THE PREHEAD RELATIVE CLAUSE PROBLEM

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1 Background

In a series of papers, Comrie (1996, 1998, 2010) has argued for the existence of a class of languages where all complex NPs belong to a single structural pattern. The point of departure for Comrie's claim is Matsumoto's (1997) work on Japanese. Matsumoto and Comrie point out that the three complex NP patterns in (1-3) have the same overt form in Japanese.

(1) **Relative clauses**
[[Taroo ga yaku] sakana]
Taroo NOM broil fish
'the fish that Taroo broils'

(2) **Propositional attitude noun complements (PANCs)**
[[Taroo ga sakana o yaita] syooko]
Taroo NOM fish ACC broiled proof
'the evidence that Taroo broiled fish'

(3) **Perception noun complements (PNCs)**
[[Taroo ga sakana o yaku] nioi]
Taroo NOM fish NOM broil smell
'the smell of Taroo broiling fish'

Matsumoto and Comrie group all of (1-3) into a single class of **noun modifying constructions**. They point out that all three are formally identical: they involve the same word order, the same form of the embedded predicate, and no additional material, such as a relative pronoun, in the relative clause pattern (1). While the relative clause in (1) contains a gap, Comrie argues that this gap is nondistinct from the gap associated with pro-drop, or NP ellipsis. Pro-drop or NP ellipsis with a discourse or pragmatic antecedent is also possible in the noun complement

constructions (2) and (3). If we analyze unpronounced arguments in RCs as resulting from pro-drop or NP ellipsis, Comrie suggests, presence of a gap does not distinguish the three constructions. I will refer to the hypothesis that the three patterns in (3) are structurally identical as the unified noun modifying construction hypothesis (UNMCH).

The objective of this paper is to examine two specific claims of the UNMCH: first, that the gap in relative clauses is indistinct from the gap associated with pro-drop, and second, the claim that RCs and the two types of noun complement constructions (NCCs) are structurally identical. I focus on Japanese and Korean, because these are the languages where the RC gap issue in particular has been debated the most intensively.

The structure of the paper is as follows. Section 2 examines the issue of RC gaps. Section 3 looks at the issue of whether RCs and NCCs have the same structure. Section 4 discusses comparative evidence and concludes the paper.

2 Relative clause gaps

2.1 Resumptive pronouns

One reason to think that RC gaps (henceforth, for simplicity, *e*) and the gaps associated with pro-drop or NP ellipsis (henceforth *pro*) are different is that they pattern differently with respect to alternation with overt pronouns. Kuno (1973) (cf. Haig 1976, Inoue 1976: 185) points out that in Japanese, overt resumptive pronouns are possible in certain contexts in relative clauses:

(4) [[zibun/kanozyo ga/*e* kawaigatte ita inu] ga sinde simatta] onna no ko
self/she NOM doting.on was dog NOM die end.up girl
'*the girl that the dog that self/she was doting on died'

(5) [[zibun/kanozyo no/*e* inu] ga sinde simatta] onna no ko
self/she GEN dog NOM die end.up girl
'*the girl that self's/her dog died'

(6) [[soko ni/*e*] sika ga deta] kawa
there at deer NOM emerged river
'*the river that a deer came out there'

Kuno and Haig point out that overt resumptive pronouns are disallowed in argument positions in singly embedded RCs. Examples are modified from Haig (1976):

(7) [[*zibun/*kanozyo ga/*e* inu o kawaigatte iru] onna no ko
self/she NOM dog ACC doting.on is girl
'the girl that *self/*she/*e* was doting on a dog'

(8) [[*zibun/*kare ga/*e* yoohuku o kite iru] sinsi
self/he GEN suit ACC wearing is gentleman
'the gentleman that *self/*he/*e* was wearing a suit'

In contrast, in matrix clauses *pro* alternates with overt pronouns and/or the long-distance anaphor *zibun* across a single clause boundary.

(9) Hanako$_i$ wa [zibun$_i$/?kanozyo$_i$ ga/*pro*$_i$ inu o kawaigatte ita to] itta.
Hanako TOP self/she NOM dog ACC doting.on was COMP said
'Hanako$_i$ said that self$_i$ /she$_i$ was doting on a dog.'

(10) Taroo$_i$ wa [zibun$_i$/?kare$_i$ ga/*pro*$_i$ yoohuku o kite ita to] itta.
Taro TOP self/he NOM suit ACC wearing was COMP said
'Taro$_i$ said that self$_i$ /he$_i$ was wearing a suit.'

Although some speakers dispreferr *kanozyo/kare* 'she/he' bound across a single clause boundary, these pronouns are perfectly acceptable in the corresponding object position:

(11) Taroo$_i$ wa [Hanako ga zibun$_i$/kare$_i$ o yuuhan ni sasotta to] itta.
Taro TOP Hanako NOM self/she ACC dinner to invited COMP said
'Taro$_i$ said that Hanako invited self$_i$ /her$_i$ to dinner.'

But overt resumptive pronouns are unacceptable in object position of singly embedded RCs:

(12) [Hanako ga *zibun/*kare/*e* o yuuhan ni sasotta] otoko no ko
Taroo NOM self/she ACC dinner to invited boy
'the boy that Hanako invited *him/*self/ to dinner.'

The UNMCH must explain why *pro* alternates with overt pronouns bound across a single clause boundary in matrix contexts, but not in relative clauses. Under the hypothesis that RC gaps result from extraction, this difference is readily explained. The positions where overt resumptive pronouns are allowed are familiar syntactic islands: a complex NP island in (4), a possessor (Left Branch Condition) island in (5), and a PP island in (6) (on the assumption that PPs are islands in languages that disallow P stranding). Perlmutter (1972) and Saito (1985) propose that Japanese has null resumptive pronouns. A resumptive pronoun, null or overt, is used when extraction would violate an island. This explains both the distribution of resumptive pronouns above, and the fact that Japanese appears to violate certain islands, when a null resumptive occurs. I modify this analysis with respect to *zibun* 'self' in Section 2.7.

2.2 Backwards pronominalization

Haig (1976: 365, fn. 3) cites Kuno for the observation that pro-drop requires that the referent of *pro* is recoverable from preceding context (examples are modified from Haig 1976).

(13) a. Taroo$_i$ ga Nihon ni kita toki, *pro*$_i$ ai ni itta.
Taroo NOM Japan to came when meet to went
'When Taro$_i$ came to Japan, (I) went to meet him$_i$.'

b. *pro$_i$ Nihon ni kita toki, Taroo$_i$ ni ai ni itta.
Japan to came when Taro to meet to went
'When he$_i$ came to Japan, (I) went to meet Taroo$_i$.'

Haig points out that RCs would violate this restriction, if RC gaps were *pro*.

2.3 Reconstruction effects with modifiers

Davis (2006) argues against a movement analysis of Japanese RCs on the basis of a test due to Bhatt (2002). Bhatt points out that RCs heads modified by items like *first* are ambiguous:

(14) the first book that John said that Tolstoy has written (Bhatt 2002: 57)
a.**High Reading**: the λ*x* first [book, *x*] [John said that Tolstoy had written *x*]
('the first book about which John said that Tolstoy had written it')
b. **Low Reading**: the λx [John said that [first [Tolstoy had written [book, x]]]]
('the x such that John said the first book Tolstoy had written was x')

Davis (2006: 5) points out that resumptive pronouns in English RCs disallow the "low" reading corresponding to (14b):

(15) This is the first book that they said if Shakespeare wrote it, then the Norton Anthology would need revising.
a. **High Reading**: the λx first [book, x] [they said if Shakespeare wrote x then the Norton Anthology would need to be revised]
('the first book about which they said if Shakespeare wrote it then the Norton Anthology would need to be revised')
b. **Low Reading (disallowed)**: the λx [they said that if [first [Shakespeare wrote [book, x] then the Norton Anthology would need to be revised]]]
('the x s.t. they said if x was the firstbook Shakespeare wrote then the Norton Anthology would need to be revised')

This fact is consistent with Bhatt's argument that the "low" reading of adjectival modifiers is derived by extraction of the head or its copy from the position of the gap in the RC. Davis (2006:3) then points out that the "low" reading is disallowed in the following Japanese RC:

(16) [[Misima ga kaita to] sensei ga osiete kureta] saisyo no hon
Mishima NOM wrote COMP teacher ACC teach gave first NOM book
'the first book that the teacher told us that Mishima wrote'
a. High Reading: the λx first [book, x] [teacher said that Mishima wrote x]
('the first book about which the teacher said that Mishima had written it')
b. Low Reading (disallowed): the λx [teacher said that [first [Mishima had written [book, x]]]]
('the x s.t. the teacher said the first book Mishima had written was x')

However the higher RC predicate in (16) *osiete kure-* 'teach/inform benefactive' is factive. Complements of factive predicates disallow the "low" reading in English as well:

(17) the first book that John informed Mary that Tolstoy wrote
   a. **High reading**: the λ*x* first [book, *x*] [John told Mary that Tolstoy wrote *x*]
   ('the first book in reference to which John told Mary that Tolstoy wrote it')
   b. **Low reading (disallowed)**: the λx [John told Mary that [first [Tolstoy had written [book, x]]]]
   ('the x such that John told Mary that the first book Tolstoy wrote was x')

When we replace the higher RC predicate with a nonfactive verb, the "low" reading becomes available in Japanese as well (I am indebted to Atsuro Tsubomoto for this example):

(18) Taroo ga nakusita to Hanako ga itteta saisyo no koi
   Taro NOM lost COMP Hanako NOM said first NOM love
   'the first love that Hanako said that Taro lost'
   a. **High reading**: the λ*x* first [love, *x*] [Hanako said that Taro *x*]
   ('the first love about which Hanako said that Taro lost it')
   b. **Low reading**: the λx [Hanako said that [first [Taro lost [love, x]]]]
   ('the x such that Hanako said that the first love Tolstoy wrote was x' > 'the x such that Hanako said that the first love Taro lost was x')

Insofar as the "low" reading is disallowed with resumptive pronouns and associated with extraction of the head or a copy of the head, the "low" interpretation of (18) is an argument against the *pro* analysis of the RC gap, and an argument for derivation of the gap by extraction.

2.4 Reconstruction (connectivity) effects with binding

Connectivity effects with anaphor binding have been used both to argue for (Ishii 1991, Hoshi 1995, 2004) and against (Hoji 1986, Murasugi 2000) an extraction account of Japanese RCs. The debate involves in part disputes over judgments, in part the issue of what counts as an anaphor in Japanese. Ishii (1991: 21 and Hoshi 2004: 6-7) argue that the anaphors *kanozyo zisin*/*kare zisin* 'herself/himself' allow a connectivity effect: in RC head position, they can be interpreted as they would be in the position of the gap. I refer the reader to the discussion by Ishii and Hoshi.

I focus here on contrasts involving the bound variable interpretation of *zibun* 'self' in Japanese. Sauerland (2000: 2) points out that the pronoun *his* in the RC head in English (19) must be reconstructed inside the position of the RC gap in order to receive a bound variable interpretation:

(19) The relative of his_i that $everybody_i$ likes *e* lives far away.

Under extraction accounts, reconstruction effects like these have been given a number of explanations. A very simple one is that the bound variable pronoun *his* is interpreted before it is extracted from the RC gap position under the scope of the quantifier.

The facts in Japanese are the same:

(20) [[Daremo$_i$ ga *e* suki na] zibun no sinseki wa tooku ni sunde iru.
everyone NOM like COP.ADNOM self GEN relative top faraway in living is
'The relative(s) of self$_i$ that everybody$_i$ likes *e* live(s) far away.

It is very hard to see how *zibun* 'self' in (20) could obtain a bound variable interpretation on a pronominal analysis of RC gaps. Even if we imagine a theory where null pronouns in Japanese are interpreted, under some mechanism, as having internal structure that might contain bound variable pronouns, *zibun* 'self' in the RC head position remains unbound, unless it is inside the position of the gap at some level of representation. Nor is it possible to analyze the bound variable interpretation of *zibun* as somehow due to a discourse referent, along the lines of Discourse Representation Theory (Heim 1982). This is because the bound variable reading disappears when the quantifier does not c-command the gap:

(21) [[e Daremo$_i$ o nagusameta] zibun$_i$ no sinseki wa tooku ni sunde iru.
everyone ACC comfort self GEN relative top faraway in living is.
'The relative(s) of self that that *e* comforted everybody live(s) far away.

Zibun 'self' in (21) can only be interpreted as coreferent with the speaker or some other discourse antecedent, not as a bound variable under the scope of *daremo* 'everyone'.

2.5 Reconstruction effects with quantifier scope

Bianchi (1999: 122-123) points out that in Italian relative clauses headed by an existentially quantified NP with a definite determiner allow a "narrow" scope reading, while their counterparts headed by an indefinite determiner do not:

(22) a. Ho telefonato a-i [due pazienti [che ogni medico visiterà domani]].
have.1S telephoned to-the two patients COMP all doctors visit.FUT tomorrow
'I phoned the two patients that every doctor will visit tomorrow.'
b. Ho telefonato a [due pazienti [che ogni medico visiterà domani]].
'I phoned two patients that every doctor will visit tomorrow.'

It has since been shown that this contrast obtains as well in English (Aoun & Li 2003) and Greek (Alexopoulou and Heycock 2002). However Hoshi (2004: 11-12) suggests that Japanese does not allow the narrow scope reading, that is, the reading where the speaker may call multiple pairs of patients:

(23) Watasi wa [[dono isya mo asita sindansuru koto ni natte iru]
I TOP every doctor even tomorrow examine COMP COP becoming is
hutari no kanzya ni denwasita.
two GEN patient to phoned
a. **Wide scope reading**: 'I phoned two patients that every doctor examined.'

b. **Narrow scope reading (disallowed)**: 'I phoned the two patients that every doctor examined (thus phoning multiple pairs).'

Hoshi (2004), assuming extraction, proposes an interesting account for the absence of the narrow (multiple pairs) reading in (20), which I will not detail here. But further investigation shows that the narrow reading is available in Japanese RCs. Note that in English RCs, the narrow reading is blocked when the RC subject is a partitive with a universal quantifier:

(24) I phoned the two patients that every one of the doctors will visit tomorrow.

Given the absence of overt determiners in Japanese, the possibility exists that something like this is going on in (23). We can rule out this possibility by using a bare quantifier in the RC subject position. When we do this, the low reading becomes possible (I am indebted to Yuko Yanagida for this observation and example):

(25) Watasi wa [[daremo ga asita sindansuru koto ni natte iru]
I TOP everyone NOM tomorrow examine COMP COP becoming is
hutari no kanzya ni denwasita.
two GEN patient to phoned
a. **Wide scope reading**: 'I phoned two patients that everyone is to examine tomorrow.'
b. **Narrow scope reading**: 'I phoned the two patients that everyone is to examine (thus phoning multiple pairs).'

Bianchi and Hoshi interpret the possibility of the low reading of the quantifier on the RC head as evidence for the so-called "raising" analysis of RCs, where part or all of the head is moved from the position of the gap to surface head position (cf. Vergnaud 1974, Kayne 1994), but alternative extraction analyses have been offered as well (Alexopoulou & Heycock 2002). In this paper I will not attempt to choose between these analyses. The important point is that it is unclear how *hutari* 'two' could obtain the narrow scope reading if the gap is occupied by a null pronoun.

2.6 Idiom chunks

A classic argument for extraction in relative clauses comes from idiom chunks such as (26):

(26) a. [The headway [that Mary made *e*]] was impressive.
b. *The headway was impressive.

Hoshi (2004: 11) observes that Japanese idioms such as *hozo o katameru* 'make up one's mind' (lit. 'harden one's navel') disallow relativization:

(27) *[[[kare ga hutatabi onazi ayamati o su mai to] katamete ita]
he NOM again same mistake ACC do NEG.HORT COMP hardening was
hozo]
navel

'(lit.) the navel that he had hardened to never commit the same mistake'

Hoshi presents an account of the lack of the idiom reading in (27) based on a modification of the raising analysis for Japanese. But further scrutiny shows that the idiom chunk argument is available for Japanese as well. It is well known that in English too, many (probably most) idioms do not allow relativization:

(28) a. [[the bucket [that Mary kicked] (literal meaning only)
b. [[the farm [that Mary bought] (literal meaning only.

The matter is complex, but extractable idiom chunks are NPs that are modifiable within the context of the idiom, typically by a degree modifier or intensifier:

(29). a. Mary made a lot of headway. (Mary made a lot of progress.)
b. Mary kicked the heavy bucket. (Literal meaning only.)
c. Mary bought the little farm. (Literal meaning only.)

Upon further inspection we find relativizable idiom chunks in Japanese. For example:

(30) a. X ni tate o tuku
DAT shield ACC pierce
'(lit.) pierce a shield to X'; (idiom) 'defy, rebel against X'
b. [[Itido, oya ni *e* tuita] tate] o sugosugoto tekkaisuru no mo puraido
once parent to pierce shield ACC meekly retract COMP too pride
ga yurus-anakatta.
NOM permit-not
'(Her) pride would not permit meekly retracting the defiance she had once shown against her parents either.' (Shiraisi Matsuko 2002, *Inochi moyasite: mishin wasai ni kaketa onna no chōsen*: 81).
c. Tate o sugosugoto tekkaisuru no mo puraido ga yurus-anakatta.
shield ACC meekly retract COMP too pride NOM permit-not
'(Her) pride would not permit meekly retracting (her) shield either.' (Literal meaning only).

As with (26), the idiom subpart *tate* 'shield' obtains its idiomatic meaning only inside the relative clause. Without the relative clause, as in (30c), the idiom reading is impossible.

A defender of the UNMCH might argue that the idiom interpretation in (30b) is provided by a null pronoun or elided NP coreferent with *tate* 'shield', although it is not clear exactly what the reference of *tate* in this case might be. But as expected in an idiom, *tate o tuku* 'defy, rebel against' cannot have a subpart replaced by a pronoun, null or overt:

(31) A: Hanako wa oya ni tate o tuita ne.
Hanako TOP parent to shield ACC too pierce CONF
'Hanako defied her parents, didn't she.'

B: #Hai, sore o/*pro* tuita ne.
Yes, that ACC pierced
'#Yes, she pierced (it)."

2.7 Islands

It was pointed out by Ross (1967) that Japanese RCs show island effects. Data like (4), however, introduced by Kuno (1973), have been widely interpreted as showing that Ross was wrong. I repeat (4) below as (32) in its gapped form:

(32) [[*e* kawaigatte ita inu] ga sinde simatta] onna no ko
doting.on was dog NOM die end.up girl
'*the girl that the dog that *t* was doting on died.'

But beginning with Inoue (1976) it has been pointed out that the range of contexts where islands can be violated in Japanese RCs is quite narrow. Inoue's basic generalization was that "double relativization" (relativization out of relative clauses) is limited to relativization of subjects out of subject RCs. This is stated as the Subject-out-of-Subject Generalization in (33):

(33) **The Subject-out-of-Subject (SOS) Generalization** (Inoue 1976: 177-178)
Relativization out of relative clauses is limited to subjects of subject relatives.

Inoue (1976) presents data like (34-35) in support of the SOS Generalization (see also Hasegawa 1981):

(34) *[Bill ga, [[e_1 e_2 kaita] hon_2] o yakusite iru] $gakusya_1$ (Inoue 1976: 178)
Bill NOM wrote book ACC translating is scholar
'*the $scholar_1$ that Bill is translating the $book_2$ that t_1 wrote t_2'

(35) *[[sono gakusya ga e_1 e_2 okutta] $syoten_1$] ga yaketa] hon_2 (Inoue 1976: 179)
that scholar NOM sent bookstore NOM burned book
'*the $book_1$ that the $bookstore_2$ that that scholar sent t_i t_2 burned down'

In the acceptable (32), relativization is of a subject out of a subject RC, while in the unacceptable (34) and (35) relativization is of a subject out of an object RC and an object out of a subject RC respectively.

Since Whitman (1976) it has been known that there are counterexamples to the part of the SOS Generalization that specifies that only subject relativization may violate complex NP islands:

(36) [[e_1 e_2 syuppansita] $kaisya_1$] ga toosansite simatta] hon_2
published company NOM going.bankrupt ended.up book
'*the $book_2$ that the $company_1$ that t_1 published t_2 ended up going bankrupt'

The overall pattern of island violations receives an explanation under the proposal of Sakai (1994) that so-called major subjects in Japanese can be a target for relativization. As is well known, Japanese is a language that has so-called Subjectivization (Kuno 1973) or Major Subject Constructions (MSCs). Under Sakai's analysis, the target of "double" relativization in (32) is not the subject of embedded RC, but the major subject:

(37) [e_1 [*pro*$_1$ kawaigatte ita inu] ga sinde simatta] onna no ko$_1$
doting.on was dog NOM die end.up girl
'*the girl that the dog that *t* was doting on died'

In the matrix counterpart of (32), a major subject is possible in exactly the position targeted by relativization:

(38) Sono ko$_1$ ga [[*pro*$_1$/zibun$_1$ ga kawaigatte ita] inu] ga sinde simatta.
that kid$_i$ NOM self NOM doting.on was dog NOM die end.up
'??It is that child$_1$ that the dog she$_1$ was doting on died.'

In other words, examples such as (32) are not island violations at all. They involve relativization from a major subject position. Shibatani (1978) shows that major subjects have subject properties, that is, they occupy an argument position. (Although there is no evidence that MSCs are biclausal, as the major subject in Japanese matrix MSCs generally receives a narrow focus interpretation, I will translate Japanese MSCs using English *it*-clefts.)
One important consequence of the MSC analysis is that apparent cases of resumptive *zibun* 'self' such as (4-6) now become straightforward instances of *zibun* bound by the major subject in the next clause up:

(39) [[e_1 [zibun$_1$ ga kawaigatte ita] inu] ga sinde simatta] onnano ko$_1$
self NOM doting.on was dog NOM die end.up girl
'*the girl that the dog that self/she was doting on died'

This result is desirable, as in general non-logophoric *zibun* must be bound by a higher subject.
As predicted, MSCs are not possible in the matrix counterparts of Inoue's (34-35):

(40) *Sono gakusya$_1$ ga Bill ga, [[*pro*$_1$ e_2 kaita] hon$_2$] o yakusite iru.
that scholar NOM Bill NOM wrote book ACC translating is
'??It is that scholar$_i$ that Bill is translating the book$_2$ that he$_i$ wrote t_2'

(41) *Sono hon$_1$ ga [[sono gakusya ga e_2 *pro*$_1$ okutta] syoten$_1$] ga yaketa]
that book NOM that scholar NOM sent bookstore NOM burned
'??It is that book$_1$ that the bookstore$_2$ that that scholar sent it$_i$ to t_2 burned down'

Also as predicted, an MSC is possible in the matrix counterpart of (36):

(42) Sono hon$_1$ ga [[e_2 *pro*$_1$ syuppansita kaisya$_2$] ga toosansite simatta.
that book NOM published company NOM going.bankrupt ended.up
'??It is that book$_1$ that the company$_2$ that t_1 published it$_2$ ended up going bankrupt.'

Comrie (1996: 1978) relies on Haig's (1996) argument that island effects in Japanese RCs are not syntactic. Haig cites a number of seeming counterexamples to the SOS Generalization, but neither he nor Comrie seem to have been aware of the proposal that relativization is possible from major subject position. All of Haig's counterexamples permit a source for relativization from a major subject outside the island. Two of these are cited below, showing just the double relativization portion of the example (a) and the corresponding MSC (b).

(43) a. [[[[e_1 e_2 tabeta] hito$_1$] ga minna sinde simatta] doku manzyuu$_2$].
ate person NOM Bill dying ended.up poison ricecake
'*the poison ricecakes$_1$ that the people$_2$ that t_2 ate t_1 ended up dying' (cf. Haig 1996:60)

b. Sono doku manzyuu$_2$ ga [[[e_1 *pro*$_2$ tabeta] hito$_1$] ga minna sinde simatta.
that poison ricecake NOM ate person NOM all dying ended.up
'??It is those poison ricecakes$_1$ that the people$_2$ that t_2 ate them$_2$ ended up dying.

(44) a. [[[[e_1 e_2 kawaigatte ita] hito$_1$] ga nakunatta] sono inu$_2$].
doting.on was person NOM died that dog
'*that dog$_1$ that the person$_2$ that t_2 doted on t$_1$ died' (cf. Haig 1996: 60)

b. Sono inu$_2$ ga [[e_1 *pro*$_2$ kawaigatte ita] hito$_1$] ga nakunatta.
that dog NOM doting.on was person NOM died
'??It is that dog$_1$ that the person$_2$ that t_2 doted on it$_2$ died.'

An MSC account of double relativization is also proposed for Korean by Han & Kim (2004), who point out that a similar proposal was made by Yang 1990. Han & Kim argue that apparent double relativization is actually extraction from major subject position outside the island, just as in Sakai's proposal for Japanese (see also Kim & Sells 2008, 2009). Thus in Korean as well, apparent relativization out of a relative clause (45a) is possible just when the corresponding MSC exists (b):

(45) a. [[[[e_1 e_2 ticainha-n] phyoci$_1$] ka tangsentoy-n] ku haksayng$_2$].
design-ADN cover NOM was.chosen-ADN that student
'*that student$_1$ that the cover$_2$ that t_1 designed t$_1$ was chosen' (Han & Kim 2004: 324)

b. Ku haksayng$_1$ I [[*pro*$_1$ e_2 ticainha-n] phyoci$_2$] ka tangsentoy-ess-ta.
that student NOM design-AND cover NOM is.chosen-PAST-DEC
'As for$_1$ that student$_2$ the cover that she$_1$ designed was chosen.'

Note that in contrast to the Japanese MSC examples we have seen, Han & Kim do not assign the Korean MSC (42b) a narrow focus reading. This reflects the fact that in Korean, in contrast to Japanese, nominative-marked subjects of individual-level matrix predicates do not require a focus reading.

Interestingly, the distribution of MSCs in Korean is more restricted than Japanese. Han & Kim, citing Kim (1990), point out that MSCs in Korean are unacceptable with activity verbs:

(46) *Ku ai ka kangaci ka cic-ess-ta.
that child NOM puppy NOM bark-PAST-DEC
'As for that child, the puppy barked.' (Han & Kim 2004: 325)

The corresponding RC is also unacceptable:

(47) *[[kangaci ka cic-nun] ai]
puppy NOM bark-AND child
'the child such that the puppy was barking'

In Japanese, the MSC corresponding to (46) is acceptable with a possessor raising reading:

(48) Sono ko ga inu ga hoe-te i-ru.
that child NOM dog NOM bark-ing is-NPAST
'It is that child whose dog barked.'

And as predicted, the corresponding RC is also acceptable:

(49) [[inu ga hoete iru] ko]
dog NOM barking is child
'the child whose dog is barking'

Hoshi (2004) points out the correspondence between the disallowed MSC pattern in (40) and its counterpart RC in (34), where the major subject is related to a bound variable pronoun inside an object RC. Han & Kim show that the same correspondence holds in Korean:

(50) *Sinsa$_1$ ka wuli pan haksayng i [*pro*$_1$ t_2 ip-un] yangpok$_2$] ul po-ass-ta.
gentleman NOM our class student NOM wear-AND suit ACC see-PAST-DEC
'As for the gentleman$_1$, a student in our class saw the suit he$_1$ was wearing.'
(Modified from Han & Kim 2004: 333)

(51) *[wuli pang haksaying I [e_1 e_2 ip-un] yangpok$_2$] ul po-n] sinsa$_1$.
our class student NOM wear-ADN suit ACC see-AND gentleman
'the gentleman$_1$ that a student in our class saw the suit$_2$ that he$_1$ was wearing t_2.'
(Han & Kim 2004: 332)

This property of MSCs is undoubtedly related to Kuno's (1973) observation that subjectivization from within object position is generally blocked. The possessor raising subtype of MSCs is ruled out in both languages when the possessor is related to the object:

(52) *Sinsa$_1$ ka wuli pan haksayng I [*pro*$_1$ yangpok] ul po-ass-ta.(Korean)
gentleman NOM our class student NOM suit ACC see-PAST-DEC
'As for the gentleman$_1$, a student in our class saw his$_1$ suit.'
(Modified from Han & Kim 2004: 333)

(53) *Sinsi$_1$ ga Usagi-gumi no seito ga [*pro*$_1$ yoohuku] o mi-ta. (Japanese)
gentleman NOM bunny-class GEN student NOM suit ACC see-PAST-DEC
'It is the gentleman$_1$ that pupil in the Bunny Class saw his$_1$ suit.'

This property of MSCs accounts for the part of the SOC which bans relativization out of non-subject RCs. As we have seen in this section, the part of the SOC that rules out relativization of non-subjects from subject RCs is too strong. This pattern of relativization is possible exactly when a corresponding MSC is possible.

A diehard defender of the UNMCH might argue that the MSC account of double relativization in Japanese and Korean simply pushes back the "semantic" nature of the constraints on relativization on to the MSC. There is no doubt that there are semantic constraints on MSCs, and as we have seen, they differ in Korean and Japanese. The crucial point is that the existence of MSCs is an independently attested typological property whose existence accounts for the apparent possibility of double relativization. The two patterns covary in the two languages. And as we see in section 4, when languages which otherwise appear to have UNMC properties lack MSCs, they require another strategy for relativization out of a complex NP.

2.8 A non-argument against relativization

Murasugi (2000) adopts an analysis of RCs in Japanese within the antisymmetry theory of Kayne (1994). In this theory, the RC originates in a position lower than the surface position of the head. In Kayne's analysis of prehead relative clauses, the head is extracted from the RC; the RC is then moved around the head and attached to a higher position to its left. Kayne's derivation is shown for a Japanese RC in (54).

(54) $[_{DP}\ [_{TP}$ Hanako ga t_1 kaita$]_2\ [_{D'}\ [_{CP}$ hon$_1\ [_{C'}\ [\ t_2]\ ]]]]$
'the book that Hanako wrote'

Murasugi argues that the representation in (54) violates the Proper Binding Condition (Fiengo 1977), and therefore that the gap in Japanese RCs cannot result from extraction.

(55) **The Proper Binding Condition (PBC)**
A trace must be bound by its antecedent at surface structure.

This argument hinges on the interpretation of "surface structure" in (55). If "surface structure" is taken to be the end of the entire derivation, then the PBC rules out not only the raising derivation of relative clauses as in (54), but all instances of remnant movement. Under a cyclic theory of interpretation such as Chomsky (2001), the most natural interpretation of "surface structure" is the level of representation where phonetic and semantic interpretation (so-called "spellout) take place. This interpretation correctly rules out the pattern of double scrambling attributed to the PBC by Saito (1985):

(56) **The Proper Binding Condition in scrambling (Saito 1985)**

a. [Sono hon o]$_1$ Taroo ga [$_{CP}$ [Hanako ga t_1 kaita] to] omotte iru.
that book ACC Taroo NOM Hanako NOM wrote COMP thinking is.
'That book, Taroo thinks that Hanoko wrote.'

b. [$_{CP}$ [Hanako ga sonohon o kaita] to]$_2$ Taroo ga t_2 omotte iru.
Hanako NOM that book ACC wrote COMP Taroo NOM thinking is.
'That Hanako wrote that book, Taroo thinks.'

c. *[[Hanako ga t_1 kaita] to]$_2$ [sono hon o]$_1$ Taroo ga t_2 omotte iru.
Hanako NOM wrote COMP that book ACC Taroo NOM thinking is.

(56a) shows that an argument can be scrambled out of a complement clause, while (b) shows that the entire complement clause can be scrambled, but (c) shows that both cannot occur: it is impossible to scramble an argument out of a complement clause, then scramble the remnant of the clause over it. These facts can be explained in the following way on a cyclic account. On the embedded clause (CP) cycle, the object *hon o* 'book-ACC' is first moved to the left edge of the embedded Spec, CP. No PBC violation occurs on this cycle, and the clause excepting its edge is spelled out. On the matrix CP cycle, *hon o* is moved from the right edge of the embedded CP and attached to the left edge of the matrix clause, leaving a trace at the right edge of the embedded Spec, CP. The embedded CP is then moved over *hon o*. At the end of the matrix cycle the trace at the right edge of the embedded CP is unbound, as shown in (57):

(57) *[$_{CP}$ t_1 [[~~Hanako ga t_1 kaita~~] ~~to~~]$_2$ [sono hon o]$_1$ Taroo ga t_2 omotte iru.]]
Hanako NOM wrote COMP that book ACC Taroo NOM thinking is.

Contrast the derivation proposed by Kayne (1994) for a prehead relative clause such as (54). In this derivation, the RC head *hon* 'book' is also moved the left edge of the embedded CP. As in the previous derivation, there is no PBC violation on this cycle, and the clause excepting its left edge is spelled out. Under Kayne's analysis, the remnant TP is then moved around the head. TP contains no material which has not been spelled out. Thus no PBC violation occurs.

(58) [$_{DP}$ [$_{TP}$ ~~Hanako ga t_1 kaita~~]$_2$ [$_D$[$_{CP}$hon$_1$ [$_{C'}$ [t_2]]]]]
Hanako NOM wrote book
'the book that Hanako wrote.'

In this section we reviewed a number of properties in which the gap in RCs differs from the gap associated with pro-drop or NP Ellipsis: alternation with overt pronouns, backward pronominalization, and reconstruction effects with modifiers, binding, quantifier scope, and idiom interpretation. We saw that the island violations associated with apparent "double relativization" in fact are accounted for by local relativization of major subjects. The major subject analysis correctly predicts the restrictions on "double relativization" and differences between Korean and Japanese. Finally, we saw that an objection to an extraction analysis of RCs disappears on a cyclic account of the Proper Binding Condition. Most importantly in this section, we have identified an independent typological parameter that predicts the apparently exceptional behavior of RC gaps in Japanese and Korean. As pointed out by Han & Kim (2004: 337), this property is the existence of Multiple Subject Constructions.

3 The structure of RCs and NCCs

3.1 Tests

The second major claim of the UNMCH is that the structure of RCs and NCCs is the same. In this section I use two tests to investigate whether this claim is correct for Japanese.

3.2 Head NP pronominalization

As is well known, Japanese can substitute for a subpart of a nominal projection with the pronoun *no* 'one, thing'. *No* Pronominalization (McGloin 1985) is freely possible in gapped RCs.

(59) [[Ryoosi ga yaita] sakana]wa nakunatta ga, [[kimi ga yaita] no] wa nokotte iru.
fisherman NOM grilled fish TOP is.gone but you NOM grilled NO TOP left is
'The fish that the fisherman grilled is gone, but the one/those you grilled remains.'

In contrast, most speakers reject *no* pronominalization with PACs and PANCs.

(60) *[[*pro* sanma o yaita] nioi] wa kieta ga, [[*pro* iwasi o yaita] no] wa
saury ACC grilled smell TOP is.gone but sardine ACC grilled NO TOP
nokotte iru.
left is
'The smell of grilling saury has disappeared, but that of grilling sardines remains.'

(61) *[[*pro* sanma o yaita] syooko] wa kieta ga, [[*pro* iwasi o yaita] no] wa
saury ACC grilled evidence TOP is.gone but sardine ACC grilled NO TOP
nokotte iru.
left is
'The evidence for grilling saury has disappeared, but that for grilling sardines remains.'

This contrast is not related to the semantics of the head noun (for example, whether or not it is an abstract noun). Thus in (62) *no* pronominalization for *syooko* 'evidence' is perfectly acceptable, when this noun heads a gapped RC:

(62) [[Hanako ga mituketa] syooko] wa kieta ga, [[Taroo ga mituketa] no] wa
Hanako NOM found evidence TOP is.gone but Taroo NOM found NO TOP
nokotte iru.
left is
'The evidence that Hanako found has disappeared, but that that Taroo found remains.'

The facts are similar when we substitute for the head of the higher RC *mono* 'thing'. Again, substitution for the head noun is possible in the RC, but not in the gapless constructions.

(63) [[Ryoosi ga yaita] sakana] wa nakunatta ga, [[kimi ga yaita] mono] wa nokotte iru.
fisherman NOM grilled fish TOP is.gone but you NOM grilled MONO TOP left is
'The fish that the fisherman grilled is gone, but the one/those you grilled remains.'

(64) *[[*pro* sanma o yaita] nioi] wa kieta ga, [[*pro* iwasi o yaita] mono] wa nokotte iru.
saury ACC grilled smell TOP is.gone but sardine ACC grilled MONO TOP left is
'The smell of grilling saury has disappeared, but that of grilling sardines remains.'

(65) *[[*pro* sanma o yaita] syooko] wa kieta ga, [[*pro* iwasi o yaita] mono] wa nokotte iru.
saury ACC grilled evidence TOP is.gone but sardine ACC grilled MONO TOP left is

'The evidence for grilling saury has disappeared, but that for grilling sardines remains.'

Many speakers disprefer *mono* referring to an abstract noun, but even so, there is a clear difference between gapless (65) and (66), where *mono* heads a gapped RC:

(66) ?[[Hanako ga mituketa] syooko] wa kieta ga, [[Taroo ga mituketa] mono] wa nokotte iru.
Hanako NOM found proof TOP is.gone but Taroo NOM found MONO TOP left is
'The proof that Hanako found has disappeared, but that that Taroo found remains.'

The same contrast appears with the demonstrative pronoun *sore*:

(67) [[Ryoosi ga yaita] sakana] wa nakunatta ga, [[kimi ga yaita] sore] wa nokotte iru.
fisherman NOM grilled fish TOP is.gone but you NOM grilled that TOP left is
'The fish that the fisherman grilled is gone, but that which you grilled remains.'

(68) *[[*pro* sanma o yaita] nioi] wa kieta ga, [[*pro* iwasi o yaita] sore] wa nokotte iru.
saury ACC grilled smell TOP is.gone but sardine ACC grilled that TOP left is
'The smell of grilling saury has disappeared, but that of grilling sardines remains.'

(69) *[[*pro* sanma o yaita] syooko] wa kieta ga, [[*pro* iwasi o yaita] sore] wa nokotte iru.
saury ACC grilled evidence TOP is.gone but sardine ACC grilled sore TOP left is
'The evidence for grilling saury has disappeared, but that for grilling sardines remains.'

The difference between the gapped RCs in (59), (62), (63), (66) and (67) the gapless complex NPs in (60), (61), (64), (65), (68) and (69) is well known in Japanese linguistics. Teramura (1975, 1977 a, b) refers to gapped RCs as involving an *uchi no kankei* ("internal relation"), and gapless RCs as involving a *soto no kankei* ("external relation"). The test for *uchi no kankei* is whether or not the head NP can occupy a position in the matrix clause corresponding to the RC. This is exactly the same as the primary test for whether a complex NP can be derived by relativization.

The structural and semantic difference between gapped RCs and gapless PANCs and PNCs is that the clause in the latter is a semantic complement of the nominal head (I am indebted to Anna Bugaeva for discussion on this matter). For instance, *nioi* 'smell' is a one-place predicate selecting a complement that denotes a smell-producing event. *Syooko* 'evidence' is a one-place predicate selecting a propositional complement. A standard assumption is that predicates and their complements form a constituent at some level of representation, corresponding to a minimal VP or NP. RC heads, in contrast, do not select the clause that modifies them, and do not form a minimal NP:

(70) [$_{NP}$[ryoosi ga sanma o yaita] nioi]
fisherman NOM saury ACC grilled smell
'the smell of the fisherman grilling saury'

(71) [[ryoosi ga *e* yaita] [$_{NP}$ sakana]]
fisherman NOM grilled fish
'the fish that the fisherman grilled'

This difference provides a straightforward explanation for the contrast in (59-66): *no, mono* and *sore* substitute for minimal NPs.

3.3 The S *no* NP construction

Soga and Fujimura (1978) point out the existence of complex NPs where the particle *no* intervenes between the clausal portion and the head:

(72) [[kanarazu katu] **no** sinnen]
definitely win NO conviction
'the conviction that one will definitely win' (Soga and Fujimura 1978: 41)

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

Frellesvig & Whitman (2011) observe that the S *no* N construction is restricted to gapless complex NPs. This is clear in (72), which is a PANC. Concerning (73), Soga and Fujimura observe, "In [the counterpart of (73) without *no*] the speech actually surprises the world, but in [(73)] 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, (73) has an interpretation paraphrasable as "the speech such that *pro* surprised the world." This conclusion is supported by the fact that in (73), the gap in subject position may alternate with an overt pronoun. As we saw in 2.1, in gapped relatives such alternation is impossible.

(74) a. *[sore$_i$ ga sekai o odorokasu enzetu$_i$]
that NOM world ACC surprise speech
'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 such that it surprised the world'

A search of examples of S *no* N in the *Chunagon* corpus of modern written Japanese (http://chunagon.ninjal.ac.jp/) turns up gapless complex NP examples such as [[*yaseru*] *no saisyo*] 'the start of getting thinner' [[*netara sinu*] *no gensoku*] 'the principle that if one falls asleep, one dies' (I am indebted to Jiwon Yun for this data). Of 226 examples of S *no* N sequences in the *Chunagon* corpus analyzable as complex NPs, only 12 are gapped (further analysis is required to determine whether the gaps in these 12 examples can be filled by resumptive pronouns in the discourse context). This distribution suggests that a structural factor blocks relativization in S no N complex NPs, just as in English *such that* relatives. If gapped and gapless complex NPs had the same structure, there would be no reason to expect that one but not the other allows the S *no* NP pattern.

4 Comparative evidence and conclusions

Kornfilt and Vinokurova (2012) show that in Turkish and Sakha, the formal identity of relative and noun complement clauses and the possibility of violating island constraints with relativization are independent properties. Furthermore, they show that apparent violation of island constraints is possible only with resumptive subject *pro* licensed by subject agreement, as first pointed out for Turkish by Kornfilt (1977):

(75) [[[[pro_i e_j giy-diğ-i] elbise-ler$_j$] kirlen-en] kişi$_i$]
wear-IND.N-3SG clothe-PL get dirty-REL.P person
'the person who the clothes (s/he) is wearing got dirty' (Kornfilt & Vinokurova 2012: 15)

Sakha is like Japanese in that RCs, PANCs, and PNCs all have the same morphological shape. But Sakha is like Turkish in that apparent island violations involving an object gap in the most embedded relative clause are ruled out. Contrast Japanese (36) and Sakha (76):

(76) *[[[[abaahï kör-ör] ministr] beje- tiger tiij-im-mit] presiden-e]
devil see-AOR minister self-3SG.DAT reach-REFL-PST president-3SG
'the president such that the minister who hates him/her committed suicide.'
(Kornfilt & Vinokurova 2012: 21-22)

While Japanese allows an object gap in a subject relative exactly where the corresponding major subject construction is possible (42), Sakha, lacking MSCs, allows this type of violation only where licensed by agreement. The facts are summarized in (77):

(77)

	RCs, PANCs, PNCs formally identical	Apparent island violations involve subject *pro* licensed by agreement	Apparent island violations involve major subject constructions
Turkish	No	Yes	No
Sakha	Yes	Yes	No
Japanese	Yes	No	Yes

These correlations argue against the existence of a **unified** UNMC phenomenon at a structural level. A heightened tendency for RCs, PANCs, and PNCs to share the same morphological shape in languages closer to Eastern Eurasia is an areal fact. But it is a fact about morphology. The precise behavior of syntactic phenomena such as relative clause formation out of islands is conditioned by syntactic properties such agreement and the existence of Multiple Subject Constructions, rather than morphological shape.

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