

Prenominal Complementizers and the Derivation of Complex NPs in Japanese and Korean¹

1. Introduction

Relative clauses in adult Japanese and Korean lack overt complementizers in the position between the modifying clause and the head noun. Patterns with a complementizer-like element occur in early child speech in both languages (Kim 1987, Murasugi 1991), but are ruled out in adult grammar:

- (1) [gohan tabe-teruno butasan] (Nagisa 3;2, Murasugi 1991: 14)
meal eating-is NO piggie
'the piggie that is eating dinner'
- (2) [Acessi otopai thanun ke soli] ya. (Polam 2;3, Kim 1987: 20)
man motorbike ride KES sound is
'It's the sound of a man riding a motorbike'

In fact, however, certain complex NP structures with a functional element between the embedded clause and the head noun are attested throughout the history of Japanese. Until Late Middle Japanese, these occur mostly with the particle *ga*, normally identified as a genitive.

- (3) [puku kaze no miye-nu ga gotoku] (*Man'yōshū* 15.3625)
blow wind NO visible-not GA like
'like not seeing the blowing wind'
- (4) [wagimokwo ni mise-mu ga tame] ni (*Man'yōshū* 19.4222)
my.beloved to show-CONJ GA sake COP
'in order to show (*pro* = colored leaves) to my beloved'

In modern Japanese, similar examples with the particle *no* have been discussed in the linguistic literature.

- (5) [Ti no tunagatta oya o omou no kookoo] to wa tigatte iru.
blood GEN linked parent ACC think NO filial.piety with TOP differing is
'It differs from the filial piety where one thinks of a parent with whom is linked by blood.' (Soga and Fujimura 1978: 41)
- (6) [kanarazu katu no sinnen]
definitely win NO conviction
'the conviction that one will definitely win'
(Soga and Fujimura 1978: 41)

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The pattern with *no* begins to appear in the second half of LMJ (Kobayashi 1959), in fact antedating the period when *no* begins to function as a verb-selected complementizer (Wrona, forthcoming).² We argue that the chronology is not an accident: the patterns in (3-7) are best explained by analyzing *ga* and *no* as complementizers. The focus of this paper is to provide an explanation for why complementizers are permitted in (3-6), but not in (1-2) in the adult grammars of Japanese and Korean.

In analyzing the distribution of the S Comp NP pattern across different periods of Japanese and Korean, a consistent pattern emerges: S Comp NP is permitted when the relative clause is gapless; that is, when the clausal modifier of the head NP does not contain a gap interpreted as coreferent with the head. This generalization is captured by the constraint in (7):

- (7) Prehead complex NP structures containing a complementizer are permitted only when the prenominal clause does not contain a gap coreferent with the head.

In section three of the paper we revise (7) in a slightly more restrictive way, but it will serve as a point of departure for the discussion in the next two sections, where we provide evidence from earlier and contemporary Japanese that only gapless complex NPs allow complementizers.

(7) should not be interpreted to mean that complementizers are freely permitted in gapless complex NPs. Contemporary adult Korean has no patterns corresponding to (5-6), and in Japanese, as well, many speakers reject examples like (5-6), although others accept them. In addition to (7), language- and construction-specific constraints may rule out even gapless complex NPs with complementizers. The point is that (7) appears to represent a more powerful, general constraint, observable at all periods of both languages, even when the inventory of S Comp NP structures is relatively rich.

This paper is organized as follows. Section 2 argues for the S Comp NP analysis of examples like (3-4) and discusses the distribution of this pattern in earlier Japanese. Section 3 reviews the status of the S Comp NP pattern in modern Japanese and presents our explanation of why the pattern is restricted to gapless complex NPs. Section 4 discusses consequences of the analysis for crosslinguistic comparison.

2. The pattern [S Comp NP] in earlier Japanese

The construction illustrated in (3-4) above with a particle between an RC and its head is found through pre-modern Japanese. In OJ, there are not many phonographically attested examples, although reading tradition of logographically written text posits quite a few more. In EMJ and early LMJ, the construction was used in small, but consistent numbers. (8-9) give some examples. We are not now in the position of being able to present a full detailed diachronic account of the distribution and development of this construction, but the following tendencies are noticeable: (i) in OJ, EMJ and early LMJ the construction – although never frequent – is clearly found in more examples than can be attributed to error; (ii) in these periods, it is used more with *ga* and less with *no* as the particle between the clause and the noun; (iii) it is restricted to gapless complex NPs.

EMJ

- (8) [kabakari no yononaka o omowi-sute-mu no kokoro]
 this COP.ADN world ACC think-discard- CONJ.ADN NO intention
 ‘The intention of abandoning this world’ (*Genji monogatari*, c. 1000)

² See Nishi 2006 for discussion of the earliest examples of *no* as a verb-selected complementizer.

Early LMJ

- (9) [tokoro o omoi-sadame-zaru] **ga** yue] ni
place ACC think-decide-NEG.ADN GA reason COP.INF
'Because I hadn't settled on a (permanent) place' (*Hôjôki*, 1212)

From the second half of LMJ, two changes took place: the frequency in use of this construction increased, and *no* came to be used regularly instead of *ga*. (10) is one such example. In his grammar *Arte da lingoa de Iapam* which is from the beginning of the 17th century (published 1604-8) and which represents the very end of LMJ, Rodriguez describes this use with nouns such as “*yoxi*” (*yosi*) ‘manner, way’, *aida* ‘while’, “*yuye*” (*yue*) ‘reason’, “*tocoro*” (*tokoro*) ‘place’, although saying it was characteristic of written language, and gives examples such as (11) (*Arte* p. 506).

Late LMJ

- (10) [kuru o tanomu **no** karinotamadusa]
come ACC ask NO letter
'The letter asking me to come' (*Shingoshûi wakashû*, 1384)

- (11) “*xitagô no tocoroni*”
[sitagô **no** tokoro] ni
follow.NONPAST NO place COP.INF
'When following' (*Arte da lingoa de Iapam*, 1604-8)

Both of these changes in use are traditionally ascribed to a new *kanbun-kundoku* practice in the Zhuzi (朱子) school of Confucianism, in which the Chinese genitive particle *zhi* 之 was rendered as *no* in these constructions where the Japanese syntax does not require it (see Kobayashi 1959). An early precursor of this view was held by Motoori Norinaga, who also denounced such constructions as incorrect and uncharacteristic of the Japanese language (cf. Kobayashi 1959). The idea is that use of the construction would have spread from the use in this school of *kanbun-kundoku* into common (written) language. However, as we saw above, the construction has been in use through all of premodern Japanese, so that it is more likely that it spread through late LMJ in response to the merger of the distinction between the Conclusive (*shûshikei*) and Adnominal (*rentaikei*) verb forms which took place during that time, tentatively or partially filling the syntactic gap left by that merger. As noted above, this use predates other uses of *no* as a complementizer. It has been argued persuasively by Wrona (forthcoming) that the uses of *no* as what is standardly described as a nominalizer - in formal syntactic terms, a verb-selected complementizer - were in fact generalized from this construction.³ In any case, for this paper, the main point to notice is that in all examples from the various stages of pre-modern Japanese, the construction was only used with gapless complex NPs.

³ On that account, the origin of the use of *no* as a verb-selected complementizer may further be thought to be similar to the origin of pronominal use of *no* after nouns (e.g. *Hanako no wa* ‘Hanako’s’), viz. deletion or omission of the head in a complex NP:

- (i) NP no NP => NP no (NP) > NP no
S no NP => S no (NP) > S no

This use of *ga* or *no* to connect a clause to a noun is quite different from the superficially similar use of *tokoro no* between a RC and its head noun, e.g. (12) from the *Taketori monogatari*. The construction with *tokoro no* clearly originates in *kanbun-kundoku* renditions of the classical Chinese pattern *suo V zhi NP* (所 V 之 NP) 'NP which pro Vs'. The original Chinese pattern was restricted to gapped relatives with a head extracted from within the verb phrase (Aldridge 2009). The Japanese calqued construction seems only to have been used in written language, and, like its Chinese antecedent but unlike the [S no NP] pattern, is not restricted to gapless complex NPs. In NJ this usage was revived in *kanbun-kundoku*-like renditions of Dutch and it is still in use in written language.⁴

- (12) [tatekome-taru tokoro no to]
 close-STAT.ADN TOKORO NO door
 'The door which had been closed' (*Taketori monogatari*, mid 10th century)

3. S Comp NP in contemporary Japanese

3.1 The data

Soga and Fujimura (1978) and Kitagawa and Ross (1982) present a number of examples of the S *no* NP pattern on the model of (5-6) in modern Japanese:

- (14) [sekai o odorokasu **no** enzetu] (Soga and Fujimura 1978: 45)
 world ACC surprise NO speech
 'the speech that (reportedly) surprised the world'

- (15) [aisuru **no** amari] (Soga and Fujimura 1978: 41)
 love NO excess
 '(due to) an excess of love'

Some of these examples have textual sources. For example, (16) originates in the third stanza of the famous war song 'Katô *Hayabusa* Sentôtai' (Katô *Hayabusa* Fighter Squadron, lyrics by Tanaka Rinpei, 1940):

- (16) Sugisi ikuta no kuutyuusen zyuudan unaru sono naka de
 passed many GEN dogfight bullets growl that midst in

 Kanarazu katu **no** sinnen to sina-ba tomo ni to danketu no
 unfailingly win NO conviction and die-if together COMP solidarity GEN

 Kokoro de nigiru soozyuukan
 spirit with grip control stick

⁴ Note finally that especially in OJ, there are examples of particles between a RC and its head such as (i). Such particles are usually glossed as 'emphatic', but whether that is so or not, it is unlikely that *ya* – which normally functions as a [-wh, +Q] focus particle – can be said to function as a complementizer here, like *i*, *si*, *yo*, which also appear between S and the NP it modifies in complex NPs.

- (i) [wotome no nasu] ya ita-two
 maiden GEN sleep.HON YA plank-door
 'The door behind which the maiden is sleeping.' (KS)

‘Many dogfights gone by, in the midst of whining bullets, the control stick gripped with the conviction that we will unfailingly triumph and a spirit of unity whereby if we die, we die together’.

Soga and Fujimura and Kitagawa and Ross make two observations about the pattern: that it has a “somewhat antiquated flavor” and that the clausal modifier “functions like a quoted statement” (Kitagawa 2005: 1248, note 4). The first characterization applies accurately to the lyrics in (16), since this song is written loosely in classical Japanese (CJ; *bungotai*). Classical Japanese, a written language preserved long after its disparate oral sources ceased to be spoken, appears to have taken over the LMJ [S *no* NP] pattern discussed in the preceding section. The pattern is extremely productive in Meiji period (1867-1910) CJ texts, as Soga and Fukimura note (1978: 42). For example, a two-page essay written in CJ by the Christian intellectual Uchimura Kanzô *Nisshin sensô no gi* (‘The righteousness of the Sino-Japanese War’, 1884) contains the following examples.

- (17)a. [hooninsu beki **no** kyooguu] to [kansyoosu beki **no** kyooguu]
 leave.alone should NO circumstances and interfere should NOcircumstances
 ‘circumstances where one should leave things alone and circumstances where one should interfere’
- b. [tikyuumen ni seigi o taturu **no** mokuteki] o motte
 earth.face on justice ACC establishNO purpose ACC holding
 ‘with the purpose of establishing justice on the face of the earth’
- c. [kono huzitu husin no kokumin ni taisuru **no** miti]
 this disloyal untrustworthy COP people toward NO way
 ‘the approach toward this disloyal and untrustworthy people’
- d. [tekketu o motte seigi o motomuru **no** miti]
 iron+blood ACC holding justice ACC seek NO way
 ‘the way of seeking justice with blood and steel’
- e. [hito no seigi o akiraka ni suru **no** riyuu]
 people GEN righteousness ACC clear COP make NO reason
 ‘the reason that people make righteousness clear’
- f. Ima wa [Nihon ga sekai ni tukusu **no** toki] nari.
 Now TOP Japan NOM world for serve NO time is
 ‘Now is the time for Japan to put itself in the service of the world.’
- g. mosi [gaizin o azamuku **no** Sinazin no henheki
 If foreigner ACC deceive NO Chinese GEN vice
 no mottomo itizirusiki rei] o min to hose-ba
 GEN most prominent example ACC see COMP want-if
 ‘if one wants to see the most conspicuous example of the Chinese proclivity for deceiving foreigners.’

As in the OJ and MJ examples we saw in section 2, all of the examples in (17) involve gapless complex NPs: purpose/reason NPs in (b) and (e), time/location NPs in (a) and (f),

manner NPs in (c-d). Example (g) on first glance looks like a gapped relative modifying *Sinazin* ‘Chinese people’, but in fact the example means ‘the proclivity of the Chinese people for deceiving foreigners’, not ‘#the proclivity of Chinese people who deceive foreigners’.

None of the examples above appear to involve quotations, and Uchimura’s use of *no* before non-extracted head nouns appears to be quite regular.

In the first decade of the 20th century, Uchimura begins to publish in modern (Tokyo) Japanese (more precisely, in *genbun itchi* style), with some admixture of CJ elements. Interestingly, his use of the S *no* NP pattern persists, in examples like the following.

- (18) a. ...[bunpoo to kagaku ni made uttaete ronkyuusuru **no** kati] ga aru ka.
 grammar and science to appeal examine NO value NOM is Q
 ‘Is there value in examining [these matters] by appealing to grammar and science?’
(Kuristo wa ikanaru imi ni oite banbutsu no tukurinusi naru ka (Seisho to kagaku Johane den 1.3 ‘In what sense is Christ the creator of all things?’ (The Bible and Science: John 1.3), 1909/07)
- b. Kare ni [inori o kiku **no** mimi] ga aru. [Megumi o hodokosu **no** te] ga aru.
 Him to prayer ACC hear NO earNOM are blessings ACC bestow NO hand NOM are
 ‘He has ears to hear prayers. (He has) hands to bestow blessings with.’
Yujin tosite no kami ‘God as a friend’ (1906, published in Seishô no kenkyû 1909)
- c. [Yo ni koosai o motomuru **no** hituyoo] wa hitotu mo nai.
 World with intercourse ACC seek NO need TOP one even not.exist
 ‘There is no need at all to seek interaction with the world.’
Dokusin no shôsan ‘In praise of solitude’ (published in Seishô no kenkyû 1909)

(18a-b) display the same gapless S *no* NP pattern that Uchimura uses in his CJ writing. Example (b) is once again telling: the modifying clause appears gapped, but the gap is not coreferent with the head NPs ‘ear’ and ‘hand’: the complex NPs refer to ‘ears (for *pro*) to hear prayers (with)’ and ‘hands (for *pro*) to bestow blessing (with)’, not ‘ears which hear prayers and hands which bestow blessings’.

Speakers of contemporary Japanese do not accept (18a-c), and many speakers also reject Soga and Fujimura’s data. However it is not difficult to find actually attested textual data like the following:

- (19) a. ...seisan nooka ga sitekisita ‘[ume santi ga hattensuru **no** tame] no kadai’
 producer farmer NOM brought.up plum orchard NOM develop NO sake GEN topic
 ‘... “topics for the sake of the development of plum-producing areas” brought up by producer farmers.’
http://www.pref.wakayama.lg.jp/prefg/070109/news/001/news100_5.html
- b. Tookikan wa, [syokken ni yori tooki o zikoosuru **no** koto] ga
 registrar.of.deeds TOP license based.onregistration ACC carry.out NO fact NOM
 dekiru koto ni natte imasu ga...’
 can.do fact COP becoming is but
 ‘It is the case that registrars of deed are enabled on the basis of their professional licenses to carry out registration, but...’
www.chosashi.or.jp/docs/whats.html

- c. Watasitati wa kuraianto to no komyunikeesyon o toosite, [panhuretto o we TOP client with GEN communication through pamphlet ACC seisakusuru **no** mokuteki] o horisage, sono kinoo o saidaigen hakki produce NO objective ACC dig.out that function ACC utmost bring.out
- dekiru dezain o tukuriagemasu.
can design ACC create
'Through our communication with the client, we clarify the objectives for producing the pamphlet, and create a design that optimally brings out its function'
www.evolution-design.jp
- d. Hazimemasite, Baramama-san. FP zimusyo maneesumisu no Yosino desu. Pleased.to.meet.you, Rosemama-Ms. FP office moneysmith COP Yoshino is
- Mazume o hiku no wa, Baramama-san no siboo hoken desu.
first eye ACC draw GEN TOP Rosemama-Ms. GEN death insurance is
- Moo itido, [hoken ni kanyuusuru **no** mokuteki] o kangaemasyoo again once insurance in join NO objective ACC lets.consider
'Pleased to meet you, Ms. Rosemama. This is Yoshino, moneysmith from the FP office. What draws my attention first of all is your casualty insurance. Let's think once more about your objective in taking out the insurance policy.'
www.profile.allabout.co.jp/ask/qa_detail.php/14589
- e. ...[okyakusan no nayami ni saizensen de mukiai kaiketu suru **no** miti] o mezasu customer GEN worries to front.line on address solve NO way ACC aim
'...(we) aim for an approach that addresses and solves customers' worries on the front line'
www.job.mynavi.jp/10/pc/search/corp80026/employment.html
- f. [Toriwake 'sizen sozai' o kyootyosuru **no** riyuu] wa koko ni arimasu. in.particular natural materials ACC insist.on NO reason TOP here in exists
'In particular, here is the reason why we insist on "natural materials".'
www.kenchiku-support.jp/reform.html

As in the CJ and earlier Japanese data, the complex NPs in (a-f) are gapless, and headed by the same inventory of purpose (a, c, d), reason (f), manner (e) nouns we saw in earlier data. Although again, native speakers have varying reactions to these data, many of them occur in carefully monitored written contexts: (a) in an official website of Wakayama Prefecture, (b) on the official website of the Japan Association of Land Surveyors, (c) on the site of a design company, (f) on the site of a home repair company. None of these examples have the flavor of quotation, although "S no NP" is indeed the pattern used when S is a direct quotation, as in the following example:

- (20) ['zettai itiban suki na hito to kekkonsuru!' **no** sengen]
absolutelymost like COP person to marry NOdeclaration
'the declaration that 'I'll marry the person I like best!'
www.blog.kekkon-j.com/kawaii/page/2006/10/post_8.html

3.2 The gapless complex NP restriction and the derivation of relative clauses

On first inspection, example (14), cited from Soga and Fujimura (1978), appears to counterexemplify the generalization that prehead clausal modifiers with complementizers. Soga and Fujimura contrast the example in (14), repeated as (21b) below, with the same complex NP excluding *no*:

- (21) a. [sekai o odorokasu enzetu] (Soga and Fujimura 1978)
world acc surprise speech
'a/the speech that surprised the world'
- b. [sekai o odorokasu no enzetu] (Soga and Fujimura 1978) = (14)
world acc surprise NO speech
'the speech that (reportedly) surprised the world'

Soga and Fujimura observe that the interpretation of the two sentences is different: "In [(a)] the speech actually surprises the world, but in [(b)] the modifying sentence is the content of the speech or the claim made about the speech, and the world may not be surprised about it" (1978: 45). In other words, (a) is truly a relative clause whose head binds subject position in the relative, but (b) has a distinct structure. As has been long noted, complex NP gaps in pro-drop languages may in some instances be empty pronouns (Perlmutter 1974, Saito 1985). A simple test for identifying such cases of resumptive *pro* is to determine whether an overt resumptive pronoun is possible in the same position (Kaplan and Whitman 1995). When we apply this test to (21), we notice a difference:

- (22) a. *[sore_i ga sekai o odorokasu enzetu_i]
i that NOM world ACC surprise speech
'a/the speech that surprised the world'
- b.(?)?[sore_i ga sekai o odorokasu no enzetu_i]
that NOM world ACC surprise NO speech
'the speech that (reportedly) surprised the world'
- c. [pro_i ga sekai o odorokasu no enzetu_j]
that NOM world ACC surprise NO speech
'the speech where that surprised the world'
- d. [sono gensetu ga sekai o odorokasu no enzetu]
that statement NOM world ACC surprise NO speech
'the speech where that statement surprised the world'

As noted above, Soga and Fujimura's [S *no* NP] pattern in (14) is judged substandard across the board by many speakers. But in contrast with the normal [S NP] relative clause pattern in (22a), where the overt resumptive subject pronoun results in complete unacceptability, the overt resumptive pronoun in (b) results in little degradation (none for some speakers) from Soga and Fujimura's original example (14). This contrast suggests that (14) is only a counterexample to the generalization in (7) on a certain interpretation of the term "gap". The gap in (14) is an empty resumptive pronoun, as represented in (22c). On this analysis, (14) has the same basic status as (22d): a noun complement construction with complementizer *no*. The only difference is that the subject in (14=22c) happens to be a pronoun, which is

coreferent with the head noun of the complex NP.

This conclusion motivates the following modification of (7):

- (25) The Nonextraction Constraint on Head Final Complex NPs
Prehead complex NP structures containing a complementizer are permitted only when the prenominal clause does not contain a trace of the head.

(25) may at first appear like a rather minor modification of (7), but in fact it has major consequences for the analysis of prehead relative clauses. It follows in a simple way from the account of prehead relatives in Kayne (1994). Kayne applies the head extraction hypothesis of Vergnaud (1974) to derive prehead relative clauses in two steps.⁵ First, the head is extracted and moved into the CP projection. Next the IP containing the trace of the extracted head is moved around CP into the DP projection:

- (26) [DP [CP [IP enzetu sekai o odorokasu]]] ->
speech world ACC surprise

[DP [CP enzetu [IP t_{enzetu} sekai o odorokasu]]] ->
speech world ACC surprise

[DP [IP t_{enzetu} sekai o odorokasu] [CP enzetu t_{IP}]]
world ACC surprise speech

On this derivation, prehead relatives do not contain complementizers because they result from remnant movement of the relative IP after the head has been moved into the CP projection. When no extraction of the head occurs, however, the surface order is derivable by movement of the entire CP, including the complementizer, (27).⁶

- (27) [DP enzetu [CP [IP sore ga sekai o odorokasu] no]] ->
speech that NOM world ACC surprise COMP

[DP [CP [IP sore ga sekai o odorokasu] no] enzetu]
that NOM world ACC surprise COMP speech

The resultant prediction is that complementizers are possible in prehead complex NPs just in those cases where they are not derived by extraction of the head.

4. Cross-linguistic Perspectives

4.1 [S particle NP] in earlier Korean

As noted in section 1, Modern adult Korean provides no evidence for a counterpart to the Japanese [S *no* NP] structure. But Nam (1996, 2007) presents EMK examples of genitive

⁵To our knowledge, the first application of Vergnaud's head extraction analysis of prehead relative clauses is in Kang's (1985) analysis of Korean. Murasugi (2000a, b) develops an antisymmetry analysis of Japanese prehead relatives, but does not assume head extraction.

⁶In this paper we take no position regarding the derivation of the clause-final position of the complementizer. In a strict application of antisymmetry theory, clause final complementizers are derived by movement of IP into the specifier of C (or a higher projection). Our argument is consistent with this approach, or one in which phrase-final heads are base-generated (e.g. Fukui and Takano 1998).

particle *-oy/uy* intervening between the adnominal clause and the head noun in a complex NP.

- (28) [KWUKILA [TUNG=?ko] taho-n oy MYWO UMSENG]
cuckoo etc. resemble-ADN GEN strange voice
'a strange voice of something resembling a cuckoo' (*Hwaôm-gyông* 18, 4-7; reading and translation based on Nam 2007: 2)

The examples provided by Nam come from kugyōl texts of the 11th-13th centuries; like their Japanese kanbun kundoku counterparts, these texts are based on Chinese originals. But as in Japanese, the pattern [S *oy* NP] is not the normal way to render a complex NP: normally, as in Japanese, the adnominal form of the verb in *-(u/o)n* or *-(u/o)l* modifies the NP directly, with no intervening particle. The kugyōl data are too sparse to draw clear conclusions about the status of the modifying clause, but on the interpretation provided by Nam, 'strange voice' is not directly related to the gap in the modifying clause. Instead, the adnominal clause is interpreted as a headless relative with a property interpretation, 'something resembling a cuckoo'.

The genitive particle *-oy/-uy* never develops into a complementizer in Korean. This may be related to the fact that the adnominal form of verbs and adjectives is specialized in a purely noun-modifying function from LMK on: the exact opposite of the development of the adnominal in Japanese. But the EMK data suggest that even in the stage prior to a genitive > complementizer reanalysis, prehead modifying clauses are restricted to a structure where the head is not directly extracted from the clause.

4.2 Chinese

The focus of Kitagawa and Ross's (1982) paper is the syntactic contrast between Japanese and Chinese complex NPs. Whereas the Japanese [S *no* NP] pattern is restricted by what we have suggested is the universal constraint in (25), Mandarin complex NPs of all types appear with the particle *de* between the clause and the NP head.

- (29) [nǐ mǎi de shū]
you buy DE book
'the book that you bought'

Among other functions, *de* also appears as a genitive particle, suggesting a superficial resemblance with Japanese *no*.

- (30) [nǐ de shū]
you DE book
'your book'

The categorial status of *de* remains a vexed issue.⁷ Leading proposals include Simpson and Wu's (2002) analysis of *de* as a determiner, and den Dikken and Singhapreecha's analysis of *de* as a 'linker'. Both of these analyses have in common the claim that *de* originates outside the clausal projection in a complex NP, in a position c-commanding the nominal head. They are thus fully compatible with a head extraction analysis of relative clauses as in (27):

⁷ An excellent review of the issues surrounding the categorial status of *de* is provided by Paul (2007). Paul points out many of the weaknesses of current accounts of this morpheme. Paul's conclusion, that *de* is a complementizer, is, however, not compatible with our conclusions in this paper.

(31) [DP de [CP [IP nǐ mǎi shū]]] ->
 DE you buy book

[DP de [CP shū [IP nǐ mǎi t_{shu}]]] ->
 DE book you buy

[DP [IP nǐ mǎi t_{shu}] de [CP shū t_{IP} C]]
 you buy DE book

The difference between the Chinese and Japanese complex NP patterns is, then, that while *no* in the pattern [S *no* NP] is a complementizer, *de* in the superficially similar Chinese pattern is not.

5. Conclusion

We have argued that complementizers in prehead complex NPs are licit exactly when the head has not been extracted from the modifying clause. This explains why patterns like (3-4) and (5-6) are restricted to gapless complex NPs. The apparent gap in examples like (14) is in fact a null pronoun, explaining why overt pronouns coreferent with the head are permitted with little or no degradation in *no*-relatives like (22b). We captured this generalization with (25), the Nonextraction Constraint on Head Final Complex NPs, and showed how this constraint can be derived from the head extraction analysis of relative clauses proposed by Vergnaud and Kayne.

The typological predictions of the Nonextraction Constraint on Head Final Complex NPs are given in (32):

- (32) a. ‘Linker’-like morphemes between prehead clausal modifiers and the nominal head can be complementizers only when the head has not been extracted from the clause.
- b. Extraction (movement) occurs in prehead relatives, but only when the prehead modifying clause is smaller than CP.

More generally these predictions, and the distribution of the [S *no/ga* N] pattern studied in this paper have consequences for the view that complex NPs in Japanese and similar languages are structurally undifferentiated (Comrie 1996) and do not involve movement-type gaps (Matsumoto 1997, Murasugi 2000a, b).

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