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**Existential Coda Constructions as Internally Headed
Relative Clause Constructions**

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Biodata

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Abstract

Existential Coda Constructions in Mandarin Chinese (e.g. *Ta jiao-guo yi ge xuesheng hen congming* 'he taught a student, who was very smart.') contain post-nominal adnominal-like elements. Analyzing the syntactic structure of the constructions, I claim that the adnominal-like element and the modified nominal to their left form an internally headed relative clause, which is contained in the internal argument of the matrix verb. Facts of coordination, binding, the proform *ye shi* 'also be', and the topic-comment adjacency relation all support the constituency that groups the adnominal-like elements with their preceding nominals. Existential Coda Constructions are shown to exhibit a series of properties of relative clause constructions. Importantly, they pattern with internally headed relative clause constructions in the following aspects: the absence of any definite and strong indefinite marker, the scope of modification, the distinction from non-restrictive relative clause constructions, and the Head status of the left-edge elements. I propose that the internal argument of an Existential Coda Construction is a nominal headed by a null D, the Spec of the D is a silent E-type pronoun, and the complement of the D is a CP. The apparent modified nominal is contained in the CP and is the antecedent of the pronoun. The relative clause-internal position of the modified nominals is accounted for by the impossibility for non-bare

indefinites to undergo topicalization. Finally, the constraint that the modified nominals cannot be bare is explained by the external null D licensing via N-to-D movement. The movement forces a bare noun to be out of a relative clause.

Keywords: existential, coda, relative clause, Chinese

1. Introduction

In this paper, I analyze the syntactic structure of the so-called Existential Coda Construction (ECC) in Mandarin Chinese, as illustrated in (1) (The abbreviations used in the Chinese examples are: EXP: experiential aspect; PRF: perfect aspect; CL: classifier; Q: question particle):

- (1) a. Jie-shang lai-le yi ge xiaohairmei chuan xie.
 street-on come-PRF one CL child not wear shoe
 Roughly: ‘On the street has come a child, who does not wear shoes.’
 b. Baoyu jiao-guo yi ge xueshenghen wanpi.
 Baoyu teach-PRF one CL student very naughty
 Roughly: ‘Baoyu taught a student, who was very naughty.’

The whole ECC appears as a single sentence, pronounced with a single intonation contour (Li & Thompson, 1981). The single-underlined part, called coda, describes a state or property of the double-underlined nominal to its left. I call the latter nominal Pre-Coda Nominal (PCN). In (1a), for instance, the coda *mei chuan xie* ‘not wear shoe’ describes a state of the PCN *yi ge xiaohai* ‘one CL child.’ Moreover, the matrix verb of an ECC selects an individual-denoting nominal, rather than an eventuality-denoting expression. Thus data like (2), where the internal argument *keren dongzhangxiwang* ‘guest nosy’ denotes a state, are not ECCs:

- (2) wo taoyan [keren dongzhangxiwang].
 I dislike guest nosy
 ‘I dislike guests being nosy.’

ECCs are by no means marked in daily conversation. As pointed out by Tai (1978, p. 293), the construction is very colloquial and natural. It has been discussed in Zhang (1977, section 3), Tai (1978, pp. 291-293), Li & Thompson (1981, pp. 611-619), Huang (1987), McCawley (1988, p. 451; 1989, pp. 38-39), and Tsai (1999, p. 126ff). However, the syntactic structure of the construction has remained an open question. In this paper, I will examine the syntactic position of the two major

components of an ECC: the PCN and coda, and the syntactic relations between them and the verb of the construction.

Many ECCs seem to correspond to a pre-nominal adnominal construction. Tai (1978, p. 292) states that codas “seem to be logically equivalent to relative clauses.” Li & Thompson (1981, p. 612) also state that an ECC “might appear to be rather similar to a relative clause construction,” “and in fact both types of constructions can be given the same English translation.” Precisely speaking, the translation of the ECC in (3a) is close to a non-restrictive relative clause construction in English, and the translation of its corresponding relative clause (RC) construction in (3b) is a restrictive RC construction in English:

- (3) a. Lao Zhang qu-le yi ge nüren hen hui zuo cai. (ECC)
 Lao Zhang marry-PRF one CL woman very can cook dish
 Roughly: ‘Lao Zhang married a woman, who cooks well.’
- b. Lao Zhang qu-le yi ge hen hui zuo cai de nüren. (RC)
 Lao Zhang marry-PRF one CL very can cook dish DE woman
 ‘Lao Zhang married a woman who cooks well.’

Although codas of ECCs share properties with RCs, one major difference between codas and RCs in Chinese, as pointed out by McCawley (1988, p. 451), is that the former follow the modified nominal, whereas the latter precede the modified nominal. We have seen that the coda of an ECC always follows the modified nominal (i.e., the PCN). By contrast, in (3b), the RC *hen hui zuo cai* ‘very can cook dish’ precedes the modified nominal *nüren* ‘woman;’ and similarly, the adjective *hen wanpi* ‘very naughty’ in (4) precedes the modified nominal *xuesheng* ‘student.’

- (4) Baoyu jiao-guo [yi ge hen wanpi de xuesheng] (cf. (1b))
 I teach-PRF one CL very naughty DE student
 ‘Baoyu taught a student who was very naughty.’

If codas are not regular RCs, what are they? This is our first research question of this paper:

<i> What is the syntactic relation between a coda and the rest of an ECC?

Moreover, Huang (1987) discovered that no PCN may have any D element that rejects a weak indefinite reading, such as a demonstrative or generalized quantifier. This is shown by the acceptability contrast in (5). In (5a), the demonstrative *na* ‘that’ or the quantifier *meiyige* ‘every’ makes the ECC unacceptable. By contrast, *na* and *meiyige* may occur in (5b), which is not an ECC.

- (5) a. Baoyu jiao-guo {yi ge /*na ge /*meiyige} xuesheng hen wanpi.
Baoyu teach-EXP one CL / that CL / each student very naughty
Roughly: ‘Baoyu taught a student. who was very naughty.’
b. Baoyu jiao-guo {yi ge /na ge /meiyige} hen wanpi de xuesheng.
Baoyu teach-EXP one CL /that CL / each very naughty DE student
‘Baoyu taught {a/that/every} student who was very naughty.’

Since no PCN may have any D element that rejects a weak indefinite reading, the construction has been regarded as a kind of existential construction (Huang, 1987; Tsai, 1999). Our second research issue of this paper is the nature of this interpretation restriction of the PCN:

<ii> Why may a PCN not have any D-element that rejects weak indefinite readings?

A further difference between ECCs and prenominal adnominal constructions is that PCNs cannot be bare (Huang, 1987). This is shown in (6a), where the bare noun *xuesheng* ‘student’ makes the ECC unacceptable. By contrast, the bare noun can occur in (6b), which is not an ECC.

- (6) a. *Baoyu jiao-guo xuesheng hen wanpi.
Baoyu teach-EXP student very naughty
b. Baoyu jiao-guo hen wanpi de xuesheng.
Baoyu teach-EXP very naughty DE student
‘Baoyu taught very naughty students.’

This restriction of the form of PCNs is the third research issue of this paper:

<iii> Why may a PCN not be a bare noun?

My analysis leads to the conclusion that ECCs are Internally Headed Relative Clause (IHRC) constructions. Let us first see how an IHRC is different from an Externally Headed Relative Clause (EHRC). The Quechua examples in (7), cited from Cole (1987, p.277), show us the contrast.

- (7) a. [DP [CP nuna ranti-shaq-n] **bestya**] alli bestya-m ka-rqo-n (EHRC)
 man buy-PRF-3 horse(NOM) good horse-EVID be-PAST-3
 ‘The horse that the man bought was a good horse.’
 b. [CP nuna **bestya-taranti-shaq-n**] alli bestya-m ka-rqo-n (IHRC)
 man horse-ACC buy-PRF-3 good horse-EVID be-PAST-3
 ‘The horse that the man bought was a good horse.’

The term Head used here refers to the semantic element that is modified by a RC. In (7a), the Head is *bestya* ‘horse,’ which is externalized, i.e., out of the RC. The relationship between a RC and the modified nominal has long been treated as that of a derived predicate and its subject (Quine, 1960, p. 110; Stowell, 1981; among others). Every RC is semantically an open sentence, functioning as a predicate of its Head. A certain functional element, such as a D external to the RC, or an operator, generates an expression of type *e*. In other words, the nominal hosting the RC and its Head is individual-denoting. Unlike EHRCs, the Heads of IHRCs are not externalized. In (7b), the Head is also *bestya*, but it is contained in the RC. Like EHRCs, IHRCs are also contained in a nominal (Hoshi, 1995; Basilico, 1996, p. 510; Shimoyama, 1999, p. 166; and Kim, 2004, p. 24). Such nominals have a similar syntactic distribution to DPs. Various analyses have been proposed in the literature to derive the syntactic and semantic structure of IHRCs (e.g., covert movement of the Heads, null operators, unselective binding, null anaphors); see Hoshi (1995); Basilico (1996); Grosu & Landman (1998); Shimoyama (1999); Watanabe (2004); Kim (2004); among others.

IHRCs are found in wh-in-situ languages (Watanabe, 1992). They are seen in both verb-final languages such as Japanese and Korean and verb-initial languages such as Seediq and Tagalog (Aldridge, 2004). They can exist side by side with EHRCs in the same language. It is worthwhile to examine whether ECCs are IHRC constructions in Chinese, a wh-in-situ language.

In this paper, I argue for the syntactic constituency in (8) for (1a).

- (8) Jie-shang lai-le [DP e_i [D' D [CP^{IHRC} [^{topic} yi ge xiaohair]_i [^{comment} mei chuan xie]]]]
 street-on come-PRF | | |
 E-type pron null one CLchild not wear shoe
 | | |
 PCN coda
 Head of the IHRC

In (8), both the PCN and the coda are contained in the internal argument of the matrix verb. Specifically, the internal argument of the matrix verb is a DP, with an E-type pronoun as the Spec and

a CP as the complement. The CP is an IHRC, expressing a topic-comment relation between the PNC and the coda. This is the basic answer to the first question above.

In this proposed structure, similar to the Head of an IHRC, a PCN behaves like the antecedent of an E-type pronoun in a donkey sentence in not allowing any D-element that rejects weak indefinite readings. This shared formal property of PCNs of ECCs and the Heads of IHRCs may give us an answer to the second question above.

The null D in (8), which is external to the CP, corresponds to the external null D of IHRC constructions in languages such as Quechua, Japanese, and Navajo (see Grosu & Landman, 1998, p. 162). I will make an assumption that the Null D in Chinese is licensed by either a c-commanded classifier or a N-to-D movement. In (8), the null D is licensed by the classifier *ge*. If the Head of a RC is a bare noun, regardless of whether it is base-generated in or out of the RC, in order to license the null D of the containing nominal, it has to move to the D. Thus a bare noun Head may not remain in an RC. This may lead us to an answer to the third question above.

I proceed as follows. In section 2, I argue for the constituency grouping a PCN and a coda into a topic-comment relation denoting CP. In section 3, I present the syntactic structure of ECCs. In section 4, I argue for the RC analysis of ECCs, and in section 5, I further specify the RCs as IHRCs rather than EHRCs. In section 6, I link the RC-internal position of a PCN to the fact that non-bare indefinites in Chinese cannot undergo topicalization movement. In section 7, I account for the non-bare constraint on PCNs, assuming that bare nouns must move to license the external null D. Section 8 concludes the paper.

2. Constituency tests for grouping codas with PCNs

In this section, I argue that a PCN and a coda form a syntactic constituent, and the constituent is a clause that encodes a topic-comment relation.

McCawley (1989, p. 38) presents two tests to examine the constituency of ECCs. The results are contradictory each other. However, one of them, the movement test, is not reliable for ECCs. He points out that the combination of a PCN and a coda cannot topicalize, as shown in (9). This constraint seems to argue against the constituency of the combination.

- (9) *Ta you yi ge meimei hen xihuan kan dianying, keshi yi ge didi hen xihuan da lanqiu ta mei you.
he have one CL sister very like watch movie but one CL brother very like play basketball he have not
Intended: 'He has a sister who likes to watch movies, but a brother who likes to play basketball he does not have.'

However, as we know, non-bare indefinites cannot undergo topicalization movement in Chinese (see also 6.2). Since the movement test is not applicable, I choose other tests to study the constituency of ECCs.

2.1 A coordination test

In order to see whether the string formed by a PCN and a coda is a constituent, McCawley (1989) also presents a coordination test. Data like (10) show that such strings can conjoin. Since only constituents can conjoin, the conjunction possibility suggests that such a string is a constituent.

- (10) a. Ta you yi ge meimei hen xihuan kan dianying, yi ge didi hen xihuan da lanqiu.
he have one CL sister very like watch movie one CL brother very like play basketball
Roughly: 'He has a sister, who likes to watch movies, and a brother, who likes to play basketball.'
- b. Wo renshi yi ge Faguoren hen hui chui dizi, yi ge Deguoren hen hui tan gangqin.
I know one CL Frenchman very can blow flute one CL German very can play piano
Roughly: 'I know a Frenchman, who can play a flute well, and a German, who can play a piano well.'
- c. Baoyu gu-le yi ge baomu hen lan, yi ge yuanding hen qinkuai.
Baoyu hire-PRF one CL maid very lazy one CL gardener very diligent
Roughly: 'Baoyu hired a maid, who was very lazy, and a gardener, who was very diligent.'

One issue needs to be clarified, however. If a PCN and a coda form a constituent, why cannot such constituents be conjoined by coordinators such as *erqie*, *he* and *gen* (although some people accept the coordinator *gen* after the first coda in (10a) and (10b))?

- (11) Baoyu you yi ge erzi zai Meiguo, (*erqie/*he/*gen) yi ge nüer zai Jianada.
Baoyu have one CL son at USA and/and/and one CL daughter at Canada
Roughly: 'Baoyu has a son, who is in USA, and a daughter, who is in Canada.'

My answer to the above question is that in certain symmetrical coordinate constructions in Chinese, coordinators such as *erqie*, *he* and *gen* may not occur, either (for more discussion of the syntax of coordinate constructions, see Zhang, in press):

- (12) a. Baoyu you liang ge erzi, yi ge zai Meiguo, (*erqie/*he/*gen) ling yi ge zai Jianada.
 Baoyu have two CL son one CL at USA and/and/and other one CL at Canada
 ‘Baoyu has two sons, one is in USA, and the other is in Canada.’

If overt coordinators are not required in all coordinate constructions, or even not allowed in certain types of coordinate constructions in Chinese, the absence of coordinators in ECCs does not challenge the analysis presented here.

2.2 A binding test

My second test for the constituency of the string formed by a PCN and a coda is the effect of Binding Principle A. Huang & Tang (1991) claim that although the bare reflexive *ziji* ‘self’ can be bound non-locally, the compound form *pron-ziji* must be locally bound, obeying Binding Principle A. Now consider (13):

- (13) a. Akiu_i renshi yi ge ren_j zong piping ta-ziji_{*i/j}.
 Akiu know one CL person always criticize 3-self
 Roughly: ‘Akiu knows a person, who always criticizes himself.’
 b. [Akiu he furen]_i you liang ge pengyou_j hen danxin ta-men ziji_{*i/j} de haizi.
 Akiu and wife have two CL friend very worry 3-PL self DE child
 Roughly: ‘Akiu and his wife have two friends, who worried about their own child(ren) very much.’

If the coda *zong piping ta-ziji* ‘always criticize himself’ in (13a) were an adjunct of the matrix VP, it would be c-commanded by the matrix subject *Akiu*, and thus the reflexive inside the coda would be bound by the subject, contrary to the fact. Thus the coda is not an adjunct of the matrix VP. Instead, it is contained in a complex and is bound locally. Since *ta-ziji* must be bound locally, the binding domain, which contains the antecedent (PCN) and the anaphor containing coda, is a constituent. The binding contrast in (13b) shows the same point.

2.3 A *ye shi* ‘also be’ test

My third test for the constituency of the string formed by a PCN and a coda is the so-called *ye shi* ‘also be’ test.

The English form *do so* has been generally assumed to be a proform of VP, which contains a verb and its object, if there is any object (Lakoff & Ross, 1966, Ross, 1970, among others) (Hallman (2004) argues that the words *do* and *so* in this proform are realization of *v* and VP, respectively). (14b) is ungrammatical because if *do so* pronominalizes the whole VP, the object *the dinner* is not licensed

there.

- (14) a. John ate the lunch slowly, and Harry did so with great speed. (*did so = ate the lunch*)
 b. *John ate the lunch slowly, and Harry did so the dinner.
 Intended: ‘... , and Harry ate the dinner in the same manner.’

The counterpart of *do so* in Chinese is *ye shi* ‘also be.’ The contrast in (15) is parallel to that in (14). *Ye shi* in (15a) replaces *kankan gudai xiaoshuo* ‘read historical novels.’ (15b) is ungrammatical because if *ye shi* pronominalizes the whole VP, the object *waiguo xiaoshuo* ‘foreign novels’ is not licensed there. (For an alternative analysis of the Chinese constructions, see Ai 2006)

- (15) a. Baoyu youshihou kankan gudai xiaoshuo, Daiyu jingchang ye shi (ruci).
 Baoyu sometimes read historical novel Daiyu often also be so
 ‘Baoyu sometimes reads historical novels and Daiyu often does so.’
 b. *Baoyu youshihou kankan gudai xiaoshuo, Daiyu ye shi (ruci) waiguo xiaoshuo.
 Baoyu sometimes read historical novel Daiyu also be so foreign novel
 Intended: ‘Baoyu sometimes reads historical novels and Daiyu sometimes read foreign novels.’

Now return to our ECCs. In (16a), *ye shi* replaces the string *mai-le yi jian chenshan hen da*. This string should be formed by a verb and its whole internal argument. This is exactly what I am claiming. If the coda *hen da* ‘very big’ were not included in the internal argument, one would expect (16b), like (14a), to be acceptable. In (16b), the coda is not replaced by *ye shi*. The unacceptability of (16b) tells us that the coda must be part of the internal argument of the verb *mai-le* ‘buy-PRF.’ In other words, the whole string *yi jian chenshan hen da* is a constituent. The test supports my claim that the coda is part of the internal argument of the matrix verb in ECCs. The examples in (17) show the same point.

- (16) a. Baoyu mai-le yi jian chenshan hen da, Daiyu ye shi.
 Baoyu buy-PRF one CL shirt very big Daiyu also be
 Roughly: ‘Baoyu bought a shirt, which was very big, and Daiyu did so, too.’
 b. *Baoyu mai-le yi jian chenshan hen da, Daiyu ye shi hen xiao.
 Baoyu buy-PRF one CL shirt very big Daiyu also be very small
 Intended: ‘Baoyu bought a shirt, which was very big, and Daiyu bought a shirt, which is very small.’

- (17) a. Baoyu chi-le yi ge juzi mei you zi, Daiyu ye shi.
 Baoyu eat-PRF one CL orange not have seed Daiyu also be
 Roughly: ‘Baoyu ate an orange, which has no seeds, and Daiyu did so, too.’
 b. *Baoyu chi-le yi ge juzi mei you zi, Daiyu ye shi hen tian.
 Baoyu eat-PRF one CL orange not have seed Daiyu also be very sweet
 Intended: ‘Baoyu ate an orange, which had no seeds, and Daiyu ate an orange, which was very sweet.’

2.4 The topic-comment relation between a PCN and a coda

My claim that a PCN and a coda form a constituent is also supported by the fact that the two elements encode a topic-comment relation and thus must be adjacent to each other to form a clause.

2.4.1 Codas must be predicative

The comment of a topic must be predicative, so must a coda. In addition to clausal codas, as in (1a), we have seen AP codas, as in (1b). AP codas must be predicative. Firstly, non-predicative APs cannot occur in the coda position. For instance, *guoqu* ‘previous’ and *zhan-xin* ‘brand-new’ are non-predicative adjectives, and (18b) and (19b) show that they cannot occur as codas.

- (18) a. Wo kanjian-le yi wei guoqu de pengyou.
 I see-PRF one CL previous DE friend
 ‘I saw a previous friend of mine.’
 b. *Wo kanjina-le yi wei pengyou guoqu.
 I see-PRF one CL friend previous
 (19) a. Baoyu tou-le yi ben zhan-xin de shu.
 Baoyu steal-PRF one CL brand-new DE book
 ‘Baoyu stole a brand-new book.’
 b. *Baoyu tou-le yi ben shu zhan-xin.
 Baoyu steal-PRF one CL book brand-new

Secondly, as stated in any Chinese syntax textbook, the occurrence of *hen* ‘very’ to the left of an AP in Chinese signals the predicate status of the AP. The fact that adjectival codas in (20) must be preceded by *hen* indicates that codas are predicative:

- (20) a. Xi-li lai-le yi ge xuesheng *(hen) yonggong.
 department-in come-PRF one CL student very diligent
 ‘In the department has come a student who is very diligent.’
 b. Baoyu jiao-guo yi ge xuesheng *(hen) congming.
 Baoyu teach-EXP one CL student very smart
 ‘Baoyu has taught a student who is very smart.’

2.4.2 Codas can be predicates of various types

Codas can be predicates of various syntactic categories and semantic types.

Codas can be nominal, as well as clausal and adjectival. The codas in (21a) and (21b) are both predicative nominals. Such nominals can occur as predicates elsewhere, as seen in (22).

- (21) a. Ta mai-le zhang zhuozi san tiao tui.
He buy-PRF CL table three CL leg
Roughly: 'He bought a table, which has three legs.'
- b. Akiu you yi ge nüer huang tou-fa.
Akiu have one CL daughter yellow head-hair
Roughly: 'Akiu has a daughter, who has blond hair.'
- (22) a. Na zhang zhuozi san tiao tui.
that CL table three CL leg
'That table has three legs.'
- b. Na ge nühair huang tou-fa.
that CL girl yellow head-hair
'That girl has blond hair.'

Codas can also be the combination of *zai* 'at/exist' and a locative expression, as in (23a). Such a combination can also occur as predicate elsewhere, as in (23b). Prepositional phrases headed by *guanyu* 'about' and *cong* 'form' cannot be codas, as seen in (24a), and they cannot occur as predicates elsewhere, either, as seen in (24b):

- (23) a. Akiu you yi ge qinqi zai Riben.
Akiu have one CL relative at Japan
'Akiu has a relative who is in Japan.'
- b. Na ge qinqi zai Riben.
that CL relative at Japan
'That relative is in Japan.'
- (24) a. *Akiu mai-le yi ben shu guanyu Yidali.
Akiu buy-PRF one CL book about Italy
Intended: 'Akiu bought a book, which is about Italy.'
- b. *Na ben shu guanyu Yidali.
that CL book about Italy
Intended: 'That book is about Italy.'

A comment need not contain a gap that is associated to the topic. Similarly, a coda need not contain a gap that is associated to the PCN. In (25), the object gap in the coda is associated to the coda-internal topic *ta-baba* 'his dad', rather than the PCN *yi ge xuesheng* 'a student'.

- (25) Lao Wang zhengzai jiao yi ge xuesheng ta-baba wo renshi _.
 Lao Wang PRG teach one CL student he-dad I know
 ‘Lao Wang is teaching a student, whose dad I know.’

Codas can be either individual-level predicates, as in (21), or stage-level predicates, as in (26a), or habitual state predicate, as in (26b). Moreover, codas can occur in either a referential context, as in all ECC examples above, or a non-referential context (contra Huang, 1987), as in (27).

- (26) a. Di-shang tang-zhe yi ge zuihan buting de dajiao.
 ground-on lie-PRG one CL drunker continuous MOD yell
 ‘On the ground lay a drunker who kept yelling.’
 b. Baoyu jiao-guo yi ge xuesheng jingchang husiluanxiang.
 Baoyu teach-EXP one CL student often daydream
 ‘Baoyu taught a student who often daydreamt.’
- (27) a. Wo xiang zhao yi ge bangshou lai zheli dagong.
 I want seek one CL assistant come here work
 ‘I want to seek an assistant to come here to work.’
 b. Daiyu zai zhao yi ge fu-weng dang ta laogong.
 Daiyu PRG seek one CL rich-man be her husband
 ‘Daiyu is seeking a rich man to be her husband.’

2.4.3 Codas as comments must be adjacent to their topics

In a clause that denotes a topic-comment relation, the comment must follow the topic immediately. Similarly, nothing can occur between a PCN and a coda. It is impossible for a coda to describe the property of any nonadjacent nominal. In (28a), for instance, the coda *hen wanpi* ‘very naughty’ cannot describe the property of the nonadjacent *Baoyu*. Similarly, in (28b), the coda *hen piaoliang* ‘very beautiful’ cannot describe the property of the nonadjacent *nühai* ‘girl.’

- (28) a. Baoyu_i jiao-guo yi ge xuesheng_j hen wanpi_{*i/j}.
 Baoyu teach-PRF one CL student very naughty
 Roughly: ‘Baoyu taught a student, who was very naughty.’
 Not: ‘Baoyu taught a student and Baoyu is very naughty.’
 b. Ta songgei yi ge nühai_i liang tiao qunzi_j hen piaoliang_{*i/j}.
 he give one CL girl two CL skirt very beautiful
 Roughly: ‘He gave a girl two skirts, which are very beautiful.’
 Not: ‘He gave a girl two skirts and the girl is very beautiful.’

However, Huang (1987, p. 231) uses the following example to claim that a coda and its related nominal do not need to be adjacent.

- (29) Ta song-le yi ben shu gei wo hen youqu.

he give-PRF one CL book to I very interesting
‘He gave a book to me, which is very interesting.’

In (29), it seems that *shu* ‘book’ and the coda *hen youqu* ‘very interesting’ is separated by *gei wo* ‘to me.’ But when I showed this example to my informants, they said they felt a pause between *wo* ‘I’ and *hen* ‘very,’ indicating that the alleged coda is not a coda, but a predicate of another sentence initiated with a pro subject, and the pro is co-referential with *shu* ‘book.’ I further checked Google and found that in all similar examples that show the same word order, there is a comma before the coda-like element. Here are two of them:

- (30) a. Ta di-le yi zhang ming-pian gei wo, hen youqu.
 he hand-PRF one CL name-card to I very interesting
 ‘He handed a name card to me, which is very interesting.’
 b. Jintian you wei pengyou chu-le san dao shang-lian gei wo, hen youqu.
 today have CL friend present-PRF three CL *shang-lian* to I very interesting
 ‘Today, a friend of mine presented three *shang-lian* to me, which is very interesting.’
 (*Shang-lian* means the first line of a couplet on a scroll)

The consistent occurrence of the commas indicates that such data are not ECC data, since they do not exhibit the property introduced in section 1: The whole ECC appears as a single sentence, pronounced with a single intonation contour. I thus conclude that data like (29) and (30) are not counter-examples to my claim that a PCN and a coda form a constituent.

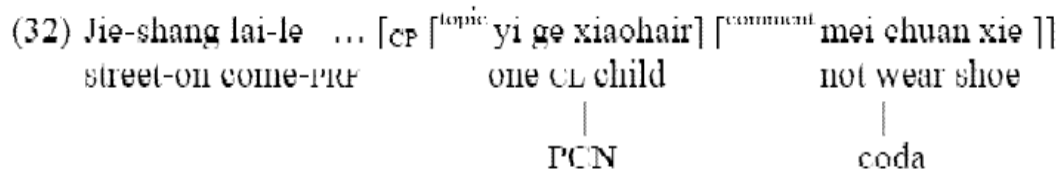
This adjacency fact makes ECCs different from extraposed RCs seen in other languages. It also makes ECCs different from the “Subject Contact Relatives” in English and V2 Relatives in Dutch and German (den Dikken, 2005). For instance, the “Subject Contact Relative” *would give me up like that* in (31a) is separated from the modified nominal *a boy by in your stables*. Similarly, the Dutch V2 relative *die hadden geen zwembroek on* ‘that had no swim-trunks on’ in (31b) is separated from the modified nominal *twee jongens* ‘two boys’ by *op het strand* ‘on the beach.’

- (31) a. There isn’t a boy in your stables would give me up like that.
 b. Er waren twee jongens op het strand die hadden geen zwembroek on. (Dutch)
 there were two boys on the beach that had no swim-trunks on

If a PCN and a coda encode a topic-comment relation, not allowing any other element to occur between them, the two elements must form a clause, which is a constituent. Moreover, if a PCN is a topic, and if the syntactic position of a topic is in C-domain (Rizzi, 1997), the clause formed by a

PCN and a coda should be a CP.

Presenting the four pieces of evidence, I have argued that a PCN and a coda form a CP, and they have a topic-comment relationship. This conclusion is illustrated in the constituency bracketing in (32), for (1a).



2.5 Against four alternative analyses

The constituency in (32) rules out certain alternative analyses. These analyses are not only in conflict with the above constituency facts, but also have other problems.

2.5.1 Against the matrix predicate analysis of codas

First, let us consider the constituency in (33), in which the coda is treated as a matrix predicate, and the rest of the ECC might be regarded as a nominal with the Head *yi ge xiaohair* 'one CL child.'

- (33) [Jie-shang lai-le [yi ge xiaohair]] mei chuan xie.
 street-on come-PRF one CL child not wear shoe
 'A boy who has come on the street does not wear shoes.'

In addition to the above constituency facts, another argument against the matrix predicate analysis of codas is that unlike matrix predicates, codas cannot have A-not-A forms.

In Chinese, A-not-A questions are yes-no questions. They are formed by reduplication of the initial syllable of a predicate (usually a verb) or reduplication of a larger prosodic unit of the predicate phrase, and an appropriate negation word (*bu* 'not' or *mei* 'not') between the reduplicant and the root. For instance, in (34a), it is the first syllable of the verb *xihuan* 'like' that is reduplicated, and in (34b), it is the whole verb *xihuan* that is reduplicated. The two sentences are synonymous.

- (34) a. Lao Li xi-bu-xihuan ni?
 Lao Li like-not-like you

- b. Lao Li xihuan-bu-xihuan ni?
 Lao Li like-not-like you
 Both: 'Does Lao Li like you?'

Crucially, a matrix verb may, but a verb embedded in a nominal may not, in an A-not-A form. In (35a), the A-not-A verb *peng-mei-pengdao* 'meet-not-meet' is a matrix verb, and the acceptability of the sentence is expected. In (35b), the A-not-A form *hui-bu-hui* 'can-not-can' is in an RC, and this sentence is not acceptable.

- (35) a. Ni peng-mei-pengdao yi ge hui shou Zhongguohua de waiguoren ?
 you meet-not-meet one CL can speak Chinese MOD foreigner
 'Have you met a foreigner who can speak Chinese?'
 b. *Ni pengdao yi ge hui-bu-hui shou Zhongguohua de waiguoren?
 you meet one CL can-not-can speak Chinese MOD foreigner

The same constraint is seen in ECCs. In (36a), we see that the verb *peng* 'meet' is in the A-not-A form. Since a matrix verb can be in A-not-A form, the acceptability of the ECC is expected. In (36b), the verb in the coda is in an A-not-A form. The unacceptability parallelism between (35b) above and (36b) suggests that the coda is not the matrix predicate.

- (36) a. Ni peng-mei-pengdao yi ge waiguoren hui shou Zhongguohua?
 you meet-not-meet one CL foreigner can speak Chinese
 'Have you met a foreigner who can speak Chinese?'
 b. *Ni pengdao yi ge waiguoren hui-bu-hui shou Zhongguohua?
 you meet one CL foreigner can-not-can speak Chinese

It needs to be noted at this point that data like (36a) and the following (37) show that ECCs may occur as questions (contra Huang, 1987, p. 249).

- (37) Shei renshi yi ge yisheng neng dong danao shoushu?
 who know one CL doctor can do brain operation
 'Who knows a doctor who can do brain operation?'

Return to the syntactic status of codas. One potential argument for the matrix predicate analysis of codas is that such elements always occur at the end of a root sentence, an observation made in Huang (1987). In (38), the coda *hen piaoliang* 'very pretty' does not occur at the right edge position. The sentence is not acceptable.

- (38) *Ta songgei yi ge nühai hen piaoliang liang tiao qunzi.
he give one CL girl very beautiful two CL skirt

This right position makes codas or coda-containing elements look like extraposed elements. Although I do not claim that such elements are extraposed (regardless of how extraposition is derived syntactically; see Baltin, 2006), I found the two types of right-edge elements share a property: they must be focused, although they are not matrix predicates. It is well-recognized that extraposed elements are focused. Similarly, codas express foregrounded information. For instance, in the absence of any special prosodic operation, the coda *hen chang* ‘very long’ is the information focus of the ECC in (39a). In the prenominal adnominal construction (39b), however, the nominal-internal *hen chang* does not have to be an information focus, and it may have a contrastive focus reading only when it is pronounced with a contrastive stress.

- (39) a. Lao Zhang mai-le yi jian chenshan hen chang.
Lao Zhang buy-PRF one CL shirt very long
Roughly: ‘Lao Zhang bought a shirt, which is very long.’
- b. Lao Zhang mai-le yi jian hen chang de chenshan.
Lao Zhang marry-PRF one CL very long DE shirt
‘Lao Zhang bought a shirt which is very long.’

The focus reading of the coda in (39a) is brought out by the following contrast. It is (40a), rather than (40b), that is a possible response to the ECC in (39a). (40a) reacts to the property *hen chang* expressed by the coda. (40b), however, does not form a coherent discourse continuation with (39a). (40b) reacts to the action expressed by the VP (“buying the shirt”).

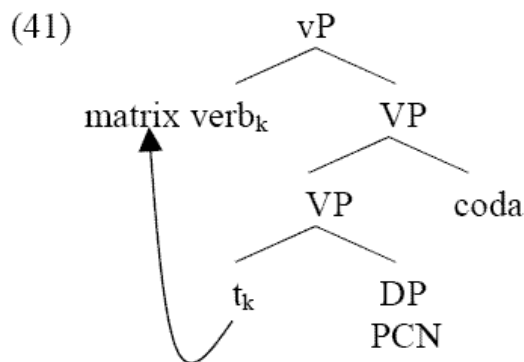
- (40) a. Zhende ma? Weishenme bu mai tiao he-shen de?
 really Q why not buy CL fit-body DE
 ‘Really? Why didn’t he buy one that fits well?’
 b. Zhende ma? Weishenme bu gen wo jie?
 really Q why not from I borrow
 ‘Really? Why didn’t he borrow one from me?’

By contrast, both (40a) and (40b) are possible responses to the non-ECC example in (39b), where the adnominal does not have to be an information focus.

Thus, it seems that ECCs with non-edge codas, such as (38), might be syntactically derivable, but are in conflict with a constraint on information structure, which requires a focused element to occur at the right edge. Codas as focus bearers must occur at the right edge position. This is one way to account for the absence of constructions such as (38).

2.5.2 Against the VP-adjunct analysis of codas

Another alternative analysis is a predicate adjunction structure, as in (41):



In (41), both the PCN and the coda are contained in a VP. One problem of this analysis is that it is not compatible with the result of the *ye shi* ‘also be’ test, which shows that codas do not behave like adjuncts (section 2.3). (41) also fails to be compatible with other properties of ECCs presented later. For instance, codas, unlike adjuncts, are not always optional (section 5.3).

2.5.3 Against the clausal juxtaposition analysis

Li & Thompson (1981, p. 617) claim that an ECC, which they call “a realis descriptive sentence,” “is actually no different from two sentences juxtaposed together, except that it is pronounced with one

single intonation contour.” They analyze (42a) as (42b), where a null pronoun functions as the subject of the clausal coda, and thus there are two independent matrix clauses in an ECC.

- (42) a. Ta you yi ge meimei hen xihuan kan dianying.
 he have one CL sister very like watch movie
 Roughly: ‘He has a sister, who likes to watch movies.’
 b. Ta you yi ge meimei. *Pro* hen xihuan kan dianying.
 he have one CL sister *pro* very like watch movie

This clausal juxtaposition analysis has several problems.

First, a PCN and a coda do not form a constituent in this analysis. The analysis thus fails to account for the facts presented in 2.1 through 2.4.

Second, the clausal juxtaposition analysis of ECCs also has the problems of negation and question scope. It has been refuted by McCawley (1989) from the negation scope perspective. Generally, a null pronoun can be replaced by an overt pronoun. However, McCawley (1989) notes that if the matrix verb is negated, no pronoun can precede the coda:

- (43) a. Wo pengdao-le yi ge waiguoren (ta) hui shuo Zhongguohua.
 I meet-PRF one CL foreigner he can speak Chinese
 ‘I met a foreigner who can speak Chinese.’
 b. Wo mei pengdao yi ge waiguoren (*ta) hui shuo Zhongguohua.
 I not meet one CL foreigner he can speak Chinese
 ‘I haven’t met a foreigner who can speak Chinese.’
 (44) Wo bu renshi yi ge waiguoren (*ta) hui shuo Zhongguohua.
 I not know one CL foreigner he can speak Chinese
 ‘I don’t know a foreigner who can speak Chinese.’

McCawley (1989) points out “This difference argues that the sentences with and without the pronoun have different syntactic structures and that the negative sentence with the pronoun is excluded because the pronoun is outside the scope of the quantifier that binds it.” (p. 38) In other words, if the matrix verb of an ECC is negated, the coda must be within the negation scope. In my analysis, a PCN and a coda always form constituent, which is contained in the internal argument of the matrix verb, and thus if the verb is negated, the coda is naturally included in the negation scope.

Actually, not only negation, but also A-not-A question can argue against the clausal juxtaposition analysis and support my analysis. When the matrix verb of an ECC is in an A-not-A form, the question must scope over the coda. In (45), the coda *hui shuo zhongguohua* ‘can speak Chinese’ is in the domain of the question, and it restricts the reading of *waiguoren* ‘foreigner.’ If the

pronoun *ta* ‘he’ occurs, the pronoun and the expression *hui shuo zhongguohua* will be out of the question scope, and such a reading is not the intended reading of the ECC.

- (45) Ni peng-mei-pengdao yi ge waiguoren (*ta) hui shuo Zhongguohua? (= (36a))
you meet-not-meet one CL foreigner he can speak Chinese
‘Have you met a foreigner who can speak Chinese?’

Both McCawley’s (1989) negation fact and my A-not-A question fact indicate that the coda restricts the reading of the PCN, which in turn suggests that the two elements form a complex constituent, and the whole constituent is c-commanded by the matrix verb.

Third, the clausal juxtaposition analysis makes the relation between a PCN and the coda look like that between a nominal and a nonrestrictive RC, in the sense that the two elements occur in separate clauses. I will show how ECCs are different from non-restrictive RC constructions in 5.3.

All of the above considerations argue against the clausal juxtaposition analysis of ECCs.

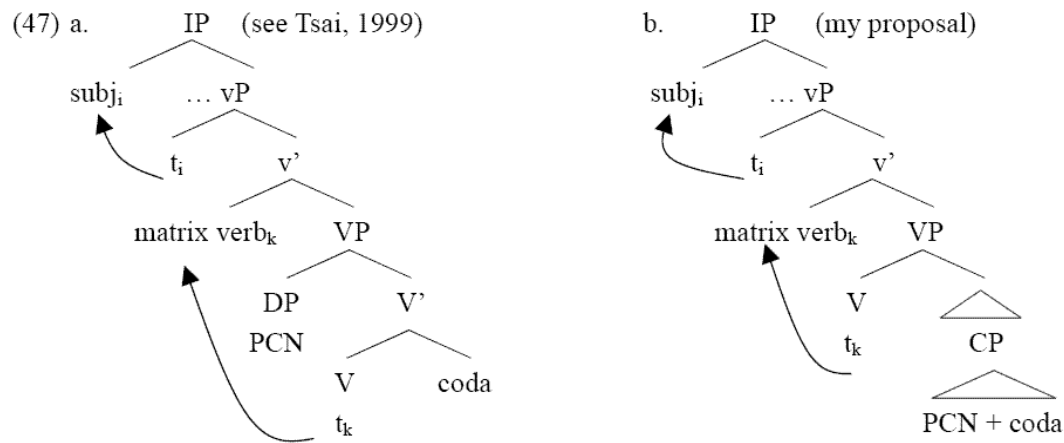
Before we move to our arguments against another analysis of codas, we need to clarify that it is possible to negate the matrix verb of an ECC (contra Tsai, 1999, p. 135). This is shown in (43) (cited from McCawley, 1989, p. 38), (44), and the following data:

- (46) a. Baoyu mei faxian shenme dongxi keyi dang yao chi.
Baoyu not find what thing can as medicine eat
‘Baoyu did not find anything that can be taken as medicine.’
b. Laoshi mei zhaodao yi ge xuesheng neng jiang Fayu.
teacher not find one CL student can speak French
‘The teacher did not find a student who can speak French.’

However, if the negated matrix verb has an aspect suffix such as the experiential *guo*, the ECC is not acceptable (Tsai, 1999, p.135). I leave the interactions between aspect markers and negations in ECCs to future research.

2.5.4 Against the V-complement analysis of codas

Our conclusion that a coda and a PCN form a CP is in contrast to a V-complement analysis of codas. Tsai (1999, p. 129) proposes the following (47a) for ECCs where the matrix verbs are transitive. One can compare the structure with my proposed structure in (47b). (47a) differs from (47b) in that the coda is a complement of V, and the PCN alone is the internal argument of the matrix verb.



The V-complement analysis of codas in (47a) is not compatible with the adjacency requirement between a coda and a PCN (2.4.3). As the complement of V in this analysis, a coda can be a secondary predicate of an argument of V. If the verb moves from V to v, all arguments that are c-commanded by the raised verb are equally local to the complement of V (See Chomsky (1995) for a discussion of the equi-distance configuration). Recall that it is impossible for a coda to describe the property of any nonadjacent nominal. In (48), the coda *hen piaoliang* ‘very beautiful’ cannot describe the property of the nonadjacent *nühai* ‘girl.’

- (48) Ta songgei yi ge nühai_i liang tiao qunzi_j hen piaoliang_{*i/j}. (= (28))
 he give one CL girl two CL skirt very beautiful
 Roughly: ‘He gave a girl two skirts, which are very beautiful.’
 Not: ‘He gave a girl two skirts and the girl is very beautiful.’

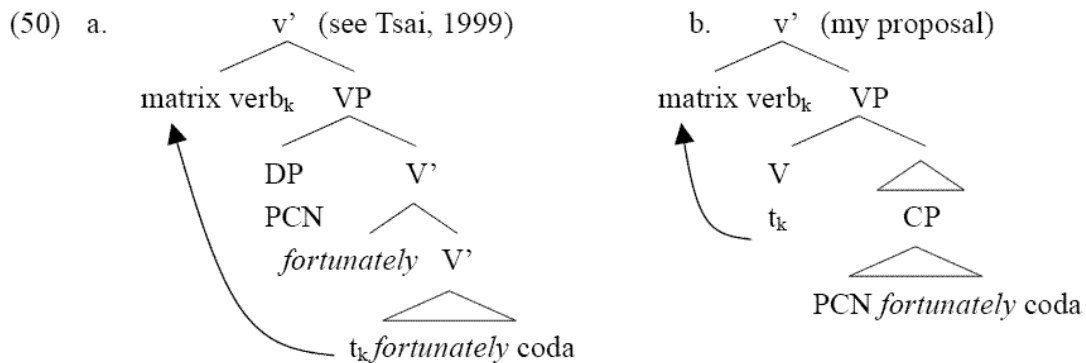
In this sentence, if both nominals *yi ge nühai* ‘a CL girl’ and *liang tiao qunzi* ‘two CL skirt’ are arguments of the verb *songgei* ‘give’, the raising of the verb makes the two nominals equally local to *hen piaoliang* ‘very beautiful’, which is assumed to be the complement of V. If so, there is no reason to rule out the second reading, in which the coda functions as a secondary predicate of the first argument, *yi ge nühai* ‘a CL girl’.

If the coda is contained in the same clause that hosts the PCN, excluding the matrix verb, the above reading restriction is accounted for. In our approach, a coda cannot be related to any element outside the hosting CP.

Moreover, the scope of an adverb between a PCN and a coda also favors (47b) over (47a).

- (49) a. Baoyu xingkui mai-le yi ge shubao hen da.
 Baoyu fortunately buy-PRF one CLbag very big
 ‘It is fortunate that Baoyu bought a bag, which is big.’ (a fortunate event)
 ‘It is fortunate that the bag that Baoyu bought is big.’ (a fortunate property)
- b. Baoyu mai-le yi ge shubao xingkui hen da.
 Baoyu buy-PRF one CLbag fortunately very big
 *‘It is fortunate that Baoyu bought a bag, which is big.’ (a fortunate event)
 ‘It is fortunate that the bag that Baoyu bought is big.’ (a fortunate property)

(49a) is ambiguous between a wide scope and a narrow scope of the adverb *xingkui* ‘fortunately’. The ambiguity is expected, because the adverb c-commands both the matrix verb *mai-le* ‘bought’ and the coda *hen da* ‘very big.’ (49b), however, is not ambiguous. Theoretically, the structure of (47a) has two positions available for an adverb occurring between a PCN and a coda, as illustrated in (50a). The higher position (V’-adjunct) c-commands the trace of the matrix verb, and thus the adverb should be able to scope over the verb, giving the wide-scope or fortunate event reading. Consequently, (49b) should be as ambiguous as (49a), contrary to the fact. In (47b), however, since the PCN is inside a CP, any adverb following the PCN is also in the CP (see (50b)). Thus, the adverb scopes over the coda only, not the matrix verb. This captures the reading of (49b).



3. The syntactic structure of ECCs

3.1 The matrix verbs of ECCs c-select a nominal rather than a clause

In the last section, we concluded that a PCN and a coda form a CP. In this section, we argue that this CP must be contained in a nominal.

Verbs such as *renshi* ‘know’ and *qu* ‘marry’ select a nominal exclusively and reject a clausal complement, as shown in (51a). By contrast, verbs such as *renwei* ‘think’ and *dasuan* ‘plan’ select a

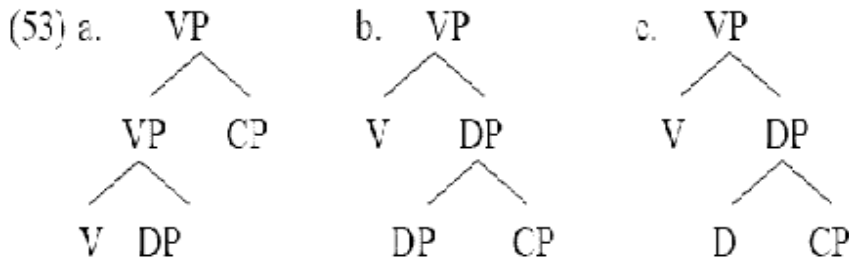
clause exclusively and reject a nominal complement, as shown in (51b).

- (51) a. Wo renshi {yi ge xiaoshuojia / *Baoyu yexinbobo}
 I know one CL novelist Baoyou ambitious
 ‘I know {a novelist / that Baoyu is ambitious}.’
 b. Wo renwei {*yi ge xiaoshuojia / Baoyu yexinbobo}
 I think one CL novelist Baoyou ambitious
 ‘I think {*a novelist / that Baoyu is ambitious}.’

Verbs that select a nominal exclusively may occur in ECCs, whereas verbs that select a clause exclusively may not occur in ECCs. We have seen in (51a) that *renshi* selects a nominal, but not a clause. In (52a), we see that this verb occurs in an ECC. In contrast, we have seen in (51b) that *renwei* selects a clause, but not a nominal; and in (52b), we see that this verb cannot occur in an ECC. Thus, the matrix verbs of ECCs c-select a nominal rather than a clause.

- (52) a. Wo renshi yi ge xiaoshuojia yexinbobo.
 I know one CL novelist ambitious
 ‘I know a novelist who is ambitious.’
 b. *Wo renwei yi ge xiaoshuojia yexinbobo.
 I think one CL novelist ambitious

If a PCN and a coda form a CP, and the verb to the left of the CP selects a DP, we are led to three choices:



In (53a), the CP is an adverbial clause of the matrix predicate, and there is some silent pronoun (DP) to satisfy the c-selection of the matrix verb. In (53b), the CP is an adjunct of the DP that satisfies the c-selection of the matrix verb. In (53c), the CP is the complement of D, which projects a DP, satisfying the c-selection of the matrix verb. I rule out the first two adjunct choices for two reasons. First, unlike an adjunct, the CP does not show island effect. Elements can be extracted from the CP, as in (54). Second, evaluative adverbs, which cannot occur in any adjunct (55b) (Sung, 2000), may occur in the CP, as shown in (55a) (see also (49b)):

- (54) Zhe zhong chou-tofu, wo renshi yi ge laowai hen xihuan chi.
 this type stinky-tofu I know one CL foreigner very like eat
 ‘This type of stinky tofu, I know a foreigner, who likes to eat very much.’
- (55) a. Baoyu mai-le yi tiao kuzi tai duan le.
 Baoyu buy-PRF one CL pants too short PRT
 Roughly: ‘Baoyu bought a pair of pants, which are too short.’
 b. *Baoyu mai-le yi tiao tai duan le de kuzi.
 Baoyu buy-PRF one CL too short PRT DE pants

Moreover, (53a) is also ruled out by the *ye-shi* patterns presented in 2.3.

This paper explores the possibility of (53c). The DP that hosts the CP is not a definite nominal. Since extraction from indefinite nominals do not violate the Complex NP Constraint (Postal, 1998, among others), the extraction in (54) is possible.

3.2 The s-selection of the matrix verbs of ECCs seems to be satisfied by PCNs

In ECCs, the matrix verbs s-select an individual-denoting element, rather than a proposition-denoting element (a clause). We have just claimed that the CP that is composed of a PCN and a coda must be contained in a DP. Now we see that the CP cannot satisfy the s-selection of the matrix verbs of the constructions. As for the DP that contains the CP, if it is not individual denoting, it cannot satisfy the s-selection of the matrix verb, either.

On the other hand, PCNs seem to satisfy the s-selection of the matrix verbs. In (56), for instance, the verb *qu* ‘marry’ s-selects a female person. If the PCN is *yi ge nüren* ‘one CL woman’, the sentence is fine; whereas if the PCN is *yi ge nanren* ‘one CL man’, the sentence is not acceptable.

- (56) Lao Zhang qu-le yi ge {nüren/*nanren} hen hui zuo cai. (= (3a))
 Lao Zhang marry-PRF one CL woman/man very can cook dish
 Roughly: ‘Lao Zhang married a {woman/*man}, who cooks well.’

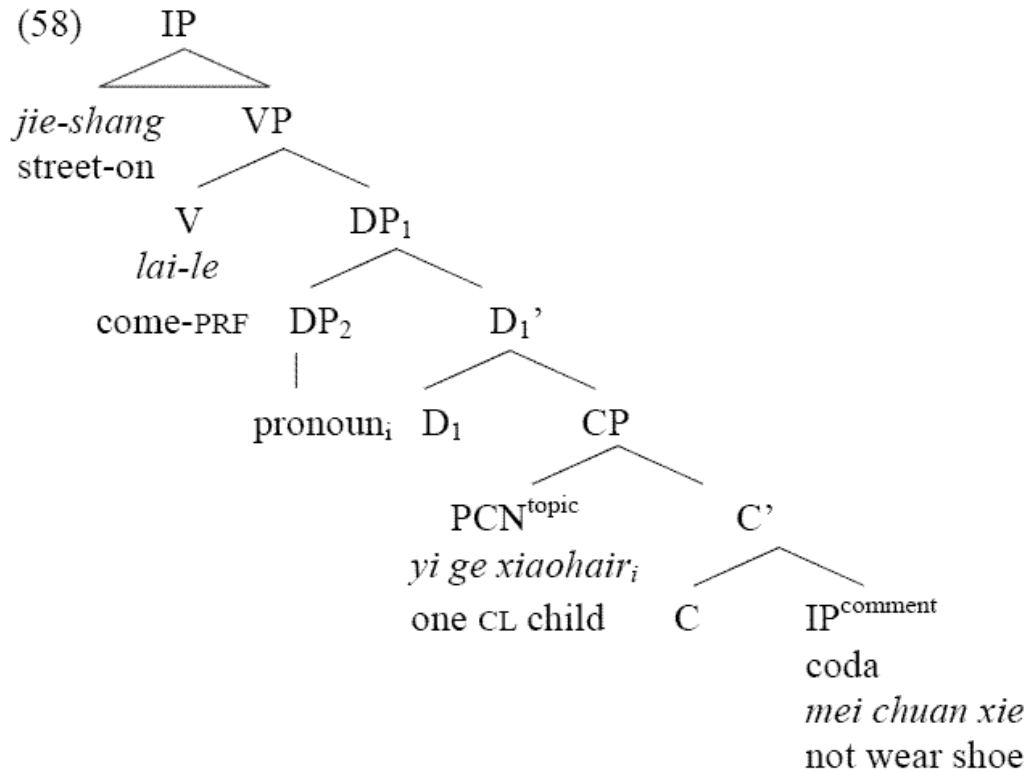
Since a PCN is contained in a CP, and the CP cannot satisfy the s-selection of the matrix verb, I propose that the DP that hosts the CP also hosts a null pronoun, which satisfies the s-selection of the verb and takes the PCN as its antecedent. Thus a PCN is indirectly accessed by the matrix predicate via the null pronoun. I further specify the syntactic position of this pronoun as Spec of DP. The semantic features of the Spec element are percolated to the hosting DP, which is the sister of the selecting verb. Such a feature dependency of XP on the Spec of X has also been independently seen in *wh* and negation feature percolation. For instance, the negation feature is percolated from Spec in

(57a), and the *wh*-feature is percolated from Spec in (57b) (Grimshaw, 1991; Webelhuth, 1992; Koopman & Szabolcsi, 2000, p. 41):

- (57) a. Nobody's car would I borrow. [Neg feature percolation]
 b. Whose book did you read? [Wh feature percolation]

If the negation in (57a) is a sentential negation, which is able to trigger the subject-modal inversion, the [Neg] feature must move out of the word *nobody*, which is the Spec element of the possessive DP. Likewise, in (57b), in order to check the [Wh] feature of C, the relevant feature must move out of the word *whose*, which is the Spec element of the possessive DP.

I thus elaborate (32), and propose the following (58) instead.



(58) illustrates the syntactic relation between a coda and the rest of an ECC. This is my answer to question <i> listed in section 1. In the rest of this paper, I will discuss the interactions of the constituents of this structure, in order to answer questions <ii> and <iii>.

4. The properties shared by ECCs and relative clause constructions

The structure in (58) is my rough answer to question <i>. In this and next section, I answer question <ii>: why PCNs cannot have any D-element that rejects weak indefinite readings.

- (59) Baoyu jiao-guo {yi/*na} ge xuesheng hen wanpi.
Baoyu teach-EXP one/that CL student very naughty
Roughly: 'Baoyu taught a student. who was very naughty.'

I will link this restriction to the same restriction on Heads of IHRCs. In this section, I present three parallelisms between ECCs and RC constructions. Then in next section, I will further specify certain properties that are shared by ECCs and IHRCs.

4.1 Dependency types

The dependency types in clausal codas can all be found in RCs. We have seen subject dependency in the coda of (3a) and its corresponding subject relativization in (3b). Now we can see object dependency in the coda in (60a) and its corresponding object relativization in (60b), and adjunct dependency in the coda in (61a) and its corresponding adjunct relativization in (61b).

- (60) a. Baoyu mai-le ba yusan wo hen xihuan.
Baoyu buy-PRF CL umbrella I very like
Roughly: 'Baoyu bought an umbrella, which I like very much.'
b. Baoyu mai-le ba wo hen xihuan de yusan.
Baoyu buy-PRF CL I very like DE umbrella
'Baoyu bought an umbrella which I like very much.'
- (61) a. Akiu qu-guo yi ge difang [renmen keyi (zai nali) mian-fei da dianhua].
Akiu go-EXP one CL place people can at there free-money make phone-call
Roughly: 'Akiu has been to a place, where people can make free phone-calls.'
b. Akiu qu-guo yi ge [renmen keyi (zai nali) mian-fei da dianhua] de difang.
Akiu go-EXP one CL people can at there free-money make phone-call DE place
'Akiu has been to a place where people can make free phone-calls.'

4.2 Dependency distance

Both local and long-distance dependency in clausal codas can be found in RCs. We have seen local dependency in the above examples. The long-distance dependency in the coda in (62a) is parallel to the long-distance relativization in (62b).

- (62) a. Akiu jiao-guo yi ge xuesheng [renmen dou shuo shi tiancai].

- Akiu teach-EXP one CL student people all say be genius
Roughly: 'Akiu taught a student, who people all said was a genius.'
- b. Akiu jiao-guo yi ge [renmen dou shuo shi tiancai] de xuesheng.
Akiu teach-EXP one CL people all say be genius DE student
'Akiu taught a student who people all said was a genius.'

In (62a), the PCN *yi ge xuesheng* 'one CL student' is semantically related to the subject of the embedded predicate *shi tiancai* 'be a genius,' which is inside the coda.

4.3 Distributions of resumptive pronouns

The distributions of resumptive pronouns in codas are also found in RCs. We have seen that in both the coda in (61a) and the RC in (61b), the resumptive element *zai nali* 'at there' is optional. On the other hand, if a resumptive element must occur in a certain type of codas, it also must occur in the corresponding RCs. For instance, if a coda expresses a dependency relation with the object of *yong* 'use, with', a resumptive pronoun must occur, as seen in (63a). The same requirement is observed in the RC in (63b) (see Tang, 1979, p. 287).

- (63) a. Nali you yi zhi bi [Aiyinsitan cengjing yong *(ta) xie-guo lunwen].
there have one CL pen Einstein once with it write-EXP paper
Roughly: 'There is a pen, with which Einstein used to write papers.'
- b. Nali you yi zhi [Aiyinsitan cengjing yong *(ta) xie-guo lunwen] de bi.
there have one CL Einstein once with it write-EXP paper DE pen
'There is a pen with which Einstein used to write papers.'

Similarly, if a coda expresses a dependency relation with the object of an object control construction, a resumptive pronoun must occur, as seen in (64a). The same requirement is observed in the RC in (64b) (Tang, 1979, p. 93).

- (64) a. Wo renshi yi ge xuesheng [laoshi jingchang jiao *(ta) zuo jiauwu].
I know one CL student teacher often ask he do housework
Roughly: 'I know a student, whom the teacher often asked to do housework.'
- b. Wo renshi yi ge [laoshi jingchang jiao *(ta) zuo jiauwu] de xuesheng.
I know one CL teacher often ask he do housework DE student
'I know a student whom the teacher often asked to do housework.'

These parallelisms between RCs and codas do not seem to be accidental. One might claim that codas are EHRCs of PCNs. However, the content of my next section shows that ECCs do not behave like EHRC constructions. Instead, they behave more like IHRC constructions.

5. The properties shared by ECCs and IHRC constructions

In this section, I present properties of ECCs that make them different from EHRC constructions but similar to IHRC constructions.

5.1 The absence of any D-element that rejects weak indefinite readings

One salient property of a PCN is that it has no D-element that rejects weak indefinite readings, such as a demonstrative or *meiyige* ‘every’. By contrast, EHRC constructions do not have this restriction. I have introduced this property in (5). A similar example is (65).

- (65) a. Baoyu jiao-guo {yi ge /*na ge /*meiyige/*dabufen} xuesheng hui tan gangqin.
 Baoyu teach-EXP one CL / that CL / each / most student can play piano
 Roughly: ‘Baoyu taught a student. who could play piano.’
 b. Baoyu jiao-guo {yi ge /na ge /meiyige /dabufen} hui tan gangqin de xuesheng.
 Baoyu teach-EXP one CL /that CL / each / most can play piano DE student
 ‘Baoyu taught {a/that/every/most} student(s) who could play piano.’

This restriction is found in the left-edge Heads of IHRCs in many languages, such as Mooré (Tellier, 1989, p. 308), Lakhota, and the Yuman languages (Basilico, 1996, p. 505, 507, 519, 523).

- (66) a. *wil^y-pu ‘xat(-0) n^yi-m ?tu:-pu-c n^yiL^ycis. (Diegueño)
 rock-DEM dog-OBJ that-COMIT I.hit-DEM-SUBJ black.indeed
 b. ‘wil^y‘xat(-0) n^yi-m ‘tu:-pu-c n^yiL^ycis.
 rock dog-OBJ that-COMIT I.hit-DEM-SUBJ black.indeed
 ‘The rock that I hit the dog with was black.’
 (67) a. *Wichaša **iyuha** t’a pi ki Lakhota pi. (Lakhota)
 men all die PL the Lakhota PL
 ‘All the many men who died were Lakhota.’
 b. Wichaša **ota** t’a pi ki hena Lakhota pi.
 men many die PL the those Lakhota PL

‘The many men who died were Lakhota.’

Basilico (1996, p. 507, also fn. 9) explicitly states that when the Head of an IHRC appears at the left-edge position in the clause, it is not allowed to appear with a definiteness marker or generalized quantifier. The Head of an IHRC at another position does allow a demonstrative (Hiroshi Aoyagi, p.c.) or a strong indefinite marker (Shimoyama, 1999, example (4), (9b)) in Japanese. But this complexity does not affect the discussion here. Like the left-edge Head of an IHRC, a PCN occurs at the left-edge position (the topic position) of the containing clause.

Basilico (1996) accounts for the restriction by claiming that the Head of an IHRC must provide a variable for the quantificational operator associated with the IHRC to bind. In his approach, IHRCs are quantificational, and the absence of any D-element that rejects weak indefinite readings in the Heads avoids vacuous quantification. Lee (2004), on the other hand, accounts for the restriction by claiming that IHRCs take an expletive as their external Head, and the function of the expletive is similar to that of *there* in the English existential *there*-sentences. Following Hoshi (1995), I will present an E-type pronoun binding analysis of the restriction in 5.5.

It needs to be pointed out that the absence of any D-element that rejects weak indefinite readings in the PCN is independent of aspect markers. In Tsai (1999), it is claimed that in an ECC, the existence of the indefinite referent of the PCN is asserted, and the assertion force comes from the aspect marker of the matrix verb, such as the perfective *le* and the experiential *guo*. However, not all ECCs have aspect markers. (68a) does not have any aspect marker, and the aspect marker in (68b) is optional (more examples in which the matrix verb does not have any aspect marker are seen in (27a) and (28b)).

- (68) a. Wo renshi yi ge nüren hen piaoliang. (Huang, 1987, p. 248)
 I know one CL woman very pretty
 ‘I know a woman who is very pretty.’
 b. Baoyu pengjian-(le) yi ge xiaohai mei chuan xie.
 Baoyu meet-PRF one CL child not wear shoe
 ‘Baoyu met a child who did not wear shoes.’

I conclude that the absence of any D-element that rejects weak indefinite readings in PCNs

cannot be accounted for by any aspectual consideration. Instead, it is a constraint shared by the Heads of IHRCs in many languages.

5.2 The scope of codas

In an ECC, the scope of a coda is the whole PCN, whereas in a regular pre-N RC construction, the scope of the RC is the N only, excluding the numeral to the left of the N. This is seen in (69):

- (69) a. Shatan-shang tang-zhe san ge mei chuan yifu de xiaohai. (EHRC)
 beach-on lie-PRG three CL not wear clothes DE child
 ‘On the beach lay three children who did not wear clothes.’
 b. Shatan-shang tang-zhe san ge xiaohai mei chuan yifu. (ECC)
 beach-on lie-PRG three CL child not wear clothes
 Roughly: ‘On the beach lay three children, who did not wear clothes.’

If there were more than three children on the beach, (69a) is still felicitous, whereas (69b) is not. The EHRC in (69a) restricts the denotation of the modified noun *xiaohai* ‘child,’ so that it is possible for the speaker to make a contrast between the three children and other children in the context. The coda in (69b), however, makes a comment on the individuals expressed by *san ge xiaohai* ‘three children.’ It does not restrict the denotation of *xiaohai*.

The wide scope of codas is expected if ECCs are IHRC constructions. One of the most well-known semantic properties of an IHRC in languages that do not have articles is that, unlike an EHRC, it does not restrict the denotation of the modified noun (Kuroda, 1976-77, 1992, p. 174; Kitagawa, 1996; Grosu & Landman, 1998, p. 162). Kim (2004, p. 11) uses the following examples to illustrate the property. (70a) contains an EHRC and (70b) contains an IHRC:

- (70) a. Jinho-nun [[_itomangka-n]-un totwuk_i]-ul sey myeng capassta. (EHRC)
 Jinho-TOP run.away-IMPRF-REL thief-ACC three CL caught
 ‘Jinho caught three (out of possibly many more) thieves who were running away.’

- b. Jinho-nun [[totwuk_i-i sey myeng tomangka-n]-un capassta. (IHRC)
 Jinho-TOP three-NOM thief CL run.away-IMPRF-REL caught
 ‘(Exactly) three thieves were running away and Jinho caught all of them.’

In (70a), the EHRC restricts the meaning of the noun *totwuk* ‘thief’. Combining the denotations of the RC and its head noun amounts to intersecting the set of individuals that have the property of running away and the set of individuals that have the property of being a thief. Therefore, the sentence will be felicitous even if it is uttered in a context where there were ten thieves running away and John caught only three of them. (70b) will be false in such a context; however, it will be felicitous only if there were exactly three thieves running away and John caught all of them. Similarly, as pointed out by Hoshi (1995, p. 131; cited in Shimoyama, 1999, p. 155), the Japanese IHRC in (71) is not compatible with a scenario where Mary peeled five apples and John ate three of them. The sentence means that Mary peeled only three apples and John ate them all.

- (71) John-wa [Mary-ga san-ko-no ringo-o muitekureta]-no]-o tabeta.
 John-TOP Mary-NOM three-CL-GEN apple-ACC peeled-NM-ACC ate
 ‘Mary peeled three apples and John ate them all.’

Similarly, the following Quechua IHRC does not allow the continuation of any sentence that means ‘and two were bad.’ This is in contrast to an EHRC, which would allow this continuation (Srivastav, 1991; cited in Basilico, 1996, p. 506).

- (72) nuna ishkey bestya-ta ranti-shqa-n alli bestya-m ka-rqo-n.
 man two horse-ACC buy-PRF-3 good horse-VALIDATOR be-PST-3
 ‘The two horses that the man bought were good horses.’

This scope contrast between IHRCs and EHRCs makes Hoshi (1995) and Shimoyama (1999), among others, chose not to analyze the two types of RCs in the same way. Specifically, they reject the idea that there is any covert movement of the Head of an IHRC to appear at LF at the same position where the Head of an EHRC surfaces.

I conclude that ECCs pattern with IHRC constructions in their scope of modification.

5.3 Codas are not non-restrictive adnominals

Given that a coda is related to the whole preceding Num-CI-NP string rather than restricting the NP alone, one might suspect that codas are non-restrictive RCs. However, unlike a non-restrictive RC, a coda is not deletable in some cases, as shown in the contrast between (73a) and (73b).

- (73) a. Zai renqun dangzhong you yi ge ren na-zhe zhaoxiangji.
at crowd in have one CL person hold-PRG camera
‘In the crowd was a person who held a camera.’
- b. #Zai renqun dangzhong you yi ge ren. (semantically odd)
at crowd in have one CL person
#‘In the crowd there was a person.’
- (74) a. Na ben shu you yi ye shi kongbai.
that CL book have one page be blank
‘In that book there is one page which is blank.’
- b. #Na ben shu you yi ye.
(semantically odd)
that CL book have one page
#‘In that book there is one page.’

The oddness of (73b) is that a crowd, by definition, is composed of multiple persons, and thus it is absurd to make an assertion that there is a person in a crowd. (74b) shows the same kind of oddness. Another type of oddness is seen in (75b) and (76b):

- (75) a. Wo chi-guo yi zhong shiwu hen ku.
 I eat-EXP one kind food very bitter
 ‘I have eaten a kind of food which was very bitter.’
- b. # Wo chi-guo yi zhong shiwu. (pragmatically odd)
 I eat-EXP one kind food
 #‘I have eaten a kind of food.’
- (76) a. Akiu renshi yi ge ren hui shuo Shanghai-hua.
 Akiu know one CL person can speak Shanghai-dialect
 ‘Akiu knows a person who can speak Shanghai dialect.’
- b. #Akiu renshi yi ge ren. (pragmatically odd)
 Akiu know one CL person
 #‘Akiu knows a person.’

Since everyone has eaten many kinds of food, the assertion made in (75b) is pragmatically odd. It violates the Maxim of Quantity of Grice’s (1975) conversational maxims: make your contribution to the conversation as informative as necessary. In contrast, (75a) is natural, since the assertion that I have eaten a special kind of food, among other kinds of food, is not pragmatically odd. Thus the coda *hen ku* ‘very bitter’ is a restrictive modifier of the noun *shiwu* ‘food.’ The similar contrast is seen in (76a) and (76b).

Parallel to this, IHRCs are also systematically different from non-restrictive RCs (see Kuroda, 1976-77, 1992; Shimoyama, 1999, p. 161; and Kim, 2004). For instance, Kim (2004, p. 13) states that “while the content of a non-restrictive RC is more or less independent of the content of the matrix clause (see, for example, Ross, 1967; Emonds, 1979; Stump, 1985), the content of an IHRC bears a ‘tighter’ relation to the content of the matrix clause, to put in Yuki Kuroda’s terms.”

Moreover, the Head of a non-restrictive adnominal can be a proper name, whereas neither the Head of an IHRC nor a PCN can be a proper name.

I conclude that ECCs pattern with IHRC constructions in their difference from non-restrictive RC constructions.

5.4 The same Head status of PCNs and IHRC-internal elements at topic positions

In an ECC, the PCN must be the topic of the coda (2.4), and it is the PCN that is the semantic Head of the constituent that is selected by the matrix verb. In (77), for instance, the PCN *yi ge nanhai* ‘one

CL boy’ is the topic of the coda *na ge nühai hen xihuan* ‘that girl very like’ (I will discuss the syntactic derivation of the dependency between a PCN and the object gap in a coda in 6.1). Importantly, it is the PCN *yi ge nanhai* rather than *na ge nühai* is the semantic Head of the object of the matrix verb *jiao-guo* ‘teach-EXP’.

- (77) Baoyu jiao-guo yi ge nanhai na ge nühai hen xihuan.
 Baoyu teach-EXP one CL boy that CL girl very like
 Roughly: ‘Baoyu taught a boy, who that girl likes very much.’
 Not: ‘Baoyu taught that girl, ...’

Basilico (1996, p. 501) presents the fact that, cross-linguistically, if an element occurs in the topic position of an IHRC, it must be the Head of the RC. Crucially, he shows that the left-edge Head is still in the RC (i.e., not externalized). The following are two sets of examples (see Mahajan, 2000, p. 208), (9), (14) for parallel constructions in Hindi).

- (78) a. masahay ahvay ?-ay-n^y-č ?ahot-m (Mojave)
 girl dress 1-give-DEM-SUBJ good-TNS
 ‘The girl I gave the dress to is nice.’
 ‘The dress I gave to the girl is nice.’
 b. ahvay masahay ?-ay-n^y-č ?ahot-m
 dress girl 1-give-DEM-SUBJ good-TNS
 ‘The dress I gave to the girl is nice.’
- (79) a. xatkcok(-0) wi:m tuc-pu-c nyiLy (Diegueño)
 dog(-OBJ) rock.COMIT 1.hit-DEM-SUBJ black
 ‘The rock that I hit the dog with is black.’
 ‘The dog that I hit the rock with is black.’
 b. ‘wi^y’xatkcok(-0) ni^yi-m tu:-pu-c nyiLy
 rock dog(-OBJ) that-COMIT 1.hit-DEM-SUBJ black
 ‘The rock that I hit the dog with is black.’

In (78b), *ahvay* ‘dress’ is topicalized to the left edge of the RC. In (79b), the left edge element ‘*wi^y*’ ‘rock’ is associated with the pronoun *ni^yi* ‘that’ in the RC. In these two sentences, the Head of the IHRC is exactly the element in the topic position, thus there is no ambiguity. In the corresponding a-sentences, however, since no element is in the topic position in the RC, the IHRC is ambiguous in identifying the Head of the RC.

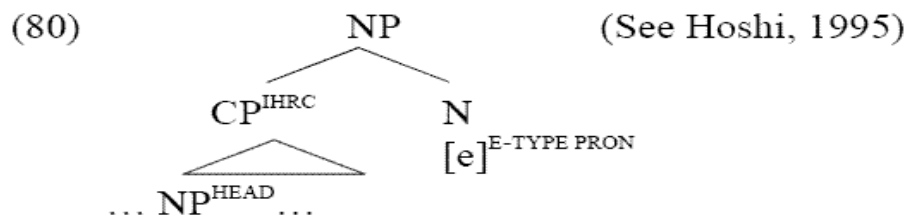
The topic status of a PCN and the absence of ambiguity of an ECC suggest that a PCN behaves like an IHRC Head that is in the topic position. If ECCs are IHRC constructions, it is topics that are relativized. Since a topic occurs at the left-peripheral position of a clause, a PCN as a topic and RC-internal Head, always occurs at the left-edge of the RC.

I conclude that ECCs pattern with IHRC constructions in the RC Head status of the left-edge element.

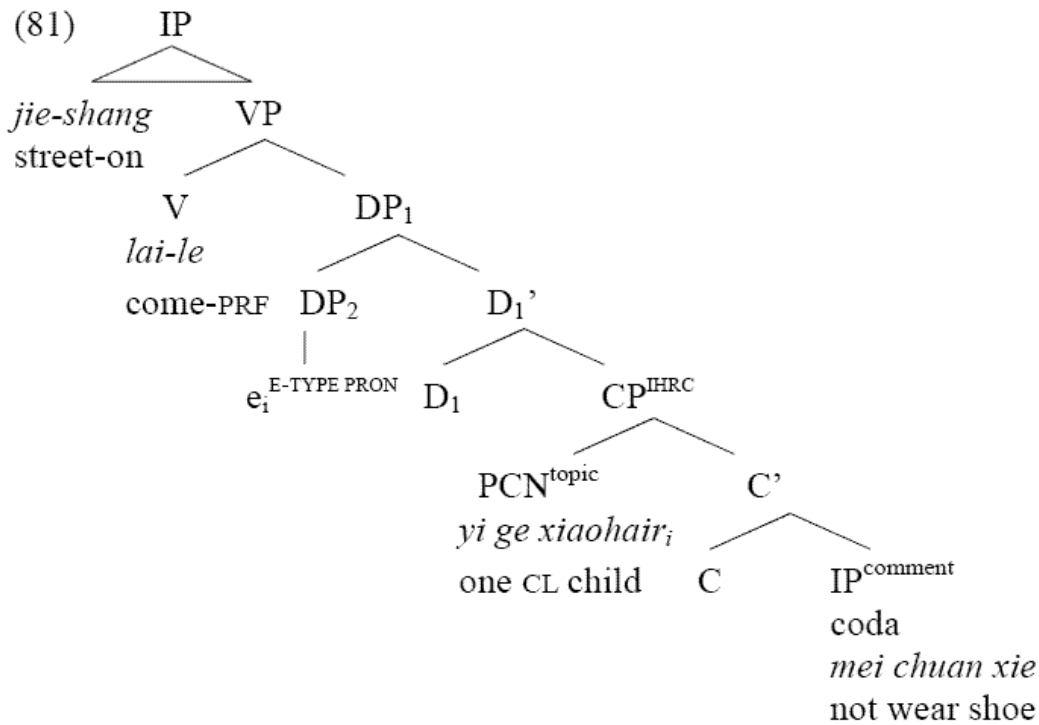
5.5 Representing the IHRC nature of ECCs

In the previous four subsections, I have presented shared properties of ECCs and IHRC constructions. It is possible that like in Japanese, Korean, Mooré (Tellier, 1989), and many other languages, both IHRCs and EHRCs exist in Chinese, and the former are seen in ECCs.

In Hoshi (1995) and Shimoyama (1999), the Head of an IHRC is indirectly accessed by the matrix predicate via an E-type pronoun. This pronoun is contained in the nominal that hosts the IHRC, and provides the <e> denotation for the nominal. The antecedent of the pronoun is the Head of the IHRC.



In 3.2, I proposed that ECCs also have a null pronoun, which takes the PCN as its antecedent. Since ECCs show properties of IHRC constructions, and PCNs behave like Heads of IHRCs, I now identify PCNs as Heads of IHRCs. The null pronoun of ECCs is parallel to the E-type pronoun in (80). The structure in (58) is now refined with labels as (81) (= (8)):



I also assume that the null pronoun is an E-type pronoun in donkey sentences. This assumption can account for the constraint introduced in 5.1, i.e., PNCs do not allow any D-element that rejects a weak indefinite reading. Let us see the similarities between PCNs and the antecedents of pronouns in donkey sentences. In each of the donkey sentences in (82), the double-underlined pronoun takes the single-underlined indefinite as its antecedent.

- (82) a. Every farmer who owns a donkey beats it.
 b. If a man comes in here, he will trip the switch.
 c. Every farmer owns some donkeys and feeds them at night.

The pronouns in the donkey sentences are E-type pronouns. The antecedent of such a pronoun in a donkey sentence does not have any D element that rejects a weak indefinite reading, such as a demonstrative or generalized quantifier. We can see that this is the same constraint on PCNs (5.1). We can thus analyze PCNs as antecedents of E-type pronouns in donkey sentences. Moreover, the antecedent of an E-type pronoun does not c-command the pronoun. In each sentence in (82), the antecedent does not c-command the pronoun. In our (81), the PCN does not c-command the null

pronoun, either.

One issue needs to be clarified is the following. If ECCs contain RCs, why does the function element *de*, which always follows an EHRC, never occur? In fact, the occurrence of *de* is not related to RCs. As seen in (18a) and (19a) above, *de* occurs even in non-predicative constructions. The absence of *de* in ECCs thus does not affect the RC analysis. Moreover, *de* does not occur between a topic and a comment. If the relation between a PCN and a coda is that between a topic and a comment, no *de* is expected to occur between them. Furthermore, in some languages, IHRCs are marked by certain functional elements that do not occur in EHRCs, and thus it is possible that the two types of RCs use different functional elements. For instance, IHRCs are followed by the functional element *kes* in Korean, and by *no* in Japanese, but EHRCs are not followed by the elements in the languages (Kim, 2004, p. 2, ch. 5).

If a PCN is the Head of an IHRC, the constraint that a PCN may not have any D-element that rejects weak indefinite readings is covered by the same constraint on IHRC Heads. In (81), this constraint is syntactically represented as a dependency between the E-type pronoun and the PCN, and the constraint on the PCN is covered by the same constraint on the antecedent of the pronoun in donkey sentences. We thus have an answer to question <ii> listed in section 1.

6. The relative clause-internal position of PCNs

Having answered the first and second question listed in section 1, in this and next section, we move to the third question of this paper: why a PCN may not be a bare noun.

- (83) Baoyu jiao-guo {yi ge xuesheng/*xuesheng} hen wanpi.
Baoyu teach-PRF one CL student/student very naughty
Roughly: 'Baoyu taught a student, who was very naughty.'

I will probe this question in two perspectives. I will explain, first, what prevents a PCN from moving out of a RC (this section), and second, what prevents a bare noun Head from staying inside a RC (next section).

6.1 The non-movement dependency between a PCN and a coda

In this subsection, I clarify whether a PCN has ever moved from a coda.

In (84), we can see that there is no reconstruction effect of Binding Condition C. Specifically, the PCN *yi zhang Baoyu de zhaopian* 'a photo of Baoyu' contains the name *Baoyu*, which is co-

referential with the pronominal subject of the coda, *ta* ‘he’. If we put the PCN to the object gap position of the coda, *ta* will c-command *Baoyu*, violating Binding Condition C. However, the sentence is acceptable, indicating that there is no reconstruction effect. The absence of the reconstruction effect does not support a movement analysis of the dependency between the PCN and the gap in the coda.

- (84) Wo pai-le yi zhang Baoyu_i de zhaopian ta_i hen xihuan.
 I take-PRF one CL Baoyu MOD photo he very like
 ‘I took a photo of Baoyu_i that he_i likes very much.’

In the following (85), we can see that there is no reconstruction effect with respect to idiom interpretations, either. (85a) is not an ECC. The sentence shows the idiom interpretation of *chui ji ge niu* ‘make several boasts.’ The idiomatic reading disappears in the ECC in (85b). On the assumption that idioms require their component parts to be local at LF, a movement analysis should allow reconstruction and thus topicalization of parts of idioms. However, what we see is that the idiom loses its idiomatic reading in the ECC. This loss does not support a movement analysis of the dependency between the PCN and the gap in the coda.

- (85) a. Baoyu hen xihuan zai xuesheng mianqian chui ji ge niu.
 Baoyu very like at student front blow several CL bull
 ‘Baoyu likes to make several boasts to students.’
 b. #Wo tingjian-le ji ge niu Baoyu hen xihuan zai xuesheng mianqian chui.
 I hear-PRF several CL bull Baoyu very like at student front blow
 #‘I heard several bulls that Baoyu likes to blow in front of students.’

The absence of the reconstruction effects indicates that a PCN is base-generated independently of a coda. I then assume that the gap in a coda is a *pro*.

One more argument for the base-generation of PCNs is the lack of island effects in their dependency on codas.

- (86) wo jiao-guo yi ge xuesheng yinwei wo piping-le _ xi-zhuren zong zhao wode mafan.
 I teach-EXP one CL student because I criticize-PRF department-chair always find my fault
 Roughly: ‘I taught a student whom because I criticized him the department chair always find fault with me.’

In the ECC in (86), the PCN *yi ge xuesheng* ‘one CL student’ is related to a gap in the causal adverbial clause, which is a syntactic island. The sentence is fine, indicating the absence of the island effect.

Watanabe (2004, p. 63) discusses the cross-linguistic presence and absence of island effects in IHRC constructions. He observes that island effects in IHRCs are present in Japanese but not in Lakhota. He claims that if a wh-dependency is computed by unselective binding, so is a IHRC in the language, and thus no island effect is seen. This is the case of Lakhota. By contrast, if a wh-dependency is computed by movement, so is a IHRC in the language, and thus island effects are observed. This is the case of Japanese. In his discussion, he groups Chinese with Lakhota with respect to the syntactic computation of wh-dependency (p. 66). If ECCs are IHRC constructions, our data here suggest that Chinese is indeed similar to Lakhota with respect to island effects in IHRC constructions.

Another argument for the base-generation of PCNs is that in some ECCs, the PCN is not related to any gap in the clausal coda. We repeat our gapless coda examples (63a) and (64a) here as (87a) and (87b). In (87c), the gap in the coda is associated to the coda-internal topic *ta-baba* ‘his dad’, not to the PCN *yi ge xuesheng* ‘a student’. In such constructions, PCNs may not move from anywhere in the codas.

- (87) a. Nali you yi zhi bi [Aiyinsitan cengjing yong ta xie-guo lunwen]. (= (63a))
 there have one CL pen Einstein once with it write-EXP paper
 Roughly: ‘There is a pen, with which Einstein used to write papers.’
- b. Wo renshi yi ge xuesheng [laoshi jingchang jiao ta zuo jiawu]. (= (64a))
 I know one CL student teacher often ask he do housework
 Roughly: ‘I know a student, whom the teacher often asked to do housework.’
- c. Lao Wang zhengzai jiao yi ge xuesheng ta-baba wo renshi.
 Lao Wang PRGteach one CL student he-dad I know
 ‘Lao Wang is teaching a student, whose dad I know.’

I conclude that a PCN, which is a non-bare indefinite, never moves from a coda.

6.2 The non-movement derivations of non-bare indefinite Heads of relative clauses

I have just argued that a PCN is not raised from a coda. In this subsection, I show that since non-bare indefinites cannot undergo topicalization movement in Chinese and PCNs are non-bare indefinites, they cannot move out of RCs to be externalized, and thus ECCs exhibit properties of IHRC constructions.

I assume that RC Head externalization is derived by either base-generation of the Head external to the RC, or A-bar movement of the Head from the RC (Aoun & Li, 2003, Hulsey & Sauerland, 2006, among others). In the movement derivation, the Head of the RC undergoes a

movement similar to a topicalization movement and lands out of the RC (Kayne, 1994). In other words, in IHRCs, no such topicalization occurs.

A PCN is a non-bare indefinite nominal. Such a nominal cannot undergo topicalization movement in Chinese. As seen in (88), all non-bare indefinite nominals fail to undergo topicalization movement:

- (88)
- a. *Yi ben xiaoshuo, wo hen xihuan.
one CL novel I very like
 - b. *Ben xiaoshuo, wo hen xihuan.
CL novel I very like
 - c. *Yixie xiaoshuo, wo hen xihuan.
some novel I very like

In contrast, those forms that PCNs cannot be can all undergo topicalization movement. They are bare nominals, generalized quantifier-initial nominals, demonstrative-initial nominals, and proper names, as shown in the four sentences in (89), respectively:

- (89)
- a. Xiaoshuo, wo yijing kan-guo-le.
novel I already read-EXP-PRF
'The novel, I have read it.'
 - b. Meiyiben xiaoshuo, wo dou kan-le.
every novel I all read-PRF
'Every novel, I have read.'
 - c. Na ben xiaoshuo, wo yijing kan-wan-le.
that CL novel I already read-EXP-PRF
'That novel, I have read it.'
 - d. *Shui Hu*, wo yijing kan-wan-le.
Water Margin I already read-finish-PRF
'*Water Margin*, I have already read it.'

If non-bare indefinites cannot undergo topicalization movement, RC Heads in such a form cannot be externalized by movement in Chinese. Since a PCN is a non-bare indefinite, it cannot be externalized by movement. The failure of the externalization accounts for the IHRC properties of ECCs.

Since non-bare indefinites cannot undergo topicalization movement in Chinese, EHRC constructions with non-bare indefinite Heads cannot be derived by such movement in the language. The absence of scope reconstruction effects in such constructions (Aoun & Li, 2003, p. 135) supports this prediction. Note that Aoun & Li (2003, p. 139) report certain idiom reconstruction effects in EHRCs in Chinese, however, all of the RCs presented there are Headed by bare nouns. We

illustrate this in (90). We can see that there is an idiom reconstruction effect in (90a), where the bare noun *niu* ‘bull’ occurs, but there is no such effect in (90b) and (90c), where the non-bare *san ge niu* ‘three CL bull’ occurs, regardless of the position of the RC.

- (90) a. *Ni xiang ting [ta chui de niu] ma?*
 you want hear he blow MOD bull Q
 ‘Do you want to listen to the boasts that he made?’
 b. **Ni xiang ting [san ge [ta chui de] niu] ma?*
 you want hear three CL he blow MOD bull Q
 c. **Ni xiang ting [[ta chui de] san ge niu] ma?*
 you want hear he blow MOD three CL bull Q

We thus claim that non-bare indefinite Heads of EHRCs are base-generated out of the RCs. In contrast, PNCs, as non-bare indefinite Heads of RCs, are base-generated and surface in RCs. It is the non-bare indefinite nature of PCNs that prevents them from moving out of RCs. The different syntactic positions of the non-bare indefinite Heads in ECCs and EHRC constructions correspond to the different readings reported in 5.2 (Note that I do not make any claim on the issue how the pre-Head EHRC order is derived and what the syntactic position of the functional word *de* is in the constructions).

7. The relative clause-external position of bare noun Heads

In the last section, I explained why non-bare indefinites cannot move out of RCs in Chinese. In this section, I make a proposal to explain why the Heads of IHRCs cannot be bare in Chinese, i.e., why a PCN of an ECC can never be bare.

7.1 The obligatory occurrence of a CI element in a PCN

PCNs always have either a classifier or the word *yixie* ‘some’, which I assume occurs at the same syntactic position as a Num-Cl cluster. In all of the ECC data above, the PCN has a classifier. In (91a), the PCN has *yixie*. In (91b), the classifier is preceded by a modifier *qizhong de*, which means ‘among them.’ In (91c), the classifier, together with the numeral *yi* ‘one’, is optional (see Yu, 2005 for a claim that evaluative adverbs such as *xianran* ‘obviously’ can license existential readings of wh-elements). I claim that the optionality does not affect the syntactic existence of the classifier. Thus, syntactically, a PCN must have a CI element.

- (91) a. Baoyu jiao-guo yixie pengyou hen jiang yiqi.
 Baoyu connect-EXP some friend very care loyalty.to.friends
 Roughly: ‘Baoyu has made some friends who are very loyal to him.’
- b. Naxie shu, wo du-guo qizhong de yi ben xiaoshuo feichang youqu.
 those book I read-EXP amongDE one CL novel very interesting
 Roughly: ‘Among those books, I read one of them, which is very interesting.’
- c. Baoyu xianran maidaole (yi ge) shenme dongxi hen pianyi.
 Baoyu obviously buy-PRF one CL what thing very cheap
 Roughly: ‘Baoyu obviously bought something, which was very cheap.’

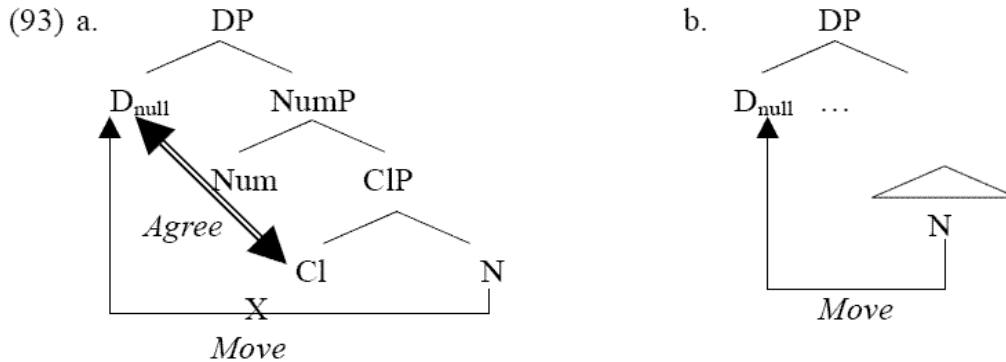
Since Huang (1987), it has been noted that a PCN cannot be a bare noun. We have shown this fact in (6) and (83). Another example is the following (92a). In this example, the bare nominal *bangshou* ‘assistant’ cannot stand alone without the classifier *ge*. The constraint is not observed in non-ECC constructions, as shown in (92b).

- (92) a. Baoyu xiang zhao *(ge) bangshou zhi ye-ban.
 Baoyu want find CL assistant take night-duty
 Roughly: ‘Baoyu wants to find an assistant, who will work at night.’
- b. Baoyu xiang zhao (ge) zhi ye-ban de bangshou.
 Baoyu want find CL take night-duty MOD assistant
 ‘Baoyu wants to find an assistant who will work at night.’

The verbs in (92a) and (92b) are the same. Both sentences occur in a non-referential context. Huang’s (1987) constraint can be viewed from another perspective: a PCN must have a classifier.

7.2 Bare nouns and Head externalization

If PCNs need a classifier and cannot be bare, it seems that classifiers and bare nouns interact. One way to probe the interaction is the licensing of null Ds in Chinese. Chinese does not have articles, which are overt intrinsic D elements. However, assume that Chinese does have a null D element, and this null D has an unvalued feature, which can be valued in one of two ways. It can be valued either by a c-commanded classifier, assuming classifiers have D-relevant features (see Cheng & Sybesma, 1999. Also, English plural markers, which are analyzed as classifiers in Borer, 2005, can also license null Ds), or by the head movement of a bare noun in the absence of any classifier. The two ways are illustrated in (a) and (b), respectively:



The former situation is similar to the licensing of *v*'s Case features by an object within VP, a non-movement Agree relation, in languages in which objects remain in situ (Chomsky, 2000). Of course, the head movement from N to D is blocked if a classifier occurs in a position closer to the D, according to the Relativized Minimality principle (Rizzi, 1990).

Demonstratives are also D elements. If demonstratives in Chinese occur at Spec of DP, they can license the null D by a Spec-head Agree relation. Note that the null pronoun *e* at the same Spec position in (81) cannot license the null D, assuming that null elements cannot license each other. If demonstratives are at the D head themselves, D is not null and thus does not need any licensing. I also assume that proper names move from N to D to license the null D. Both demonstrative-initial nominals and proper names are definite nominals. Their absence in PCNs has been captured by the IHRC nature of ECCs (5.1).

In a RC-containing DP in Chinese, if a non-bare indefinite Head is base-generated out of the RC, as in (94a), the external null D is directly licensed by the c-commanded CI via an Agree relation. If a non-bare indefinite Head is base-generated in the RC, the classifier of the Head values the feature of the null D of the Head itself and also the null D of the external Head by an Agree relation, without any movement. This accounts for the fact that a PCN, which is the Head of an IHRC, always has a classifier. (94b) illustrates this pattern.

- (94) a. $[_{DP} D \text{ Num-CI } [[_{CP} \dots] \text{ de NP}]]$ (EHRC: licensing the null D by D-CI Agree)
 b. $[_{DP} D [_{CP} [^{PCN} \text{ Num-CI-NP}] [^{CODA} \dots]]]$ (ECC: licensing the null D by D-CI Agree)

If the Head of a RC is a bare noun and is base-generated out of a RC, it moves to the external null D, to license the null D, deriving a regular EHRC construction. This is illustrated in (95a) (putting aside the spellout order and the position of *de*). If the Head of a RC is a bare noun and is

base-generated in the RC, it moves to the local null D first and then the formed head-cluster moves further to the external null D. In this way, the unvalued features of both null Ds are valued. Since the features of both null Ds need to be valued, the N-to-D movement must be all way up to the external D, as illustrated in (95b). Thus a bare noun has no way to stay in a RC. The pattern in (c) is impossible, where the external D is not licensed.

- (95) a. $[_{DP} \mathbf{N-D} \dots \langle N \rangle [_{CP} \dots] \dots]$ (EHRC: licensing the null D by N-to-D Movement)
 b. $[_{DP} \mathbf{N-D} [_{CP} \dots [_{HEAD} \langle N \rangle] \dots]]$ (EHRC: licensing the null D by N-to-D Movement)
 c. $*[_{DP} \mathbf{D} [_{CP} [_{PCN} N] [_{CODA} \dots]]]$ (unacceptable ECC: the null D is not licensed)

In this analysis, it is the feature valuation of the external null D that forces a bare noun Head to be externalized. This accounts for the fact that PCNs, which are Heads of IHRCs, cannot be bare. We thus have an answer to question <iii> listed in the introduction section.

8. Summary

This paper has presented a novel analysis of existential coda constructions in Chinese, claiming that a PCN and a coda form an IHRC, which is contained in the internal argument of the matrix verb. Since Chinese has neither article nor case marker to mark a nominal as containing an IHRC, my argumentation started with the constituency issue. Facts of coordination, binding, the proform *ye shi* ‘also be’, and the topic-comment adjacency relation between a PCN and a coda, all support the constituency grouping a PCN and coda into a clause. ECCs have been shown to exhibit a series of properties of RC constructions. Importantly, they pattern with IHRC constructions in the following aspects: the absence of any D-element that rejects weak indefinite readings, the scope of modification, the distinction from non-restrictive relative clause constructions, and the Head status of the left-edge elements.

The three questions posted in section 1 are answered as follows.

<i> What is the syntactic relation between a coda and the rest of an ECC? I propose that the internal argument of an ECC is a nominal headed by a null D, the Spec of the D is a silent E-type pronoun, and the complement of the D is a CP. In this CP, the PCN is a topic and the coda is a comment. The PCN is also the antecedent of the pronoun.

<ii> Why may a PCN not have any D-element that rejects weak indefinite readings? This is a property of IHRC Heads at the RC-internal topic position, and also a property of the antecedent of the

pronoun in a donkey sentence.

<iii> Why may a PCN not be a bare noun? The constraint is explained by the external null D licensing via N-to-D movement. The movement forces a bare noun to be out of a RC.

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