole noun-complement construction:

(20)　　　*[xiangpi ranshao de weidao] he [na zhong qiti meiyou du　　de yaoyan]
　　　　　　rubber　burn　　DE smell　and that kind air not.have poison DE rumor

3.3 Accommodating an animate adnominal

An animate adnominal may occur to the left of a noun-complement construction, with an agent reading, whereas no such an adnominal may occur to the left of a gapless RC construction.

(21) a.　<u>Li Jiaoshou</u> de Lulu fabiao-le　　lunwen de yaoyan
　　　　　Li professor DE Lulu publish-PRF article DE rumor
　　　　　'Professor Li's rumor that Lulu published an article'
　　　b.　*<u>Li Jiaoshou</u> de Lulu tan　gangxin de shengyin
　　　　　 Li professor DE Lulu play piano　DE sound

　　　We conclude that gapless RC constructions are syntactically and semantically different from either regular RC constructions or noun-complement constructions.

4. Our new analysis of gapless RCs as clausal licensers of relational nouns
4.1 Clausal subjects and nominal predicates

We have shown in 2.1 that the Head nouns of all gapless RCs are relational nouns. Relational

nouns have argument places to be saturated, and thus need licensers. Semantically, the relation between relational nouns and their licensers is not modification. Syntactically, relational nouns have a local (i.e., non-adjunction) relation with their licensers. Specifically, a relational noun is a predicate and its licenser is a subject of a small clause (Szabolcsi 1983, Kayne 1994, Hornstein et al. 1994, Castillo 2001, Uriagereka 2008). For instance, in *Bill's neighbor*, the relational noun *neighbor* is a predicate and *Bill* is its subject.

Relational nouns such as *neighbor* are licensed by individual-denoting elements, such as the proper name *Lulu* in (22a), whereas relational nouns such as *houguo* 'consequence' are licensed by eventuality-denoting elements, such as the clause *Lulu gangcai shengqi* "Lulu was angry just now" in (22b).

(22) a. Lulu's neighbor

   b. Zhe jiushi [[Lulu gangcai shengqi] de houguo].
       this be   Lulu just   angry DE consequence
       'This is the consequence of Lulu's being angry just now.'

Certain relational nouns such as *weidao* 'smell' are licensed by either a nominal, such as *na pan cai* 'that plate of vegetable' in (23a), or a clause, such as *Mama chao cai* 'Mom fried vegetables' in (23b).

(23) a. na   pan cai   de weidao
         that plate vegetable DE smell
         'the smell of that plate of vegetable'

   b. mama chao cai   de weidao
       Mom   fry vegetable DE smell
       'the smell of Mom's frying vegetables'

Relational nouns are always predicates. If their nominal licensers are subjects, so are their clausal licensers. Thus, in the gapless RC construction in (23b), the relational noun *weidao* is the predicate, and the clause *Mama chao cai* is the subject.

Of course, like regular RC constructions, the predication relation expressed by gapless RC construction is nominal-internal. In other word, the proposition-denoting element (small clause) is contained in a nominal (DP).

Note that Huang et al. (2000:6) also claim that gapless RCs saturate the argument places of the Head nouns. However, they treat the clauses as complements whereas we treat the clauses as subjects. In next subsection and next section, one can see that it is the subject-approach proposed here that is able to explain both the facts reported in Section 3, and the fact that English does not have the construction.

We can summarize the various relationship patterns encoded by the combination of a noun and a clause as follows. (A) The clause modifies the noun, or is the predicate of the noun. This is the pattern of regular RC constructions, as in (24a). (B) The clause defines the noun, or is the complement of the noun. This is the pattern of the noun-complement constructions, as in (24b). (C) The clause licenses the noun, or is the subject of the predicative noun. This is the pattern of gapless RC constructions, as in (23). The existence of gapless RC constructions is theoretically predicted. Later, in Section 5, we will explain why such constructions do not exist in English.

(24) a.   the vegetables that Mom cooked
     b.   the {claim/rumor/statement/event} that Mom cooked vegetables

The above classification is summarized in (25).

(25)	Head noun	clause
Regular RC construction	Modified (subject)	Modifier (predicate)
Noun-complement construction	head	complement
Gapless RC constructions	Licensee (predicate)	Licenser (subject)

4.2 Accounting for the properties of gapless RC constructions
Our approach can capture the differences between gapless RC constructions and regular RC constructions presented in section 2.

First, a regular RC modifies the Head noun, whereas a gapless RC licenses the Head noun, which is a relational noun. Modifiers are optional in general, whereas licensers are obligatory for the occurrence of the licensees. Thus, while regular RCs are optional, gapless RCs are obligatory (2.2).

Second, as shown in (25), in both gapless RC constructions and regular RC constructions a predication relation is expressed, however, the predication relation between the Head noun and the clause in one construction is just the opposite to the one in the other construction. Thus, the Head nouns in the two constructions are semantically different, so are the clauses. As expected, neither the Head nouns of the two constructions nor the clauses of the two constructions may be conjoined, and the whole constructions of the two types may not be conjoined, ether, as seen in 2.4.

Third, gapless RCs do not have gaps (2.3) simply because they are subjects. Rothstein (1991:145) states that clauses in subject positions may not have any gap, unlike the clause in predicate positions. Elements in subject positions are semantically saturated or licensed and

thus contain no open position that is associated with any other element in the construction.

Fourth, a noun may be modified by several modifiers, but a relational noun may be licensed only once. Gapless RCs may not be stacked (2.5) simply because a relational noun may not be licensed multiple times. The same constraint is seen in the licensing of relational nouns by nominal licensers:

(26)　　a.　chou toufu de weidao
　　　　　　stinky tofu DE smell
　　　　　　'the smell of stinky tofu'
　　　　b.　hujiao-fen　　de weidao
　　　　　　pepper-powder DE smell
　　　　　　'the smell of pepper-powder'
　　　　c.　*chou toufu de hujiao-fen　　de weidao
　　　　　　　stinky tofu DE pepper-powder DE smell

The predication relation encoded by gapless RC constructions is also fundamentally different from the noun-complement relation. Our approach thus captures the differences presented in section 3. Specifically, first, evaluative adverbs may not occur in islands, including subject islands (Sung 2000), as seen in (27). Complement clauses are not islands, whereas subjects are. Therefore, such adverbs may occur in the complement clauses of nouns, but not in the clauses of gapless RC constructions (3.1).

(27)　　*[Lulu **xingkui**　qu Riben] hen heshi.
　　　　　Lulu fortunately go Japan very appropriate

Second, since the Head noun of a gapless RC construction is a predicate, taking the gapless clause as its external argument, whereas the Head noun of a noun-complement construction takes a clause as its internal argument, the two kinds of Head nouns are semantically different and thus may not be conjoined. Similarly, since the two constructions are semantically different, they may not be conjoined, either (3.2).

Third, since the head noun of a noun-complement takes the complement as its internal argument, the syntactic position of an external argument is still available. That is why the construction can accommodate another animate adnominal, which may take the external argument position and have an agent reading. In contrast, the clause of a gapless RC construction is the external argument of the Head noun, there is no more syntactic position to host another external argument. That is why the construction may not accommodate another animate adnominal (3.3).

4.3 Gapless RCs constructions and gapless topicalization constructions

Tsai (1997) claims that gapless RC constructions and gapless topicalization constructions (Li & Thompson 1976), such as (28), "are realizations of the same typological trait." Tsai claims that like the latter, the relationship between the Head noun and the clause of a gapless RC construction "is not far beyond aboutness, where the exact interpretation has to be pinned down by some semantic or pragmatic conventions."

(28)   Na chang da huo, xingkui   xiaofang-dui lai   de kuai.
         that CL   big fire fortunately fire-brigade come DE quick
         'Speaking of that big fire, the fire brigade quickly came (in time), fortunately.'

As we know, the topic of a gapless topicalization construction functions as a subject semantically. Subject DPs, in contrast to predicate-denoting expressions, are saturated elements and thus do not require any licenser. In (28), *na chang da-huo* is semantically complete, and it does not need the clausal comment to specify its denotation. The Head nouns of gapless RCs, however, do not function as subjects semantically. In contrast, we have argued, they are relational and thus need licensers. Therefore, they need the gapless clauses to specify their denotation. The differences between the two constructions are illustrated in (29):

(29) a.   gapless topicalization constructions   b.   gapless RC constructions
           topic   gapless clausal comment   gapless clause   Head
            ↓   ↓   ↓   ↓
           subject   predicate   subject   predicate
         [- relational]   [+ relational]

5. Where are the relevant contrasts between Chinese and English?
5.1 English does not have clausal subjects

Why does English not have gapless RC constructions? Why are data like (30) not acceptable?

(30) *the smell that Mom cooked vegetables

My explanation is that English does not have clausal subjects (Koster 1978, Stowell 1981, Alrenga 2005, among others). The apparent subject-clauses (called initial clause) have been found to be base-generated in a left-peripheral topic position and linked to a phonologically null nominal that occurs in the real subject position (pro). This conclusion is based on the differences between initial clauses and nominal subjects, and the similarities between initial clauses and topics. For instance, unlike nominal subjects, initial clauses may not appear after preposed auxiliaries:

(31) a.　Did <u>Medea</u> upset Jason?

　　 b.　Did <u>that story</u> really suck?

　　 c.　Never before has <u>your lack of qualifications</u> been so obvious.

(32) a.　*Did [that Medea killed her children] upset Jason?

　　 b.　*Has [that we have arrived back at our starting point] proved that the world is round?

　　 c.　*Would [for the Giants to lose the World Series] really suck?

　　 d.　*Never before has [that you are unquali.ed for this job] been so obvious.

If initial clauses are base-generated at Spec of CP, the unacceptability of the examples in (32) is explained. Preposed auxiliaries appear at C. If an initial clause is base-generated at Spec of CP, a preposed auxiliary has no way to appear to the left of the clause.

Moreover, Emonds (1976) observes that there is a correlation between the impossibility of topicalization and the absence of initial clauses in English appositives. This point can be illustrated by comparing (33a) with (33b):

(33) a.　*John's belief [[$_{TOP}$ the geography course]$_i$, Bill took e$_i$] is unfounded.

　　 b.　*John's belief [[that you took the course] helped you] is unfounded.

　　 c.　John's belief [that [your taking the course] helped you] is unfounded.

The parallelism between (33a) and (33b) suggests that initial clauses occur in the surface position of topics, and wherever topics may not occur, initial clauses may not occur, either.

If clauses may not be subjects in general in English, they may not be subjects of a specific type of predicates, relational nouns, in this language.

One might wonder why gapless clauses may not also be base-generated at the topic position, like initial clauses. This possibility can be ruled out for the following reason: the predication relation between a relational noun and its licenser is encoded by a nominal-internal small clause, which, by definition, does not have a CP projection to host any base-generated topic. Therefore, there is no way for English to have clausal licensers of relational nouns. This explains why English does not have gapless RC constructions.

5.2 Gerundive subjects in English

We have seen that propositions in gerund forms may license relational nouns. One of the examples in (4b) is repeated here as (34):

(34) the consequence of Lulu's cheating

If propositions in gerund forms may license relational nouns, we expect English to have gerundive subjects. This is indeed the case. Gerundive subjects behave like nominal subjects in English. Data like (35) show that gerundive subjects, like nominal subjects, may follow preposed auxiliaries:

(35)   Did his cheating directly help the Patriots win the Super Bowl?

Moreover, Emonds's examples in (33) above also show that the gerundive form in (33c) is in contrast to the initial clause in (33b): the former is in a regular subject position, thus the sentence is acceptable, whereas the latter is in an illegal topic position, thus the sentence is not acceptable.

5.3 Clausal subjects in Chinese

Unlike in English, Chinese does have clausal subjects. This conclusion has been argued for in Tsai (1995:sec 2.2). One way to support Tsai's conclusion is to show that preverbal clauses pattern with nominal subjects, rather than topics. In (36a) and (36b), we see that the focus marker *shi* may not occur to the left of a topic. In (36c), the focus marker is licensed only when *na ben shu* 'that book' has a contrastive focus reading, rather than a topic reading. Thus all the three examples in (36) indicate that the focus marker may not occur with topics.

(36) a.   (*Shi) na chang da huo, qingkui   xiaofang-dui lai   de kuai.
              FM   that CL   big fire fortunately fire-brigade come DE quick
              'Speaking of that big fire, the fire brigade quickly came (in time), fortunately.'
      b.   (*Shi) shuiguo, Lulu xihuan juzi.
              FM   fruit   Lulu like   orange
              'Speaking of fruits, Lulu likes oranges.'
      c.   Shi na ben shu, Lulu kan-guo   le, *(bu shi zhe ben shu).
              FM that CL book Lulu read-exp PRT   not be this CL book
              'It is that book that Lulu has read, not this one.'

In (37a), we see that the focus marker may occur with the subject *Lulu*. Importantly, the focus marker may also occur with the preverbal clauses in (37b) and (37c). If the clauses were in the topic position, the two sentences would be unacceptable, patterning with (36a) and (36b).

(37) a.   Shi Lulu rang ta shifen gaoxing.
              FM Lulu let   he very   happy
              'It is Lulu that makes him very happy.'

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b.　Shi [Lulu fabiao-le　　lunwen] rang ta shifen gaoxing.

　　FM Lulu　publish-PRF paper　let　he very　happy

　　'It is Lulu's publishing a paper that makes him very happy.'

c.　Shi [Lulu xihuan chouyan] hai-le shi.

　　FM Lulu　like　smoke　　ruin-PRF matter

　　'It is Lulu's liking to smoke that ruined the mater.'

We thus conclude that Tsai (1995) is right in claiming that in Chinese, clausal subjects are indeed in the subject position, rather than the topic position.

The above discussion leads us to see why both Chinese clauses and English gerundive forms may license relational nouns, whereas English clauses may not. If such nouns are predicates and need to be licensed by subjects, only elements that can be subjects may be their licensers. Both Chinese clauses and English gerund forms are qualified candidates for subjects, and thus they may license relational nouns. In contrast, English clauses may not be subjects and thus they may not license relational nouns. This explains why Chinese has gapless RC constructions, whereas English does not.

To complete our analysis, we need to mention that since gerund forms in English are nominals, they need the Case licenser *of* (or some other preposition). Aoun & Li (2003:186) are right in pointing out that the pattern of gapless RC constructions in Chinese "rather than being a counterpart of the English [head + Relative Clause], is more like the English Head noun + preposition + XP (a PP) (i.e., [NP [P XP]]), such as [the price [for his killing the boy]], [the sound [of his singing]], [the consequence [of his evildoing]]." No preposition occurs in gapless RC constructions, simply because the gapless clauses are not nominals.

An interesting implication of this study is that Chinese and English have been claimed as representatives of topic-prominent language and subject-prominent language, respectively (e.g. Li & Thompson 1976), however, clauses may function as true subjects rather than topics in Chinese, whereas clauses may function as true topics rather than subjects in English. What does this contrast mean to the typological studies? I leave the issue to others.

6. Summary

In this paper, I have presented a new analysis of so-called gapless relative clause constructions in East Asian languages. I have claimed that the Head noun of such relative clauses are relational nouns, and the clauses are their licensers. Syntactically, the Head nouns are predicates and the clauses are subjects. Compared to regular relative clause constructions, gapless relative clause constructions denote a reversed predication relation between the Head nouns and the clauses. Compared to complement clauses of nouns, gapless relative clauses denote external rather than internal argument of nouns. The new analysis explains a series of differences of the constructions from either regular relative clause constructions or

noun-complement construction. Analyzing such constructions has helped us to recognize a new type of complex nominals, in addition to the modification and complementation types. The absence of such constructions in English has been accounted for by the fact that there is no clausal subject in English. The paper has shown that clauses in Chinese and gerund forms in English may occur in true subject positions, and thus may license relational nouns.

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