

Project Both in Japanese, with a Case Study of Head-internal Relative Clauses^{*}

Hiroki Narita

SOPHIA UNIVERSITY

1. Introduction

In the *bare phrase structure theory* (BPST) (Chomsky 1995), all syntactic representations are composed in a bottom-up fashion by recursive application of MERGE. MERGE is a generalized transformation which combines a finite number of syntactic objects (two, as conventionally assumed) and forms a new syntactic object comprising them. It is conventionally assumed that in most cases of merging α and β , the resultant structure is headed/labeled by either the label of α or of β . Counter to this assumption, this paper claims that the computational mechanism of human language allows cases of MERGE(α, β) where both α and β *project*, resulting in a *Project Both* structure schematized as $[\alpha, \beta \alpha, \beta]$ (see also

* At the various stages of developing this paper, I have received many valuable comments from a number of people. Especially, I would like to thank Naoki Fukui, Christopher Tancredi, Yasuhiko Kato, Hisatsugu Kitahara, Tomoyuki Yoshida, Yasutada Sudo, Masahiro Yamada, Satoshi Ito, Masanobu Sorida, Yukino Kobayashi, Hideaki Yamashita, Takashi Munakata, Takaomi Kato, Masakazu Kuno, Yuko Asada and Kentaro Hayashi for their constant support. I would also like to thank Cedric Boeckx, Hajime Hoji and the audience of TCP2007 for their helpful suggestions. All remaining inadequacies are mine.

Citko 2006, from which the term *Project Both* is borrowed). As a piece of evidence, this paper proposes that the so-called *head-internal relative clause* (HIRC) construction in Japanese is best analyzed as involving Project Both.

Before explicating the Project Both analysis of Japanese HIRCs (§3), it is necessary to set certain background assumptions on the theory of MERGE and labeling. §2 serves this purpose, where Fukui's (2006) theory of labeling is introduced. §§4-6 discuss further prospects, §8 concludes the paper.

2. Fukui's (2006) theory of E-feature

2.1. MERGE, EMBED/Labeling and E-feature

Since MERGE is assumed to be *the* sole structure-building operation in human language computation, the question of how MERGE is triggered in syntactic derivations is one of the fundamental questions in BPST. Since MERGE takes a finite number of objects as input, it is most conceivable that some property of these input objects is responsible for triggering application of MERGE. Chomsky (2005, 2006) dubs this property as *edge-feature*. He proposes that edge-feature is a property of lexical items (LIs) that enables their projections to undergo MERGE, but its theoretical characterization remained to be provided therein.

Fukui (2006) proposes that the edge-feature of an LI triggers its *projection* (Labeling), rather than MERGE: since MERGE is essentially a set-formation operation, a mapping from n syntactic objects $\alpha_1, \dots, \alpha_n$ to the set of them, $\{\alpha_1, \dots, \alpha_n\}$ ($n = 2$ in most cases), a fundamental question arises as to how the *label* can be determined for each syntactic object. According to Fukui's conception, at MERGE($\alpha_1, \dots, \alpha_n$), the label of some α_i ($1 \leq i \leq n$) (dub it $L(\alpha_i)$) is associated with edge-feature that triggers the projection of $L(\alpha_i)$ to the set

$\{\alpha_1, \dots, \alpha_n\}$, leading to a labeled structure $\{L(\alpha_i), \{\alpha_1, \dots, \alpha_n\}\}$ Fukui calls this edge-feature-driven Labeling operation *EMBED*, highlighting the self-embedding property. Edge-feature, in this conception, is the driving force of *EMBED*, perhaps not of *MERGE* (set-formation) itself.

Fukui's conception of edge-feature has several advantages: first, we have a partial answer to the question why application of *MERGE* is triggered by edge-feature: Without edge-feature, the label for the output set of *MERGE* cannot be determined. This leads to a labelless structure, which presumably violates some legitimacy conditions.¹ Thus, the need of edge-feature for *MERGE* reduces to conditions that require labels for syntactic structures. Second, there is no need to stipulate any additional labeling algorithm to determine labels (as Chomsky 2005 did): the label for each object is determined simply by the presence of edge-feature. This is virtually a minimum assumption, conforming to the minimalist spirit. Third, this theory of edge-feature offers an elegant way to capture some parametric differences between languages like English and ones like Japanese, as Fukui (2006) suggests. I now turn to this matter in §2.2.

Before continuing, let us make a terminological decision: let us refer to edge-feature with the above qualifications as *E-feature*, attributing to the *E* (i) *Embed* (it is the driving force of *EMBED*/Labeling) and (ii) *edge* (this feature, *in effect of* (i), is a prerequisite for a merger of some object to its holder's "edge").

¹ See, for example, Citko (2006) and Boeckx (to appear), for some discussion on the necessity of the notion *label* in syntactic theory.

2.2. E-feature and Agreement

If each E-feature is to be deleted when satisfied by *EMBED*/Labeling, the sole possible structure that recursive *MERGE* can produce is unidirectional branching of the form *Head-Complement* (Chomsky 2006). Empirical evidence suggests that Specs exist, which (among other reasons) led Chomsky (2005, 2006) to propose that E-feature is undeletable. Every category can in principle bear an indefinite number of Specs due to the undeletability of E-feature, with the alleged distinction between complement and Specs just reduced to first-merged and later-merged.

Consequently, the restriction on the number of Specs per category should be determined by some other factors. Fukui (2006) suggests that one of such factors is *agreement*. Assume with Chomsky (2006) that *AGREE* triggers *TRANSFER*, which sends syntactic structures to two interpretive components, Phonology and Semantics. Fukui proposes that *TRANSFER* deletes/inactivates E-feature. As a consequence, an LI associated with some agreement feature will cease to project when this feature undergoes *AGREE*, triggering *TRANSFER*. In essence, agreement terminates projection. This hypothesis partially derives the traditional observation that the relation between the head and its agreeing Spec is typically bijective/one-to-one (cf. Spec-Head agreement; see Fukui 1986, Chomsky 1986, 1995; cf. Hiraiwa's 2005 theory of Multiple Agree²).

² If derivationally simultaneous Multiple *AGREE* is allowed, as argued by Hiraiwa (2005), then the possibility of multiple Specs each agreeing with a single head remains. Consequently, there would be two types of multiple Specs: all instances of one type lack agreement altogether, and those of the other agree with the head simultaneously. I do not go into this issue in detail, and simply

This hypothesis sheds a new light on the comparative syntax of Japanese and languages like English, as Fukui argues (see Fukui 1986 and Kuroda 1988 for pioneering research in this area). On the one hand, languages like English have regular ϕ -feature agreement between NPs/DPs and Case-assigning heads (though sometimes morphologically impoverished). The ϕ -feature agreement in these languages clearly instantiates the bijective nature of agreement, thus the categories typically have at most one agreeing Spec. On the other hand, Japanese instantiates another type of languages that completely lacks ϕ -feature agreement: Japanese NPs³ do not show any morphological distinction on person, number nor gender, and verbs do not inflect with respect to any grammatical feature of subject NPs. A significant aspect of Japanese is that it allows multiple Spec constructions, unlike the English-type languages. The contrast is clearly observed both in sentential domains (as in (1a) and its literal English counterpart (1b)) and in nominal domains (as in (2a) and (2b)).

- (1) a. bunmeikoku-ga dansei-ga heikinzyumyoo-ga mizikai.
civilized.countries-NOM male-NOM average.lifespan-NOM is.short
b. *Civilized countries, males, the average lifespan is short.

assume, following Fukui, that multiple Specs in Japanese are of the former type. The following empirical considerations on HIRCs constitute evidence for this view. See note 8.

³ In this paper I refrain from assuming a null D head for Japanese nominals, but nothing in what follows hinges on this decision. See, e.g., Fukui (1986), Chierchia (1998), Fukui and Takano (2000) and Takeda (1999), for the view that nominals in languages like Japanese are NPs, not DPs.

- (2) a. Tokyo-(de)-no sensyuu-no John-no sono koogi
Tokyo-at-GEN last.week-GEN John-GEN that lecture
b. *Tokyo's last week's John's that lecture

Moreover, if we assume that (at least some instance of) scrambling is an operation that dislocates categories to some optionally created Spec-positions, the presence of scrambling constructions in Japanese and the absence of them in languages like English are just another aspect of the (im)possibility of multiple Specs (Saito and Fukui 1998). The relevant data are provided below.

- (3) a. John-ga ringo-o tabeta.
John-NOM apple-ACC ate
b. John ate apples.
(4) a. *ringo-o_i* John-ga *t_i* tabeta.
apple-ACC John-NOM ate
b. **Apples_i* John ate *t_i*.

Fukui proposes that the presence/absence of ϕ -feature agreement in these domains is responsible for the (im)possibility of multiple Specs: If ϕ -feature agreement holds, it terminates projection of categories, thus no more Spec can appear due to the lack of E-feature; If ϕ -feature agreement is absent, then the projection will be never “closed-off”. That is, the E-feature is “in full force” in languages like Japanese, in Fukui’s terms. This leads to the possibility of multiple occurrences of Specs as a natural consequence. Multiple Specs are allowed insofar as they can receive appropriate interpretations (e.g., Predication,

as Fukui suggests; cf. (10)).

(i) That Japanese lacks ϕ -feature agreement, (ii) that Japanese allows multiple Spec constructions, (iii) that Japanese allows scrambling, and (iv) that the opposite of (i)-(iii) is true in languages like English are all obvious empirical facts that need to be provided theoretical explanations. Fukui's theory of E-feature and agreement attains this goal with virtual conceptual necessity, hence conforming to the spirit of the minimalist program.⁴

3. A Project Both analysis of Japanese HIRCs

3.1. Outline

In §2 I outlined Fukui's theory of E-feature, according to which the E-feature is in full force in Japanese, due to the lack of agreement. Note that the supporting data provided there, consisting of multiple Spec constructions as in (1a) and (2a) and scrambling constructions as in (4a), are instances of projection of the *head* category. However, once we assume that Japanese lacks agreement, nothing in principle excludes the possibility of projection of the *Spec* category, since E-features of Specs also remain active, if there is no agreement.

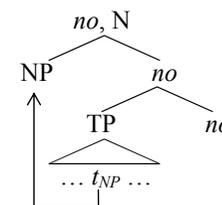
I will argue that the so-called *head-internal relative clause* (HIRC) construction in Japanese (Shimoyama 1999, Fukui and Takano 2000, Watanabe 2004, Kuroda 2006, and references cited therein), as exemplified in (5), involves

⁴ On the other hand, theories which assume undetectable abstract ϕ -feature agreement in even languages like Japanese must make some additional *ad hoc* stipulations in order to allow multiple Specs (such as feature [+multiple] in Ura (2000), whose sole function is to indicate that its holder can allow more than one category to be merged to its checking domain). See note 8.

exactly this kind of additional Spec-projecting option, as schematized in (6).

- (5) Isao-ga [ringo-ga soko-ni oiteatta no] -o te-ni tot-ta.
 Isao-NOM apple-NOM there put.was NO -ACC hand-at take-PST
 lit. 'Isao took [an apple was put there] in his hand.'

- (6) (order irrelevant)



no is a so-called *formal noun* (*keishiki-neishi* in Japanese grammar), which is used to nominalize the complement clause (see Takeda 1999).⁵ In the HIRC construction, an NP which surfaces purely internal to a *no*-clause is somehow construed as the “relative head” of that clause. For example, (5) receives an interpretation where the underlined NP *ringo-ga* ‘apple’ is construed as receiving the matrix object θ -role, quite similar to its ordinary externally headed relative clause counterpart [*soko-ni oiteatta*] *ringo* ‘(an/the) apple that was put there’. Let us refer below to the NP which surfaces internal to the HIRC but nevertheless exceptionally serves as the semantic “relative head” of the HIRC (*ringo-ga* in (5)) as the *internal pivot* (*I-pivot*), with marking it by underlining.

The proposed analysis hypothesizes that the I-pivot NP “covertly”⁶ moves

⁵ I assume with Takeda (1999) that the complement of the nominalizer *no* is TP. See Murasugi (1991) for the view that Japanese relative clauses are TPs.

⁶ The characterization of the “covertness” of this movement will be discussed in §6. Note that this “covert” movement must apply *before* SPELL-OUT/TRANSFER,

to the edge of the *no*-clause, at which the I-pivot NP *projects*, in addition to *no*, resulting in the *Project Both* structure (6) (cf. Citko's 2006 "Project Spec" analysis of free relatives). The label *no* is responsible for Case assigned to the HIRC (e.g., Accusative (*o*) in (5)). On the other hand, if we assume that θ -roles are discharged to the labels of NPs, the other I-pivot N label instantly explains the fact that the I-pivot "heads" the *no*-clause in that it receives the θ -role discharged to the HIRC. The active E-feature of *no* can, as I assume, trigger optional dislocation of the I-pivot (scrambling), thus no additional assumption need not be made to enable this movement.⁷ (See note 6, 18.)

What this analysis crucially hinges on is only the minimal assumption that the E-feature is in full force in Japanese, due to the lack of agreement.⁸

3.2. Projection and Economy

However, one might argue that the assumption that the E-feature is in full force in Japanese leads to overgeneration: for example, if an NP moved by scrambling to the sentence-initial position can project there, the resultant structure will be NP, not CP, thus this sentential "NP" should be able to function

since the E-feature of *no* and the I-pivot N label must be active then. See §6.

⁷ That overt scrambling of nominative NPs often leads to unacceptability can be just a matter of sentence processing, as I assume, thus I argue that a nominative NP can be unproblematically dislocated to the edge of *no*-clause, projecting there, and becoming the I-pivot.

⁸ If our analysis is on the right track, the existence of Spec-projection (such as that of I-pivot NPs) constitutes counterevidence to Ura's (2000) view that multiple Specs in Japanese are licensed by multiple agreement. See note 2, 4.

as an NP (that is, there are predicted to be cases where a clause like (4a) can behave as an NP), an unwanted result. However, I claim that such a derivation will necessarily violate the Case filter, which forbids a single NP to receive more than one Case (one from within CP, one from above), thus is disallowed.⁹

This account leaves the possibility that an NP α is scrambled to the edge of another NP β dominating the original copy of α , projecting there, resulting in a *Project Both* structure of the form $[_{L(\alpha), L(\beta)} \alpha [_\beta \dots t_\alpha \dots]]$ (order irrelevant). In such cases, β should be able to "protect" the projected α from being assigned another Case, circumventing the Case filter violation. Note that this is essentially the proposed structure for HIRCs, with just specifying β as the nominalized clause headed by the formal noun *no* (see (6)). A natural question then is whether NPs other than those headed by *no* can be β . Empirical evidence suggests that they cannot, as suggested by the deviance of examples like (7).¹⁰

⁹ Another problematic possibility concerns focus-driven VP/vP-preposing, accompanied by focus particles like *sae* 'even', *mo* 'also'. If the preposed VP/vP can project, the resultant clause should be able to behave as VP/vP. I assume that the focalization involved here has a force to close off the projection of VP/vP by TRANSFER, possibly via AGREE. Koizumi (2001) proposes that Japanese has an option of VP/vP-scrambling, but this view is criticized by Fukui and Sakai (2003). I put such VP/vP-related matters aside.

¹⁰ An exception is the nominalized clauses headed by another formal noun *tokoro*, the so-called *tokoro*-relative clauses. See Narita (2007, forthcoming) for an analysis of *tokoro*-relative clauses along the *Project Both* approach.

(7) *Isao-ga [*ringo-ga* (soko-ni) oiteatta {*koto/teeburu*}]*-o* te-ni tot-ta.
Isao-NOM apple-NOM there put.was fact/table -ACC hand-at take-PST
lit. ‘Isao took [the {fact/table} that an apple was put (there)] in his hand.’

The question thus reduces to why *no* is special in allowing Project Both.

I here resort to the economy principle of *Full Interpretation* (FI) (Chomsky 1986: 98). Let us assume that a θ -role can be assigned to one and only one argument NP (a weaker version of *θ -Criterion*).¹¹ If an argument position is filled by a Project Both structure headed by two distinct N labels, then these labels compete for being assigned the θ -role. Unavoidably, either one of the two labels will be a “loser” who cannot receive the θ -role. This label will not be able to receive an appropriate interpretation, due to the lack of θ -role, thus leading to the violation of FI. I claim that this is why examples like (7) are unacceptable: if the θ -role is assigned to the label of the host N, *koto* ‘fact’, *teeburu* ‘table’, etc., then the projection of the “I-pivot” is totally futile, which I assume leads to the FI violation; if the θ -role is “stolen” by the intruding “I-pivot” N label, the other label, *koto*, *teeburu*, etc., cannot receive interpretation due to the lack of an θ -role, again resulting in the FI violation. Then, the remaining question is why the label *no*, unlike other Ns, can be robbed of the θ -role by the I-pivot label (the HIRC construction). Here I resort to Takeda’s (1999) proposal that the formal noun *no* is special in that it lacks semantic content,¹² and propose that this

¹¹ Note that the *strong θ -Criterion*, the one-to-one correspondence requirement between θ -roles and arguments, is claimed not to hold, to the effect that a single N label can receive more than one θ -role, as the projected I-pivot label.

¹² This assumption accounts for the fact that this N must accompany some

semantically “light” status of *no* allows it to be exempted from the FI requirement (perhaps it undergoes deletion before reaching LF).¹³ Thus, with resorting to FI, the Project Both analysis can offer an elegant account of HIRCs without leading to overgeneration.

4. Deriving Kuroda’s Generalization

I now argue that our economy-based Project Both account has another advantage: specifically, I argue that it derives S.-Y. Kuroda’s (2006) generalization that Japanese HIRCs appear only in θ -marked NP-positions:

- (8) Japanese HIRCs are legitimately base-generated (externally merged) only into θ -marked positions.

Space reasons prevent us from reviewing Kuroda’s (2006) thorough discussion. To provide just a pair of examples demonstrating this point, see the contrast in (9) (Kuroda 2006: (79)): HIRCs can appear in a possessor position within

predicate modifier like adjectives or relative clauses to stand as an interpretable NP at all (e.g., *akai-no* ‘a red NO/one’, but **no* ‘(a/the) NO/one’). Moreover, the fact that *no*-headed NPs resists honorification (**wakai-no-ga irassyatta* ‘the young NO/one came-POLITE’) can be seen as a natural consequence of this assumption, as Takeda argues, if we assume that honorification must hinge on the [+polite] feature on the head noun, which *no* cannot bear by assumption.
¹³ *no* is similar to expletives like English *there* and *it* in this respect. I believe that the difference is that *no* is an N while expletives are Ds, but I will not discuss this matter. See Takeda (1999). See also note 3.

another NP, only if it is selected/ θ -marked as an inalienable possessor (the case of *me* ‘eye’). Alienable possessor positions are assumed to be not θ -marked, thus the same HIRC cannot appear there (the case of *suitoo* ‘canteen’).

- (9) [[*gakusei-tati-ga* saka-o nobottekuru *no*]-no {*me*?**suitoo*}]-ga
student-PL-NOM hill-ACC climb NO -GEN {eye/canteen} -NOM
kagayaite mieta.
shiny looked
lit. ‘The {eyes/?* canteens} of [the students was climbing up the hill]
looked shiny.’

See Kuroda (2006) for extensive data conforming to his generalization (8).

§3.2 proposed that Project Both structures are subject to FI considerations, which bans “futile” projection of labels. This amounts to saying (10):^{14, 15}

¹⁴ Compare it with Chomsky’s economy principle on the optional EPP-feature assignment (i) (Chomsky 2001:34(60)), which can be seen as a corollary of (10):

- (i) Optional operations can apply only if they yield a new interpretive outcome:
in the present case, v^* may be assigned an EPP-feature to permit successive-cyclic A'-movement or Int (under OS).

¹⁵ Fukui (2006) proposes that multiple Specs as in (1a) and (2a) are licensed by Predication.

- (10) Each application of EMBED/Labeling is licensed only if it leads to a new interpretive outcome.

I claim that in present cases, the projection of the raised I-pivot can satisfy (10) only if the N label is licensed by saturating a new θ -role. Speaking otherwise, I assume that the I-pivot projection that does not satisfy a θ -role assigned to the HIRC position leads to the violation of (10). As a consequence, the HIRC can be merged only to positions where the I-pivot label can saturate another θ -role, thus deriving Kuroda’s generalization (8) (cf. Kuroda 2006).

5. Further Evidence from Local Disjointness Effects

According to our Project Both analysis, HIRCs are headed by their I-pivot N. This section will introduce further supporting evidence for this view. The relevant observation is that an HIRC-internal pronominal shows a “high behavior” with respect to local disjointness (LD) effects (a.k.a. Condition B effects), only if it is construed as the I-pivot of the HIRC.¹⁶

- (11) In regard to LD effects, an I-pivot pronominal behaves as if it occupies the argument position where the HIRC occupies at PF.

Let me illustrate this point with concrete examples. First, look at (12) and (13).

¹⁶ Fujii (2004) first observed a similar fact for the so-called *Tokoro*-relative clause construction in Japanese. See also Narita (2007, forthcoming).

(12) *sono gakusei-wa_i {soitu-o*_i/zibun-o_i} sensei-ni suisensita.*

that student-TOP him-ACC/self-ACC teacher-DAT recommended

lit. “That student_i recommended {him*_i/self_i} to the teacher.”

(13) *sono gakusei-wa_i [{soitu-no_i/zibun-no_i} oya]-o sensei-ni suisensita.*

that student-TOP him-GEN/self-GEN parent-ACC teacher-DAT recommended

lit. “That student_i recommended {his_i/self’s_i} parents to the teacher.”

(12) is a simple illustration of LD effects, where the object pronominal *soitu* ‘him’¹⁷ cannot be coindexed with the clausemate subject. If the pronominal is replaced by the so-called subject oriented anaphor *zibun* ‘self’, the relevant binding construal can obtain quite easily. Cf. the acceptability of (13). Now, look at (14):

(14) *sono gakusei-wa_i [{soitu-ga*_i/zibun-ga_i} ooru-A-o totta no]-o*

that student-TOP he-NOM/self-NOM all-A-ACC got NO -ACC

sensei-ni suisensita.

teacher-DAT recommended

lit. “That student_i recommended [{he*_i/self_i} got all A’s] to the teacher.”

Here, the I-pivot pronominal *soitu*, serving as the I-pivot of an HIRC, cannot be bound by the matrix subject NP *sono gakusei* ‘that student’, even if it surfaces within the subordinate *no*-headed clause. This contrasts with (15), an instance of

¹⁷ Other kinds of pronominals, including *kare* ‘he’ and a null *pro*, can be used to illustrate the same point, though the relevant data will not be supplied here and below due to reasons of space.

simple embedding structures.

(15) *sono gakusei-wa [[soitu-ga_i ooru-A-o totta] {to/koto-o/no-o}]*

that student-TOP he-NOM all-A-ACC got {that/fact-ACC/NO-ACC}

sensei-ni zimansi-dasita.

teacher-DAT boast-began

“That student_i began to boast to the teacher [that he_i got all A’s].”

The pronominals here can corefer with the higher clause subject easily. Thus the contrast between (12) and (15) shows that LD effects are observed only between clausemate NPs. This in turn suggests that something peculiar happens in HIRC cases like (14). Specifically, the I-pivot pronominal in (14) behaves with respect to LD effects as if it is in the matrix object position, where the HIRC just occupies at PF. This state of affairs constitutes evidence that the HIRC is “headed” by the I-pivot, in such a way that it induces LD effects with the subject of the superordinate clause. We can explain this fact as a straightforward consequence of our Project Both analysis.

Hoji (1995 and subsequent works) argues that LD conditions are relevant only to variable binding by QPs, while the unacceptability of examples like **he recommended him* or its Japanese counterpart (12) is to be attributed to some other (possibly extra-grammatical) factors. Note that even if we construct examples analogous to (14) with quantifiers and pronominals with a bound variable interpretation, we still have LD effects, as shown in (16) (cf. (17), (18)).

(16)*? *Toyota ya Nissan-sae-ga_i [soko-ga_i zyuntyoo-ni uriage-o nobasiteiru*

Toyota & Nissan-even-NOM it-NOM favorably sales-ACC extend

no]-o suisensita.

NO -ACC recommended

lit. “*Even Toyota and Nissan_i recommended [it_i favorably extends sales].*”

(17)*? *Toyota ya Nissan-sae-ga_i soko-o_i suisensita.*

Toyota & Nissan-even-NOM it-ACC recommended

lit. “*Even Toyota and Nissan_i recommended it_i.*”

(18) *Toyota ya Nissan-sae-ga_i [soko-no_i kogaisya]-o suisensita.*

Toyota & Nissan-even-NOM it-GEN subsidiary -ACC recommended

lit. “*Even Toyota and Nissan_i recommended [its_i subsidiary].*”

Here I use the pronominal *soko* ‘it (for places, institutes),’ which allows a bound variable construal fairly easily. Ueyama (1998) extensively argues that only a certain type of *plural-denoting* quantificational NPs (QPs), including *Toyota-sae* ‘even Toyota (among others),’ does make reference to LF c-command between the QP and the bound pronoun(s) for establishing a bound variable construal.

Here I illustrate the point with QP *Toyota ya Nissan-sae* ‘even Toyota and Nissan (among others),’ which is more clearly plural-denoting than *Toyota-sae* and hence expected to show the relevant contrast more clearly.

Let me quickly mention the fact that there are some speakers, including Yukino Kobayashi (p.c.), who accept the bound reading of *soko* as in (17) fairly easily (see Hoji 2003: fn. 67). They also typically regard (16) as good, too. Hajime Hoji (ibid; lecture at Kyoto University in February, 2007) suggests that a possible account of the lack of the relevant LD effects to these speakers is that

they can analyze (17) as involving a multiple subject construction analogous to (19) with replacing the inner subject with *pro*.

(19) *Toyota ya Nissan-sae-ga_i [soko-ga_i soko-o_i suisensita].*

Toyota & Nissan-even-NOM it-NOM it-ACC recommended

“As for *even Toyota and Nissan_i*, *it_i* recommended *it_i*.”

If we assume with Hoji that only quantificational variable binding induces LD effects, the clausehood of *soko-ga* (or its *pro* counterpart) and *soko-o* in (19) is unproblematic, since the coreference between them does not count as variable binding. If we further assume that major subjects (i.e., outer subjects in multiple subject constructions) are out of the domain relevant for LD effects, they should be able to bind lower pronominals without inducing LD effects. Hence the acceptability of (19) to these speakers ceases to be problematic.

Hoji provided evidence for this analysis. Scrambling an object over a major subject yields deviance (as Saito (1982:18) suggests; examples are from Saito):

(20) *John-ga ootoo-ga buturi-o benkyositeiru.*

John-NOM brother-NOM physics-ACC is.studying

“As for John, his brother is studying physics.”

(21) ?* *buturi-o John-ga ootoo-ga t benkyositeiru.*

Then, if we analyze the possibility of the bound variable reading of (16) to some speakers as necessarily involving a major subject as in (19), then it is predicted that the bound pronominal object cannot be scrambled over the subject QP. This

prediction seems to be borne out by the fact that even those speakers typically find the bound variable anaphora reading in (22) as unacceptable, in contrast to (23), which can be saved by “LF reconstruction” of the scrambled object.

(22)**soko-o_i Toyota ya Nissan-sae-ga_i t suisensita.*

it-ACC Toyota & Nissan-even-NOM recommended

lit. “*It_i, even Toyota and Nissan (among others)_i, recommended t.*”

(23) [*soko_i-no kogaisya*]-o *Toyota ya Nissan-sae-ga_i t suisensita.*

it-GEN subsidiary -ACC Toyota & Nissan-even-NOM recommended

lit. “[*Its_i subsidiary*], *even Toyota and Nissan_i*, recommended *t.*”

I assume, for the purpose of the present discussion, Hoji’s line of analysis to be on the right track. What is relevant is that those speakers also find the examples involving HIRC’s like (24) as unacceptable, too, just to the degree of (22).

(24)*?[*soko-ga_i zyunyoo-ni uriage-o nobasiteiru no*]-o

it-NOM favorably sales-ACC extend NO -ACC

Toyota ya Nissan-sae-ga_i t suisensita.

Toyota & Nissan-even-NOM recommended

lit. “[*It_i favorably extends sales*], *even Toyota and Nissan_i*, recommended *t.*”

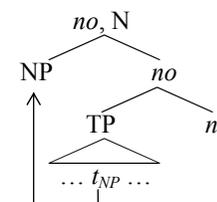
Thus, the occasional across-speaker judgmental fluctuation discussed in regard to (16) does not constitute counterevidence to the present claim. Rather, if we elaborate some experiment in judgment, adopting Hoji’s major subject analysis of the LD effect obviation, their response is proven to constitute rather

supporting evidence for our claim that the I-pivot “covertly” heads the HIRC.

6. On the Covertness of the I-pivot Raising

In the preceding discussion, I simply said that the I-pivot raising to the edge of HIRC’s, schematized in (6) repeated here as (25), is “covert” movement, whose theoretical characterization remains to be offered.

(25)



Note that, as pointed out in note 6, the E-features of *no* and the I-pivot must be active at the time of this covert movement, since otherwise they cannot project. Then, in order to generate the Project Both structure, the movement must apply before TRANSFER/SPELL-OUT, since otherwise TRANSFER deletes/inactivates these E-features. Then, how can the movement be “covert”, even if applying before SPELL-OUT?

I here propose, following Narita (2007), that the movement of the I-pivot in (25) is an instance of *Pre-SPELL-OUT Covert (PSOC) movement* in the sense of Kato (2004). PSOC movement is movement that applies before SPELL-OUT, just as cyclic as overt movement, but the lower copy somehow gets pronounced at PF. Following Bošković (2002) and Bobaljik (2002), I assume that the PSOC strategy is allowed for Phonology by UG, if such a “last resort” consequently salvages otherwise legitimate interface representations from violations of some

PF-constraints, and I propose that Japanese HIRCs involve this very option.

In order to argue for this view, it should be pointed out that there is a problem in the first place as to how Project Both structures like (25) can ever be pronounced, if sent to PF. Informally speaking, the moved I-pivot qualifies both as the “Spec” and as the “head” (or an intermediate “bar-level” projection) of the same HIRC node, due to the coexisting two labels. Then, such a structure naturally leads to a linearization problem, as Narita (2007) pointed out: since Japanese is a head-final language, a “Spec” of X should be linearized to the left of the rest of HIRC terminals, while the “head” X or any intermediate projections X' should be linearized at the rightmost position. Thus, a single category cannot be both “Spec” and “head” (or X') of a single node.

This linearization problem is in fact a general one, not restricted to the head-parameter-based account of linearization. I would like to point out that even for other current accounts of linearization, there must be some antecedent definitions of labels/heads for each node. For example, Kayne’s (1994) LCA crucially refers to domination by maximal projections and segment theory of adjunction/substitution, thus it also faces the linearization problem of Project Both structures (Note that Chomsky’s (1995) modified version of it also refers to domination). Fukui and Takano’s (1998, 2000) Symmetry Principle, in particular the theory of DEMERGE, more clearly relies on labels. As far as I can see, there has been no convincing proposal of PF-linearization which does not refer to labels. Thus, the linearization problem of Project Both is real.

Does the “nonlinearizability” necessarily lead the derivation to crash? Not necessarily, I would like to suggest. Specifically, I propose that a PSOC strategy is a possible option here. That is, in order to salvage the (otherwise legitimate, as

I assume) representations of the form (25) from the linearization problem, Phonology is allowed by UG to choose to pronounce the moved I-pivot not at the “offending” highest copy but at the next lower, HIRC-internal one, leading to PSOC movement at PF.

This account derives the “covertness” of the I-pivot raising in (25) as a corollary of the Project Both status of HIRCs, not as an independent *ad hoc* stipulation.¹⁸ The underlying intuition here is that Project Both is a “trouble maker” for Phonology. Its existence, real as I argue, constitutes evidence for Chomsky’s recent view that human language is primarily optimized for the LF-interface, while it is “poorly designed” for Phonology (Chomsky 2005).

7. A Brief Note on Watanabe’s Generalization

Before closing this paper, I would like to mention another prospect that the proposed analysis offers. We have proposed that Japanese HIRCs involve Project Both of two N labels, enabled by the lack of ϕ -feature agreement. An immediate prediction that our Project Both analysis makes is that Japanese-type HIRC constructions can be found only in languages that lacks ϕ -feature agreement. It is interesting to note Watanabe’s (1992) generalization that HIRC constructions are found only in *wh-in-situ* languages. *Wh*-movement has been considered as a typical instance of agreement, due to its bijective nature (Fukui 1986). Though the relation between ϕ -feature agreement and *wh*-movement

¹⁸ Moreover, we can even propose that the Project Both structure forces syntax to *move* the I-pivot: Project Both derived by base-generation/External MERGE of NP at the edge of HIRCs is not a possible option, given that there must be some lower pronounceable copy of the NP at all.

within one language remains unclear, it seems that the (non-)existence of the former rather often correlates with that of the latter. Indeed, languages discussed by Watanabe also seem to me to conform to our prediction, that is, they typically lack ϕ -feature agreement. Thus, our analysis gains partial support from language typology as well. Ramifications of this prediction are left for future research.

8. Concluding Remarks

This paper demonstrated that properties of Japanese HIRCs can be derived from a minimal parametric property of Japanese, the lack of ϕ -feature agreement proposed by Fukui (2006). The presence/absence of ϕ -feature agreement is a property of I-languages easily detectable from primary linguistic data, thus posing no learnability problem (cf. Fukui and Sakai 2003). Many issues remain to be addressed in this short paper (e.g., why the PSOC I-pivot raising cannot alter the scope height of the I-pivot QP, a problem that led Narita 2007 to propose that what is moving is just the head N of the I-pivot, not the entire I-pivot NP; see Shimoyama 1999), but I hope this work will contribute to a better understanding of Japanese HIRCs, and to comparative syntax in general.

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(naritahiroki@gmail.com)