

KAYNE 1994: P. 143, FN. 3

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This paper investigates an approach to constituent order in head-final languages such as Japanese and Korean suggested in a footnote by Richard Kayne (1994: p. 143, fn. 3). It provides an alternative to some of the specific analyses proposed by Kayne as well as an explanation for such facts as the failure of nominative-marked NPs in Japanese to undergo Scrambling or Clefting. It leads to the conclusion that multiple nominative subject constructions in Japanese are recursively headed structures. The final section of the paper explores the relationship between movement and head position, and suggests a possible direction for a theory of word order based on "shallow" constituent relations such as adjacency rather than structural relations such as c-command.

0. Introduction

Kayne (1994) argues effectively against the existence of syntactic projections whose complements intervene between head and specifier, a configuration that has long been assumed across categories for languages like Korean and Japanese. Kayne's empirical arguments draw together observations extending back for decades, such as the generalization that languages with clause-final question particles lack visible *wh*-movement. Chomsky (1995: 335-40) endorses Kayne's empirical conclusions, but proposes to interpret Kayne's Linear Correspondence Axiom as "a principle of the phonological component that applies to the output of Morphology" (1995: 340). So far as I am aware, there has been as yet no serious effort to implement the LCA in this fashion, that is, to state the LCA or derive its consequences in a fashion resembling other principles of the phonological component. Attention has focused instead on syntactic mechanisms for deriving superficial complement-head order, typified by movement of proto-clausal projections (VP, IP) to the specifier of the immediately dominating projection (IP, CP). In a Minimalist framework, this type of operation naturally raises the question of the motivation for movement.

1. *ga* and *wa* as clausal heads

Kayne (1994), in the footnote that provides the title for this paper, recommends investigating the possibility that the nominative marker *ga* and topic marker *wa* (and possibly the accusative marker *o*) in Japanese head projections taking complements on their right. The immediate inspiration for

this proposal is Brody's (1990) analysis of Hungarian *is* "also". Let us label the projection headed by subject-marking *ga* IP, and non-contrastive *wa* CP (Hoji 1985, Choe 1988), and assume that the nominative subject and non-contrastive topic reside in the specifiers of these projections. Non-topic and topic matrix clauses in Japanese then receive the representations in (1a-b) respectively:

(1) a.	IP		b.	CP																						
	NP	I'		NP	C'																					
		I		C	TP																					
		VP																								
<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;"><i>Basu</i></td> <td style="width: 10%; text-align: center;"><i>ga</i></td> <td style="width: 25%;"><i>kita</i></td> <td style="width: 10%;"></td> <td style="width: 25%;"><i>Zoo wa</i></td> <td style="width: 10%; text-align: center;"><i>hana ga</i></td> <td style="width: 5%;"><i>nagai</i></td> </tr> <tr> <td>bus</td> <td style="text-align: center;">NOM</td> <td>came</td> <td></td> <td>elephant</td> <td style="text-align: center;">TOP</td> <td>nose NOM long</td> </tr> <tr> <td colspan="3">"The bus has come."</td> <td></td> <td colspan="3">"Elephants, their trunks are long."</td> </tr> </table>						<i>Basu</i>	<i>ga</i>	<i>kita</i>		<i>Zoo wa</i>	<i>hana ga</i>	<i>nagai</i>	bus	NOM	came		elephant	TOP	nose NOM long	"The bus has come."				"Elephants, their trunks are long."		
<i>Basu</i>	<i>ga</i>	<i>kita</i>		<i>Zoo wa</i>	<i>hana ga</i>	<i>nagai</i>																				
bus	NOM	came		elephant	TOP	nose NOM long																				
"The bus has come."				"Elephants, their trunks are long."																						

The remainder of this paper is devoted to an exploration of the hypothesis that these and certain other phrase particles (a term due to Jordan & Noda 1987: 78) head projections with complements to their right. Before proceeding to these arguments, it is appropriate to clarify the phonological status of the items in question. Phrase particles in Japanese and Korean are phonological dependents on the item to their immediate left, which may be a lexical (typically nominal) head or another phrase particle. In the case of Japanese, and varieties of Korean with lexical accent, they form accentual phrases with the lexical head to their left. They are not normally pronounced in isolation, a fact which has provided the chief support for the widespread view that that these items are a type of clitic. In a careful study of the status of phrase particles in Japanese based on the criteria of Zwicky and Pullum (1983) and Zwicky (1985), Vance (1993) concludes that they are clearly not affixes, and furthermore that the criteria supporting an analysis of phrase particles as independent words are at least as compelling as those supporting the view that they are clitics. Needless to say, this conclusion poses a challenge to analyses such as Sells (1995) based on the assumption that phrase particles are affixes.

Aside from the fact that lexical heads occur at or near the right margin of the phrase in Korean and Japanese, (so that phrase particles typically immediately follow the head of the phrase they are dependent on) the phonological status of phrase particles closely resembles that of possessive 's in English. The latter provides probably the best-known model for a phrasal head *qua* phonological dependent on its specifier (Abney 1987, Chomsky

1995: 263). I propose in the following section that the analysis of 's as the head of DP extends naturally to the Japanese genitive particle *no* as well. This analysis provides a point of departure for the general analysis of phrase particles as heads of right-branching projections in the remainder of the paper.

2. *The head of DP in English and Japanese*

Saito & Murasugi (1990: 291-2) point out that the facts of N' deletion (Jackendoff 1971) in (2) are readily accounted for under the assumptions that 's heads a functional projection (DP), and that the possessive NP *Mary* appears in the specifier of that projection as the result of movement.

- (2) a. [DP *John* [D' [D 's] [NP *t_{John} reliance on the faculty*]]] *is more problematic than* [DP *Mary* [D' [D 's] [NP *e*]]].
 b. *[DP *That* [D' [NP *reliance on friends*]]] *is* [DP *Mary* [D' [D 's] [NP *e*]]].

In (2a), the leftmost NP [*t_{John} reliance on the faculty*] provides the empty NP with an antecedent containing a trace bound by the possessor nominal in the specifier of DP. The ungrammaticality of (2b) is accounted for by the fact that the empty NP has no such antecedent. The core of this argument is the claim that (2a) but not (2b) involves movement. Support for the DP structure in (2) is provided by the fact that the NP (erstwhile N') deletion pattern indicative of movement requires the presence of 's. In Minimalist terms, this suggests that 's is associated with a strong feature (the counterpart of the genitive Case feature assumed under the standard DP hypothesis), which must be checked off by overt movement to its specifier. As Saito and Murasugi point out, the DP analysis enjoys a further conceptual advantage: it permits the covert category in this construction to be analyzed as a maximal projection, NP.

Saito & Murasugi show that the contrast in (2) has a counterpart in the following Japanese data (1990: 293):

- (3) a. [DP *Gakubusei no* [NP *t_{Gakubusei} sensei e no izon*]] *wa*
 undergrad GEN teacher on GEN reliance TOP
yuruseru ga, [DP *insei no* [NP *e_{insei}*]]] *wa yurusenai*.
 can.tolerate but graduate GEN TOP cannot.tolerate
 "(I) can tolerate the undergraduate's reliance on the faculty, but
 not the graduates'."
 b. *[DP *Sono toki no* [NP *Yamada sensei e no izon*]]] *wa*

that time GEN Prof. on GEN reliance TOP
 [DP *Taroo no* [NP *e*] *datta*.
 GEN was
 "*The reliance on Prof. Yamada at that time was Taroo's."

In (3a), just as in (2a), the leftmost NP provides a suitable antecedent for the empty NP on the right, while in (3b) the leftmost NP does not, assuming that the position of the modifier phrase *sono toki no* "that time GEN" is not derived by movement from within NP. Saito & Murasugi conclude on the basis of this parallelism that NP (N') deletion structures involve DP in Japanese as well. However while the possessive suffix 's was analyzed as the head of the NP deletion structure in (2a), Saito & Murasugi adopt the standard view that the genitive case particle *no* is inserted by a rule of the following form (1990: 296):

(4) $\emptyset \rightarrow no / [Y X _ Z]$, where X is DP or PP, and Y, Z are (projections of) N or D.

(4) at first appears to be motivated by the fact that *no* has a more promiscuous distribution than English 's, as (3b) shows: *no* appears after any PP or DP immediately dominated by the nominal projection. Insertion of the genitive particle by a rule such as (4) is unsatisfactory in several respects, however. It requires us to assume that DPs in Japanese are never overtly headed, and it fails to capture the most obvious similarities between 's and *no*: that both must follow a phrasal category, and that both are indispensable in the NP deletion construction.

An alternative account which captures both the similarities and differences between 's and *no* is to view the latter, like the former, as the head of the DP, but a head which can participate in a DP recursion structure. A model for structures of this sort is provided by Watanabe's (1992a) and Browning's (1996) analyses of CP recursion in factive *that*-complements. Watanabe and Browning argue that CP recursion results from movement of the complementizer *that*, targeting its own projection, as in the embedded topicalization structure in (5):

(5) *We know* [CP *that* C[CP [*to John*]_{PP} *t_{that}* [IP *Mary gave the book t_{PP}*]]]

There are two arguments for the view that CP recursion of the pattern in (5) results from movement of the complementizer, rather than Merge of the complementizer and the lower CP. The first is that *that* may (and as

Watanabe points out, must) be spelled out only in the higher complementizer position. This is consistent with the view that the higher complementizer position heads a movement chain, given the observable spellout properties of chains in English. On the other hand, if (5) were derived by Merge, it is not clear why *that* could not be spelled out in both complementizer positions.

The second argument for a movement derivation of CP iteration in English is due to Browning. Observing that *wh*-movement is possible over an adverb in the specifier of the lower CP, as in (6),

(6) [CP *who* [C' [IP *Leslie say* [CP *t'who* [C' [*that* [CP *for all intents and purposes* [C' *tthat* [IP *twho was the mayor of the city...* (Browning 1996: 251)

Browning proposes that this apparent violation of minimality is made possible by movement of *that*. Under the approach of Chomsky (1993), movement of the complementizer places the specifiers of both embedded CPs in (6) within the minimal domain of the chain headed by *that*. Under this analysis, the possibility of *wh*-movement in (6) is crucially dependent on a movement derivation of CP recursion.

Chomsky (1995), however, rejects the account of equidistance of landing sites for movement based on head movement chains. From this standpoint, movement of *that* is irrelevant: the specifiers of the higher and lower embedded CPs are no longer in the same minimal domain. If Chomsky is right, we lose the second argument for a movement derivation of CP recursion, and we need another account of the apparent minimality violation in (6).

An obvious alternative account exploits the possibility of multiple specifiers of CP. Suppose, contrary to Browning, that *who* in (6) is initially attracted by the embedded complementizer in its original position, and the adverbial phrase is merged with the projection of this complementizer in an additional (inner or outer) specifier position. The analysis of (6) is then as in (7):

(7) [CP *who* [C' [IP *Leslie say* [CP *t''who* [C' [*that* [CP *for all intents and purposes* [C' *t'who* [C' *tthat* [IP *twho was the mayor of the city...*

In (7) the overt complementizer *that* is still adjacent to no trace of *who* (preserving a possible account of the absence of *that-t* effects), but the adverbial phrase and the intermediate trace *t'* of *who* are both in the minimal domain of *tthat*, accounting for the extractability of *who* over the adverbial phrase without reference to movement of the complementizer. This treatment

requires that we countenance both CP recursion and multiple CP specifiers. But there is a clear difference between these two mechanisms for extending the CP projection. Following Watanabe's original insight, CP recursion occurs when the lexical properties of the higher verb require a particular complementizer to head the highest CP projection. Multiple CP specifiers, on the other hand occur in the lower CP projection which is not directly selected by the higher verb.

Two further cases discussed by Browning support not formulating equidistance in terms of (nontrivial) chains. Browning (1996: 250) notes that embedded topics block extraction of argument, but not adjunct *wh*-phrases:

- (8) a. **Who did Leslie think that, this present, Kim gave to?*
b. *Why do you think that, this book, Lee assigned to the intro class?*

Without reviewing here Browning's treatment based on Chomsky's (1993) definition of equidistance, we may observe that the ungrammaticality of (8a) is the expected result if CP iteration generated by movement of *that* does not place the intermediate trace of *who* and the embedded topic *this present* in the same minimal domain. Note that the account of (6) proposed in (7) is not available in the case of embedded topic structures like (8a), because topicalization, unlike adverb preposing, blocks *wh*-movement:

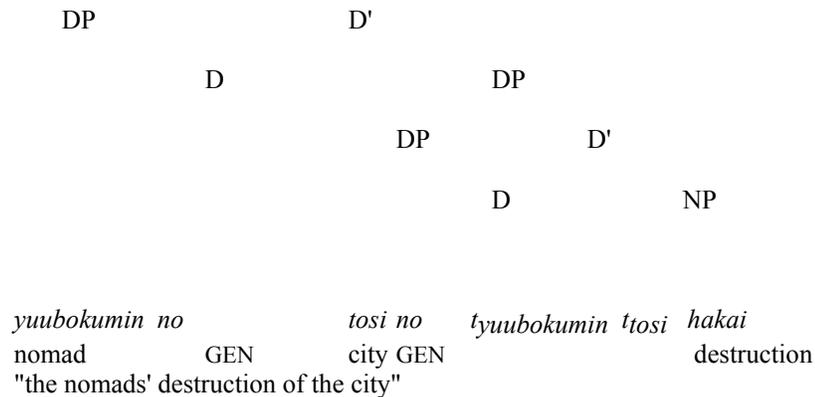
- (9) a. *Who for all intents and purposes was the mayor of the city?*
b. **Who (did) this book (did) Lee assign to the intro class?*

If *wh*-movement into the specifier of a CP containing a topicalized phrase is blocked (Browning suggests an explanation for this fact), *who* in (8a) must move directly into the specifier of the higher CP; if movement of *that* into the head of the higher CP does not make this specifier and the specifier of the lower CP equidistant, the ungrammaticality of (8a) is expected.

The grammaticality of (8b), in contrast, can be explained by adopting Rizzi's (1990) hypothesis that *why* is merged in the specifier of the higher CP (rather than being moved from a position lower in the embedded clause). Thus (8a-b) as well as (6) may be explained without appealing to movement of the complementizer. In conclusion, while the initial argument (Watanabe's) for a movement derivation of CP recursion in English remains intact, the second argument based on facts like (6-9) is less compelling.

Returning to Japanese, on the DP recursion view, a multiple genitive structure has the representation in (10):

- (10) DP



The most salient difference between (10) and English CP recursion structures is that the genitive particle is (and in fact must be) repeated. This suggests that a DP recursion structure such as (10) is derived by Merge of genitive *no* with a lower DP projection rather than movement of *no* targeting DP. Under the copy theory of movement it is not inconceivable that (10) could be derived by application of Move, spelling out the genitive particle in its higher as well as the original "trace" position. But such an account would have to explain why both members of the chain must be spelled out in just this instance.

We saw in (3a) Saito & Murasugi's evidence that subjects in Japanese DP structures occupy their surface position as the result of movement. Saito & Murasugi show that DP internal objects may also be left behind after NP deletion, as we see in (11) (modified from Saito & Murasugi 1990):

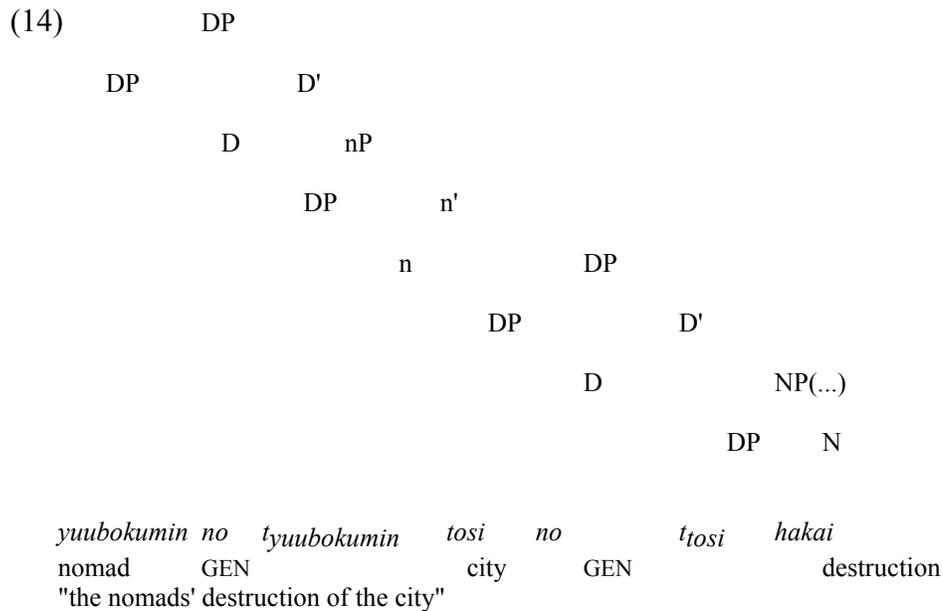
- (11) [DP *yuubokumin no* [DP *Rooma no* [NP<sub>t_{yuubokumin} t_{Rooma} hakai]]] *wa*
 nomad GEN Rome GEN destruction TOPIC
 [DP *Oda Nobunaga no* [DP *Kyoto no* [NP *e*]]] *yorimo hisan datta*.
 GEN GEN than horrible was
 "The nomads' destruction of Rome was more horrible than Oda
 Nobunaga's of Kyoto."</sub>

Evidence that the DP-internal object also occupies its surface position as the result of movement is provided by the fact that NP ellipsis is blocked, parallel to (3b), in the absence of an antecedent containing a trace of the object:

- (12) *[DP *Sono toki no* [NP *hakai*]]] *wa* [DP *Kyotoo no* [NP *e*]] *datta*.
 that time GEN destruction TOP Kyoto GEN was

question of why the head of DP and the head of nP should be homophonous in Japanese.

Chomsky (1994: 358) suggests another possible account of equidistance in the general configuration exemplified by object shift: the subject argument is introduced into the structure in a position higher than the landing site of the object. In a DP iteration structure this would be realized as in (14):



(14) closely resembles the configuration of subject and object Agreement projections argued for by Koizumi (1993, 1995). Collins (1997: 18-19) argues against this type of approach based on Icelandic data from Jonas and Bobaljik (1993) showing that the subject may appear after the object in the object shift pattern. However this debate has heretofore focused on clausal projections, which crucially contain a subject as well as an object argument. A longstanding insight about nominal projections is that even event-type nominals of the sort in (10) are not obligatorily associated with all of the theta positions associated with the corresponding verbal projection (Higginbotham 1983, Grimshaw 1992). From this standpoint, an event nominal containing an object argument such as *tosi no hakai* "destruction of the city" is a complete functional complex (in the sense of Chomsky 1986), while the VP *destroy the city* (absent its subject argument) is not. A possible generalization about the distribution of functional categories such as D and I is then that they must select complete functional complexes; in the case of D, but not I, the complete functional complex need not contain a position for a

subject. In §5 I contrast the absence of minimality effects in multiple genitive structures like (10) with their presence in multiple nominative structures in Japanese and show that this contrast supports the preceding generalization.

In this section I have proposed that the analysis of possessive 's as the head of DP extends naturally to the Japanese genitive particle *no*. I have suggested that the occurrence of multiple genitive structures can be explained by the mechanism of DP iteration, generated by Merge rather than Move. I have used Saito and Murasugi's analysis of NP Ellipsis to show that even in multiple genitive structures more than one DP specifier can be the target of movement, and proposed that this possibility is a consequence of the distribution of theta positions in nominal projections. Let us now turn to the arguments for phrase particles as the heads of clausal projections.

3. *Arguments for ga and wa as clausal heads*

Kayne offers as an initial argument for the analysis of *ga* and *wa* as clausal heads the fact that no other particles attach after these two:

- (15) a. *John ga (*wa/*mo/*sae)kita.*
 NOM TOP also even came
 "John (TOP/even/also) came."
 b. *John wa (*ga/*mo/*sae)kita.*
 TOP NOM also even came

This contrasts with the behavior of other phrase particles, such as dative/locative *ni* in (16a), which can be followed by *wa* and association-with-focus particles, or the association-with-focus particle *dake* "only" which can be followed by case particles or *wa*:

- (16) a. *Mary wa John ni (wa / mo / sae) ko-saseta.*
 TOP DAT TOP also even come-caused
 "Mary made John (TOP/even/also) come."
 b. *John dake (ga / wa) kita.*
 only NOM TOP came
 "Only John came."

Under the analysis of *ga* and *wa* as clausal heads in (1), the facts in (15-16) follow simply from the assumption that phrase particles follow phrases. The particles in (16a) follow a phrase whether [*John ni*] "John DAT" is analyzed as a PP or a dative NP, while *John dake* in (16b) presumably has the same phrasal (NP) status as *only John*. In (15), in contrast, the particles do

not follow phrases. On the analysis of (1), NP + *ga*, NP + *wa* are not syntactic constituents, while *ga* and *wa* by themselves are not phrasal. Inability to be followed by other postnominal particles is also a property of genitive *no*, as predicted by the analysis in the preceding section.¹

A second straightforward argument for the status of *ga* as clausal head is the well-known inability of *ga*-marked subjects to undergo Scrambling (Kuno 1973, Saito 1985). The example in (17) is from Shibatani (1990: 261):

(17) *[*Sono hon ga*] [*Taroo ga* [*t ii to*] *omotte iru (koto)*
 that book NOM NOM good COMP thinking is fact
 "(that) that book, Taroo thinks is good."

This contrasts with the ability of subject NPs marked with postnominal particles other than *ga* to be Scrambled:

(18) [*Sono hon mo/dake*] [*Taroo ga* [*t ii to*] *omotte iru (koto)*
 that book even/only NOM good COMP thinking is fact
 "(that) even/only that book, Taroo thinks is good."

Under the analysis in (1a), (17) involves movement of a syntactic non-constituent.

Movement of NP + *ga* is similarly disallowed in the cleft construction shown by Hoji (1990) to satisfy standard diagnostics for movement:

(19) *Eri o aiseiru no wa Mari *ga da.*
 ACClove COMP TOP NOM is
 "(The one) who loves Eri is Mari."

Once again, replacement of *ga* after the clefted subject by another particle, or zero, results in complete acceptability:

(20) *Eri o aiseiru no wa Mari dake/Øda.*
 ACClove COMP TOP only is
 "(The one) who loves Eri is (only) Mari."

¹The same property appears to have held of *ga* in its premodern Japanese function as a genitive particle. On the other hand *wa*, which has functioned as a topic marker throughout the history of the language, could be followed by *mo* "even/also" or the interrogative particle *ya* in earlier Japanese. This supports the view that the property of modern Japanese *wa* in (12b) reflects its structural status, not its function as a topic marker.

As predicted by the analysis in (2b), clefting of NP + *wa* is also completely impossible:

- (21) *Eri o aisiteiru no wa Mari *wa da.*
 ACC love COMP TOP TOP is
 "(The one) who loves Eri is Mari."

It is possible to show indirectly that Scrambling of NP + *wa* is likewise impossible. Noncontrastive *wa* placed after the preposed NP in Shibatani's subject Scrambling example (17) takes scope only in the matrix clause. Thus this example is unacceptable on a noncontrastive reading when the whole clause is embedded under *zizitu* "fact", because noncontrastive *wa* is disallowed in non-root contexts.

- (22) [*sono hon wa*] [*Taroo ga [t ii to] omotte iru (*zizitu)*]
 that book TOP NOM good COMP thinking is fact
 "(the fact that) that book, Taroo thinks is good."

If NP + *wa* were Scrambled as a unit from the embedded clause, we might expect *wa* to be able to take embedded scope, i.e. as the topic of the clause embedded under the complementizer *to*, which generally tolerates embedded noncontrastive topics. The fact that this construal is impossible shows that *wa* in a matrix clause following a constituent that has been extracted across a clause boundary must be associated with the matrix clause. In terms of the structure in (2b), this means that *wa* has the status of a root clause head.

Returning to nominative *ga*, another argument for the status of this particle as a clausal head is provided by the behavior of negative polarity items with *ga* marking. A long literature has been devoted to explaining the fact that subject NPIs are licensed by clausemate negation in Japanese:

- (23) *Daremo susi o tabe-nakatta.*
 nobody sushi ACC eat-didn't
 "Nobody ate sushi."

However, as is well known, polarity phrases followed by *ga* must be interpreted as universal quantifiers with scope over negation:

- (24) *Daremo ga susi o tabe-nakatta.*
 nobody NOM sushi ACC eat-didn't

"Everybody didn't eat sushi."

As recently pointed out by Toyoshima (to appear, 1998), this fact is readily explained if indefinite pronoun + *mo* followed by *ga* resides in a position outside the scope of negation, just like subject position in English. Under the analysis of *ga* as clausal head, this result follows if negation is in the complement of the clausal head.

The analysis of *ga* as clausal head also accounts for the occurrence of "case stacking" in examples like (25):

- (25) *Sensyu ni wa kono dai kara ga tobi-nikui.*
athletes DAT TOP this board from NOM jump-hard
"For the athletes from this board is hard to jump." (Inoue 1978)

A similar analysis extends to the wider range of PPs marked with nominative *i/ka* in Korean:

- (26) *Namdaymun sicang ey ka pwul i cal nanta.*
market in NOM fire NOM often occur

"In Namdaemun market fires often break out." (Gerdt & Youn 1988)
Under the analysis of the nominative particles as clausal heads, (25) and (26) are both instances of PP subjects. (25) exemplifies a pattern of PP subjects of copular/adjectival predicates (cf. *To Tipperary is a long way*), while (26) is analyzable as a locative PP subject construction. This basic analysis is available under previous accounts as well (Whitman 1992), but what has not been explained in previous analyses of "case stacking" in Korean and Japanese is exactly what property of these languages enables overt nominative particles to appear after subject PPs (the same issue arises in the pattern of (3a), where an overt genitive particle appears after the PP *sensei e* "on the teacher"). Under the analysis of these phrase particles as heads of a right-branching projections, "case stacking" is merely the result of placing a PP in the specifier of the projection headed by the particle.

4. *The content of ga as clausal (IP) head*

A natural question arises as to whether *ga* and *wa* are comparable in terms of lexical content to more familiar examples of clausal heads. These typically mark tense, agreement, and finiteness in the case of I-type heads, and clause type (interrogative or declarative, root or embedded) in the case of C-type heads. In fact as we see in this section, *ga* and comparable nominative particles in Korean mark finiteness and agreement, while we see in §6 that *wa* and related particles indeed mark clause type.

Various researchers working in a Government & Binding framework have held that that *ga* is licensed by finite Infl (Takezawa 1987), to explain contrasts like the following:

- (27) a. *Taroo wa Hanako ga/o utukusi-i to omotta.*
 TOP NOM/ACC beautiful-IMP COMP thought
 "Tarô thought that Hanako was beautiful."
 b. *Taroo wa Hanako *ga/o utukusi-ku omotta.*
 TOP NOM/ACC beautiful-GERUND thought
 "Tarô thought Hanako beautiful."

The finite (IMPerfective or nonpast) form of the adjective in (27a) cooccurs with *ga* or accusative *o* (the latter commonly analyzed as an exceptional case marking pattern); the non-finite gerund form of the adjective in (27b), on the other hand, is incompatible with *ga*. This suggests that there is a relationship between *ga* and finiteness. However the problem with the view that finite morphology on the predicate (concretely, the verbal and adjectival suffixes analyzed as perfective/imperfective or past/nonpast) licenses *ga* is that *ga* occurs in a range of contexts where finite morphology on the predicate is absent. One such context is the pattern in (28) studied by Shibatani & Kageyama (1988):

- (28) a. *Yamada-san ga tyuukosya o hanbai-tyuu ni, doroboo ga haitta.*
 Mr. NOM used car ACC selling-middle LOC thief NOM
 entered "A burglar sneaked in while Mr. Yamada was selling used cars."
 b. *Yamada-san ga tyuukosya-hanbai-tyuu ni, doroboo ga haitta.*
 Mr. NOM used car - selling-middle LOC thief NOM
 entered

Verbal nouns such as *hanbai* "sell" in (28), like verb and adjective roots in Japanese, are bound items: they cannot stand alone as predicates. Typically verbal nouns are accompanied by an inflected form of the light verb *suru*, but they may also form a phonological unit with postnominal elements like *tyuu* "middle" in (28). This pattern also permits what Shibatani & Kageyama call "postsyntactic compounding" of the verbal noun and its object (28b). As object-verb compounding in Japanese is in general impossible with inflected

verbs, (28b) shows that the verbal noun is not somehow covertly inflected. Facts like these indicate that *ga* is not licensed by finite inflection on the predicate.

The analysis of *ga* as clausal head casts the relationship between *ga* and finiteness in a different light. Under this analysis, *ga* itself is the realization of finite Infl, selecting the form of the predicate. In matrix contexts, this form is invariably inflected for tense/aspect. In embedded contexts, *ga* selects a wider range of predicate forms, including the uninflected verbal noun in (28), and the non-tensed verb endings in the gerundive example (29) and the infinitive² example (29b):

(29) a. *John ga uwagi o nui-de, Mary ga hangaa ni kaketa.*
 NOM coat ACC take.off-GER NOM hanger on hung
 "John took off his coat, and Mary hung it on the hanger." (Kuno
 1973)

 b. *John ga uwagi o nug-i, Mary ga hangaa ni kaketa.*
 NOM coat ACC take.off-INF NOM hanger on hung
 "John took off his coat, and Mary hung it on the hanger." (Kuno
 1973)

The ability of *ga* to select nontensed predicate forms in embedded contexts is comparable to the property of subjunctive Infl in English to do the same. It is customary to associate finite Infl in English and other languages with specific tense features, such as [\pm past]. The best argument for this view, however, is an analysis of the English auxiliary based on affix lowering. If verbs and aspectual auxiliaries are inserted in their inflected forms, in other words if tense affixes originate in V rather than Infl (Chomsky 1991), it becomes less obvious that specific tense features such as [\pm past] must be associated with Infl. Instead, the picture for English could be similar to what I have sketched for Japanese above: when associated with the feature [finite], Infl may select a verbal head associated with a specific tense feature such as [\pm past]. Alternatively, what we might call the "transparent" content of Infl in Japanese (specified only for [finite] rather than specific tense features) may be related to the possibility of IP recursion, as I suggest below.

I have claimed above that the content of *ga* as clausal head is [finite]. The other type of feature widely associated with clausal heads is agreement. Neither Japanese nor Korean evince number or person agreement, but both languages have been claimed to have subject honorific agreement. Both Korean and Japanese have verbal forms which mark honorific agreement;

²A label due to Bloch (1946).

Korean also has an honorific nominative particle. As we see from the following examples, the verbal honorific affix *-si-* may occur either with the honorific nominative particle *kkeyse* (30b) or the plain nominative particle *i/ka* (30c), but for most speakers selection of *kkeyse* makes the honorific verbal affix obligatory (30d):

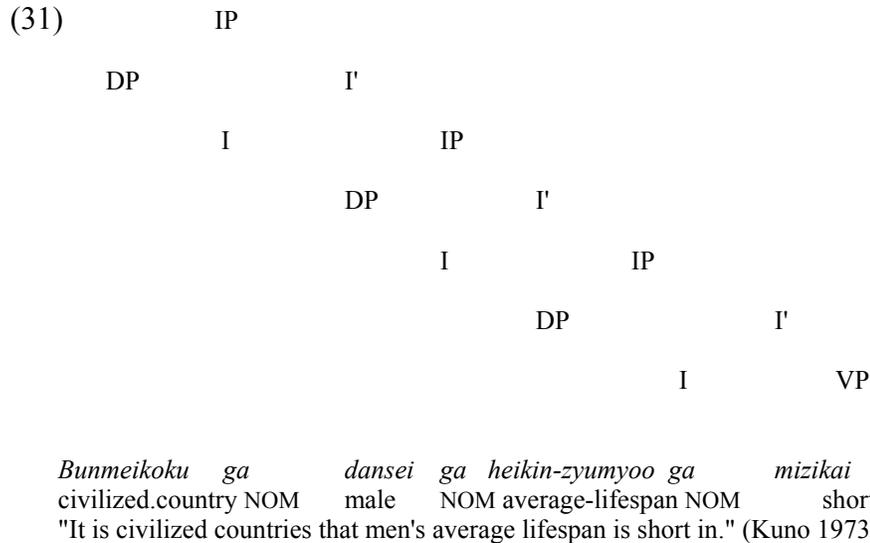
- (30) a. *Unyeng i hakkyo ey ka-ssta.*
 NOM school to go-PAST
 "Eunyoung went to school."
 b. *Yang kyoswu-nim kkeyse hakkyo ey ka-si-essta.*
 Prof-HON NOM(HON) school to go-HON-PAST
 "Prof. Yang went to school."
 c. *Yang kyoswu-nim i hakkyo ey ka-si-essta.*
 Prof-HON NOM school to go-HON-PAST
 d. **Yang kyoswu-nim kkeyse hakkyo ey ka-ssta.*
 Prof-HON NOM(HON) school to go-PAST

This pattern again makes it difficult to claim that honorific inflection on the verb somehow selects the honorific form of the nominative particle. On the view of the nominative particle as clausal head, on the other hand, the dependency is clear: honorific Infl selects a verb form with honorific inflection; otherwise honorific verbal inflection is optional.

In this section I have argued that the nominative particles in Japanese and Korean give evidence for two kinds of featural content that might be expected of Infl-type clausal head: [finite], and in the case of Korean *kkeyse*, the agreement feature [honorific]. These particles do not express the richer content in terms of variable tense features and person, number, etc. agreement often associated with Infl-type clausal heads in other languages. This fact is doubtless in part responsible for the failure of previous research to identify them as clausal heads. The present analysis casts the relative paucity of featural content of the clausal heads in Japanese and Korean in a different light. It may be this type of "transparency" is related to the possibility of phrasal iteration that we explored for DP in §2 and investigate for IP in the next section.

5. Multiple nominative subject constructions

In §2 I proposed that the multiple genitive pattern in Japanese results from DP iteration derived by Merge rather than Move. A similar analysis extends to the multiple nominative subject pattern in Japanese:



Under the analysis in (31), parallel to (13), recursion is a property of both the DP and IP projections. I suggested in the preceding section that this property of Japanese may be related to the relatively transparent content of the heads of these projections. Consider the case of IP; suppose, for example, that each of the iterated projections in (31) were associated with a specific tense feature, say [-past]. The resultant representation would raise the question of how the scope of tense is represented, however this is related to the feature content of the clausal head; on the normal interpretation of a sentence such as (31), all of the [nonpast] specifications but the highest one would be semantically vacuous. The same generalization holds of the genitive particle *no* analyzed as the head of DP in (13). Unlike D heads such as English *the* (but like English *'s*), *no* is transparent with respect to definiteness or any other type of semantic content. It may be that this kind of semantic transparency is a prerequisite for phrasal recursion of this kind.

Regardless of the correctness of this speculation, the iterated IP structure in (31) raises the same type of question that we discussed in relation to multiple genitive structures: if all or some of the specifiers in such a structure are landing sites for movement, how does the pattern interact with minimality-type restrictions?

In fact there is a literature on this issue dating from Kuno (1973), developed in a Government & Binding framework by Tateishi (1991) (see

also Whitman 1993 on Korean and Takahashi (1995) for a Minimalist approach). I restrict discussion here to what Tateishi (1991) calls the "genitive raising" pattern of (31), which has a multiple genitive paraphrase (32):

- (32) *Bunmeikoku no dansei no heikin-zyumyoo ga mizikai.*
 civilized.country GEN male GEN average-lifespan NOM short
 "It the average lifespan of men in civilized countries that is short."
 (Kuno 1973)

Both Tateishi and Kuno derive the multiple nominative pattern in (31) by movement from an underlying structure related to the multiple genitive pattern in (32). Both observe that this movement operation, "Subjectivization" in Kuno's terminology, may not occur from object position:

- (33) a. *Senseiga John no kodomo o sikatta.*
 teacher NOM GEN child ACC scolded
 "The teacher scolded John's child." (Kuno 1973)
 b. **John ga sensei ga kodomo o sikatta.*
 NOM teacher NOM child ACC scolded
 (example and judgement from Kuno 1973)
 c. **Sensei ga John ga kodomo o sikatta.*
 teacher NOM NOM child ACC scolded

Note that Subjectivization from object position is impossible whether the target of Subjectivization is moved to a position preceding (33b) or following (33c) the thematic subject. This contrasts with the multiple genitive structure pattern in (11), where we saw that both arguments of a transitive nominal could be moved to the DP specifier position. I proposed the structure in (14) for multiple genitive structures, where D could select a nominal projection containing only the internal argument of a transitive nominal head. (33) shows that this type of structure is inappropriate for verbal projections; instead, the I-head *ga* must select a projection containing the underlying position of both arguments in a transitive clause:

- (34)
- | | | |
|----|----|----|
| | IP | |
| DP | | I' |
| | I | vP |

<i>Sensei</i>	<i>ga</i>	<i>t_{sensei}</i>	<i>John nokodomo o</i>	<i>sikatta</i>	
teacher	NOM		GEN child	ACC	scolded

In (37), movement of *John* over "teacher" (33b) or, where *John* is extracted first, the opposite order of extraction (33c) incurs a violation of minimality. As both Kuno and Tateishi point out, licit examples of "genitive raising"-type Subjectivization target only the possessor of the subject NP, potentially recursively, as in (31).

Thus far I have merely shown that recursively headed structures are consistent with the behavior of the multiple genitive and multiple nominative patterns in Japanese, and that once we assume these structures we must assign different distributions to the iterating projections D and I. The existence of minimality effects in multiple nominative subject constructions such as (33) makes a more important point. It is difficult to see how these effects could be accounted for if multiple nominative subjects were assigned a multiple specifier (or adjunct) structure. The impossibility of Subjectivization over a subject suggests that multiple nominative subjects reside in distinct maximal projections, exactly the status assigned to them by the recursively headed structure in (31).

6. *The content of wa and related particles as clausal (CP) heads*

In §4 I argued that the nominative particle in Japanese and Korean marks finiteness, and in the latter language, honorific agreement. Turning now to the topic particle *wa*, I suggested that under the analysis of *wa* as the head of CP or S', we should expect particles in this position to mark clause type. We saw in (22) that *wa* on its non-contrastive reading is restricted to root clauses, suggesting an analysis of *wa* as a root clause marker. In this function (although not in terms of semantic content) *wa* is perhaps comparable to root clause complementizers such as Swedish *kanske* "maybe" (Holmberg & Platzack 1995: 50). However the general analysis would be strengthened if it were possible to identify particles with a distribution comparable to *wa* showing a wider range of clause type marking functions. In fact premodern Japanese provides examples of just this kind.

In analyses of premodern Japanese, *wa* is traditionally grouped together with a class of particles which mark clause type (root, interrogative, focus) and which also determine the inflectional shape of the predicate of the clause where they take scope. Thus *wa* itself must co-occur with a predicate in the conclusive (Japanese: *shūshikei*) form, which is restricted to root contexts. A variety of other particles in this group associated with interrogative and focus

clauses co-occur with predicates in the attributive (*rentaikei*) form. (For a survey of this type of dependency in premodern Japanese, see Whitman 1997). Let us examine in particular the behavior of the *wh*-question marker *ka*:

- (35) *Kakaru miti ϕ a ikade ka [imas-uru]* (*Ise Monogatari* 9)
 this.kind road TOP how Q go(HON)-ATT
 "How did (you) come to be on such a road as this?"

In premodern Japanese, *ka* occurs after the *wh*-phrase, and the scope of the *wh*-question is marked by attributive inflection on the verb. The question marker *ka* thus selects an attributive form of the predicate. On an analysis of *ka* as a clausal (CP) head, this pattern is represented as in (36):

- (36) CP
 Specifier C'
 C IP
ikakde ka imasuru
 howQ go(HON)-ADNOM

Under the analysis in (36), premodern *ka* (like *wa*) heads a right branching CP which hosts the *wh*-phrase in its specifier. Premodern Japanese thus emerges as language with overt *wh*-movement in questions. Data like the following provide support for this result.

In premodern Japanese the relationship between the *wh*-phrase and the attributive-marked predicate which indicates its scope appears to be constrained by Subjacency. This can be shown by observing the position of *ka*. In (37) *ka* appears after the entire complex NP containing the *wh*-phrase; as (38) shows, examples where *ka* occurs inside such a complex NP appear not to occur (Yanagida 1995, Whitman 1997).

- (37) [[[*ika yau naru kokorozasi aramu*] *ϕ ito*] *ni ka*
 what kind be love have person DAT Q
a ϕ amu] *to obos-u* (*Taketori Monogatari*)
 marry COMP think-ATT
 "What kind of love do you think that you would marry a
 person that has t?"

- (38) [[*ika* (***ka**) *yau* (***ka**) *naru* *kokorozasi* (***ka**) *aramu*] *φito*] *ni*
 what (Q) kind (Q) be love (Q) have person DAT
aφa-m-u] *to* *obos-u*
 marry COMP think-ATT

On the analysis of premodern *ka* as an interrogative complementizer as in (36), the explanation of the distribution in (37-8) is straightforward. In (37) the entire complex NP containing the wh-word *ika* "how/what" has been pied-piped from its underlying position in the complement clause of *obosu* "think" to the Spec of *ka*, as in (39):

- (39)
- | | | |
|-----------|----|----|
| | CP | |
| Specifier | | C' |
| | C | IP |
- [[[*ika* *yau* *naru* *kokorozasi* *aramu*] *φito*] *ni*] **ka** [*t aφamu*] *to* *obos-u*
 what kind be love have person DAT Q marry C think-ATT

In contrast, any of the patterns in (38) would involve movement of *ika* (or a larger constituent) from within the complex NP, violating Subjacency, as shown in (40), where *ika yau naru kokorozasi* "what kind of love" has been placed before *ka*:

- (40)
- | | | |
|-----------|----|----|
| | CP | |
| Specifier | | C' |
| | C | IP |
- [*ika* *yau* *naru* *kokorozasi*] **ka** [[NP[CP *t aramu*] *φito* *ni*] *aφamu*] *to* *obos-u*
 what kind be love Q have person DAT marry C think-ATT

The most salient syntactic change in the history of Japanese is the loss of the clause-medial distribution of particles selecting an attributive form of the associated predicate, such as *ka* in (35, 37). (This change is generally associated with the loss of the morphological distinction between attributive and conclusive predicate endings.) Most of these particles lost their clause-marking function altogether, but *ka* in particular shifted into the clause-final complementizer function that it has in modern Japanese. In the following section I consider how the shift from clause-initial to clause-final complementizer might best be characterized under a general account of the relationship between movement and word order.

6. *Adjacency and attraction*

The modern Japanese equivalent of the *wh*-question (35) is (41):

- (41) *Kono yoo na miti wa doositeotoori nasaimasu ka*
 this kind be road TOP how travel HON Q
 "How do you come to be travelling such a road as this?"

In (41) the interrogative complementizer *ka* is in clause-final position and the *wh*-expression *doosite* "why" is in situ.³ A long tradition of research has held that there is a crucial relationship between these two facts, specifically, that visible *wh*-movement is restricted to complementizer-initial languages (Baker 1970, Bach 1971, Bresnan 1970, 1972). This tradition culminates in Kayne's (1994) treatment, where *wh*-movement in a complementizer-final language is blocked as a type of doubly filled Comp effect.

In analyzing the change from premodern to modern Japanese, let us consider the approach of the earlier analyses of the relationship between movement and head position, taking as a point of departure Bresnan's (1972) Complementizer Attraction Universal:

- (42) **The Complementizer Attraction Universal** (Bresnan 1972)
 Only languages with a clause-initial COMP permit a COMP attraction transformation.

Bresnan's generalization accounts for the change between premodern and modern Japanese: once the complementizer *ka* is restricted to clause-final

³This change was not completely abrupt; the pattern with clause-final *ka* coexisted with clause-medial *ka* in premodern Japanese. With the loss of the dependency between *ka* and attributive infection the latter pattern disappeared from the language.

position, it can no longer trigger *wh*-movement. The generalization can be partially restated without reference to linear order, as follows:

(43) **The Complementizer Attraction Universal** (restated)

The landing site of an item attracted to C must be adjacent to C.

(43) is less restrictive than (42), in that it says nothing about the possibility of clause-final CP specifiers. From the standpoint of Kayne's (1994) framework, the generalizations in (42) and (43) are epiphenomenal, but they are also distinguished from Kayne's approach by their "phonological" flavor. (43), for example, makes no reference to structural (c-command) relations; instead it is based on the relation of adjacency to a word-level category. The coverage of (43) can be extended in a natural way as follows:

(44) **Attraction Universal**

Nothing may intervene between the landing site of an attractee and its attractor.

Let us interpret "attraction" in the specific sense of Chomsky (1995). Instances of feature raising trivially satisfy (44), in the sense that they bring the raised feature and its attractor into a maximally proximate position. This is relevant for the analysis of *wh*-in-situ in Japanese: the two most widespread analyses of this pattern claim that *wh*-movement occurs covertly (at LF), or involves movement of a null *wh* operator prior to LF (Watanabe 1992b). The former type of movement is instantiated as feature movement in the framework of Chomsky (1995). The status of syntactic null operator in a Minimalist framework is unclear, but as null operators by definition lack phonological feature content, it seems at least plausible that null operator movement is also to be instantiated as feature raising, perhaps in the syntax if traditional analyses are correct. It is thus possible that Watanabe's and LF movement analyses of *wh*-in-situ converge, with the only point at issue the question of the level of representation at which feature raising occurs. In a Minimalist approach, projections whose heads are involved in a checking relationship satisfied by feature raising simply lack specifiers. Concretely, then, (44) entails that the shift to complementizer-final word order in modern Japanese *wh*-questions results not just in *wh*-in-situ, but also a shift to a "defective" (Spec-less) CP projection, in the sense of Fukui (1987):

(45) **Premodern Japanese** **Modern Japanese**
Spec Comp IP > IP Comp

As exemplified by (45), an approach to the relation between movement and word order based on (44) is far less restrictive than Kayne's framework. In the most basic cases, this leads to different analyses of Japanese-style CPs and postpositional phrases: while Kayne's approach derives these by movement of the complement of C or P to its specifier, an approach based on (44) permits the complement to be directly attached by Merge to the left of its head. Permitting this possibility brings us back to a problem that Kayne's theory eliminates: how to characterize lexical or crosslinguistic variation in the ordering relation between heads and their complements. But the nature of this problem differs from the problem of stating precedence relations between heads and specifiers, because the relationship between head and complement involves the same type of "phonological" locality as (44). "Immediately precede" and "immediately follow" are (the) subcases of adjacency, and would appear to have to be part of the vocabulary of any phonological theory. It thus seems at least plausible that "follows edge of complement" "precedes edge of complement" could be included in the inventory of phonological features associated with lexical entries, and that in the situation where particular languages show the type of regular head-complement order formerly associated with the Head Parameter, the relevant generalization could be formulated as a lexical redundancy statement.

Building on the earliest attempts to state a relation between word order and syntactic movement, I have sketched above an approach whose basic relations (adjacent, immediately precedes, immediately follows) show some resemblance to the type of relation familiar from phonological theory. The components of this approach are:

- (46) a. (44) - an adjacency restriction on landing sites of movement
 b. precedence relations between head and complement stated as lexical (phonological) features

The approach imposes no ordering restrictions on operations not involving Attract, except when a head is targeted, nor does it rule out the possibility of complement-head-specifier (OVS) order. Whether the first of these is an insurmountable defect depends on a better understanding of the status of adjunction in syntactic theory, the second on a better understanding of the syntax of subject-final languages.

If this approach to the relation between movement and word order is correct, it suggests that the role of phrase particles as heads taking complements to their right is crucial in a language like Japanese or Korean. We saw in the previous sections of this paper that the genitive and nominative particles in particular appear to be involved in movement

operations. Under the approach of (44), these operations would be disallowed if the particles did not have the status of attracting heads.

7. *Conclusion*

In this paper I have applied a suggestion of Kayne (1994) to the analysis of verb-final languages as exemplified by Japanese. The core of the analysis is the idea that a class of phonological dependents which have long been understood to function as markers of clause type (or in the case of the genitive, phrase type), in fact are phrasal heads. The analysis leads to a rethinking of the syntax of the multiple specifier constructions characteristic of Korean and Japanese, and also suggests an explanation for restrictions on Scrambling, clefts, and Subjectivization.

In the final section of the paper, working from this analysis of Japanese as a partially head-initial language, I attempted to extend earlier accounts of the relationship between movement and word order to arrive at an account of word order generalizations independent of structural relations such as c-command.

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