A “Project Both” Perspective on Covert Movement in Japanese Head-Internal Relative Clauses

by

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Contents

1 Introductory Remarks

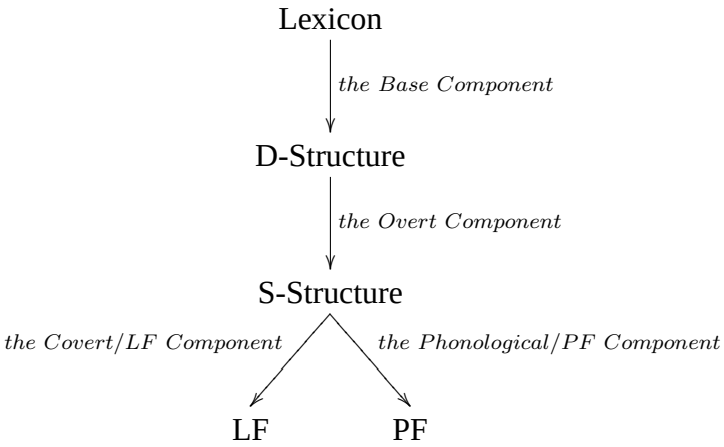
This thesis aims at investigating the theoretical status of syntactic "covert movement" in the current copy theory of movement (Chomsky 1993), through a detailed study of the Japanese *head-internal relative clause* (HIRC) construction. The notion of "covert movement" has repeatedly caused heated discussions, but there has been a dominant assumption about the proper characterization of such a movement operation: it is a movement whose application takes place *after Spell-Out*, that is, after the derivational branch point that splits derivations into LF- and PF-components. However, the paradigm change from the *trace theory of movement* to the *copy theory of movement* opens up a possibility that some instances of covert movement can be analyzed as pre-Spell-Out movement, instead of post-Spell-Out LF movement. I will propose that the Japanese HIRC construction is most properly analyzed as involving this type of movement, a *Pre-Spell-Out Covert* (PSOC) movement. Specifically, I will propose that the moved category *projects* its label to the entire HIRC, rendering it labeled by two lexical items simultaneously, and that this dually labeled structure eventually makes the moved category "unliniearizable" and forces it to be pronounced at the tail position of that movement chain.

1.1 The Notion of Covert Movement

In the history of generative grammar, one of the most conceivable and standardly assumed characterizations of the notion "covert movement" has been movement that takes place *after Spell-Out*, that is, after the derivational branch to the phonological component. For example, in the familiar Y-model of the GB framework, where the syntactic component is characterized as a mapping system that relates D-structure, S-strucuture, PF and LF (as schematized in (1)), covert movement is

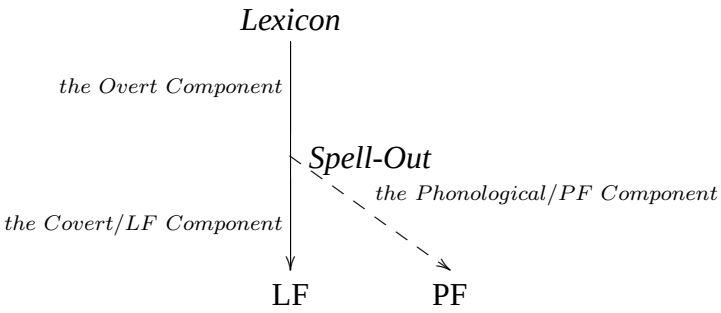
characterzied as a transformation taking place in the *LF component*, the mapping from S-structre to LF.

(1) The Y-model (Chomsky 1982, 1986, Chomsky and Lasnik 1993)



There is a distinct linguistic representation, called *S-structure*, that constitutes input both to the LF component and to the PF component (the mapping from S-structure to PF). In this model, operations of the LF component, covert movement being a major instance of them, *by definition* apply after S-structure, hence such operations have no phonological effect. Chomsky (1994, 1995) proposed that due to their conceptual unwarrantedness, the intermediate linguistic representations such as D-structure and S-structure should be eliminated from the theory of grammar, but even in the S-strucuture-free framework of Chomsky (1994, 1995) there is a certain branching point that splits derivations into the LF component and the PF component, which is claimed to be set by the operation *Spell-Out*.

(2) Chomsky's (1995) single Spell-Out model



As far as the characterization of covert movement is concerned, there is no qualitative difference between these two models: both characterize covert movement as a movement that applies after Spell-Out, or the derivational branch to the phonological component. In this conception, the lack of phonological effects at PF is attributed to the "timing" of the application of the movement operation: Movement at the LF component is "too late" to feed any phonological effect.

This conception of covert movement was largely unavoidable in the GB era, since the *trace theory of movement* was dominantly presupposed (Chomsky 1982). According to this hypothesis, the movement operation replaces a syntactic constituent by a designated empty category *trace*, and it literally *dislocates* the constituent to some other position. For example, the *wh*-movement in example (3) literally dislocates *what* to the clause-initial position, and substitutes a trace (t_i) for the original occurrence of the moved *wh*. The identity relation between the moved *wh* and the trace in its original position is mediated by a hypothetical construct *chain*, which is established and expanded by each application of movement (see Chomsky 1981, 1982).

(3) *what*$_i$ did you see t_i ?
dislocation & trace−insertion

In this theory it is always only the moved constituent itself that retains/pied-pipes its phonological content, hence all pre-Spell-Out movements must result in a literal dislocation of the constituent, feeding the PF representation. Therefore,

movement with no phonolgical effect is possible only if the moved category itself lacks phonological content, either inherently (e.g., the case of a null operator), or due to having been already affected by Spell-Out.

(4) a. Movement of an invisible entity

John saw the man [Op_i that you met t_i yesterday].

$dislocation$ & $trace{-}insertion$

b. Post-Spell-Out movement

~~what~~$_j$ *who*$_i$ t_i bought t_j ? (Who bought what?)

$dislocation$ & $trace{-}insertion$

However, the *copy theory of movement* (Chomsky 1993) had the power to change this picture. According to this alternative hypothesis, movement is essentially a *copying* operation: movement does not "dislocate" a category, let alone replace it with any other object such as a trace, but just leaves it unaffected in its original place. Instead, it creates a *copy* of the category to the target position of that movement. For example, the *wh*-movement in (3) is rather represented in a trace-free manner as in (5). The *what* in the base-generated position stays as it is, and what is raised up to the clause-initial position is just its copy.

(5) *what*$_i$ did you see *what*$_i$?

$copy$ & $remerge$

The hypothetical construct *trace* is eliminated from the theory of grammar, and the notion *chain* just reduces to a set of *occurrences* of the moving cateogry.

Note that it was a direct corollary of the trace theory of movement that a moved category is pronounced at the *chain-head* position, since only the chain-head is assumed to retain the phonological content (all the other chain members are just empty traces). However, this state of affairs is no longer a directly predicted consequence in the copy theory of movement. In this theory, movement is just a copying operation, which recursively creates copies of categories. If this is the case,

all copies of a single category should be seen as potential candidates for phonetic realization, since they are just copies of one and the same category. Specifically, not only the chain-head copy but also all other copies should be associated with phonological content. Then, the phonological "dislocation" of the moved category must reduce to a result of a PF-decision to pronounce it at the chain-head position, not others. To ensure this effect, the theory must assume something like (6) as a phonological convention.

(6) the "Pronounce the Highest" convention[1]
A category is pronounced at its highest ocurrence.

I will not investigate the ultimate status of this convention, but it is clear that something like (6) must hold on a large scale in the copy theory of movement. See Nunes (2004) for some discussion.

It has recently been argued by a number of authors, including Bobaljik (2002), Bošković (2002), Groat and O'Neil (1996), Kato (2004), Nunes (2004) and Pesetsky (2000), among others, that the copy theory of movement opens up a possibility of a new type of "covert movement" which is qualitatively different from LF covert movement: the *pre-Spell-Out Covert* (PSOC) movement. It is a movement that *precedes* Spell-Out, that is, applies in the overt component (or *narrow syntax*) of the syntactic computation, but it is peculiar in that a non-highest copy of the moved category is somehow chosen to be pronounced by the phonological component.

This type of covert movement apparently disrespects (6). These authors suggest that the convention in (6) is violable in face of some more prominent PF-constraints. For example, Bošković (2002) proposes that some instances of PSOC

[1]Nunes (2004) proposed that this convention is a deductive consequence of the copy theory of movement, if we assume Kayne's (1994) Linear Correspondence Axiom and Chomsky's (1995) economy principle of comparisons of convergent derivations.

wh-movement in multiple *wh*-fronting languages result from respecting a PF constraint against consecutive homophonous *wh*-phrases (example (7) is drawn from Serbo-Croatian).

(7) Serbo-Croatian:

Šta **~~šta~~**$_i$ uslovljava **šta**$_i$?
what conditions what

On the other hand, Bobaljik (2002) argues that object-shift in the Scandinavian languages sometimes takes the form of PSOC movement, in order to respect the morphophonological condition that morphological merger/Affix-hopping requires PF adjacency of the merging heads (example (8) is drawn from Swedish).

(8) Swedish:

Det är troligt [att [$_{TP}$ de -te$_T$ **~~den~~**$_i$ [$_{VP}$ läs$_V$ **den**$_i$]]]
it is probable that they +PST read it

Det är troligt att de läste **den**.

"It is probable that they read it."

The fundamental insight that these authors pursue is that PSOC movement is a "last resort" strategy of the phonological component that is undertaken in order to salvage otherwise legitimate syntactic structures from violations of PF-constraints (cf. Groat and O'Neil 1998).[2]

Note that under the copy theory of movement it becomes an empirical problem whether each instance of "covert movement" should be analyzed as a post-Spell-Out (LF) movement or as a PSOC movement.

[2]This conception of covert movement indirectly supports Chomsky's recent view that human language is primarily optimized for the LF-interface, while it is "poorly designed" for Phonology (Chomsky 2005). For, if the view is essentially on the right track, it becomes natural to expect that there are some cases where the syntactic component happens to generate objects that are legitimate at LF but pose some difficulties at the phonological component, as in (7) and (8).

The conception of covert movement as a post-Spell-Out LF operation is reminiscent of the trace theory of movement. Note that LF covert movement is essentially *countercyclic*: it applies after the full syntactic object has been built in the overt component (narrow syntax), and after the structure is affected by Spell-Out. On the other hand, PSOC movement is as cyclic as overt movement, because there is no qualitative difference between the two, as far as syntax is concerned. What crucially differentiates them is not any syntactic property inherent to them, but rather some *post-syntactic* phonological operations.

As current syntactic theory puts a heavy emphasis on the strictly cyclic nature of human language computation (Chomsky 2004, 2005), the notion of covert LF component is now under critical scrutiny. Then, it is of growing theoretical interest whether the various instances of covert movement which have been formerly characterized as countercyclic LF covert movement in the past literature can be reformulated as PSOC movement. To the extent that such recharcacterizations are successful, the empirical basis for postulating covert LF component is weakened. There is now even a possibility that the notion of covert LF component is completely eliminable from the theory of grammar, a perspective that bears great theoretical implications for the theory of human language (cf. Groat and O'Neil 1996).

This thesis can be seen as a specific implementation of linguistic research aiming at this goal, through an empirical invesitgation into the *head-internal relative clause* construction in Japanese. I will argue that the covert movement observed in the Japanese head-internal relative clause (HIRC) construction is another instance of PSOC movement.

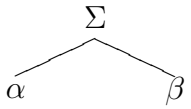
1.2 Some background assumptions

Before entering into the specific analysis of the Japanese HIRC construction, let me introduce some background assumptions about sentence construction in human language, which will be directly relevant for the following discussion.

1.2.1 Theoretical Framework

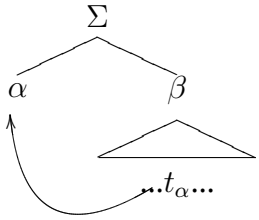
Let us begin with making some general assumptions about the underlying structure of the computational system of human language (*human language computation,* C_{HL}). Here I basically adopt Chomsky's recent framework, which is often called the *minimalist* theory (1993, 1995, 2000, 2001, 2004, 2005b, 2006). It is a variety of the Principles-and-Parameters (P&P) models of human language that strongly emphasize the economy and elegance that is persistent in human language. I will overview some of the core assumptions of the minimalist theory adapted in this thesis below.

First, I will assume the *bare phrase structure* theory of Chomsky (1994, 1995). According to this now dominant theory, phrase markers are constructed derivationally in a compositional manner by a recursive application of *Merge*. Merge is a generalized transformational rule that takes two syntactic objects, call them α and β, and forms a new phrase-marker Σ that consists of α and β as its daughters.

(9) Merge(α, β) = 

In the bare phrase structure theory, there is no designated "initial phrase marker" that constitutes input to the transformational component, such as the deep (D-) structure of early transformational grammar. All phrase-markers are constructed by recursive Merge in a bottom-up fashion. Moreover, Merge uniformly governs not only structure-building operations but also movement transformations. In particular, when one of the targets of Merge (e.g., α) is contained in the other target

(β), then this Merge results in movement of α to the edge of β, as schematized in (10). This variety of Merge, subsuming movement, is called *Internal Merge*, and in order to distinguish it from the Merge in (9), which subsumes the base-generation/structure-building of the previous framework, the latter is often called *External Merge*.[3]

(10) Merge(α, β) = 

As can be easily seen, Internal Merge subsumes the effect of movement in a minimal way. An interesting consequence of this unification of structure building and transformation is that they can intersperse.

Second, I will take the view that lexical itmes (LIs) are bundles of *features*. It is assumed that the minimal units that constitute *atoms* for syntactic computation are LIs, each of which is independently specified in the Lexicon. Every lexical item is a composition of features, each of which belongs to either (i) *formal* (or *syntactic*), (ii) *semantic*, or (iii) *phonological* subvarieties. Semantic and phonological features are associated with some semantic and phonological interpretive content, respectively. For example, the features [$\pm$Animate] and [$\pm$Human] are of the formar type, and [$\pm$Voice], [$\pm$fricative] are of the latter. On the other hand, formal features are assumed to be (the *only*) features that the syntactic component of C_{HL} can "see," and syntactic derivations are constructed in such a way that it crucially refers to formal features.

Features are also subdivided into *interpretable* and *uninterpretable* varieties. Interpretable features include all of the semantic and phonological features, which

[3]Just for the purpose of expository convenience, I will continue to employ the trace notation here and below, but bear it in mind that we are discussing matters under the copy theory of movement (Chomsky 1993).

by definition receive some interpretation at the LF- and PF-interface, respectively. Some varieties of formal features are also [+Interpretable], mostly being associated with some semantic content. Interpretable formal features include the categorial features of each lexical entry (such as N, T, C, etc.), person-gender-number specifications of each N (what are called *phi-features* (φ*-features*)), [$\pm$WH] specification of Cs, etc.[4] On the other hand, some other subvarieties of formal features are [$-$Interpretable] (so I will refer to the [$-$Interpretable] varieties of formal features simply as uninterpretable features). Uninterpretable features are features that will not receive any interpretation at the interface representations (LF and PF), hence they must be deleted in the course of derivation. If they are not appropriately deleted by some syntactic operations before they reach the interfaces, the derivation will crash and be canceled. Syntactic processes are thus characterized essentially as "feature-driven," in that they are triggered by the requirement of deleting these uninterpretable features. In this way, uniterpretable features mostly constitute the driving force behind syntactic computations of C_{HL}.

I assume with Chomsky (2000) that uninterpretable features are deleted by the syntactic operation *Agree*. This operation establishes a relation between two LIs that have uninterpretable features. In order to delete its uninterpretable feature(s), an LI searches its c-commanding domain to find the "Agree-partner(s)." If this search reaches some appropriate category to be in Agree-relation with, Agree holds, and the uninterpretable features are deleted. The searching category

[4]Christopher Tancredi (p.c.) suggested to me that it might be the case that categorial features themselves do not feed any interpretive effect apart from each LI's lexical semantic content. Such possibility also holds for many other allegedly interpretable formal features, such as grammatical gender, [$-$pronominal] [$-$anaphoric] features of r-expressions, and so on. Then it may be more appropriate to refer to this variety of features "non-uninterpretable" (rather than interpretable) formal features. For the sake of simplicity I will continue to employ the familiar terminology *interpretable features* below.

is called a *probe*, and its Agree-partner(s) are called *goals*. See Chomsky (2000, 2001, 2005) for details.

Another distinct aspect of Chomsky's recent syntactic theory is that it crucially assumes that syntactic derivations are strongly *cyclic* in nature. Specifically, I will adapt the *phase theory* of Chomsky (2001, 2004, 2005, 2006b), which largely attributes the strong cyclicity of C_{HL} to the notion *phase*. According to this hypothesis, syntactic operations apply in a *phase-by-phase* fashion: a sequence of syntactic operations that constitutes each syntactic derivations is subdevided into one or more sub-cycles distinguished from each other, the phases. Each phase contains a distinguished *phase head*, which virtually constitues the locus of operations within that phase-cycle. I follow Chomsky in assuming that the complementizer (C) and the variety of *light verbs* with full argument structure (*v**) qualify as phase heads, and that their maximal projections CP and *v**P are phases. Syntactic derivations are constructed in a "bottom-up" manner, starting from the most deeply embedded phase. After the completion of each phase, Syntax turns to the next higher phase-cycle. No later "countercyclic" access to previously constructed phases is allowed. Moreover, all operations triggered by the uninterpretable features on some probe category introduced into a phase must apply at that phase-cycle: a probe cannot choose to "put off" its operation(s) till some later phase-cycle. On the other, no operation at some phase-cycle can access into the domain of a previously completed phase, *except* the edge of the next lower phase. This is what Chomsky calls the *Phase-Impenetrability Condition* (PIC):

(11) PHASE-IMPENETRABILITY CONDITION (PIC) (Chomsky 2000: (21))
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

1.2.2 Theory of label projection

Let me further make an assumption for how syntax defines labels for each node. Chomsky (2005b) proposed that the following procedure assigns a label(s) to each node.

(12) Chomsky's labeling algorithm (Chomsky 2005:(2)-(3))

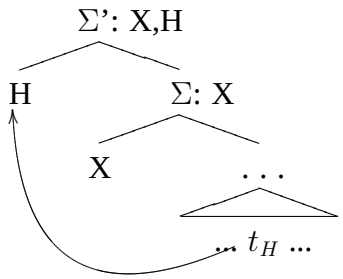
a. In {H, α}, H an LI, H is the label.

b. If α is internally merged to β, forming {α, β} then the label of β is the label of {α, β}.

I will follow Chomsky (2005b) in assuming the labeling algorithm as defined as (12).

Note that there are two distinct procedures for defining labels, (12a) and (12b). If we assume that they work independently of each other, then we can expect that in certain cases both of the two apply to a single node simultaneously. Indeed, Chomsky argues that this specific definition of the labeling algorithm allows a "dually labeled structure" in a limited environment. The crucial case is the one where an LI H is internally merged to some category Σ, as schematized in (13).

(13)



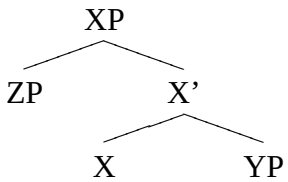
Suppose that Σ is labeled by some internal head X, and that X attracts some X^0 category within Σ to its edge, deriving a new syntactic object Σ'. The labeling procedure (12b) will assign label X to Σ', because H is internally merged to Σ. On the other hand, procedure (12a) will assign label H to the same category, because the moved category H is an LI. If we assume that the two labeling procedures

(12a) and (12b) apply freely, independently of each other, then we expect that the two labels can coexist. Chomsky (2005b) proposes that such dually labeled structures are in fact instantiated, e.g., by free relatives in languages like English, as we will see.

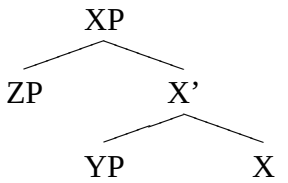
1.2.3 Linearization and the head parameter

When syntax has built up a projection of some head X, the phonological component is obliged to map this hierarchical structure to a linear sequence of words, presumably due to the PF-interface condition. One of the most classical and yet influential theories of sentence linearization is the theory of the *head parameter*. According to this theory, human language is parametrized with respect to the precedence relation between *head* category and its *complement*. Adapting the X'-theoretic notation, a projection of some head category X, XP, with a Complement (YP) and a Spec (ZP) is assigned precedence relations either as in (14a) or as in (14b), depending on the value of the head parameter of that I-language.

(14) a.



b.



As is familiar, the structure (14a) is mapped to a Spec-head-Complement (ZP-X-YP) linear sequence, and (14b) to a Spec-Complement-head (ZP-YP-X) one by the phonological component.

Note that it had been standardly assumed in the GB theory that precedence relations are defined in phrase-markers, until Kayne (1994) proposed that the

precedence relations between nodes are fully predictable given a phrase-marker.[5] Chomsky (1994, 1995) essentially agreed with Kayne, and proposed that linear order does not play any role in the syntactic computation, a conjecture that I will follow. However, the problem as to how C_{HL} maps hierarchical phrase structures generated by syntax to linear sequences of phones remains. I will assume that the core part of the head parameter in GB theory was on the right track, but that the head parameter is rather located in the phonological component of human language.

It is now widely acknowledged in the literature that Japanese is a strict *head-final* language. For example, the canonical word order in Japanese is S(O)V: the predicate in a sentence is always located at the rightmost position. (15) illustrates the point.

(15) Japanese:

a. Isao-ga Mai-o **aishiteiru**.
Isao-NOM Mai-ACC love
"Isao loves Mai."

b. Isao-wa **ganko-da**.
Isao-TOP obstinate-COP
"Isao is obstinate."

The head noun of a nominal phrase is also located at the rightmost position within that category.

(16) Japanese:

a. [$_{NP}$ Mai-no kireina **shashin**]
Mai-GEN beautiful picture
"Mai's beautiful picture"

[5] Or rather that the hierarchical structure of a phrase marker itself is fully constrained in such a way that it maps to a unique linear ordering of terminal symbols. See Kayne (1994) for details.

b. [$_{NP}$[$_{RC}$ Isao-ga kinoo e_i katta] **hon**]
Isao-NOM yesterday bought book
"the book that Isao bought yesterday"

Likewise, complementizers also show head-finality. (17) is an illustration for Japanese complementizers.

(17) Japanese:

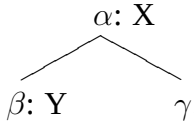
a. Isao-ga Mai-ni [kanojo-wa uta-ga umai **to**] itta.
Isao-NOM Mai-DAT she-TOP song-NOM good that told
"Isao told Mai that she is good at singing."

b. Isao-ga Mai-ni [kanojo-ga nani-o katta **ka**] tazuneta.
Isao-NOM Mai-DAT she-NOM what-ACC bought Q asked
"Isao asked Mai what she bought."

These facts indicate that the *head-parameter* of Japanese is uniformly set as *head-final*.

I will assume that head-parameter is a real theoretical object located in the phonological component, contra Kayne (1994) (cf. Saito and Fukui 1998, Fukui and Takano 1998). It is now widely acknowledged that in order to keep to Kayne's *Linear Correspondence Axiom* (LCA) Japanese-like head-final word order can be accomplished only by assuming a lot of *ad hoc* massive phrasal movement, most of which is assumed only in order to derive the correct word order (but see Kayne 1994, 2004).

Respecting the head parameter, I assume that the following convention of the PF component recursively applies to the hierarchical structure generated by narrow syntax and maps it into a linear sequence of words.[6]

(18) For a syntactic object Σ = 

(order irrelevant),
where "σ*: L*" means a node σ labeled by an LI L,

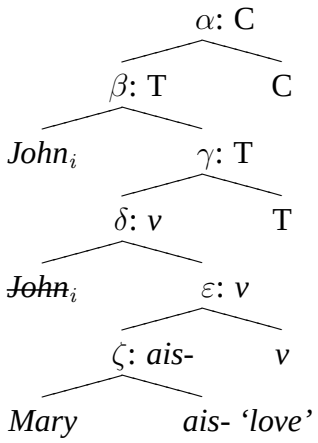
[6]Here I borrowed the terms *demerge* and *concatenate* from Fukui and Takano (1998, 2000).

i. demerge α and concatenate β and γ in the order $\{\beta{+}\gamma/\gamma{+}\beta\}$, if γ is an LI X;

ii. demerge α and concatenate β and γ in the order $\beta{+}\gamma$, otherwise.

(18i) is parametrized across languages with respect to the head parameter. In linearizing the structure Σ, if γ is an LI X itself, then Σ is a projection of X containing the head X (=γ) and the complement β, so (18i) demerges it and concatenates the daughter nodes β and γ into a ordered sequence of them: if the language is head-final, $\beta{+}\gamma$; if head-initial, $\gamma{+}\beta$. On the other hand, if γ is a nonminimal projection of X, then Σ is a projection of X with a Spec β, and (18ii) demerges it and concatenates β and γ into the ordered sequence $\beta{+}\gamma$. For expository convenience I assume that the convention (18) recursively applies to hierarchical structures in a "top-down" fashion (but nothing in what follows hinges on this assumption). Let us illustrate the working of (18) by a concrete example. Suppose the phonological component of Japanese grammar/I-language receives the following syntactic structure as an input:

(19)



The linearization process goes as follows:

(20) a. Demerge α, concatenate β and C by (18i), resulting in β+C

b. Demerge β, concatenate *John*$_i$ and γ by (18ii), resulting in *John*$_i$+γ+C

c. Demerge γ, concatenate δ and T by (18i), resulting in *John*$_i$+δ+T+C

d. Demerge δ, concatenate ~~*John*~~$_i$ and ε by (18ii), resulting in *John*$_i$+~~*Joh n*~~$_i$+ε+T+C

e. Demerge ε, concatenate ζ and *v* by (18i), resulting in *John*$_i$+~~*John*~~$_i$+ζ+*v*+T+C

f. Demerge ζ, concatenate *Mary* and *ais-* by (18i), resulting in *John*$_i$+~~*J ohn*~~$_i$+*Mary*+*ais-*+*v*+T+C

Here we obtain the correct word order in (21).

(21) Japanese:

John-ga Mary-o aisu-ru (koto)
John-NOM Mary-ACC love-PRS fact

"(the fact that) John loves Mary."

And one can easily see that the parameter in (18i) derives the correct word order differences between head-initial and head-final languages. I propose the phonological convention (18) as a universal linearization procedure wired in UG, and the parameter in (18i) is the locus of the head parameter in the bare phrase structure theory (Chomsky 1994, 1995).

Recall that here I am following the now conventional assumption that linear order is only a matter of phonology, and that it has no relevance to the operations of narrow syntax. Cf. Saito and Fukui (1998).

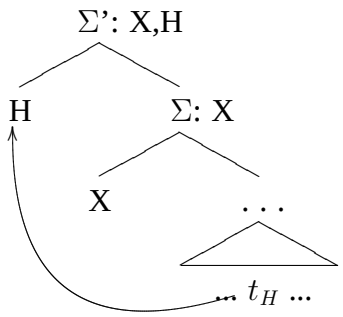
1.3 A Glimpse of the Core Proposal: "Unlinearlizability" of Dually Labeled Structure

We have made a specific assumption as for how the linearization process proceeds: the linearization procedure (18), which is basically a bare-phrase-structure-

theoretic reformulation of the head parameter. Note that in assuming the linearization procedure as defined as in (18), we are making an important assumption that *the phonological linearization process is dependent on labels of the given phrase structure*. In decomposing a hierarchical syntactic structure into a linear sequence of words, there must be an antecedent definition of labels for each node, since otherwise the procedure will be undefined and cannot output a legitimate linear sequence.

The assumption that phonological linearization is dependent on labels adds an interesting twist to the theory of covert movement, when we take into consideration dually labeled structures as in (13) (repeated here as (22)).

(22)



We noted that the labeling algorithm defined as in (12) can allow such dually labeled structures in a limited environment. Suppose that the dually labeled structure of the form (22) is sent to Phonology. Phonology must map this hierarchical structure into a linear sequence of LIs by convention (18), a combination of two procedures (18i) and (18ii). In ordinary cases of uniquely labeled nodes, either one of the two procedures can apply to each node, assigning a unique precedence relation to the daughter nodes. However, now Phonology confronts a node associated with the two coexisting labels. I propose that in such a case Phonology must respect both of the two labels, and it is forced to provide a solution compatible with both labels.

Suppose that the case in question happens in a *head-initial* I-language L_I. This

means in our terms that the parameter in (18i) is set to the value "γ+β," which derives the head-Complement word order. Now Phonology must provide a unique precedence relation to the structure (22), referring to both of the two labels. The label X requires by (18ii) that the moved category H to precede the node Σ, constituting a "Spec-left" precedence relation. The label H also requires H to precede Σ, because the head-initial setting of (18i) assigns a "head-Complement" precedence relation to H and Σ. Then, as far as the phonology of L_I is concerned, both of the two coexisting labels require the moved category H to be linearized preceding Σ. I assume that in such a case Phonology successfully linearizes the structure into the sequence $H + X + ...$, satisfying the mutually compatible requirements posed by the two labels.

However, what happens if the same structure is sent to the phonological component of a *head-final* language L_F? This language has the value "β+γ" for the parameter in (18i). Then, (18i) will assign a "Complement-head" linear order to the structure (22) for the label H. That is, (18i) will oblige the moved LI H to *follow* Σ, unlike the case in L_I. On the other hand, due to the lack of parametric difference, (18ii) will force the "Spec" H to *precede* Σ, due to the other label X. Here, the labels H and X impose two mutually incompatible linearization requirements on the moved category H, rendering it "unlinearizable."

Does this "PF-unlinearizability" of the moved category H in (22) necessarily cause the derivation to crash? I will propose that it does not. If dually (or multiply) labeled structures as in (22) are legitimate at the LF-interface, as I assume, then the phonological component of L_F is obliged to assign an interpretation to the object, however "poorly designed" it is for the phonological systems.

I propose that one way to circumvent this linearization dilemma is to pronounce the moved category H, not at the highest position at the edge of Σ, but at the Σ-internal position where H is dislocated from. That is, Phonology chooses

to pronounce the movement chain of H at the non-highest position, constituting an instance of *PSOC movement*. This PSOC movement is motivated by the PF-interface condition that each hierarchical structure must be mapped to a unique PF, an unambiguous linear sequence of formatives. That is, the covertness of the movement is a "last resort" to satisfy the PF-legitimacy condition, as is the cases with other PSOC movement proposed in the past literature (Bošković2002, Bobaljik 2002).

In this thesis, I will advocate the proposal that the HIRC construction in Japanese involves exactly such a dually labeled structure as in (22), and that as a result of the dual labels this construction involves the PSOC movement of the type sketched above. I will call the proposal the *"Project Both" analysis of HIRCs*.[7] I will argue that this analysis of HIRCs not only *explains* the covertness of the movement in question on a principled ground, but provides a natural, empirically superior account of a number of curious properties of this construction.

[7]I borrowed the term "Project Both" from Citko (2006).

2 Head-internal Relative Clauses in Japanese

2.1 Introduction

Since the serial work of Kuroda (1974, 75–76, 76–77), the so-called *head-internal relative clause* (HIRC) construction in Japanese has drawn many linguists' attention. The construction is illustrated by the example (23).

(23) Japanese: the head-internal relative clause (HIRC) construction

Isao-ga [ringo-ga soko-ni oite atta *no*] -o tot-te tabe-ta.
Isao-NOM apple-NOM there put was NO -ACC get-and eat-PST

lit. "Isao got and ate [an apple was put there]."

"Isao got and ate [an/the apple that was put there]."

Compare it with the corresponding familiar (externally headed) relative clause (RC) in (24).

(24) Japanese: (externally headed) relative clause (RC)

Isao-ga [[e_i soko-ni oite atta] ringo$_i$] -o tot-te tabe-ta.
Isao-NOM there put was apple -ACC get-and eat-PST

"Isao got and ate [an/the apple that was put there]."

The clause in (24) is an example of an ordinary RC, which is externally headed by the noun *ringo*. The gap in the RC, e_i, serves as a variable for the relative head NP which the RC is predicated of. On the other hand, (23) the bracketed sentence has no external relative head NP comparable to that of (24), and the clause does not have a gap position. Instead, the clause-internal NP, *ringo* 'apple', serves as the semantic head of this kind of relative clause. The interpretation of (23) is virtually the same as that of (24), but in this example the relative head noun *ringo* actually surfaces as an argument within the relativized clause, headed by a nominalizer complementizer, *no*.

For the purpose of expedience, I employ a tentative terminology. Let me refer to the NP which surfaces internal to the HIRC but nevertheless exceptionally serves as the "relative head" of the HIRC (e.g., *ringo* in (23)) as the *internal pivot* or simply *I-pivot*. Throughout this thesis, I will mark I-pivots by underlining in examples presented below, as *ringo* in (23).

Japanese HIRCs have drawn many linguists' attention (Kuroda 1974, 75-76, 76, 76-77, 1998/2006, 1999b, Mihara 1994a, b, Murasugi 1994, Shimoyama 1999, 2001, Watanabe 1992a, b, 2003, 2004, among many others), but there is not much consensus among them regarding the proper characterization of this curious construction.

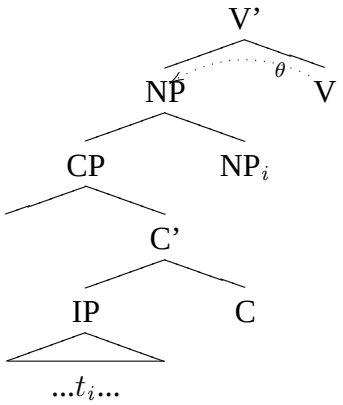
2.2 The relevance of Covert Movement

One of the fundamental questions about the nature of HIRCs is how the I-pivot NP, which is internal to the HIRC, can receive the θ-role of the matrix predicate. In ordinary cases, θ-marking requires one of the strictest locality relations, typically a sisterhood relation between the θ-role assigner and the assignee. However, in cases of the HIRC, the θ-role assignee NP is apparently embedded within the HIRC, dissociated from the θ-position to which the θ-role in question is expected to be discharged. Insead, what apparently occupies the very θ-position is the entire HIRC. It is a fundamental peculiarity of this construction that the θ-role is apparently allowed to *skip* the HIRC clause-boundary and reach the HIRC-internal NP. Any account of this construction must explain this "exceptional" θ-marking property.

One of the straightforward analyses that resolves the issue of exceptional θ-marking is to assume some kind of *covert movement* that relates the I-pivot NP and the matrix verb. Such a covert movement approach to HIRCs is entertained by Ito (1986) and Watanabe (1992a, b). Ito (1986) proposed that at some point

of the post-S-structure derivation the I-pivot is moved up to the “relative head” position, as schematized in (25).

(25) Ito’s (1986) LF head raising analysis

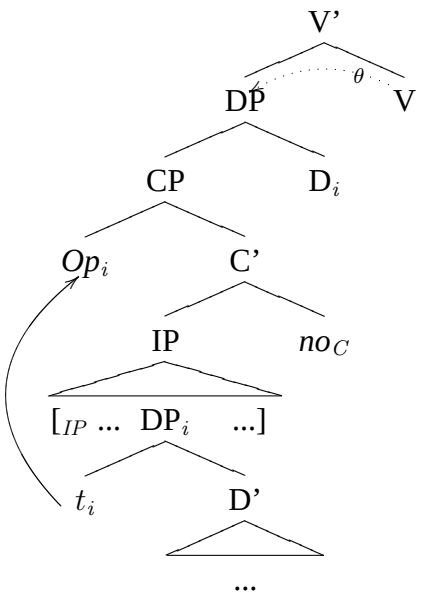


This structure nicely captures the θ-theoretic peculiarities of the HIRC construction without any additional stipulation (other than the covert movement itself). In this structure the apparently exceptional θ-marking ceases to be exceptional: the matrix verb discharges its θ-role to its direct sister, which is “headed” by the covertly raised I-pivot.

Watanabe (1992a, b) also advocates the relevance of phonologically inaudible movement for the HIRC, but his technical implementation is different from Ito (1986). Ito’s analysis posits an LF covert movement,[8] that is, movement that applies after Spell-Out, but Watanabe instead assumes that there is an *overt, pre-Spell-Out* movement of a phonologically null operator *Op*, which originates from the Spec of the I-pivot (DP in his terms), into the clausal scope position (CP-Spec) (see also Watanabe 2003, 2004).

[8]To be precise, Ito (1986) posited a post-LF linguistic representation, LF′, and proposed that the internal head NP raises after LF. This technical detail is inessential for the present discussion.

(26) Watanabe's (1992a, b; 2003, 2004) null operator movement analysis



In Watanabe's terms, it is the A'-movement of the null operator that mediates the θ-role assignment of the matrix V to the I-pivot. Watanabe claims that this movement is not an LF operation but an S-structure (pre-Spell-Out) overt movement, though it does not feed any phonological effect on the PF representation due to the phonetic emptiness of the moving category.

It is curious to note that the *trace theory of movement* was dominantly assumed when these authors proposed their covert movement analyses. In this hypothesis, it is always only the moving category itself that retains the phonological content, and all other members of its movement chain are empty traces. As discussed in §1.1, the only two possibile conceptions of covert movement in the trace theory of movement were (i) that the movement took place in the (post-Spell-Out) LF component, or (ii) that the moving category itself is null, since otherwise the phonological dislocation effect is unavoidable. Interestingly, Ito's (1986) and Watanabe's (1992a, b) analyses exhaust these two possible characterizations of the covert movement in the trace theory of movement.

As noted, the copy theory of movement (Chomsky 1993) opened up the possibility of another conception of covert movement, a Pre-Spell-Out Covert (PSOC) movement. I will advocate Ito and Watanabe's view that the HIRC construction involves a covert movement, and propose that this covert movement is best characterized as an instance of PSOC movement. I will show that this specific PSOC movement analysis can naturally capture not only the data that support the existence of inaudible movement, but also the data that apparently counter the relevance of movement. Such mutually contradicting sets of data will be presented in the next two subsections §§2.3–2.4.

2.3 Evidence for Movement in HIRCs

Since Ito (1986) and in particular Watanabe (1992a, b), it has become one of the most controversial topics around Japanese HIRCs whether this construction really involves covert movement or not. In this subsection we will review data that support the existence of covert movement. We will first observe in §2.3.1 the data from which Watanabe drew the conclusion that the HIRC involves an inaudible movement. In §2.3.2 I will add another, hitherto unnoticed piece of data from binding that further supports the view that the I-pivot moves covertly. However, we will turn in §2.4 to some pieces of evidence that apparently indicate the lack of invisible I-pivot movement.

2.3.1 The Complex NP Constraint

One direct argument for the movement analysis comes from the distribution of the I-pivot within HIRCs. (23), repeated here as (27a), is an example of HIRCs where the subject of the clause serves as the I-pivot. (27b,c) are examples where instead the object of HIRCs serves as the I-pivot.

(27) Japanese: HIRC

a. subject:

Isao-ga [ringo-ga soko-ni oite atta *no*]-o tot-te tabe-ta.
Isao-NOM apple-NOM there put was NO -ACC get-and eat-PST
lit. “Isao got and ate [an apple was put there].”

b. direct object:

Isao-wa [Mai-ga keeki-o yaitekureta no]-o tairageta.
Isao-TOP Mai-NOM cake-ACC baked.kindly NO -ACC ate.up
lit. “Isao ate up [Mai kindly baked a cake].

c. indirect object:

Isao-wa [Tsubasa-ga Mai-ni hanataba-o watas-ooto shita
Isao-TOP Tsubasa-NOM Mai-DAT bouquet-ACC give-about.to do
no]-o (te-o hiite) tsuresatta.
NO -ACC hand-ACC taking took.away
lit. “Isao took [Tsubasa was about to give Mai a bouquet] away, taking her hand.”

The location of the I-pivot is not necessarily clause-bounded: there are examples where the I-pivot is embedded within another clause.

(28) Japanese: (a: Kuroda 2006; b: Watanabe 2003)

a. [Taro-ga [Hanako-ga subarashii ronbun-o kaita to] kiiteita
Taro-NOM Hanako-NOM great article-ACC wrote that heard
no] -ga shuppans-are-ta.
NO -NOM publish-PASS-PST
lit. “[Taro heard that Hanako wrote a great article] was published.”

b. Mary-ga [John-ga [zibun-no gakusei-ga
Mary-NOM John-NOM self-GEN student-NOM
juuyoona kasetsu-o teianshita to] jimanshiteita no]-no
important hypothesis-ACC proposed that bragged NO -GEN
kekkan-o shitekishita.
defect-ACC pointed.out

lit. “Mary pointed out the defect of [John bragged that his student proposed an
important hypothesis].”

Bearing this in mind, now consider the contrast in the pair in (29). The deviance of (29b) shows that the location of the I-pivot obeys the Complex-NP Constraint (CNPC).

(29) Japanese: HIRC and CNPC (Watanabe 2003)

a. [Taro-ga [Hanako-ga subarashii ronbun -o kaita to]
Taro-NOM Hanako-NOM great article-ACC wrote that
kiiteita no] -ga shuppans-are-ta.
heard NO -NOM publish-PASS-PST
lit. “[Taro heard that Hanako wrote a great article] was published.”

b. *? [John-ga [[e_i subarashii ronbun-o kaita] hito]-o
John-NOM great article-ACC wrote person -ACC
home-teita no]-ga shuppans-are-ta.
praise-PFT NO -NOM publish-PASS-PST
lit. “[John praised the person who wrote a great article] was published.”

Crucially based on data of the CNPC effect, Watanabe (1992a, b) concluded that the location of the I-pivot within HIRCs obeys the Subjacency condition. Watanabe goes on to claim that there is a phonologically invisible operator movement from the position of the I-pivot to the Spec of HIRC.

2.3.2 Binding

There is another set of data that supports the existence of covert movement of the I-pivot, which the previous literature on HIRCs failed to refer to. If an NP internal to an HIRC is construed as the I-pivot, it will show “high behavior” with respect

to binding condition B. The relevant data are in (30).[9]

(30) Japanese:

a. **sono omawari-ga**$_i$ [**soitsu-ga/kare-ga/*pro***$_{*?i/j}$ koron-de
that cop-NOM he-NOM slip-and
kegashi-ta no] -ni (toriaezu) ookyuu.shochi-o hodokoshita.
get.hurt-PST NO -ACC immediately first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to [he$_{*?i/j}$ slipped and got hurt]."

b. **sono omawari-ga**$_i$ [**zibun-ga**$_{?i/j}$ koron-de kegashi-ta no] -ni
that cop-NOM self-NOM slip-and get.hurt-PST NO -ACC
(toriaezu) ookyuu.shochi-o hodokoshita.
immediately first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to [self$_{?i/j}$ slipped and got hurt]."

Observe first (30a). In this example, the matrix subject *sono omawari-ga* 'that cop' cannot bind the pronominal I-pivot subject within the HIRC, be it either lexical (*soitsu*, *kare*) or null *pro*. (30b) is minimally different from (30a) in that the subject is replaced by the subject-oriented anaphor *zibun* 'self'. This anaphor can be more readily bound by the same matrix subject, in contrast to the pronominal in (30a). The contrast in (30) is more or less on a par with the one in the simple sentences in (31), where the pronominal object, occupying the same position as the HIRC counterpart in (30), cannot be bound by the subject due to the condition B effect.

(31) Japanese:

[9]It was Fujii (2004) who first observed this kind of "high behaviors" of the internal head NP, though his initial observation was limited to the *Tokoro*-relative Clause (TRC) construction, which shares a number of properties with HIRCs. I found that quite the same effect is observable in the cases of HIRCs as well. See Narita (2007) for relevant discussion.

a. **sono omawari-ga**$_i$ **soitsu-ni/kare-ni/*pro***$_{*?i/j}$ (toriaezu)
that cop-NOM him-DAT/him-DAT-pro immediately
ookyuu.shochi-o hodokoshita.
first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to him$_{*?i/j}$."

b. **sono omawari-ga**$_i$ **zibun-ni**$_{?i/j}$ (toriaezu) ookyuu.shochi-o
that cop-NOM self-DAT immediately first.aid-ACC
hodokoshita.
did
lit. "That cop$_i$ immediately gave first aid to self$_{?i/j}$."

This state of affairs strongly suggests that something covert happens in the HIRC so that the pronominal I-pivot finally occupies at LF a position included in the binding domain of the matrix subject (be it a governing category or a complete functional complex, depending on the binding theory one might assume).

One might argue that the data in (30) do not validate the existence of covert movement, since it seems tenable to argue that the *no*-headed clause in the HIRC construction itself does not constitute a binding domain for the disjoint reference rule in question. However, if we take not the subject but the object of the HIRC as the I-pivot, then the HIRC-subject pronominal can be more readily bound by the matrix subject as in (32).

(32) **John-ga**$_i$ [**soitsu-ga**$_{(??)i}$/**kare-ga**$_{(??)i}$/***pro***$_i$ (yooyaku)
John-NOM he-NOM/he-NOM/*pro* finally
<u>tezukuri-no keeki-o</u> kanseisaseta *no*]-*o* (ayamatte) yuka-ni
homemade cake-ACC completed NO -ACC accidentally floor-to
buchimaketeshimatta.
dropped
lit. "John$_i$ (accidentally) dropped [he$_{(??)i}$ (finally) finished making <u>the homemade cake</u>] to the floor."

Though slightly degraded, the non-I-pivot pronominal subject in (32) can be construed as bound by *John* more readily than the I-pivot one in (30a). Here the

I-pivot construal on pronominals apparently alters the binding possibility. This point is further confirmed by the following contrast.

(33) Japanese:

a. **sono omawari-ga**$_i$ [bookan-ga {**soitsu-o/kare-o/*pro***$_{*?\,i/k}$
that cop-NOM thug-NOM him-ACC
/**zibun-o**$_{(?)\,i/k}$} naguritaoshiteshimatta *no*] -ni ookyuushochi-o
/self-ACC had.knocked.down NO -DAT first.aid-ACC
shita.
did
lit. "That cop$_i$ gave first aid to [a thug had knocked {him$_{*?\,i/k}$/self$_{(?)\,i/k}$}
down]."

b. **sono omawari-ga**$_i$ [bookan-ga {**soitsu-o/kare-o/*pro***$_{i/k}$
that cop-NOM thug-NOM him-ACC
/**zibun-o**$_{i/k}$} naguritaoshiteshimatta *no*] -ni tejoo-o kaketa.
/self-ACC had.knocked.down NO -DAT handcuff-ACC put
lit. "That cop$_i$ put handcuffs on [a thug had knocked {him$_{i/k}$/self$_{i/k}$}
down]."

Here, (33a) is minimally differentiated from (33b) by its matrix predicate in such a way that the I-pivot role is assigned to the object of the TRC in the salient natural reading, in contrast to the subject T-pivot in (33b).[10] Crucially, the object pronominals in (33b) can be readily bound by the matrix subject NP *sono omawari* 'that cop', unlike those in (33a).

The generalization is thus that the HIRC-internal pronominal shows a "high behavior" with respect to Condition B if and only if it is construed as the I-pivot of the HIRC. That is, HIRC-internal pronominals are subject to the Condition B effect (disjoint reference rule) only if they are "I-pivot"-marked. This state

[10]It is also possible with the very same example (33a) to assign the I-pivot role to the subject NP *bookan-ga* 'thug', though the described state of affairs is not contextually felicitous at first hand. Note that in this reading the coreference between *kare* and *sono omawari* suddenly becomes possible, just like in (32).

of affairs strongly suggests that some kind of covert movement of the I-pivot is involved in the HIRC construction, in such a way that the final target position of the movement will be included in the binding domain of the matrix subject, subject to the disjoint reference rule.

In this section we have seen some pieces of data that constitute evidence for the claim that the HIRC construction involves an invisible movement of the I-pivot.[11] We will turn in §2.4 to the data that apparently conflict with the above findings.

2.4 Data againt the Movement Analysis

Since Watanabe (1992a, b) offered the A'-movement analysis of the HIRC construction, many authors including Kuroda (1998, 1999b, 2006), Uchibori (1991), Mihara (1994), Hoshi (1995), and Shimoyama (1999, 2001) have argued against Watanabe's claim that the HIRC construction involves an operator movement obeying subjacency. I will review some pieces of data against the movement approach in this subsection.

2.4.1 Lack of the Wh-island Effect

Watanabe (1992a, b) claimed that the invisible I-pivot movement obeys subjacency. Crucially, however, the I-pivot does not show the *wh*-island effect to any significant degree, as was pointed out by Kuroda (1998/2006). Some largely acceptable examples of I-pivots within *wh*-islands are below.

(34) Japanese: HIRC and *wh*-island

[11] Note that Watanabe's movement analysis cannot straightforwardly capture the binding behavior either, because for him what is moved in the HIRC construction is not the I-pivot itself but a designated null operator originating in the Spec of the I-pivot DP.

a. [[Mary-ga itsu ronbun-o shiageru ka] John-ga Tom-ni
Mary-NOM when article-ACC finish Q John-NOM Tom-DAT
tazune-teita no] -ga shuppans-are-ta.
ask-PFT NO -NOM publish-PASS-PST
lit. "[John asked Tom when Mary would finish the article] was published."

b. [[[Mary-ga itsu ronbun-o shiageru ka] John-ga Tom-ni
Mary-NOM when article-ACC finish Q John-NOM Tom-DAT
tazune-teita no] -no shuppan] -ga okureta.
ask-PFT NO -GEN publication -NOM got.behind
lit. "[The publication of [John asked Tom when Mary would finish the article]] was delayed."

See Kuroda (1998/2006) for further data.[12]

2.4.2 Quantifier Scope

Shimoyama (1999, 2001) provided another piece of data that she claimed indicate that the I-pivot does not undergo movement. Her argument is based on quantifier scope.[13]

Japanese is often referred to as a "scope rigid" language, in the sense that the surface c-command relation between quantificational elements largely determines their relative scope. For example, The scope relation between the two quantifiers in the simple sentences in (35) are determined by their surface structural height.

[12]Watanabe (2003) expressed concurrence of judgment around the *wh*-island effect with Kuroda (1998/2006).

[13]Shimoyama (1999) originally used quantifiers like *dono NP-mo* 'every NP' and *hotondo-no NP* 'most NPs' for illustrating the point. Hayashishita (2004) convincingly argues that such quantifiers does not require LF c-command in order to attain wide scope (or distributive reading). For this reason, I replaced them with quantifiers like *kanari-no kazu-no NP* 'most of the NPs' and *3-tu-izyoo-no NP* '3 or more NPs' in the following examples. Shimoyama's point seems to obtain even with this adjustment.

(35) Japanese:

a. **kanari-no kazu-no gakusei -ga**
most-GEN number-GEN student -NOM
3-tu-izyoo-no syukudai -o teisyutusita.
3-CL-or.more-GEN homework -ACC turned.in
"Most of the students turned in 3 or more homework assingments."

i. most>3.or.more

ii. *? 3.or.more>most

b. **3-tu-izyoo-no syukudai -o**$_i$
3-CL-or.more-GEN homework -ACC
kanari-no kazu-no gakusei -ga t_i teisyutu-sita.
most-GEN number-GEN student -NOM turned.in
"3 or more homework assignments, most of the students turned in."

i. 10.or.more>most

ii. most>10.or.more

The state of affairs also holds for the quantificational phrases that accompany an additional (externally headed) relative clause as an additional restriction.

(36) Japanese:

a. **kanari-no kazu-no gakusei -ga** ([sensei-ga siken-mae-ni e
most-GEN number-GEN student -NOM teacher-NOM exam-before-at
dasita]) **3-tu-izyoo-no syukudai -o** teisyutusita.
assigned 3-CL-or.more-GEN homework -ACC turned.in
"Most of the students turned in 3 or more homework assingments which the teacher assigned before the exam."

i. most>3.or.more

ii. *? 3.or.more>most

b. ([sensei-ga siken-mae-ni e dasita])
teacher-NOM exam-before-at assigned
3-tu-izyoo-no syukudai -o$_i$
3-CL-or.more-GEN homework -ACC

kanari-no kazu-no gakusei -ga t_i teisyutusita.
most-GEN number-GEN student -NOM turned.in
"3 or more homework assignments which the teacher assigned before the exam, most of the students turned in."

i. most>3.or.more

ii. 3.or.more>most

Shimoyama (1999) observed that an HIRC-internal quantificational element cannot extend its scope to the matrix clause. Observe (37), which is the HIRC counterpart of (36).

(37) Japanese:

a. **kanari-no kazu-no gakusei -ga** [sensei-ga
most-GEN number-GEN students -NOM teacher-NOM
3-tu-izyoo-no syukudai -o siken-mae-ni dasita *no*]-o
3-CL-or.more-GEN homework -ACC exam-before-at assigned NO -ACC
teisyutusita.
turned.in
lit. "Most of the students turned in [the teacher assigned 3 or more homework assignments before the exam]."

i. most>3.or.more

ii. *? 3.or.more>most

b. [sensei-ga **3-tu-izyoo-no syukudai -o** siken-mae-ni
teacher-NOM 3-CL-or.more-GEN homework -ACC exam-before-at
dasita *no*]-o$_i$ **kanari-no kazu-no gakusei -ga** t_i
assigned NO -ACC most-GEN number-GEN students -NOM
teisyutusita.
turned.in
lit. "Most of the students turned in [the teacher assigned 3 or more homework assignments before the exam]."

i. most>3.or.more

ii. *? 3.or.more>most

If there is covert movement of the I-pivot in such a way that the resultant relative clause becomes headed by it, as Ito (1986) proposed (see (25)), then it would be predicted that the quantifier associated with the I-pivot will move out of the HIRC at LF, and hence that it would be naturally possible for this quantifier to extend its scope to the matrix clause, but it is not the case, as is shown in (37b). Compare it with the externally headed relative counterpart in (36b), whose external head QP dominantly scopes over the matrix subject *hotondo-no gakusei-ga* 'most student'. Thus, the still low scope of the quantificational phrase *dono shukudai-mo* 'every homework' in (37b) indicates that it resides within the HIRC at LF.

Moreover, the relative scope of the HIRC-internal quantificational elements apparently retains the "scope rigidity" of surface structure, as is observed in (35).

(38) Japanese:

a. sensei-wa [**kanari-no kazu-no gakusei -ga**
teacher-TOP most-GEN number-GEN students -NOM
3-tu-izyoo-no syukudai -o teisyutusita *no*]-o yatto
3-CL-or.more-GEN homework -ACC turned.in NO -ACC finally
saitensi-oeta.
grade-finished
lit. "The teacher finally finished grading [most of the students turned in
3 or more homework assignments]."

i. most>3.or.more

ii. *? 3.or.more>most

b. sensei-wa [**3-tu-izyoo-no syukudai -o**$_i$
teacher-TOP 3-CL-or.more homework -ACC
kanari-no kazu-no gakusei -ga t_i teisyutusita *no*]-o yatto
most-GEN number-GEN students -NOM turned.in NO -ACC finally
saitensi-oeta.
grade-finished
lit. "The teacher finally finished grading [3 or more homework assignments,

most of the students turned in].”

i. ??? most>3.or.more

ii. 3.or.more>most

If we take the standard assumption that the scope of the quantifier is determined by its LF position, then these data initially suggest that the I-pivot does not undergo covert movement, because if it did we would naturally expect this covert movement to induce some scope widening effect just as in (36), which is not the case. Thus, (38) again suggests that the I-pivot stays in situ at LF.

Now, we have seen two sets of data of HIRCs that apparently conflict with one another: On the one hand, the facts around the complex NP constraint effect (§2.3.1) and the binding behavoir (§2.3.2) suggest that the construction involves some kind of covert movement of the I-pivot. On the other, the lack of *wh*-island effects (§2.4.1) and facts around quantifier scope (§2.4.2) contradictorily suggest that the I-pivot remains in its surface position at LF, involving no movement.

(39) a. the “movement” effects

i. the Complex NP Constraint (§2.3.1)

ii. the “high behaviors” of I-pivots with respect to Condition B (§2.3.2)

b. the “anti-movement” effects

i. the lack of the *wh*-island effect (§2.4.1)

ii. quantifier scope (§2.4.2)

In the next section I will present my own proposal that readily explains these apparently contradicting sets of observations.

2.5 Proposal

In this section I turn to the gist of my proposal regarding the syntactic analysis of Japanese HIRCs.

2.5.1 Analysis of HIRCs: Outline

Let us start our analysis of HIRCs with making some assumptions about the status of the item *no* in this construction. As observable in a number of examples above, the HIRC is headed by the nominalizer complementizer *no*. Example (23) is repeated here as (40).

(40) Japanese:

Isao-ga [ringo-ga soko-ni oite atta *no*] -o tot-te tabe-ta.
Isao-NOM apple-NOM there put was NO -ACC get-and eat-PST

lit. "Isao got and ate [an apple was put there]."

"Isao got and ate [an/the apple that was put there]."

The θ-role discharged by the matrix predicate apparently reaches to the HIRC-internal argument NP *ringo-ga* 'apple', skipping the *no*-clause boundary. Every theory of HIRCs must answer the question how such an exceptional θ-marking is possible.

I hypothesize that the lexical item *no* has (at least) the following featural supecification:

(41) *no*:

i. C (categorial feature)

ii. [uCase] (uninterpretable Case-feature)

iii. edge-feature (Chomsky 2005)

First of all, I assume that *no* is a complementizer C that has a force to nominalize the embedded sentence (assumeed to be TP), and that the HIRC is a CP headed by the very C *no* (see Watanabe 2004, Tonosaki 1996, Yoshimura 2001, among many others). Further, I assume that this C has an unvalued/uninterpretable Case-feature ([uCase]) that needs to be valued in some appropriate syntactic environment. This

assumption is quite natural, and factually supported by the fact that the HIRC is accompanied by a Case-particle, such as *o* 'ACC' in (40). The reason that *no* is sometimes called a "nominalizer" is largely due to this [uCase] specification, in that it forces the CP to appear in a Case-position, typically occupied by an NP.

Note that the *no*-clause is also used as a propositional complement clause of perception/cognition verbs such as *mir-u* 'see', *kanji-ru* 'feel', accompanying Accusative Case.

(42) Japanese:

a. Isao-wa [Tsubasa-ga kooen-e aruiteiku *no*]-o mita.
Isao-TOP Tsubasa-NOM park-to walk NO -ACC saw
lit. "Isao saw [Tsubasa walk to the park]."

b. Isao-wa [sesuji-ga samuku-naru *no*]-o kanjita.
Isao-TOP back-NOM cold-become NO -ACC felt
lit. "Isao felt [his back frozen]."

Here the *no*-clause is used purely as a propositional complement clause. It is free from the peculiarites of the HIRC use, in that the main verbs directly select the *no*-headed clause and assign a Theme θ-role to it.[14]

I assume that the same lexical entry *no*, specified as (41), is used for both the HIRC and the propositional complement clause. Suppose that at the point of numeration (Chomsky 1994, 1995), *no* is freely assembled to the lexical array. If the numeration containing *no* also contains some propositional complement-taking verbs like *mir-u* or *kanji-ru*, then nothing peculiar will happen. The *no*-clause is built by recursive applications of Merge, and it is successfully selected and merged into the complement of these verbs.

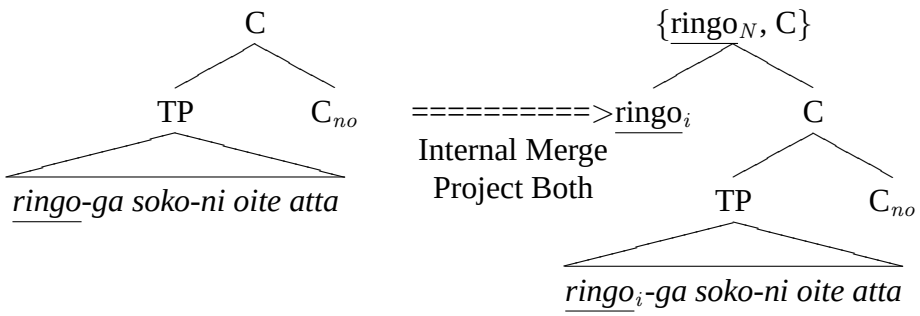
What happens if the numeration contains a verb that selects an NP object, instead of a perceptive verb? This numeration will lead to the HIRC use of the *no*-

[14]Josephs (1976) proposed that the complementizer *no* is characterized by the semantic features [nonpresuppositional] and [direct]. See Josephs (1976) for detail. See also Tsubomoto (1981).

clause, as I will argue. The *no*-clause itself cannot satisfy the [+NP] selectional restriction of these verbs, because it is only a propositional clause. If nothing further happens, then the *no*-clause enters into the complement of the verb, and it will cause a conflict with the selectional restriction of the verb, leading the derivation to crash (or converge as deviant).

The gist of my proposal is that in such a case narrow syntax will avoid the future crash of the derivation by attracting an N to its edge, and letting it *project* its label to the *no*-clause, as schematized in (43).

(43)



I propose that in addition to the label of the probe, C, this syntactic object is also labeled by N. The N typically satisfies the selectional restriction [+NP] of the V that will be merged with the structure in the next higher phase. I assume that the merger of N, follwed by the projection of N, is the only way to avoid the selectional conflict between V and the *no*-clause.

Assuming that *no* is a C, we naturally expect that it heads its own phase (Chomsky 2000, 2001). As a corollary of the assumption that *no* is C, I assume that the *no*-CP is a phase. Here, *no* is the phase head, serving as the locus of computation within that CP-phase. Further, as is usually the case with other phase head categories, this C is assumed to be associated with an edge-feature that allows recursive Merge of categories into its edge (see (41)). It is this edge-feature that allows the attraction of N into the edge of *no*. Crucially, note that all the CP-

level operations apply within this phase. In other words, no operation above the CP-phase can access the elements within the domain of the CP-phase, due to the PIC, which is repeated here as (44).

(44) PHASE-IMPENETRABILITY CONDITION (PIC) (Chomsky 2000: (21))
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

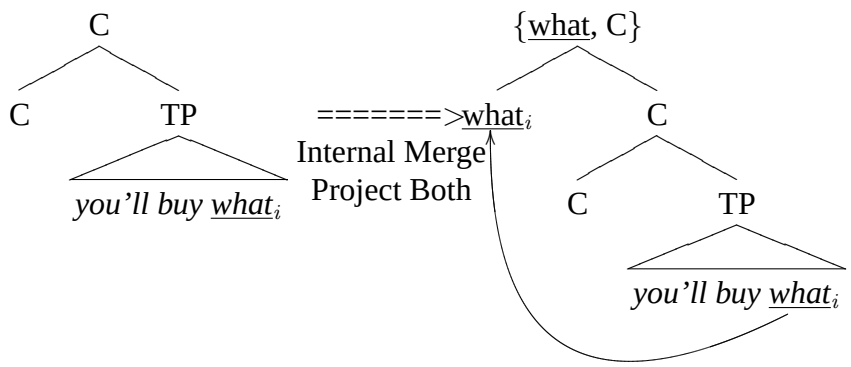
Hence, the attraction of N into *no*'s edge as well as the label-projection of the N applies within the *no*-CP-phase, that is, before the resultant structure (43) is externally merged with the NP-selecting V.

According to traditional assumptions, when movement takes place, the target of the movement (or probe) always projects its label to the newly created root node (Chomsky 1995). However, some recent articles including Chomsky (2005b, 2006), Donati (2006) and Citko (2006) pursue the possibility that there are some instances of movement where the moved category (goal) is allowed to project its label in addition to the probe label. Such a dually labeled structure is previously unrecognized and considered to be illegitimate (Chomsky 1995). However, Chomsky (2005b) proposes that this is exactly the structure of free relatives in languages like English, basically following the gist of Donati's (2006) proposal. According to Chomsky's proposal, the structure of the free relative such as *what you'll buy* in (45a) has the structure schematized in (45b).

(45) English: free relatives

a. I will read [*what*$_i$ you'll buy t_i].

b.



See also Donati (2006) and Citko (2006), who rather argue that the label of the free relative is projected exclusively from the moved *wh*. Note the structural similarity between (45) and my (43). My proposal is essentially that HIRCs in Japanese (and possibly HIRCs in some other languages as well) employs exactly the same kind of syntactic operations, Internal Merge and Project Both, as free relatives in languages like English. Following Chomsky (2005b), I assume that nothing in principle prevents such dually labeled structures as that of (43) and (45) from being generated by the syntactic component of C_{HL}, and that this kind of structure qualifies as legitimate at the LF-interface.

This "Project Both" approach to HIRCs straightforwardly captures the structural properties of Japanese HIRCs that indicate a covert movement of the I-pivot (see (§2.3)). First of all, the "high behavior" of the I-pivot with respect to binding conditions, observed in §2.3.2 can be explained in a straightforward way: the relevant examples are repeated here.

(46) Japanese:

a. **sono omawari-ga**$_i$ [bookan-ga {**soitsu-o/kare-o/*pro***$_{*?\,i/k}$
that cop-NOM thug-NOM him-ACC
/**zibun-o**$_{(?)\,i/k}$} naguritaoshiteshimatta *no*] -ni ookyuushochi-o
/self-ACC had.knocked.down NO -DAT first.aid-ACC
shita.
did

lit. "That cop$_i$ gave first aid to [a thug had knocked {him$_{*?\,i/k}$/self$_{(?)\,i/k}$} down]."

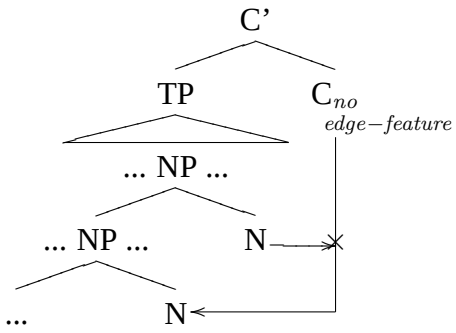
b. **sono omawari-ga**$_i$ [bookan-ga {**soitsu-o/kare-o/*pro***$_{i/k}$
that cop-NOM thug-NOM him-ACC
/**zibun-o**$_{i/k}$} naguritaoshiteshimatta *no*] -ni tejoo-o kaketa.
/self-ACC had.knocked.down NO -DAT handcuff-ACC put
lit. "That cop$_i$ put handcuff on [a thug had knocked {him$_{i/k}$/self$_{i/k}$} down]."

Recall the relevant generalization that the HIRC-internal pronominal shows a "high behavior" with respect to Condition B if and only if it is construed as the I-pivot of the HIRC. This is a quite straightforward result that the Project Both approach predicts, because the HIRC is claimed to be labeled by the N of the I-pivot. It is quite natural to assume that the raised N will bear features relevant for binding, including features [±pronominal] and [±anaphoric], and this N-label gives rise to a binding configuration in which the I-pivot behaves as if it occupies the NP-position that is superficially occupied by the HIRC.

(47) ... NP ... [$_{NP/CP}$ N$_{pronominal}$ [$_{C'}$ [$_{TP}$ ... pronominal ...] C]] ...
disjoint reference
N−raising & Project Both

Moreover, we can naturally explain why the movement of the I-pivot obeys CNPC. In order to satisfy the selectional restriction of the forthcoming sister V, the C head *no* is forced to attract the N to its edge. As a natural expectation, this attraction would obey a kind of minimality condition, requiring that the attractee N must not be embedded within another NP. This is expected because the latter NP must be labeled by another N, which is closer to *no* and hence counts as an intervener.

(48)



This is essentially a configuration excluded by the *A-over-A Principle*, originally proposed by Chomsky (1964). Actually, Kuroda (1998/2006) already reached the conclusion that the association of the θ-role of the matrix predicate with the I-pivot is constrained by the A-over-A Principle, explaining the sensitivity to CNPC. I essentially follow Kuroda in assuming the relevance of the A-over-A Principle.[15] I attribute the A-over-A effect to the minimality of *no*'s attraction of N.

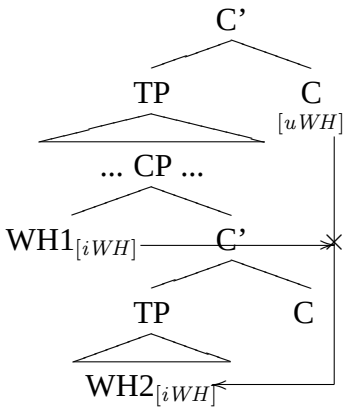
Note that the relevant probe that triggers the movement of the I-pivot N is not a [WH]-feature. I claim that this explains the lack of *wh*-island effects, observed in (§2.4.1). We have seen that movement of the I-pivot does not obey the *Wh*-island Condition. Based on this observation, Kuroda argues that the lack of *wh*-island effect substantially weakens Watanabe's claim that the HIRC construction involves phonologically invisible A′-movement. Watanabe (2003) concurs with Kuroda in the observation regarding the *wh*-island effect, withdrawing his previous claim (1992a, b) that the invisible movement obeys subjacency. In order to maintain the invisible movement hypothesis, Watanabe (2003) instead claims that this A′-movement does not involve any [WH]-feature checking.[16] Based on Chomsky's (1995) theory of feature checking, Watanabe claims that the *wh*-island

[15]However, I argue contra Kuroda (1998/2006) that the covert movement of I-pivot does exist, attracted by *no*, and that it is this movement which is constrained by the A-over-A Principle.

[16]Watanabe calls the relevant feature the *quantificational feature*, to which he attributes a wider range of operator movements such as that of comparative constructions.

effect is subsumed under the minimality constraint on the [WH]-feature checking operation. If a head H attracts a category for feature checking, the closest category that can enter into a checking relation with H will be attracted (Chomsky 1995). If there is any closer category with the same type of feature, i.e. a [WH]-feature here, the minimality is violated, hence the derivation is canceled. According to this approach, *wh*-island phenomena can be characterized as involving a violation of the minimality of [WH]-feature checking, because the attraction of a [WH]-element out of a *wh*-island would cross some higher [WH]-intervener (see Fukui 1999 for a similar proposal).

(49) The minimality-based account of the *wh*-island effect



If an approach along this line is on the right track, as Watanabe argues, the lack of the *wh*-island effect in the invisible movement involved in the HIRC construction is accounted for by the assumption that this movement is an attraction operation involving no [WH]-feature checking. I essentially follow Watanabe on this point. As the movement of the N-raising is triggered by the edge-feature of C, only the categorial feature N matters for the minimality of movement. Thus the CNPC effect appears, as the attraction constitutes an NP-over-NP configuration, violating minimality/the A-over-A Principle, while no *wh*-island effect is predicted.

2.5.2 "NP-stranding": Deriving the Facts around Quantifier Scope

In what environment can the moved N project its label? In order to address the issue, we must first make a specific assumption about the general theory for determining labels. Chomsky (2005b) proposed that the label for each node is fully predictable by the following labeling algorithm:

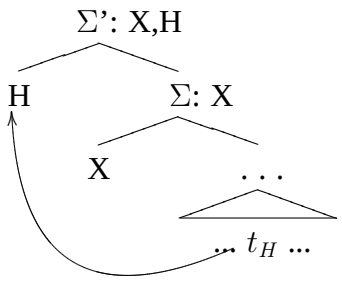
(50) Chomsky's labeling algorithm (Chomsky 2005:(2)-(3))

a. In {H, α}, H an LI, H is the label.

b. If α is internally merged to β, forming {α, β} then the label of β is the label of {α, β}.

As mentioned in §1.2.2, Chomsky argues that this specific definition of the labeling algorithm allows a "dually labeled structure" in a limited environment. The crucial case is the one where an LI is internally merged to some category Σ, as schematized in (51).

(51)



Suppose that Σ is labeled by some internal head X, and that X attracts some X^0 category H within Σ to its edge, deriving a new syntactic object Σ'. The labeling procedure (50b) will assign label X to Σ', because the Spec H is internally merged to Σ. On the other hand, procedure (50a) will assign label H to the same category, because the moved category H is an LI. If we assume that the two labeling procedure (50a) and (50b) apply freely, independently of each other, then we expect that the two labels can coexist. Consider the structure (45b) again. Chomsky assumes with Donati (2006) that the moving *wh* in the free relative construction is an X^0

category, and so this "light" status allows it to project its label from the dislocated position, in accordance with (50a). At the same time, the *wh* is internally merged to the edge of C, so (50b) allows C to project as well.

I propose that essentially the same consideration should hold for cases of Japanese HIRCs (43) as well. The *no*-clause needs to "borrow" some N label from a nominal within its phase domain, since otherwise this CP cannot satisfy the selectional restriction of V which will be merged with the *no*-CP, causing the LF crash. Due to its phase head status, *no* is associated with an undeletable edge-feature, which allows an optional dislocation of some elements to its edge. Along this line of reasoning, an LI N must be attracted by this edge-feature. This movement results in the "Project Both" structure as in (43), by resorting to the labeling algorithm (50a) (Citko 2006). Therefore, *no* attracts exactly an LI with a categorial feature N.

If the I-pivot itself is a simple LI N, as I assume for the bare noun *ringo* 'apple' in (43), then *no* attracts the entire I-pivot to its edge, letting it to project its label to the entire CP. However, what happens if the I-pivot is an complex NP with its own internal structure? I propose that in such a case the edge-feature of *no* can (or in fact *must*) attract exactly the LI N only, *not the entire NP*, in order to let the N project by (50a). That is, the head category is raised to the edge of CP, "*stranding*" its NP projection in situ.

I would like to propose that exactly this stranding analysis derives the apparent anti-movement effect discussed in §2.4. Let me first address the issue around quantifier scope (§2.4.2). Shimoyama's (1999) examples (38a) and (37b) are repeated here as (52a) and (52b), respectively.

(52) Japanese:

a. Taro-wa [**hotondo-no gakusei -ga <u>dono shukudai-mo</u>**
Taro-TOP most-GEN students -NOM every homework

teishutsushita *no*]-o yatto saitenshi-oeta.
turned.in NO -ACC finally grade-finished
lit. "Taro finally finished grading [most students turned in every homework]."

i. most>every

ii. *? every>most

b. [[Taro-ga **dono shukudai-mo** shiken-mae-ni dashita *no*]-o$_i$
Taro-NOM every homework exam-before-at assigned NO -ACC
hotondo-no gakusei -ga t_i teishutsushita.
most-GEN students -NOM turned.in
lit. "[Taro assigned every homework before the exam], most students turned in."

i. most>every

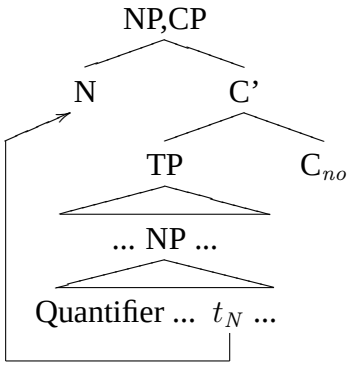
ii. *? every>most

As discussed in §2.4.2, these examples led Shimoyama to conclude that the HIRC involves no covert movement of the I-pivot NP. In (52a) the object of the HIRC is construed as the I-pivot, but the relative scope indicates that this object still occupies a position lower than the subject quantifier *hotondo-no gakusei-ga* 'most students' at LF. (52b) on the other hand suggests that even if "I-pivot"-marked, the quantificational object within the HIRC cannot scope over the other quantificational element in the matrix clause, presumably indicating that this quantificational I-pivot NP resides at LF a position from which it cannot c-command the matrix element.

These data no longer constitute strong evidence against the movement approach to HIRCs, once we assume that what moves in this construction is just an LI N, *not the entire I-pivot NP*. Whatever analysis one want to assume for the nominal-internal syntax, what should be attracted and projected to the *no*-clause is, according to my proposal, just an LI that is relevant for the selectional restric-

tion of V that will be imposed on the HIRC, labeled by that LI. I assume that any other NP material, crucially including quantificational modifiers, is stranded in the original NP position.

(53) "NP-stranding" analysis



Such NP-stranding is in fact necessary for the *no*-clause to be labeled by N by the labeling algorithm (50). In order to derive a dually labeled structure, it is necessary for C to attract just an LI N, not a phrase, since otherwise the moved N cannot project by (50a). We have assumed that the N-raising is triggered by the edge-feature of C in order to "borrow" the N-label, hence this attraction must target not NP but just N. Therefore, this covert N-attraction will not cause any change in the quantifier scope, because it is only an N that raises up to the edge of C.

2.5.3 On the Possibility of N-raising

An immediate question arises: *why* does the Japanese grammar allow N-raising out of the NP? That is, why is "NP-stranding" possible in Japanese at all? Such an operation is apparently disallowed in languages like English, or at least remains to be observed. Then we must make an assumption that allows N-raising in Japanese on the one hand, and disallows it in languages like English on the other.

One possible source of this parametric variation that I would like to advocate is that Japanese is a non-Forced Agreement language, whereas languages like English are Forced Agreement ones. Fukui (1986, 1988) and Kuroda (1988) argued that a number of parametric differences between Japanese and languages like English can be deduced from one fundamental macroparameter, called the (*Non-*)*Forced Agreement Parameter*. The parametric differnce in question is whether or not the category N is forced to agree with some other nominal category like D. In a forced-agreement language like English the category D is associated with a set of uninterpretable φ-features that undergo agreement with their interpretable counterparts on N, via the syntactic operation Agree. Thus, for example, the morphological shape of the indefinite article is contingent on the singular/plural distinction on N (*a person* v.s. *ø persons*), and so on. On the other hand, Japanese completely lacks φ-features that induce agreement (Fukui 1986, 1988). I would like to propose this parametric difference is responsible for the (im-)possibility of N-raising, stranding NP.

One possible technical implementation of this line of analysis is to assume that an agreement relation between N and D renders the two inseparable from each other. In order to keep the generality of the argument, I will not make a specific assumption about the NP-internal functional structure, but let's suppose that D in English, associated with uninterpretable φ-features, probes and establishes an Agree relation with N. The unvalued φ-features on D are assigned values, by copying the values of N's interpretable counterpart. Then, technically speaking, an "agreement feature chain" between D and N is established, mediated by their agreement in φ-features. Suppose that there is a syntactic condition that Agree and Move must target the full agreement chain. In the cases of N and D, after the agreement of N and D, this condition imposes that any subsequent Agree and Move target the whole agreement chain consisting of N and D. No access to ei-

ther N or D alone is possible. Then, the impossibility of N-raising (and maybe D-raising if we adapt the DP hypothesis of Abney 1987) in Forced Agreement languages like English results. In cases of Non-Forced Agreement languages like Japanese, however, there is no antecedent Agree relation between N and any other nominal category like D, so the N alone can be subject to Agree and Move induced by some higher categories. The possibility of N-raising is successfully derived.[17]

[17]Interestingly, this analysis also allows the possibility of D-raising in Non-Forced Agreement languages. Indeed, Takahashi (2002) quite independently proposed that the scope shift of the quantificational particle *mo* 'every' takes the form of D-raising.

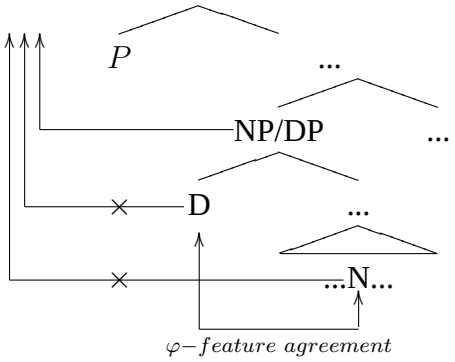
i Japanese: D-raising (Takahashi 2002:577,(5))

a. [[$_{DP}$ dare-**mo**$_{D}$]-ga kaita hon]-ga omosiroi.
person-every -NOM wrote book -NOM is.interesting
"[The book that [everyone] wrote] is interesting."

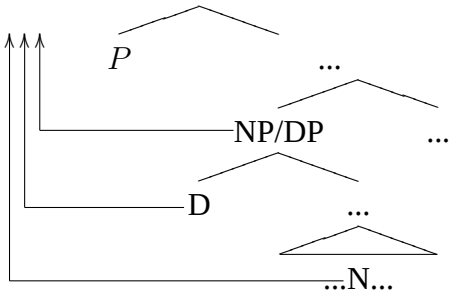
b. [[$_{DP}$ dare t_{D}]-ga kaita hon]-**mo**$_{D}$ omosiroi.
person -NOM wrote book -every is.interesting
"[Every book that [a person] wrote] is interesting."

(54)

a. In Forced Agreement languages



b. In Non-Forced Agreement languages



I assume that something along this line of analysis is on the right track, but here I must leave the true nature of the condition on N-raising/NP-stranding for future research.[18]

Note that the proposed N-raising is a movement of an X^0 category, and hence constitutes an instance of *head-movement*. One might argue that this movement should be prohibited by the Head Movement Constraint (HMC) of Travis (1984).

[18]There are some authors who claims that languages like Japanese lacks a funcional category D altogether (Chierchia 1998a, b, Fukui 1986). I would like to leave this issue open.

However, the current theoretical status of the HMC is unclear. Lema and Rivero (1990) proposed that the HMC can be violated. Indeed, there is now a growing body of literature that proposes instances of *long-distance* head-movement in various languages (see Matushansky 2006 and references cited therein). I will leave the exact characterization of the HMC for future research, but just assume that the proposed N-raising is a possible option for languages like Japanese.

Moreover, the proposal that N-raising targets a Spec position does not seem problematic, either. Many authors, including Matushansky (2006), Citko (2006), Toyoshima (2001), Koopman and Szabolcsi (2000), Fukui and Takano (1998, 2000), among many others, proposed that head-movement should be reanalyzed as phrasal movement into a Spec position. Thus, due to the lack of strong (conceptual or empirical) counterarguments to the existence of head-to-Spec movement, I will continue to assume that the N-raising takes the form of movement into the Spec of a *no*-CP. This assumption will play a role in our explanation of why the N-raising is covert (§2.5.5).

Note that this line of reasoning naturally explains *why* the "head" of the English-like free relative construction is restricted to a simple X^0 *wh* category (Donati 2006).[19]

(55) a. I will visit [*what*$_i$ you'll visit t_i].

b. * I will visit [*what town*$_i$ you'll visit t_i]

The reasoning is as follows: all Ns in a Forced Agreement language like English are unambiguously associated with a set of φ-features that are to undergo agreement with D. This agreement requirement ensures that every nominal phrase is a DP in this language (bare NPs are disallowed). Further, this agreement will make the D and the N inseparable from each other, as we assume. Then, N- or D-raising

[19] Donati (2006) proposed that free relatives with a suffix *-ever* (as in *whatever town you'll visit*) are instances of headed relatives. See Citko (2006) for some counterargument.

out of the nominal phrases, i.e. NP/DP-stranding, are disallowed. Thus, the emvironment for a Forced Agreement language to instantiate a dually labeled structure is restricted to the cases where the (I-pivot) nominal itself is a simple D^0 head category. Moreover, another aspect of the [+Forced Agreement] parameter is that the movement into the CP-Spec position is dominantly associated with some kind of operator feature checking, like [WH]-feature-driven movement. Thus, once we posit that the Forced Agreement parameter is responsible for the typological difference on the possibility of N-/D-raising, we can naturally explain why languages like Japanese allows the HIRC construction whereas the comparable dually labeled structure is restricted to simple *wh* D^0 cases in languages like English.

2.5.4 Note on the "Gloal" Terminology

I have proposed that the HIRC construction involves a Project Both structure, where not only the probing C *no* but also the attracted N heads the resultant clausal structure. In outlining the proposal, I have said that the attraction of N is triggered by such a "global" consideration that the nonapplication of the movement (and the subsequent N-label projection) will lead to the selectional conflict with the forthcoming V with a [+NP] selectional restriction, causing the LF crash or deviance. In short, I have proposed that the N-raising of the I-pivot and its subsequent label-projection is driven by syntax's "looking-ahead" to the future derivational consequences.

Before continuing, I would like to sweep away such a global terminology from the proposal, following the logic of Chomsky (2001). Specifically, I would like to propose that the application of edge-feature driven movement itself is a purely optional operation. At the point of *no*-CP-phase computation, the C is allowed either to attract an N or not to. *no* does not care about the future consequence of

this optional application of Internal Merge. However, I assume that the following principle, proposed by Chomsky (2001) based on the ideas of Reinhart (1997) and Fox (1995, 2000), holds for the operations in C_{HL}.[20]

(56) ECONOMY PRINCIPLE ON OPTIONAL OPERATIONS: (Chomsky 2001: 34, (60), cf. Reinhart 1997, Fox 1995, 2000)
Optional operations can apply only if they yield a new interpretive outcome.

If (56) holds for the optional N-raising and the subsequent label-projection operations as well, then any superfulous N-raising and N-label projection are banned by (56), initially a desired result. So if there is no interpretive gain, an N-label never projects up. On the other hand, in the case of N-raising in the HIRC cases, principle (56) is assumed to be satisfied by the interpretive outcome that the application of these optional operations lets the *no*-clause satisfy the [+NP] selectional restriction of the forthcoming V sister.

Once we posit the LF-interface condition in (56), we can successfully sweep away most of the "global" terminology presented above for the purpose of expedience. The edge-feature of *no* allows it to optionally attract any categories, including N and others. The labeling algorithm also apply completely freely. However, if there is no interpretive gain from such an superfulous and redundant operations, structures derived with such useless operations are filtered out by the economy principle (56).

Furthermore, if this line of approach is on the right track, it will make a pre-

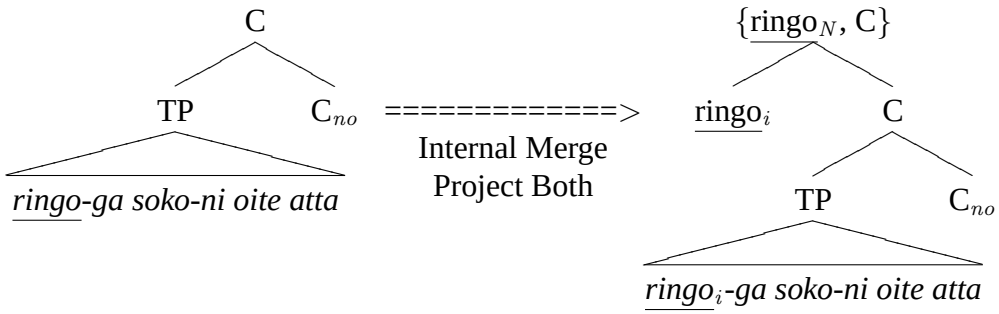
[20]When Chomsky proposed this principle in his analysis of Object Shift in Scandinavian and English, he was primarily concerned about the fact that the application of Object Shift, which is technically implemented as an optional EPP-feature assignment on phase heads, often has some future interpretive effect at the LF-interface such as discourse effects like new/old information, specificity-definiteness, etc., or subsequent *wh*-movement to the scope position.

diction that the HIRC cannot be generated into positions where an optional label-projection of the moved I-pivot will not yield any new interpretive outcome. I would like to argue that Kuroda's Generalization to be discussed in §2.6.1 essentially confirms this prediction.

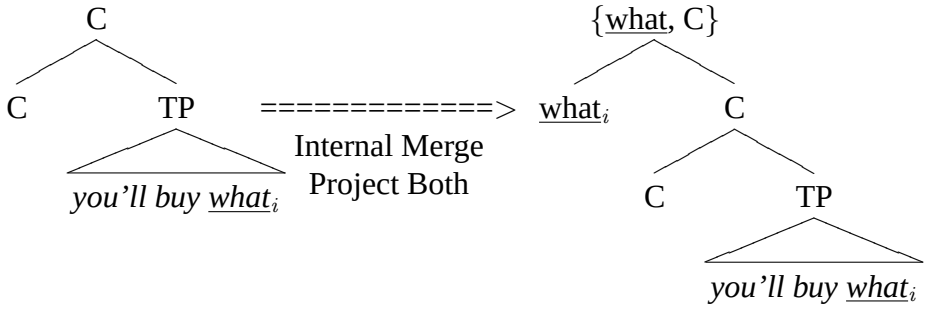
2.5.5 Explaining "Covertness" of the N-raising

I have proposed that the Japanese HIRC construction involves the movement of an N and its subsequent label projection, essentially as the free relative construction does, as Chomsky (2005b) proposes. Here the relevant schemas are repeated.

(57) Japanese: HIRCs (=(43))

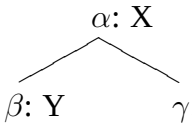


(58) English: free relatives (=(45b))



However, I claim that the structures in (57) and (58) will have a different legitimacy status at each PF-interface, because of the difference in the value of the *head parameter* in each language.

In §1.2.3, I made an assumption that the head parameter is a real theoretical object, but that it is located in the phonological component of C_{HL} (contra Kayne 1994. Cf. Saito and Fukui 1998, who argue that the head parameter is wired into the core of the syntactic operation Merge). According to my assumption, the linearization process in the phonological component proceeds by recursive applications of the linearization algorithm (18), repeated here as (59).

(59) For a syntactic object Σ = 

(order irrelevant),

where "*σ: L*" means a node σ labeled by an LI L,

i. demerge α and concatenate β and γ in the order $\{\beta{+}\gamma/\gamma{+}\beta\}$, if γ is an LI X;

ii. demerge α and concatenate β and γ in the order $\beta{+}\gamma$, if otherwise.

Now, look at the structure in (57) again. In this structure, the moved I-pivot N projects its N-label to the created node, as the attractor/target C does. In this structure, the moved NP can be qualified both as the "Spec of CP" and as the "head of NP."[21] If the moved N is construed as the "Spec" of CP(/NP), then the phonological component must linearize it to the left of the phonological sequence of TP-C by (59ii). If it is rather construed as the "head" of NP(/CP), then phonology assigns it the position to the right of the sequence of TP-C, due to head-finality in (59i). Here, because of the sequential nature of the PF representation, there is no legitimate PF object that assigns to the I-pivot a position both preceding and following the TP-C sequence. Thus, I propose that this simultaneously "Spec"

[21] To be precise, a non-maximal intermediate projection that contains the head N. Even with this clarification, the problem remains the same.

and “head” status of the moved N makes the moved relative pivot category “unlinearizable” for the phonological component.

Does this “PF-unlinearizability” of the structure (57) necessarily cause the derivation to crash? I propose that it does not. If dually (or multiply) labeled structures as in (57) and (58) are legitimate at the C-I interface, as I assume, then the phonological component is obliged to assign somehow an interpretation to the object, however “poorly designed” it is for the phonological systems. Recently it has been proposed that C_{HL} is primarily well-designed for the C-I interface, while mapping to the SM interface is “only an ancillary process.” That is, “the primary contribution to the structure of FL may be optimization of mapping to the C-I interface.” If this conjecture is on the right track, “we might discover that SMT [the strong minimalist thesis, by HN] is satisfied by phonological systems that violate otherwise valid principles of computational efficiency, while doing the best it can to satisfy the problem it faces: to map to the SM interface syntactic objects generated by computations that are “well-designed” to satisfy C-I conditions.” (cited from Chomsky 2005b. see also Chomsky 2005a.) I propose that this is exactly what happens when the phonological component receives a syntactic object like that in (57) as an input. Insofar as the structure conforms to the C-I interface condition, the phonological system is obliged to do “the best it can to satisfy the problem it faces,” that is, the problem of mapping this “poorly designed” structure to some legitimate SM interface representation. As noted, the dually labeled status of (57) makes the moved N “unpronouncable,” due to the requirement imposed by the head parameter that it both precede and follow the word sequence of TP-C simultaneously. Phonology must somehow circumvent the problem and impose linearization on (57).

I would like to propose that this dilemma is resolved once Phonology decides to pronounce the moved N, not at the highest position at the “CP-edge,” but at the

TP-internal position where the N is dislocated from (stranding the entire I-pivot NP). I propose that this is exactly the strategy that the phonological component takes to circumvent the linearization problem of the structure that is otherwise illigitimate and uninterpretable at the SM interface. That is, Phonology chooses to pronounce the movement chain at the non-highest position, constituting an instance of the *Pre-Spell-Out Covert* (PSOC) movement, several instances of which have been proposed by a number of authors (Bobaljik 2002, Bošković 2002, Groat and O'Neil 1996, Kato 2004, Nunes 2004 and Pesetsky 2000, among many others).

As discussed in §1.1, PSOC movement is often characterized as a result of phonological "unpronouncability" of the chain head copy. For example, Bošković (2002) proposes that some instances of PSOC *wh*-movement in multiple *wh*-fronting languages result from respecting the PF-constraint against the consecutive homophonous *wh*-phrases (example (60) is drawn from Serbo-Croatian).

(60) Serbo-Croatian:

Šta **~~šta~~**$_i$ uslovljava **šta**$_i$?
what conditions what

On the other hand, Bobaljik (2002) argues that object-shift in the Scandinavian languages sometimes takes the form of PSOC movement, in order to respect the morphophonological condition that morphological merger/Affix-hopping requires PF adjacency of the merging heads (example (61) is drawn from Swedish).

(61) Swedish:

Det är troligt att [$_{TP}$ de -te$_T$ **~~den~~**$_i$ [$_{VP}$ läs$_V$ **den**$_i$]]
it is probable that they +PST read it

Det är troligt att de läste **den**.

"It is probable that they read it."

The fundamental insight that these authors pursue is that PSOC movement is a "last resort" strategy of the phonological component that is undertaken in order to salvage otherwise legitimate syntactic structures from violations of PF-constraints (cf. Kato 2004). I argue that the same consideration is applicable to the proposed I-pivot N-raising as well: the covertness of this PSOC movement is a result of avoiding a violation of some PF-condition, specifically that a hierarchical structure must be uniquely linearized.

2.5.6 Harada-Cole's Generalization

It is intriguing to note that the dilemma of linearizing dually labeled structures matters only with head-final languages. Consider the English free relative structure (58) again. English is a typical head-initial language, where structrues of the form [$_{XP}$ Spec(s) [$_{X'}$ X Complement]] are mapped to Spec-X-Complement linear order by the phonological component. What is crucual is that unlike in head-final languages like Japanese, both the head X and the Spec(s) precede the Complement in this phonological mapping. Suppose that structure (58) is sent to the phonological component. Phonology takes this hierarchical structure as an input for the linearization process, and assigns precedence relations to each symbol by the recursive application of (59). Recall that what makes the moved N "unpronouncable" in the Japanese HIRC structure (57) is the ambiguous status of the N: it qualifies both as the Spec and as the head of (57), and these statuses conflict with each other in terms of the linearization problem, due to the "Spec-left" and "head-final" requirement inposed by (59). Now Suppose that the syntactic object (58) is sent to the phonological component as an input for the linearization procedure (59). Here, I would like to argue that the dual labels in (45b) do not lead to a linearization conflict, unlike Japanese HIRCs (57). This is, as I assume, because the phonological linearization process in the English grammar assigns to both

Specs and heads *precedence relative to Complement*, due to its head-initiality. That is, Phonology unambiguously requires the *wh* to precede C′, whether the moved *wh*-phrase is construed as the Spec or the head of (58). The "Spec-left" and the "head-initial" requirements are compatible with each other, a situation which is radically different from that encountered in the Japanese HIRC structure (57). Thus, the covertness of the I-pivot N-raising is only found in Japanese, a head-final language. Note that here we provide a principled explanation for the matter *why* this relative clause is internally headed, i.e., why the movement of N is phonologically invisible. This covertness of movement is in fact a part of the "good design" of C_{HL}, optimizing primarily the mapping to the LF-interface.

If the proposal is on the right track, it will make a rather straightforward prediction that the HIRC construction of the Japanese type is only found in head-final languages. That is, the head-final parameter setting is a necessary condition for the existence of the Japanese-type HIRC construction in a language. In fact, Shin-Ichi Harada suggested to S.-Y. Kuroda as early as in 1972 that the HIRC construction is closely correlated with verb-final word order of the language, and proposed that this correlation should be attributed to UG as a language universal. (Kuroda 1974: note 3. See also Kuroda 1998, 2000a.) Cole (1987) proposed a similar observation (Cf. Watanabe 2004). The verb-final word order is one of the direct consequences of the head-final parameter setting, so the correlation between verb-finality and HIRCs is in fact what the presented proposal predicts. If Harada's observation is on correct, it will constitute strong support for my proposal.

2.6 Further Supporting Evidence

2.6.1 Kuroda's Generalization

How restricted is the distribution of HIRCs? In what kind of places are HIRCs allowed to occur? There has been much controversy on the distribution of HIRCs within sentences. However, the converging concensus is that HIRCs can appear only in θ-marked NP-positions. Kuroda (1998/2006, 1999b) proposed the following generalization to capture the distribution of HIRCs within sentences.[22]

(62) KURODA'S GENERALIZATION (Kuroda 1998/2006, 1999b):
Japanese HIRCs are legitimately base-generated (externally merged) only into θ-marked positions.

First of all, Kuroda's Generalization naturally captures the fact that HIRCs are found in argument NP-positions. Some examples are below.

(63) Japanese: HIRCs in argument positions

a. subject

[doroboo-ga zensokuryoku-de nigedashita *no*] -ga ikioi-amatte
burglar-NOM full.speed-at ran.away NO -NOM impulsively
sukkoronda.
fell.down
lit. "[the burglar ran away at full speed] fell down impulsively."

[22] Kuroda (1999b: (17)) formulates this conjecture rather as a licensing condition on Japanese HIRCs, which he dubs the *Theta Principle of Head-internal Relative Clauses*:

i THE THETA PRINCIPLE OF HEAD-INTERNAL RELATIVE CLAUSES (Kuroda 1999b: (17)):
A head-internal relative clause is licensed by a lexical head that theta-governs it.

I here interpret (i) simply as a descriptive generalization, dispensing with the reference to the term "theta-government." This decision is not of any significance other than avoiding irrelevant terminological inconsistency.

b. direct accusative object

Isao-ga [Mai-ga keeki-o tsukut-te kureta *no*] -o
Isao-NOM Mai-NOM cake-ACC make-kindly.did NO -ACC
tabe-hajimeta.
eat-began

lit. “Isao began to eat [Mai kindly made a cake for him].”

c. direct dative object

sono omawari -ga [yoogisha-ga yudanshita *no*] -ni osoikakatta.
that cop -NOM suspect-NOM careless.was NO -DAT pounced

lit. “That cop pounced upon [the suspect was of his guard].”

d. indirect object

Isao-ga [Mai-ga tanjoobi-o mukaeta *no*] -ni purezento-o
Isao-NOM Mai-NOM birthday-ACC had NO -DAT present-ACC
watashita.
gave

lit. “Isao gave [Mai had her birthday] a present.”

Here we can see that HIRCs are assigned whatever Case (nominative *ga*, accusative *o*, or dative *ni*) is assigned to the argument positions.

Moreover, insofar as it is θ-marked, the complement of some postpositions like *kara* ‘from’ can be a position occupied by HIRCs. An example is given in (64).

(64) gootoo-ga [gofujin-ga okane-o orosi-te ginkoo-o deta
robber-NOM lady-NOM money-ACC drew.money-and bank-ACC got.out
no] -**kara** baggu-o hittakut-te tousoushita.
no] -from bag-ACC snatch-and ran.away

lit. “The robber snatched a bag from [a lady drew money and got out of the bank] and ran away.”

There are some authors who claim that HIRCs followed by postpositions are unacceptable (e.g., Mihara 1994:243, Hoshi 1995:27), but Kuroda (1998, 1999b)

correctly points out that even a slight modification can make their allegedly unacceptable examples acceptable, contrary to their claims. I conjecture, following Kuroda, that HIRCs can in principle be followed by postpositions.

Furthermore, HIRCs can occupy NP-internal positions, again insofar as they are θ-marked. Such θ-marking nouns include (i) derived nominals (65), (ii) picture nouns (66), and (iii) nouns with inalienable possessors (67).[23]

(65) Japanese: HIRCs within derived nominals (Kuroda 1998:(70),(71))

a. (watashitachi-wa) [[daigakuinsei-ga Amerika-ryuugaku-e
I-TOP graduate.student-NOM America-study.abroad-to
shuppatsusuru *no*] -no **kansoo**] -no tame -ni paatii-o hiraita.
start NO -GEN send-off -GEN for -DAT party-ACC had
lit. "We had a party for the send-off of [the graduate students will start to the way to study abroad]."

b. byooin-wa [[infuruenza-ga oozei-no roojin -o osotta *no*] -no
hospital-TOP influenza-NOM many senior -ACC struck NO -GEN
kango] -de isogashii.
nursing -at busy
lit. "The hospital is busy on the nursing of [Influenza struck many old people]."

(66) Japanese: HIRCs within picture nouns (Kuroda 1998:(72))

gagakusei-ga [[nihonjin kankookyaku -ga Efferu.too-o
student.painter-NOM Japanese tourist -NOM Eiffel.Tower-ACC
miageteiru *no*] -no **nigaoe**] -o kaiteiru.
looked.up NO -GEN portrait -ACC is.drawing

lit. "The student painter is drawing a portrait of [Japanese tourists looks up the Eiffel Tower]."

(67) Japanese: HIRCs in inalienable possessor NP positions (Kuroda 1999b:(15), Kuroda 1998:(80))

[23] I must leave open the exact nature of θ-roles assigned by nouns to their inalienable possessors.

a. [[doroboo-ga tsukamat-te tsureteik-are-ru *no*] -no **kao**]
burglar-NOM got.caught-and take-PASS-PRS NO -GEN face
-ga hikishimatte mieta.
-NOM tighten looked
lit. "The face of [a robber was caught and taken to somewhere] looked tight."

b. [[Tanaka-ga kyonen bessou-o tateta *no*] -no **mon**] -ga
Tanaka-NOM last.year cottage-ACC built NO -GEN gate -NOM
taoreta.
fell
lit. "The gate of [Tanaka built a cottage last year] collapsed."

On the other hand, the converse prediction of Kuroda's Generalization (62) is that HIRCs in non-θ-marked NP-positions are illegitimate. Typical examples of non-θ-marked NP-positions include the position occupied by (iv) alienable possessor NPs (68) and (v) predicative NPs (69). In particular, the alienable possessor HIRCs make a sharp contrast with their corresponding inalienable counterparts shown in (67).

(68) Japanese: HIRCs in alienable possessor NP positions (Kuroda 1999b:(16), Kuroda 1998:(80))

a. *? [[doroboo-ga tsukamat-te tsureteik-are-ru *no*] -no
burglar-NOM got.caught-and take-PASS-PRS NO -GEN
bentoobako] -ga hikatte mieta.
lunchbox -NOM shiny looked
lit. "The lunchbox of [a robber was caught and taken to somewhere] looked shiny."

b. *? [[Tanaka-ga kyonen bessou-o tateta *no*] -no **matsu**]
Tanaka-NOM last.year cottage-ACC built NO -GEN pine.tree
-ga taoreta.
-NOM fell
lit. "The pine tree of [Tanaka built a cottage last year] fell."

(69) Japanese: HIRCs in predicate nominal positions (Kuroda 1998: (107), 2006: (115), (118))

a. *? kore-wa [ima Picasso-ga shoozooga-o kaiteiru *no*] -de aru.
this-TOP now Picasso-NOM portrait-ACC is.drawing NO -COP
lit. “This is [Picasso is now drawing a portrait].”

b. *? kono shashin -no ko -wa (ikanimo) [ano toki onnanoko-ga
this photo -GEN girl -TOP as if that time girl-NOM
warat-te te-o futteita *no*] {rashii / -ni mieru }.
smile-and hand-ACC was.waving NO seem -DAT look
lit. “The girl on this photo {seems/looks} (as if) [at that time a girl was waving her hand smilingly].”

Note that the externally headed counterparts of these illegitimate HIRCs are fully grammatical, which is shown by the corresponding prime-marked examples.

(68’) Japanese: externally headed relatives in alienable possessor NP positions (cf. (68))

a. [[[e_i tsukamat-te tsureteik-are-ru] **doroboo**$_i$] -no
got.caught-and take-PASS-PRS burglar -GEN
bentoobako] -ga hikatte mieta.
lunchbox -NOM shiny looked
“The lunchbox of a robber who was caught and taken to somewhere looked shiny.”

b. [[Tanaka-ga kyonen bessou-o tateta *no*] -no **matsu**]
Tanaka-NOM last.year cottage-ACC built NO -GEN pine.tree
-ga taoreta.
-NOM fell
“The pine tree of the cottage that Tanaka built last year fell.”

(69’) Japanese: externally headed relatives in predicate nominal positions (cf. (69))

a. kore-wa [[ima Picasso-ga e_i kaiteiru] **shoozooga**$_i$] -de aru.
this-TOP now Picasso-NOM is.drawing portrait -COP

"This is a portrait that Picasso is now drawing."

b. kono shashin -no ko -wa (ikanimo) [[ano toki e_i warat-te
this photo -GEN girl -TOP as if that time smile-and
te-o futteita] **onnanoko**$_i$] {rashii / -ni mieru }.
hand-ACC was.waving girl seem -DAT look
"The girl on this photo {seems/looks} (like) the girl who was waving her hand smilingly at that time."

All of these data support generalization (62) proposed by Kuroda (1998, 1999b, 2006). Then, any analysis on Japanese HIRCs must take (62) into account.

I would like to argue that our "Project Both" approach in fact naturally explains Kuroda's Generalization (62). I proposed that the complementizer *no* used in the HIRC construction is essentially the same as that of the propositional *no*-clause in (42), repeated here as (70).

(70) Japanese:

a. Isao-wa [Tsubasa-ga kooen-e aruiteiku *no*]-o mita.
Isao-TOP Tsubasa-NOM park-to walk NO -ACC saw
lit. "Isao saw [Tsubasa walk to the park]."

b. Isao-wa [sesuji-ga samuku-naru *no*]-o kanjita.
Isao-TOP back-NOM cold-become NO -ACC felt
lit. "Isao felt [his back frozen]."

I proposed that informally speaking, the N-raising out of the I-pivot is required in order for the *no*-clause, inherently denoting a proposition, to satisfy the selectional requirement of the predicate that will be merged with the HIRC. Or precisely, it is in these cases that the optional application of N-raising and N-projection are licensed by the economy principle of optional operations (56) repeated here as (71), due to its new interpretive outcome of satisfying the selectional/θ-theoretic requirement of the forthcoming sister V.

(71) ECONOMY PRINCIPLE ON OPTIONAL OPERATIONS: (Chomsky 2001: 34, (60), cf. Reinhart 1997, Fox 1995, 2000)
Optional operations can apply only if they yield a new interpretive outcome.

If this line of reasoning is essentially correct, it is then predicted that the N-raising in question can be licensed only when it ultimately establishes a new selectional relation. If we assume that the selectional requirement counting as a new interpretive outcome is imposed only by θ-role assigning categories, Kuroda's Generalization is essentially a confirmation of this prediction, and the proposed analysis straightforwardly explains the fact that HIRCs cannot be generated in non-θ-marked positions. Then, Kuroda's Generalization (62) constitutes another strong piece of evidence for our Project Both approach to HIRCs.

2.6.2 The I-pivot C-commanding Out

Our Project Both analysis of HIRCs posits that the *no*-clause is labeled by the N of the I-pivot. Then, a natural expectation is that although superficially surfacing HIRC-internally, the I-pivot can extend its c-command domain out of the HIRC. Empirical data from Condition C effects confirm this prediction. Observe (72).

(72) Japanese:

a. sono omawari -wa [Tsubasa-ga **kare-o**$_{*i}$ gitagitani
that cop -TOP Tsubasa-NOM him-ACC severely
naguritaoshiteshimatta *no*] -o (PRO teate-o suru tame-ni)
knocked.down NO -ACC aid-ACC do for
Isao-no$_i$ tsutomesaki-no keisatsusho -made tsureteitta.
Isao-GEN working police.office -to took
lit. "(In order to give an aid to him,) that cop took [Tsubasa severely knocked **him**$_{*i}$ down] to the police office that **Isao**$_i$ worked for."

b. sono omawari -wa [Tsubasa-ga **kare-o**$_i$ gitagitani
that cop -TOP Tsubasa-NOM him-ACC severely

naguritaoshiteshimatta *no*] -o (PRO choosho-o toru
knocked.down NO -ACC charge.sheet-ACC make
tame-ni) **Isao-no**$_i$ tsutomesaki-no keisatsusho made tsureteitta.
for Isao-GEN working police.office -to took
lit. "(In order to make a charge sheet,) that cop took [Tsubasa severely knocked **him**$_i$ down] to the police office that **Isao**$_i$ worked for."

(72a) and (72b) constitute a minimal pair. The only difference between them is the position of the I-pivot. In (72a) the pronominal *kare-o*[24] is the I-pivot, whereas in (72b) the r-expression *Tsubasa-ga* is the I-pivot. The parenthesized purposive clauses are intentionally selected in such a way that this difference in I-pivot positioning stands in the natural reading. In these sentences the HIRC occupies a position structurally higher than the r-expression *Isao*, which is within an adjunct PP. Now observe that the HIRC-internal pronominal *kare-o* can be coreferential with the r-expression in (72b), but not in (72a). The I-pivot marking on the pronominal must be responsible for this contrast, because otherwise there is no structural difference in the HIRC between (72a) and (72b). Note that if the PP containing the r-expression is dislocated out of the c-command domain of the HIRC, the contrast disappears: *kare* can be coreferential with *Isao* in both (73a) and (73b).

(73) Japanese:

a. sono omawari -wa **Isao-no**$_i$ tsutomesaki-no keisatsusho -made [
that cop -TOP Isao-GEN working police.office -to
Tsubasa-ga **kare-o**$_i$ gitagitani naguritaoshiteshimatta *no*] -o
Tsubasa-NOM him-ACC severely knocked.down NO -ACC
(PRO teate-o suru tame-ni) tsureteitta.
aid-ACC do for took

[24]Another lexical pronominal *soitsu* and an empty pronominal (*pro*) also shows the contrast, too.

lit. “To the police office that **Isao**$_i$ worked for, that cop took [Tsubasa severely knocked **him**$_i$ down] (in order to give an aid to him).”

b. sono omawari -wa [Tsubasa-ga **kare-o**$_i$ gitagitani
that cop -TOP Tsubasa-NOM him-ACC severely
naguritaoshiteshimatta no] -o (PRO choosho-o toru
knocked.down NO -ACC charge.sheet-ACC make
tame-ni) **Isao-no**$_i$ tsutomesaki-no keisatsusho -made tsureteitta.
for Isao-GEN working police.office -to took
lit. “To the police office that **Isao**$_i$ worked for, that cop took [Tsubasa severely knocked **him**$_i$ down] (in order to make a charge sheet).”

This state of affairs exactly parallels the ordinary pronominal NP cases in (74), where the contrast is clearly induced by binding condition C.

(74) Japanese:

a. sono omawari -wa **kare-o**$_{*i}$
that cop -TOP him-ACC
Isao-no$_i$ tsutomesaki-no keisatsusho -made tsureteitta.
Isao-GEN working police.office -to took
“That cop took **him**$_{*i}$ to the police office that **Isao**$_i$ worked for.”

b. sono omawari -wa **Isao-no**$_i$ tsutomesaki-no keisatsusho -made
that cop -TOP Isao-GEN working police.office -to
kare-o$_i$ tsureteitta.
him-ACC took
“To the police office that **Isao**$_i$ worked for, that cop took **him**$_i$.”

Note that pronominals preceding but not c-commanding an r-expression can readily corefer with it, as is observed in (74b–c), so the condition C effect in (72a) must be attributed to the c-command by the I-pivot after all.

(75) Japanese:

a. sono omawari -wa [**kare-no**$_{(?)i/k}$ hahaoya] -o
that cop -TOP he-GEN mother -ACC
Isao-no$_i$ tsutomesaki-no keisatsusho -made tsureteitta.
Isao-GEN working police.office -to took

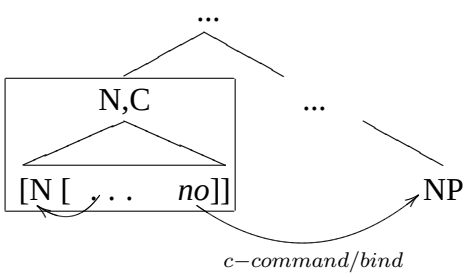
"That cop took **his**$_i$ mother to the police office that **Isao**$_i$ worked for."

b. sono omawari -wa [**kare-ga**$_{i/j/k}$ kega-o shita kara/ato-de]
that cop -TOP he-NOM injury did because/after-at
Tsubasa-o$_j$ **Isao-no**$_i$ tsutomesaki-no keisatsusho -made
Tsubasa-ACC Isao-GEN working police.office -to
tsureteitta.
took
"[Because/after **he**$_i$ was wounded], the cop took Tsubasa$_j$ to the police office that **Isao**$_i$ worked for."

The generalization is thus that an HIRC-internal pronomial binding-theoretically behaves as if it c-commands out of the HIRC, only if it is construed as the I-pivot.

This situation is in fact what the Project Both approach naturally predicts. This analysis postulates a PSOC N-raising from the I-pivot. In (72a) the N of the pronominal NP *kare-o* 'him' woould undergo N-raising, and in (72b) that of the r-expression *Tsubasa* would. I have made an assumption that the moving N bears features relevant for binding, including features [±pronominal] and [±anaphoric]. Because the *no*-clause is labeled by the N, the "NP" will c-command whatever elements the *no*-clause c-commands.

(76)



Therefore, even though it surfaces HIRC-internally, the I-pivot behaves as if it c-commands out of the HIRC. Specifically, if the HIRC c-commands an r-expression, the I-pivot pronominal cannot be coreferential with it, due to the Condition C effect. This state of affairs constitutes further evidence for the Project Both approach

to HIRCs.

2.7 Summary for §2

In this section I have overviewed some pieces of data around Japanese HIRCs. We have seen that some data suggest the existence of covert movement of the I-pivot NP, and others suggest the opposite, namely the absence of such I-pivot movement. A Project Both analysis was proposed, according to which the N-head of the I-pivot undergoes movement to the *no*-CP edge position and this N projects its label to the *no*-CP, rendering the clause labeled both by N and C. This analysis naturally reconciles the apparent "movement" effect and the "anti-movement" effect in a uniform fashion. Moreover, I argued that the covertness of this movement is an optimal PF-resolution to the unlinearizability of the dually labeled structure. According to the proposed hypothesis, the phonological component of Japanese grammar cannot assign a unique precedence relation to the moved N due to its head-final parameter setting. Therefore, it chooses to pronounce the N not at the "overtly" created but unlinearizable chain head position, but at the *in-situ* tail position, constituting the PSOC movement. In this way, the Project Both analysis provides a principled account of the syntactic properties of HIRCs.

3 *Tokoro*-Relative Clauses

3.1 Introduction

In the previous section, we have observed some properties related to the HIRC construction in Japanese. The "Project Both" analysis was proposed to capture these properties in a uniform fashion. So far, the data was drawn from the HIRCs which are headed by the designated nominalizer complementizer *no*. However, there is another HIRC construction in Japanese, the so-called *tokoro-relative clause* (TRC) construction, which is exemplified in (77) (data drawn from Harada (1973)).

(77) Japanese: *Tokoro*-relative clause (TRC) construction (Harada 1973: (7a), (7c))

a. keisatu-wa [sono doroboo-ga nige-dasita *tokoro*] -o
police-TOP that burglar-NOM escape-began TOKORO -ACC
tukamaeta.
arrested
lit. "The police arrested [at the moment when that burglar began to escape]."
"The police arrested that burglar$_i$ [at the moment when he$_i$ began to escape].

b. Taro-wa [Jiro-ga komatte-iru *tokoro*] -o tasuketa.
Taro-TOP Jiro-NOM at.a.loss-be *tokoro* -ACC helped
lit. "Taro helped [at the moment when Jiro was at a loss]."
"Taro helped Jiro$_i$ [at the moment when he$_i$ was at the loss]."

These examples are minimally different from the *no*-headed HIRC counterparts found in (78). The only difference is that the TRC is headed by the distinct complementizer *tokoro*.

(78) Japanese: HIRC

a. keisatu-wa [sono doroboo-ga nige-dasita *no*] -o tukamaeta.
-police-TOP that burglar-NOM escape-began NO -ACC arrested
lit. “The police arrested [that burglar began to escape].”

b. Taro-wa [Jiro-ga komatte-iru *no*] -o tasuketa.
Taro-TOP Jiro-NOM at.a.loss-be NO -ACC helped
lit. “Taro helped [Jiro was at a loss].”

The similarity is evident: Both in the TRC (77) and the HIRC (78), there is no external “relative head” NP, the clause itself apparently occupies the NP-position, and it receives Case from the matrix verb realized as the Case-particle attached to it. Again, these clauses are rather “internally headed” by an NP located within the clause in question. (Carrying over the convention adopted in §2, I will call the TRC-internal semantic head NP the *internal pivot* (*I-pivot*), and mark it by underline.) These structural similarities immediately lead us to expect that we can provide a unified account of HIRCs and TRCs. This section is dictated to this goal. I will show that the gist of the proposal in §2 can be extended to TRCs as well. Moreover, I will show that we can also provide a natural explanation for some of the fundamental differences between HIRCs and TRCs, as we will observe in what follows.

However, before continuing, just a quick note is in order: there is an interpretive difference between the nominalizers *no* and *tokoro*. While it seems that the sole interpretive/semantic effect of the *no*-clauses in HIRCs is to provide a description of a circumstantial situation relevant to the superordinate clause, the circumstantial event described by *tokoro*-clauses in the TRC construction is in addition to be interpreted as *instantaneous* (Harada 1973, Josephs 1976), which roughly corresponds to ‘*at the (very) moment when ...*’ in English. Though I will not go into the explication of the semantics of the *tokoro*-clauses in question, it should be noted here that I will adapt the translation ‘at the moment when ...’ for *tokoro*-clauses in what follows. Readers should bear it in mind that this decision

might obscure the delicate nuances associated to the lexical item *tokoro*.

3.2 Parallelism between HIRCs and TRCs

I believe that many researchers have been aware of the similarities between HIRCs and TRCs (Mihara 1994, Kuroda 1999a, b), though it seems fair to say that the majority of the past literature selectively restricted its attention to the treatment of the *no*-headed HIRCs only, and that relatively small attention was paid to TRCs. Evidently, some acknowledged syntactic and semantic differences between these constructions, which will be explicated in §3.3, are responsible for this situation. However, I will argue that TRCs must be treated more or less on a par with HIRCs, and as a demonstration of this claim, in this section I will overview data involving TRCs that show fundamental similarities to HIRCs.

As noted in the beginning of this section, TRCs essentially pattern with HIRCs. The common features are (i) that they occupy positions of NP, (ii) that they receive structural Case, (iii) that there are no "external head" NPs, (iv) that instead they have internal heads (I-pivots). The examples below show that TRCs can appear in object NP-positions, accompanying Case-particles appropriate to those positions. Here I give direct object cases and indirect object cases.

(79) Japanese: TRCs in Direct Object positions

a. keisatu-wa [sono doroboo-ga nige-dasita *tokoro*]-o
police-TOP that burglar-NOM escape-began TOKORO -ACC
tukamaeta. (=(77a))
arrested
lit. "The police arrested [at the moment when that burglar began to escape]."

b. Isao-ga [doroboo-ga terebi-o katugidasiteiru *tokoro*]-*ni*
Isao-NOM [burglar-NOM TV-ACC is.carrying.out TOKORO -DAT
dekuwasita
ran.into

lit. “Isao ran into [at the moment when the burglar was carrying out the TV].”

(80) Japanese: TRCs in Indirect Object positions

Isao-ga [osiego-ga okuretekita *tokoro*]-*ni* gakuhu-o watasita.
Isao-NOM student-NOM came.late TOKORO -DAT score-ACC gave

lit. “Isao gave [at the moment when his student came late.]”

If we replace the *tokoro*’s in (79)–(80) with *no*, the corresponding, fully grammatical HIRCs are obtained.

We have observed in §2 that the I-pivot within HIRCs shows both “movement” effects and “anti-movement” effects. We can observe some of the same patterns in TRCs as well. For example, the I-pivot in TRCs also shows “high behavior” with respect to binding condition B. See (81), which is basically a repetition of (30) with TRCs. The observation was that the TRC/HIRC-internal I-pivot binding-theoretically behaves as if it is as high as the matrix object, corresponding to (82), thus pronominals playing the I-pivot role are subject to the disjoint reference rule (the Condition B effect).[25]

(81) Japanese:

[25] As already noted in the note in §2.3.2, Fujii (2004) already noted the same kind of contrast in TRCs. He provided the following examples.

i **John-ga**$_i$ [{**kare-ga**$_{*?i}$/**zibun-ga**$_{(?)i}$} ochikondeiru *tokoro*]-o nagusameta.
John-NOM he-NOM/self-NOM is.disappointed TOKORO -ACC cheered.up
lit. “John$_i$ cheered up [at the moment when {he$_{*?i}$/self$_{(?)i}$} was disappointed].”

ii **John-ga**$_i$ {**kare-o**$_{*?i}$/**zibun-o**$_i$} nagusameta.
John-NOM him-ACC/self-ACC cheered.up
“John$_i$ cheered {him$_{*?i}$/self$_i$} up.”

Indeed, my observation in §2 was that what Fujii originally observed in TRCs and dubbed the “high behavior” of the I-pivot can also be observed in HIRCs as well.

a. **sono omawari-ga**$_i$ [**soitu-ga/kare-ga/*pro***$_{*?i/j}$ koron-de kegasi-ta
that cop-NOM he-NOM slip-and get.hurt-PST
tokoro/*no*]-ni (toriaezu) ookyuu.syoti-o hodokosita.
TOKORO/NO -DAT immediately first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to [(at the moment when) he$_{*?i/j}$ slipped and got hurt]."

b. **sono omawari-ga**$_i$ [**zibun-ga**$_{?i/j}$ koron-de kegasi-ta *tokoro*/*no*
that cop-NOM self-NOM slip-and get.hurt-PST TOKORO/NO
]-ni (toriaezu) ookyuu.syoti-o hodokosita.
-DAT immediately first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to [(at the moment when) self$_{?i/j}$ slipped and got hurt]."

(82) Japanese:

a. **sono omawari-ga**$_i$ **soitu-ni/kare-ni/*pro***$_{*?i/j}$ (toriaezu)
that cop-NOM him-DAT/him-DAT-*pro*
ookyuu.syoti-o hodokosita.
immediately first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to him$_{*?i/j}$."

b. **sono omawari-ga**$_i$ **zibun-ni**$_{?i/j}$ (toriaezu) ookyuu.syoti-o
that cop-NOM self-DAT immediately
hodokosita.
first.aid-ACC did
lit. "That cop$_i$ immediately gave first aid to self$_{?i/j}$."

At the same time, the I-pivot in TRCs shows "anti-movement" effects similar to those in HIRCs. For example, just as is the case with HIRCs, the quantified I-pivot NP cannot scope out of the TRC. This point is illustrated by (83b), which is derived from the base structure (83a) by scrambling of the TRC/HIRC. As was discussed in §2.4.2, the quantified I-pivot of the HIRC cannot scope over elements in the matrix clause, even if the HIRC itself is scrambled to a position sperior to these quantified expressions. The same point is also observable in their TRC counterparts as well.

(83) a. **dono gakusei-mo** [Isao-ga **hotondo-no ryoori -o** kanseisaseta
every student Isao-NOM most-GEN food -ACC completed
tokoro/*no*]-o tumamiguisita.
TOKORO/NO -ACC ate.secretly
lit. "Every student ate [(at the moment when) Isao finished making most dishes] secretly."

i. every>most

ii. *? most>every

b. [Isao-ga **hotondo-no ryoori -o** kanseisaseta *tokoro*/*no*]-o$_i$
Isao-NOM most-GEN food -ACC completed TOKORO/NO -ACC
dono gakusei-mo t_i tumamiguisita.
every student ate.secretly
lit. "[(at the moment when) Isao finished making most dishes]$_i$, every student ate t_i secretly."

i. every>most

ii. *? most>every

Cf. their externally headed relative counterparts in (84).

(84) a. **dono gakusei-mo** [[Isao-ga e kanseisaseta]
every student Isao-NOM completed
hotondo-no ryoori]-o tumamiguisita.
most-GEN food -ACC ate.secretly
lit. "Every student ate [most dishes [that Isao finished making]] secretly."

i. every>most

ii. *? most>every

b. [[Isao-ga e kanseisaseta] **hotondo-no ryoori**]-o$_i$
Isao-NOM completed most-GEN food -ACC
dono gakusei-mo t_i tumamiguisita.
every student ate.secretly

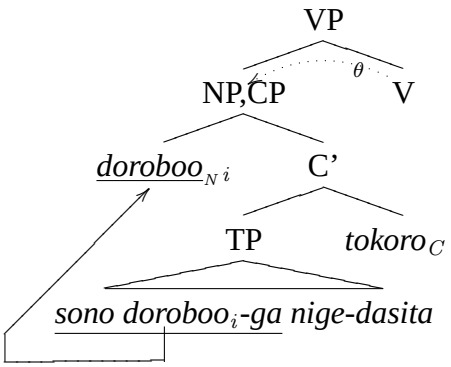
lit. “[most dishes [that Isao finished making]]$_i$, every student ate t_i secretly.”

i. ??? every>most

ii. most>every

In §2 I argued that these apparently conflicting data surrounding HIRCs can be naturally explained once we posit a Project Both structure. The fact that data in (79)–(83) reveal intriguing paralellism between TRCs and HIRCs naturally leads us to expect that the Project Both analysis can be extended to TRCs as well. I propose that the TRC in fact instantiates the Project Both structure schmatized in (85), which is fully parallel with that of the HIRC.

(85)



cf. keisatu-wa [sono doroboo-ga nigeteiku tokoro] -*o* tsukamaeta.
police-TOP that burglar-NOM escape.go TOKORO -ACC arrested
(=(77a))

lit. “The police arrested [at the moment when that burglar tried to escape].”

Bearing the outlined proposal in mind, let us turn to the important differences between TRCs and HIRCs.

3.3 Some asymmetries between HIRC and TRC

In the previous section we have observed that TRCs by and large pattern with HIRCs. Despite these apparent similarities, there are some fundamental differences between the two constructions, to which we now turn.

3.3.1 Finite Clause Subject Position

In §2.6.1, we have observed that HIRCs can appear in various NP-positions, insofar as these positions are θ-marked by some predicate (Kuroda 1998/2006, 1999b). The distribution of HIRCs can be summarized as (62) (repeated here as (86)), which I dubbed as Kuroda's Generalization.

(86) KURODA'S GENERALIZATION (Kuroda 1998/2006, 1999b):
Japanese HIRCs are legitimately base-generated (externally merged) only into θ-marked positions.

The class of θ-positions naturally includes argument positions in the clausal domain. Thus HIRCs can appear as subject, direct object, and indirect object of verbal predicates, as observed in §2.6.1. We have seen in §3.2 that TRCs can also appear as direct and indirect object.

However, there is cumulating evidence that TRCs cannot occupy the subject position in finite clauses. To my knowledge, Harada (1973) was the first who (partially) observed this state of affairs. His observation was that the "D-structure object" TRC cannot be passivized to the subject position, noting the following examples.

(87) Japanese: ((87a)=(77a))

a. keisatu-ga [sono doroboo -ga nige-dasita *tokoro*]-o
police-NOM that burglar -NOM escape-began TOKORO -ACC
tukamaeta.
arrested

lit. “The police arrested [at the moment when that burglar began to escape].”

b. *? [sono doroboo -ga nige-dasita *tokoro*]-ga (keisatu-niyotte)
that burglar -NOM escape-began TOKORO -NOM police-by
tukamaer-are-ta.
arrest-PASS-PST
lit. “[At the moment when that burglar began to escape] was arrested (by the police).”

(87a) is a legitimate Japanese sentence, with a TRC in the direct object position. (87b) is an example derived by passivizing the TRC in (87a) to the subject position. As indicated by the judgment, (87b) is ungrammatical. This situation is unexpected under our assumption that TRCs share the underlying Project Both structure with HIRCs, since if it is correct there is so far no reason to suppose that TRCs are specifically excluded from further NP-movement like passive. Indeed, the HIRC counterpart of (87b), (88b), is grammatical.

(88) Japanese: ((88a)=(78a))

a. keisatu-ga [sono doroboo -ga nige-dasita *no*]-o tukamaeta.
police-NOM that burglar -NOM escape.go NO -ACC arrested
lit. “The police arrested [that burglar tried to escape].”

b. [sono doroboo -ga nige-dasita *no*]-ga (keisatu-niyotte)
that burglar -NOM escape-began NO -NOM police-by
tukamaer-are-ta.
arrest-PASS-PST
lit. “[That burglar began to escape] was arrested (by the police).”

The ungrammatical example (87b) is an example of Nominative Theme Subject TRCs derived by passive A-movement. Though Harada’s original observation was limited to the passive cases, it seems that TRCs cannot occupy the finite clause subject position in general, regardless of whether the sentence is passive or active. Thus the following active examples with subject TRCs are also unaccept-

able, whereas the corresponding HIRCs are not.

(89) Japanese:

a. Nominative Agent Subject

[syo-kara keikan-ga detekita *?*tokoro*/*no*]-ga
office-from policeman-NOM got.out TOKORO/NO -NOM
sukkoronda.
slipped

lit. "[(At the moment when) the policeman got out of the office] slipped."

b. Nominative Experiencer Subject

[kossorito kodomo-ga ie-o tobidasita *?*tokoro*/*no*]-ga
stealthily child-NOM home-ACC got.out TOKORO/NO -NOM
[kuragari-ga kowai to] kanzita.
dark-NOM scary that felt

lit. "[(At the moment when) the child got out of home stealthily] felt that the dark is scary."

c. Nominative Theme Subject (with unaccusative predicates)

[Isao-niyotte $100-satu-ga baramak-are-ta *?*tokoro*/*no*]-ga
Isao-by $100-bill-NOM scatter-PASS-PST TOKORO/NO -NOM
sora-ni maiagatta.
sky-to soared.up

lit. "[(At the moment when) $100 bills were scattered by Isao] soared up over the sky."

Here the symmetry between HIRCs and TRCs clearly breaks down. HIRCs can occupy the finite clause subject position by and large freely, whereas TRCs cannot.

Interestingly, it is not the case that subject TRCs in general are ungrammatical. We will observe that TRCs can grammatically appear as the subject of causative infinitival clauses. In order to make this observation, let us first see the Japanese

causative construction with ordinary NPs. Any verbal predicate can be embedded in the infinitival clausal complement of the causative verbal suffix (*s*)*ase* 'make/let'.[26] For example, the infinitival counterpart of the simplex sentence in (90a) appears as a complement of (*s*)*ase* in (90b).

(90) Japanese:

a. Isao-ga odot-ta.
Isao-NOM dance-PST
"Isao danced."

b. Tsubasa-ga [Isao-o/ni odor]-ase-ta.
Tsubasa-NOM Isao-ACC/DAT dance -CAUS-PST
"Tsubasa made/let Isao dance."

In the causative construction the embedded causee subject is Case-marked either as Accusative or as Dative.[27] I will not go into the exact source of these Cases, but just observe that clauses with verbal predicates can be embedded in the complement of the causative verb (*s*)*ase*. Then, what happens if we embed the examples in (89) into the complement of (*s*)*ase*? Curiously, the causative infinitival counterpart of (89) is by and large acceptable, as shown by the following examples.

---

[26]If the verbal root ends with a consonant, the onset sibilant /s/ of the suffix *sase* will be deleted phonologically.

[27]It is a traditional observation in Japanese syntax that Accusative-marking on the causee leads to severe ungrammaticality when the embedded predicate is a transitive verb that takes an Accusative object. Thus the causee in the following example can only be Dative-marked.

i Tsubasa-ga [Isao-*o/ni uta-o utaw]-ase-ta.
Tsubasa-NOM Isao-ACC/DAT song-ACC sing- -CAUS-PST
"Tsubasa made/let Isao sing a song."

cf. ii Isao-ga uta-o utat-ta.
Isao-NOM song-ACC sing-PST
"Isao sang a song."

(91) Japanese:

a. doroboo-ga [[syo-kara keikan-ga detekita ?*tokoro*/*no*
burglar-NOM office-from policeman-NOM got.out TOKORO/NO
]-o/ni sukkorob]-ase-ta.
-NOM slip -CAUS-PST
lit. "The burglar made/let [(at the moment when) the policeman got out of the office] slip."

b. bukimi-na tinmoku -ga [[kossorito kodomo-ga ie-o
omnious silence -NOM stealthily child-NOM home-ACC
tobidasita ?*tokoro*/*no*]-o/ni [kuragari-ga kowai to]
got.out TOKORO/NO -ACC/DAT dark-NOM scary that
kanzi]-sase-ta.
feel -CAUS-PST
lit. "An ominous silence made/let [(at the moment when) the child got out of home stealthily] feel that the dark is scary."

c. totuzen-no kaze -ga [[Isao-niyotte $100-satu-ga
sudden-GEN blow -NOM Isao-by $100-bill-NOM
baramak-are-ta ?*tokoro*/*no*]-o/ni sora-ni maiagar]-ase-ta.
scatter-PASS-PST TOKORO/NO -ACC-DAT sky-to soared.up
lit. "A sudden blow made/let [(at the moment when) $100 bills were scattered by Isao] soar up over the sky."

Here the TRCs can appear in the causee subject position, accompanying the Accusative or Dative Case. In these examples, the argument structure of the embedded infinitival clause is identical with that of the finite counterpart in (89). Clearly, the former (maybe slightly marginal) examples sharply contrast with the latter ones, which are hardly acceptable at all. Then, the finiteness of the clause in which the TRC appears is presumably responsible for the deviance of (89a–c). Thus, I propose the following generalization:

(92) TRCs cannot appear in the finite clause subject position.

One might argue that it is rather Nominative Case-marking that induces the deviance of (89). Indeed, all of the ungrammatical examples of subject TRCs we have observed so far are Nominative-marked, as well as placed in finite clauses. This is not an accident, because Nominative Case is closely related to the finiteness of T, as is well attested crosslinguistically. However, there is some evidence to believe that it is not Nominative Case itself that causes deviance of subject TRCs. This point is supported by the observation that there are non-Nominative finite subjects that cannot be occupied by TRCs, which is demonstrated by the Dative subject construction. Observe (93).

(93) Japanese: Dative subject

a. [kossorito kodomo-ga ie-o tobidasita $^{*?}$*tokoro*/*no*]-ni/ga
stealthily child-NOM home-ACC got.out TOKORO/NO -DAT/NOM
oya-ga kawaisoo-dat-ta.
parents-NOM sorry-COP-PST
lit. "[(At the moment when) the child got out of home stealthily] was sorry for his parents."

b. kodomo-ni/ga oya-ga kawaisoo-dat-ta.
child-DAT/NOM parents-NOM sorry-COP-PST
lit. "The child was sorry for his parents."

In Japanese, there is a class of stative predicates that allow their subject to be Dative-marked (Ura 1999, Tada 1992, 1993, Takano 2003). This class includes, e.g., predicates like *kawaisoo-da* 'be sorry for', *sinpai-da* 'be afraid of', *kowa-i* 'be scary', *deki-ru* 'can do', *waka-ru* 'understand', and so on. (93) shows that the TRC cannot appear in the Dative subject position. Then, it is not Nominative Case but the structural "subjecthood" that is at stake in the ungrammaticality of (89)–(93). The other demonstration for the claim that Nominative Case itself is not the exact source of deviance in these examples is the observation that non-subject Nominative positions can be occupied by TRCs. This state of affairs is

instantiated by the Nominative object position. Observe (94a) and (95a), where the TRC can clearly be Case-marked as Nominative.

(94) Japanese:

a. Isao-ni/ga [sakkaabooru-ga tondekuru *tokoro*]-o/ga
Isao-DAT/NOM soccer.ball-NOM fly.com TOKORO - ACC/NOM
keritobas-e-ru.
kick-can-PRS
lit. "Isao can give a kick to [at the moment when a soccer ball is flying to him]."

b. Isao-ga sakkaabooru-o/*ga keritobas-u.
Isao-NOM soccer.ball-ACC/NOM kick-PRS
"Isao gives a kick to a soccer ball."

c. Isao-ni/ga sakkaabooru-o/ga keritobas-e-ru.
Isao-DAT/NOM soccer.ball-ACC/NOM kick-can-PRS
"Isao can give a kick to a soccer ball."

(95) Japanese:

a. Isao-ni/ga [sakkaabooru-ga tondekuru *tokoro*]-ni/ga
Isao-DAT/NOM soccer.ball-NOM fly.com TOKORO - DAT/NOM
keri-o ire-rare-ru.
kick-ACC give-can-PRS
lit. "Isao can give a kick to [at the moment when a soccer ball is flying to him]."

b. Isao-ga sakkaabooru-ni/*ga keri-o ire-ru.
Isao-NOM soccer.ball-DAT/NOM kick-ACC give-PRS
"Isao gives a kick to a soccer ball."

c. Isao-ni/ga sakkaabooru-ni/ga keri-o ire-rare-ru.
Isao-DAT/NOM soccer.ball-DAT/NOM kick-ACC give-can-PRS
"Isao can give a kick to a soccer ball."

Japanese has a verbal suffix *-rare* 'can', which attaches to a verbal root and forms a complex stative predicate meaning 'is able to do' (see (94c) and (95c)). Such a

complex predicate can Case-mark its object either as Nominative or as the Case that the root verb assigns to its object in the simple setting. The verb *keritobas* 'give a kick to' is a verb that takes an Accusative object ((94b)), and when it forms a complex predicate with *-rare*, the object can be either Nominative- or Accusative-marked ((94c)). Now, the TRC can occupy the very object position, and it can grammatically receive Nominative Case (as well as Accusative) there. The same also holds for the Dative indirect object cases as in (95). While the source for Nominative Case in the Nominative object construction is still under debate (see Tada 1992, 1993, Koizumi 1994, 1995, 1998, Ura 1999, 2000, Takano 2003, etc.), the grammaticality of the Nominative TRCs in (94a), (95a) should be appreciated. Thus, we can conclude that the data we have seen so far in (87)–(95) indicate that the TRC cannot appear as the subject of a finite clause (the generalization (92)). An adequate analysis of the TRC construction must provide an account for this state of affairs.[28]

[28]Kuroda (1999a) argues that TRCs can appear in the subject position, pointing out the following example:

i Japanese:

[**sono koma -ga** mawatteiru *tokoro*]-ga kirei-da.
that top -NOM spinning TOKORO -NOM beautiful-COP

"The scene that the top is spinning is beautiful."

I would like to argue that this example does not involve the TRC construction at all, but it is merely an instance of the ordinary relative clause construction externally headed by the lexical noun *tokoro* 'place, scene', which happens to be homomorphous with the complementizer *tokoro*. Indeed, the adjectival predicate *kirei-da* 'is beautiful' can take either a concrete object like *koma* 'top' or a situation/scene as its direct object. Thus, we cannot immediately conclude that (i) instantiates a subject TRC. A suggestive fact is that the *tokoro* in (i) can be replaced by other lexical nouns like *siin* 'scene' or *bamen* 'scene', which have lexical meaning quite similar to the noun *tokoro*.

3.3.2 TRCs within Nominals

We have seen in §2.6.1 that HIRCs can also be generated within other nominals, as long as the position is θ-marked in conformity with Kuroda's Generalization ((62)=(86)). Some examples are repeated here, concerning picture nouns and the inalienable possessive nominals.

(96) Japanese: HIRCs within nominals

a. picture nouns (=(66))

gagakusei-ga [[nihonzin kankookyaku -ga
student.painter-NOM Japanese tourist -NOM
Efferu.too-o miageteiru *no*]-no **nigaoe**]-o kaiteiru.
Eiffel.Tower-ACC looked.up NO -GEN portrait -ACC is.drawing
lit. "The student painter is drawing a portrait of [Japanese tourists lookes up the Eiffel Tower]. "

b. inalenable possessive nominals (=(67a))

[[doroboo-ga tukamat-te tureteik-are-ru *no*]-no **kao**]-ga
burglar-NOM got.caught-and take-PASS-PRS NO -GEN face -NOM
hikisimatte mieta.
tighten looked
lit. "The face of [a robber was caught and taken to somewhere] looked tight."

However, the corresponding TRCs in (97) are all ungrammatical.

(97) Japanese: TRCs within nominals

a. picture nouns

*? gagakusei-ga [[nihonzin kankookyaku -ga
student.painter-NOM Japanese tourist -NOM
Efferu.too-o miageteiru *tokoro*]-no **nigaoe**]-o kaiteiru.
Eiffel.Tower-ACC looked.up NO -GEN portrait -ACC is.drawing

lit. “The student painter is drawing a portrait of [at the moment when Japanese

tourists lookes up the Eiffel Tower]. ”

b. inalenable possessive nominals

*? [[doroboo-ga tukamat-te tureteik-are-ru *tokoro*]-no **kao**
burglar-NOM got.caught-and take-PASS-PRS TOKORO -GEN face
]-ga hikishimatte mieta.
-NOM tighten looked

lit. “The face of [at the moment when a robber was caught and taken to somewhere] looked tight.”

If we restrict our attention to these cases, it might seem that TRCs cannot occur within nominals in general, unlike some instances of HIRCs seen above. However, if we locate them within some derived nominals headed by verbal nouns (VNs), we gain fairly acceptable examples. Observe (98).

(98) Japanese: TRCs within derived nominals headed by VNs

a. (??) keisatu-ga [[doroboo-tati-ga (barabara-no hookoo -e)
police-NOM burglar-PL-NOM varied direction -to
nigedasita *tokoro*]-no **issei.kenkyo**]-o sita/tasseisita.
escaped TOKORO -GEN roundup -ACC did/accomplished

lit. “The police accomplished the roundup of [at the moment when the burglars escaped in varied directions].”

b. (??) Isao-ga [[bookan-ga goroozin-o naguritaositeitta *tokoro*
Isao-NOM thug-NOM old.man-ACC knocked.down.went TOKORO
]-no **ookyuusyoti**]-o sita/kokoromita.
-GEN first.aid -ACC did/tried

lit. “Isao tried to give first aid to [at the moment when a thug knocked down an old man].”

These examples suggest that the TRC is not inherently excluded from nominal domains. Thus, we should provide some explanation for the distribution of TRCs within nominals.

If we compare the acceptable sentences in (98) with (97), an obvious difference easily comes to mind: the grammatical nominals in (98) inherently denote actions or processes (events) just like verbs, whereas the ungrammatical ones in (97) denote individuals. Indeed, the sentences in (98) naturally have corresponding verbal counterparts as in (99), but the ones in (97) do not.

(99) Japanese:

a. keisatu-ga [doroboo-tati-ga (barabara-no hookoo -e)
police-NOM burglar-PL-NOM varied direction -to
nige-dasita *tokoro*]-o **issei.kenkyo-sita**.
escape-began TOKORO -ACC roundup-did
lit. "The police rounded up [at the moment when the burglars began to escape in varied directions]."

b. Isao-ga [bookan-ga goroozin-o naguritaositeitta *tokoro*
Isao-NOM thug-NOM old.man-ACC knocked.down.went TOKORO
]-ni **ookyuusyoti-sita**.
-DAT first.aid-did
lit. "Isao gave first aid to [at the moment when a thug knocked down an old man]."

If we attributes to this the difference in grammaticality of the TRCs in (98) on the one hand and of those in (97) on the other, we can obtain a simple generalization roughly stated as in (100).

(100) THE GENERALIZATION ON THE DISTRIBUTION OF TRCS
TRCs are legitimately base-generated (externally merged) only into positions θ-marked by some event predicates.

I am proposing this emprical generalization to capture not only the TRCs within nominals but rather the entire distribution of TRCs in general. Indeed, our examples of TRCs presented so far all conform to this simple generalization. The TRCs within the clausal domain naturally satisfy (100), given that verbal predicates endocentric to clausal propositions denote events. TRCs in nominal domains

are also subject to (100), thus we can differentiate the TRCs within the derived nominal with VN heads on the one hand and the ones within nominals denoting individuals, including even θ-role assigning nouns like picture nouns and nouns with inalienable possessors, on the other.

Compare (100) with the HIRC counterpart, namely Kuroda's Generalization (repeated here).

(**??**) KURODA'S GENERALIZATION (Kuroda 1998/2006, 1999b):
Japanese HIRCs are legitimately base-generated (externally merged) only into θ-marked positions.

It is evident that (100) captures the fact that the distribution of TRCs constitutes a proper subset of that of HIRCs. To the extent that (100) provides a concise and descriptively adequate characterization of the distribution of TRCs, our claim that TRCs should be analyzed on a par with HIRCs is justified, and (100) itself constitutes an important empirical problem for which every analysis of TRCs must provide an account.

3.4 Proposal: *Tokoro*-Float

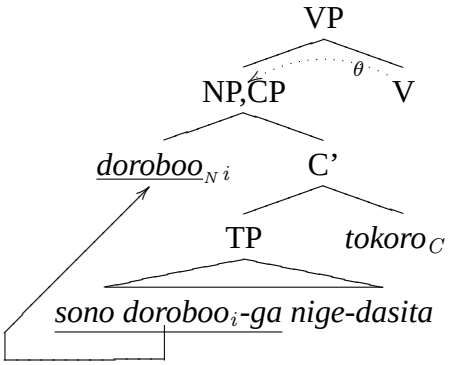
We have seen the distribution of TRCs that differentiated them from the HIRC construction. It is summarized in (101).

(101) a. The TRC cannot occupy the finite clause subject position.
b. The TRC must receive a θ-role from some event predicate.

How can we account for these peculiarities while at the same time capturing the basic parallelism with HIRCs?

I have outlined my analysis of TRCs in §3.2. (85) is repeated here as (102).

(102)



As is evident, this structure maximally resembles the one for HIRCs proposed in §2. The only difference lies in the complementizer: while HIRCs are headed by *no*, TRCs are headed by *tokoro*, which I analyze as a C, too. In fact, my proposal is simply that the differences between TRCs and HIRCs are derived from the difference between the C *tokoro* and *no*.

Let us first observe cases where the *tokoro*-clause is used without the peculiarity of the TRC use. Observe (103), where the *tokoro*-clause is used purely as an adverbial adjunct clause.

(103) Japanese: purely adverbial use of *tokoro*-clauses

a. Isao-ga [ame-ga huri-hazimeta *tokoro*]-o/de kaimono-ni
Isao-NOM rain-NOM fall-began TOKORO -ACC/at shopping-to
dekaketa.
went.out
"Isao went out shopping [at the moment when it began to rain]."

b. doroboo-ga [kazoku-ga dekaketa *tokoro*]-$^{(?)}$o/de
burglar-NOM family-NOM went.out TOKORO -ACC/at
Tanaka-ke-ni sinnyuusita.
Tanaka-house-into trespassed
"The burglar trespassed into Tanaka's house [at the moment when the family went out]."

In these examples there is no internal head NP (I-pivot) within the *tokoro*-clause, and the argument structure of the main predicate is fully satisfied by elements other than the *tokoro*-clause. Here the *tokoro*-clause only serves as an adverbial adjunct clause meaning 'at the moment when ...', which is quite similar to the interpretation of *tokoro*-clauses in the TRC construction (apart from the absence of the I-pivot). These *tokoro*-clauses are supplied Case by postpositions such as *o* and *de*.[29]

I would like to propose that one and the same lexical item *tokoro* is involved both in the TRC construction and in examples like (103). Specifically, I assume that *tokoro* is a complementizer C that heads an adverbial clause just like *when*

[29]Japanese arguably involves a postpositional particle *o*, which is homophonous with the Accusative Case-particle *o* 'ACC' (Harada 1973, Saito and Hoshi 2000). The postposition *o* is involved, e.g., in examples like (i).

i Japanese: (Harada 1973:note 14)

a. Hanako-ga kono kawa -*o* watatta.
Hanako-NOM this river -at crossed
"Hanako went across this river."

b. tori-ga Tokyo-no sora -*o* tondeiru.
bird-NOM Tokyo-GEN sky -at is.flying
"Birds are flying in the sky above Tokyo."

Evidence for the claim that these *o*'s are not the Accusative Case-particle but postpositions comes from the fact that the *o*-marked NPs cannot be passivized.

ii Japanese: (Harada 1973:note 14)

a. * kono kawa -ga Hanako-ni(yotte) watar-are-ta.
this river -NOM Hanako-by cross-PASS-PST
"This river was crossed by Hanako."

b. * Tokyo-no sora -ga tori-ni(yotte) tob-are-ta.
Tokyo-GEN sky -NOM bird-by fly-PASS-PST
"The sky above Tokyo was flied by birds."

and *if* in English. I assume that it has at least the following featural specification.

(104) *tokoro*:

i. C (categorial feature)

ii. [uCase] (uninterpretable Case-feature)

iii. edge-feature

iv. [+adverbial]

This maximally corresponds to that of *no* ((41)) proposed in §2.5.1, repeated here as (105) (with (105iv) added).

(105) *no*:

i. C (categorial feature)

ii. [uCase] (uninterpretable Case-feature)

iii. edge-feature

iv. [−adverbial]

However, I crucially assume that clauses headed by *tokoro* are inherently "adverbial" in their lexical specification, as (104iv) indicates. This is an assumption that is factually motivated by the interpretation of the *tokoro*-clause in question. I will argue that this sole difference will derive the asymmetry between HIRCs and TRCs observed in §3.3.[30]

[30]The complementizer *tokoro* is historically derived from the noun *tokoro* 'place, scene' through grammaticalization (see Horie and Sassa 2000, Ohori 2001). A disturbing fact is that the adverbial *tokoro*-clause is homophonous with the relative clause headed by the noun *tokoro*, as in (i).

i Japanese:

Isao-ga [[Tsubasa-ga mukougisi-made oyoideiku] *tokoro*/siin/bamen]-o
Isao-NOM Tsubasa-NOM the.other.side-to swim.go TOKORO/scene/scene -ACC
mokugekisita.
witnessed

"Isao witnessed [the scene [that Tsubasa swam to the other side]]."

In order to compare the derivations of TRCs with those of HIRCs, let us quickly review the latter first. An example of HIRCs ((78a)) is repeated here as (106), whose derivation will be the one schematized in (107).

Thus we must be careful about whether each instance of *tokoro* is a complementizer or only a noun heading a relative clause. An immediate diagnosis to differentiate the adverbial/TRC use of *tokoro*-clauses from the [$_N$ *tokoro*]-headed relatives like (i) is to test whether *tokoro* can be replaced by other nouns like *siin* 'scene', *bamen* 'scene', which have similar lexical meanings to the noun *tokoro*. The *tokoro*-clauses in the advervial use and in the TRC use, which I claim are headed by the distinct complementizer *tokoro*, cannot undergo such replacement.

ii Japanese: the TRC use of *tokoro*-clauses (=(77a))

keisatsu-wa [sono doroboo-ga nigeteiku *tokoro*/*siin/*bamen] -o tsukamaeta.
police-TOP that burglar-NOM escape.go TOKORO/scene/scene -ACC arrested

lit. "The police arrested [at the moment when that burglar tried to escape]."

"The police arrested that burglar$_i$ [at the moment when he$_i$ tried to escape].

iii Japanese: the adverbial use of *tokoro*-clauses (=(103a))

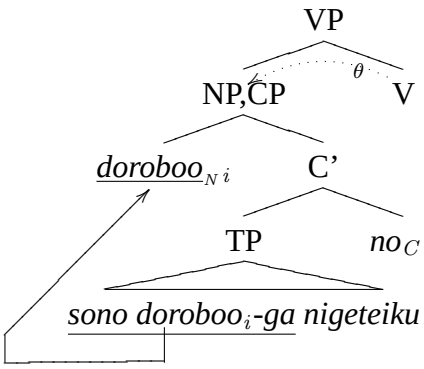
Isao-ga [ame-ga huri-hazimeta *tokoro*/*seen/*bamen]-o/de kaimono-ni
Isao-NOM rain-NOM fall-began TOKORO/scene/scene -ACC/at shopping-to
dekaketa.
went.out

"Isao went out shopping [at the moment when it began to rain]."

Though I don't explicitly mention it in the main text for the sake of avoiding redundancy, all examples provided as instances of the adverbial/TRC use of *tokoro*-clauses pass the test. That is, none of them can replace their head *tokoro* with other nouns like *siin*, *bamen*.

(106) keisatsu-wa [sono doroboo-ga nigeteiku *no*] -o tsukamaeta.
police-TOP that burglar-NOM escape.go NO -ACC arrested
lit. "The police arrested [that burglar tried to escape]."

(107)



The *no*-clause is specified as [−adverbial], and I proposed that it unproblematically stands as the complement of the matrix V. In the HIRC construction, the V selects an NP object and discharges a θ-role to it. The HIRC is headed both by the complementizer *no* and the dislocated N, and the θ-role is received by the N label. On the other hand, the uninterpretable Case-feature of the other label, C, is checked by *v*.

I will take basically the same approach to TRCs as well (see (102)). The same kind of N-raising applies at the CP-phase headed by *tokoro*, and the resultant *tokoro*-clause will be dually labeled by N and C just like the *no*-clause in the HIRC construction. The *tokoro*-clause is then externally merged with the (projection of) V. One of its labels (N) receives the θ-role, the other one (C) receives Case.

However, the *tokoro*-clause is inherently specified as [+adverbial], unlike the *no*-clause. I would like to propose that this featural specification will force the clause to *adjoin* to the projection of V (or *v*). In the current bare phrase structure theory (Chomsky 1994, 1995, 2000, 2001), which I adapt throughout the thesis, the adjunction operation results in structures different from the traditional substi-

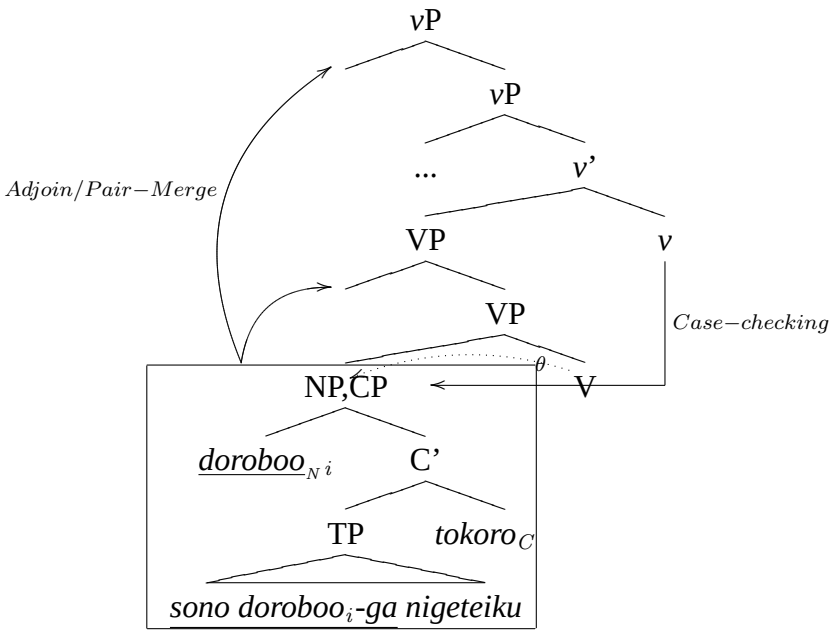
tution operation. Let us adapt the theory of adjunction of Chomsky (2001, 2004) and assume that adjunction is a variety of Merge which creates an ordered pair of its terms (*Pair-Merge*) whereas Merge in the simple substitution cases creates an unordered set of them (*Set-Merge*).

(108) a. Set-Merge(α,β) = $\{\alpha,\beta\}$ (substitution)

b. Pair-Merge(α,β) = $\langle\alpha,\beta\rangle$ (adjunction)

Now, suppose that due to its [+adverbial] feature (cf. Rubin 2003), the *tokoro*-clause must be adjoined to VP or *v*P after being base-generated in a θ-position and having its Case-feature checked, as is schematized in (109).

(109) *Tokoro-float*



Let me call this adjunction operation *Tokoro-float*, borrowing the terminology from Kuroda (1976-77, 1978).[31] I assume that *Tokoro*-float is obligatory, due

[31]Indeed, Kuroda (1976-77, 1978) already suggested in a quite different theoretical setting the same sort of proposal that the TRC undergoes movement into an adverbial adjunct position after it is Case-marked. My analysis amounts to resurrect his classical *Tokoro*-float in the current bare

to the [+adverbial] feature. This feature is satisfied by the *tokoro*-clause entering into a modification relation to some event predicate, that is, by its adjoining to some projection of the event predicate.

Chomsky (2001, 2004) proposes that adjoined categories created by Pair-Merge are opaque/invisible for further syntactic operations (crucially, Agree). If we adopt this assumption, it follows that *Tokoro*-float cannot apply *before* the Case-checking of the *tokoro*-clause: after *Tokoro*-float, the whole *tokoro*-clause becomes inaccessible for later Agree. Case-checking is contingent on Agree according to the standard assumption, thus its unchecked Case-feature will lead the derivation to crash. Hence, the *tokoro*-clause must undergo the following three operations, exactly in the specified order.

(110) base-generation (External Set-Merge) into a θ-position
$\longrightarrow$ Case-checking by Agree
$\longrightarrow$ *Tokoro*-float (Internal Pair-Merge into some adverbial adjunct position)

Now, we are ready to see how this analysis provides a neat account of the asymmetry between HIRCs and TRCs.

First, I would like to argue that the inherent "adverbhood" of the *tokoro*-clause is the source for the deviance of TRCs within some nominals. The relevant examples are repeated here.

(97) Japanese: TRCs within nominals

a. picture nouns

*? gagakusei-ga [[nihonzin kankookyaku -ga
student.painter-NOM Japanese tourist -NOM
Efferu.too-o miageteiru *tokoro*]-no **nigaoe**]-o
Eiffel.Tower-ACC looked.up TOKORO -GEN portrait -ACC

---

phrase structure theory.

kaiteiru.
is.drawing

lit. “The student painter is drawing a portrait of [at the moment when Japanese

tourists lookes up the Eiffel Tower]. ”

b. inalenable possessive nominals

*? [[doroboo-ga tukamat-te tureteik-are-ru *tokoro*]-no **kao**
burglar-NOM got.caught-and take-PASS-PRS TOKORO -GEN face
]-ga hikisimatte mieta.
-NOM tighten looked

lit. “The face of [at the moment when a robber was caught and taken to somewhere] looked tight.”

In these examples, the Genitive-marking on the TRCs indicates that they remain within the nominals. These nominals are not event predicates but only argument NPs denoting individual entities. Thus, the TRCs cannot satisfy the requirement imposed by their [+adverbial] feature that they should structurally adjoin to some event predicate. On the other hand, when the noun head itself is an event predicate, this requirement is satisfied if the *tokoro*-clause *Tokoro*-floats within the NP. I propose that this is exactly what happens in the TRCs within derived nominals headed by verbal nouns (VNs).

(98a) Japanese: TRCs within derived nominals headed by VNs

(?) keisatu-ga [[doroboo-tati-ga (barabara-no hookoo -e) nigedasita
police-NOM burglar-PL-NOM varied direction -to escaped
tokoro]-no **issei.kenkyo**]-o tasseisita.
TOKORO -GEN roundup -ACC accomplished

lit. “The police accomplished the roundup of [at the moment when the burglars escaped in varied directions].”

Thus, the distribution of TRCs within nominals is properly accounted for.

Another fundamental property of TRCs that we observed in §3.3 is that they cannot occupy the finite clause subject position (see §3.3.1). Let us adopt the conventional assumption that Nominative Case for a subject is assigned by Agree with the finite T. By the hypothesis that T is universally associated with an EPP-feature (cf. Alexiadou and Anagnostopoulou 1998), T obligatorily attracts the Agreeing subject NP into the Spec. Thus, the finite clause subject is at the TP-Spec position. Now, our analysis claims that the TRC must undergo three syntactic operations in a particular order: External Merge, Case-checking, and *Tokoro*-float ((110)). Now, if the TRC is base-generated into the subject θ-position, it will undergo Agree with the finite T, and be attracted to the TP-Spec due to the EPP. It is only after this Agree that it is assigned Nominative Case. Then, the next step is *Tokoro*-float, which targets a VP- or *v*P-adjunct position.[32] However, the TP-Spec position is "too high" to undergo adjunction to VP or *v*P. Therefore, it is natural to assume that *Tokoro*-float from the finite clause subject position is prohibited by a general ban on lowering. I propose that exactly this is why TRCs are excluded from the finite clause subject position.

Note that our analysis correctly allows the TRC subject within the causative complement infinitival.

(111) Japanese: (=(91a))

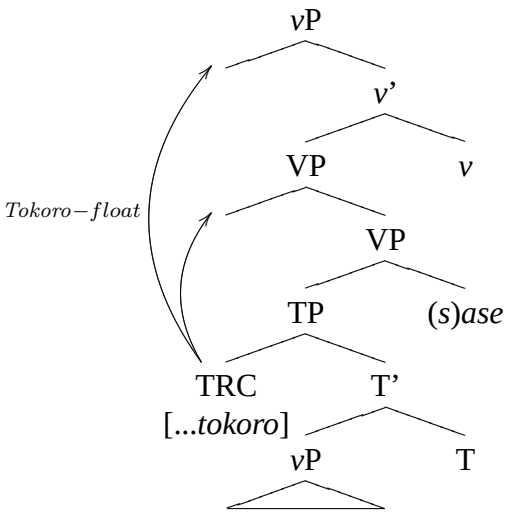
doroboo-ga [[syo-kara keikan-ga detekita *tokoro*]-o/ni
burglar-NOM office-from policeman-NOM got.out TOKORO -NOM
sukkorob]-ase-ta.
slip -CAUS-PST

lit. "The burglar made/let [at the moment when the policeman got out of the office] slip."

[32] Or a VN phrase-adjunct position.

Just for expository convenience, let me here assume that the infinitival complement of the causative verb (*s*)*ase* is a TP, and that the causee subject is located in the TP-Spec, abstracting away the syntactic and semantic differences between Accusative- and Dative-marked causees (cf. Kuroda 1965, Watanabe 1996, Miyagawa 1999). (Nothing particular hinges on these assumptions.) We have seen that these causee subject positions can be occupied by TRCs. It is a natural consequence of our analysis: these TRCs are located in the embedded complement clause subject position, being Case-marked there. There is still a VP- or *v*P-adjunct position structurally higher than the causee TRCs, namely in the domain of the matrix verb (*s*)*ase*. Thus, they can successfully undergo *Tokoro*-float without involving any countercyclic lowering.

(112)



Thus, our analysis naturally makes a factually correct prediction that TRCs are specifically prohibited from occupying the finite clause subject position, since this is the only position from which *Tokoro*-float is impossible due to the general ban on lowering.

I assume that *Tokoro*-float is clause-bounded. This assumption is necessary to ensure that TRCs in general are excluded from finite clause subject positions. The

clause-boundedness of *Tokoro*-float rules out the data like the following, where the finite clause containing the subject TRC is embedded within another finite clause.

(113) Japanese:

*? Isao-ga [[doroboo-ga nige-dasita *tokoro*]-ga sukkoronda to]
Isao-NOM burglar-NOM escape-began TOKORO -NOM slipped that
itta.
said

lit. "Isao said that [at the moment when a burglar began to escape] slipped."

If *Tokoro*-float can cross a clause boundary, it should be possible that the *tokoro*-clause undergoes adjunction to the matrix VP or *v*P legitimately, which is not the case, as the ungrammaticality of (113) shows. Thus, the assumption that *Tokoro*-float cannot cross a CP-boundary is factually supported.

An interesting confirmation of this assumption comes from the Raising-to-Object (RTO) construction in Japanese. Consider (114).

(114) Japanese:

a. *? Isao-wa orokanimo [[otoko-ga kosokoso mise-o detekita
Isao-TOP stupidly man-NOM secretly store-ACC came.out
tokoro]-ga doroboo-da to] kantigaisita.
TOKORO -NOM thief-COP that mistook
lit. "Isao stupidly mistakenly judged that [at the moment when a man came out of the store secretly] is a thief."

b. Isao-wa [otoko-ga kosokoso mise-o detekita *tokoro*]-o$_i$
Isao-TOP man-NOM secretly store-ACC came.out TOKORO -ACC
orokanimo [t_i doroboo-da to] kantigaisita.
stupidly thief-COP that mistook
lit. "Isao stupidly mistakenly judged [at the moment when a man came out of the store secretly] to be a thief."

The TRC in (114a) is in an finite subject position and hence ungrammatical, as our analysis predicts. The corresponding example in (114b) involves the RTO con-

struction, where the embedded subject undergoes an optional RTO movement and receives Accusative Case.[33] The fact that a matrix adverb *orokanimo* 'stupidly' can intervene between the Accusative-marked TRC and the rest of the embedded sentence indicates that the TRC is moved out of the embedded clause. Interestingly, (114b) is grammatical. What this fact means to our analysis is that though *Tokoro*-float itself is clause-bounded, TRCs can undergo cross-clausal movement like RTO, and that in this case the *tokoro*-clause can successfully target the matrix VP or *v*P after the "free-ride" on that movement. Thus, the contrast in (114) offers an interesting support for not only the generalization that TRCs are excluded from finite clause subject positions but also the assumption that *Tokoro*-float is clause-bounded.

In this way, our analysis naturally captures both the symmetry and the asymmetry between HIRCs and TRCs in a uniform fashion. The differences between

[33]Literature on the Japanese RTO construction includes Kuno 1976, Bruening 2001, Hiraiwa 2004, among many others. There is evidence that this construction involves cross-clausal movement of the embedded subject NP. First, the trace of this movement induce a proper binding condition effect as illustrated in (i). Moreover, the fact that idiom chunk can appear in this construction, as in (ii), further supports this point (examples are taken from Bruening 2001:293).

i Japanese:

[t_i baka-da to] John-ga Bill-o$_i$ t_{CP} omotteiru.
stupid-COP that John-NOM Bill-ACC think

"As a fool, John thinks of Bill."

ii Japanese:

Taro-ga [John-no ketu]-o$_i$ [t_i aoi to] omotta.
Taro-NOM John-GEN hip-ACC blue that thought

lit. "Taro thought of John's hip as blue."

"Taro thought that John is inexperienced."

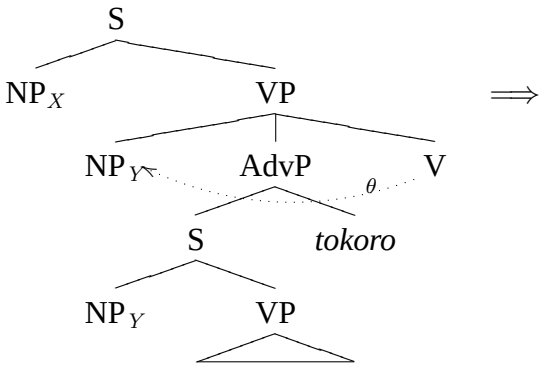
HIRCs and TRCs can be simply attributed to the difference in their adverbialhood. Specifically, it is proposed that the [+adverbial] specification of *tokoro*-clauses forces the TRCs to undergo adjunction to some event predicate phrase (*Tokoro*-float). The distribution of TRCs is constrained in such a way that TRCs need to be generated in A-positions from which *Tokoro*-float is possible. This restriction excludes the positions within non-eventive nominals and the finite clause subject position.

3.5 A Quick Note on Counter Equi

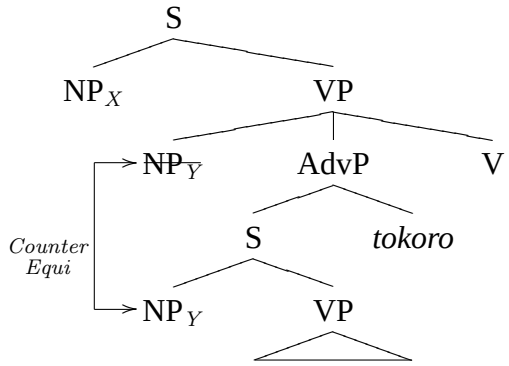
Before leaving this section, let me just briefly mention that our analysis shares a fundamental insight with Harada (1973), which is one of the most influential classics on the TRC construction. Harada's essential idea has been advocated in various ways in the past literature (Kuroda 1976–77, 1999a, Fujii 2004). He proposed that though phonologically invisible, there is an unpronounced NP occupying the matrix object position (at D-structure, in his terms). This object is deleted in the course of derivation in identity with the TRC-internal I-pivot by the operation *Counter Equi NP Deletion* (*Counter Equi*). This deletion operation derives the *Backward Control* configuration as schematized in (115), where the "controllee" empty category apparently occupies a position structurally higher than the "controller" NP (Polinsky and Potsdam 2002).

(115) Harada's (1973) Counter Equi analysis

a. D-Structure



b. S-Structure



Once we posit Counter Equi, V's θ-marking on the (superficially TRC-internal) T-pivot ceases to be "exceptional," as Harada argues. According to this approach, there underlyingly exists an object NP that receives the θ-role by the matrix V. What is exceptional in this construction is rather the fact that the θ-marked object NP, which is identical with, or "controlled" by, the TRC-internal T-pivot NP, surfaces phonologically null at PF.

Now we can see the intriguing conformity between our proposal and Harada's Counter Equi analysis. Our Project Both analysis eliminates Counter Equi as a primitive operation (cf. Harada 1973, Kuroda 1999a), but rather it attributes the

effect of Counter Equi to the PSOC movement of the I-pivot's N head. Thanks to this movement the TRC shares its N label with the I-pivot, and it serves as the unpronounced "D-structure" object, receiving the θ-role from the matrix predicate. Thus, our PSOC movement analysis of TRCs (as well as HIRCs) can be seen as a resurrection of Harada's classical Counter Equi analysis in the minimalist framework, while at the same time it substantially broadens the coverage of the empirical data around TRCs (See also Fujii 2004, Narita forthcoming).

However, it should be noted that our Project Both analysis differs from Harada's (1973) original proposal in the assumption on the status of the *tokoro*-clause. Harada regarded the *tokoro*-clause as base-generated as an adverbial clause from the very beginning, whereas our Project Both analysis posits that the *tokoro*-clause is base-generated in an A-position and then moved to the adverbial adjunct position after receiving structural Case (cf. Kuroda 1976-77, 1978). Crucially, our analysis assumes that the *tokoro*-clause in the TRC construction is structurally Case-marked by the main verb, whereas Harada's analysis posits that the particle *o* on the *tokoro*-clause is not a Case-marker but rather (like) a postposition, assigned at D-structure. As Kuroda (1976-77, 1978) noted, Harada's analysis face a problem in explaining the *ni*-marked TRC cases, like (79b) and (80), repeated here.

(116) Japanese: *ni*-marked TRCs ((79b), (80) repeated)

a. Isao-ga [doroboo-ga terebi-o katugidasiteiru *tokoro*]-*ni*/**o*
Isao-NOM [burglar-NOM TV-ACC is.carrying.out TOKORO -DAT/ACC
dekuwasita
ran.into
lit. "Isao ran into [at the moment when the burglar was carrying out the TV]."

b. Isao-ga [osiego-ga okuretekita *tokoro*]-*ni*/*o gakuhu-o
Isao-NOM student-NOM came.late TOKORO -DAT/ACC score-ACC

watasita.
gave
lit. “Isao gave [at the moment when his student came late.]”

The TRC in (116a) and (116b) are in the direct Dative object position and in the indirect object position, respectively, and the Dative particle on the *tokoro*-clauses presumably come from the structural Case they received. The fact that they cannot be replaced by *o* further suggests that the postpositional *o* is not available in the TRC construction in general. Thus, Harada’s assumption that the *tokoro*-clause is base-generated as a pure adverbial clause (with Case supplied by a postposition) is untenable. On the other hand, we proposed that the *tokoro*-clause in the TRC construction is rather base-generated in the object position, with receiving the structural objective Case, a desired result. Our analysis thus provide a superior account regarding the status of the *tokoro*-clause in the TRC construction.

In essense, we are proposing that there is no underlying object NP distinct from the TRC, as opposed to Harada. Note that Harada’s purely adverbial analysis of *tokoro*-clauses aimed at deriving the examples as in (117b) from the same underlying structure as the TRC in (117a).

(117) Japanese:

a. keisatu-wa [**sono doroboo-ga** nige-dasita *tokoro*]-o
police-TOP that burglar-NOM escape-began TOKORO -ACC
tukamaeta. (=(77a))
arrested
lit. “The police arrested [at the moment when that burglar began to escape].”

b. ?? keisatu-wa **sono doroboo-o**$_i$ [(soitu-ga)$_i$ nige-dasita *tokoro*]-o
police-TOP that burglar-ACC he-NOM escape.go TOKORO -ACC
tukamaeta.
arrested
“The police arrested that burglar$_i$ [at the moment when he$_i$ began

to escape]."

Example (117b) is minimally different from the TRC counterpart in (117a) in that the direct object NP *doroboo* 'burglar' surfaces within the matrix clause, being marked as Accusative. Within the *tokoro*-clause in (117b), there is no internal pivot NP comparable to that of (117a): the subject position is occupied either a null argument or a pronoun coreferencial with the matrix object *doroboo*. (117b) is marginal due to the Japanese particular morphophonological constraint called the *Double-o Constraint* (D*o*C), which bans more than one *o*-marked element per *v*P (*o* is ambiguous between the Accusative Case marker and the postposition; see note 25; see Hiraiwa 2002 for a recent treatment of D*o*C). The D*o*C effect is typically weak, as the judgment ?? indicates, and it can be circumvented by dislocating one of the *o*-marked elements from out of the *v*P-domain. Thus, passive and cleft movement of *o*-marked elements in (117b) result in fully grammatical sentences, as shown in (118).

(118) a. Passive of (117b)

sono doroboo -ga$_i$ (keisatu-niyotte) [(soitu-ga)$_i$ nige-dasita
that burglar -NOM police-by he-NOM escape-began
tokoro]-o tukamae-rare-ta.
TOKORO -ACC arrest-PASS-PST

"The burglar$_i$ was arrested by the police [at the moment when he$_i$ began to escape]."

b. cleft of (117b) (i)

[keisatu-ga **sono doroboo -o**$_i$ e_j tukamaeta no]-wa [(soitu-ga)$_i$
police-NOM that burglar -ACC arrested NO -TOP he-NOM
nige-dasita *tokoro*]-(o)$_j$ datta.
escape-began TOKORO -ACC was

"It was [at the moment when he$_i$ began to escape] that the police arrested that burglar$_i$."

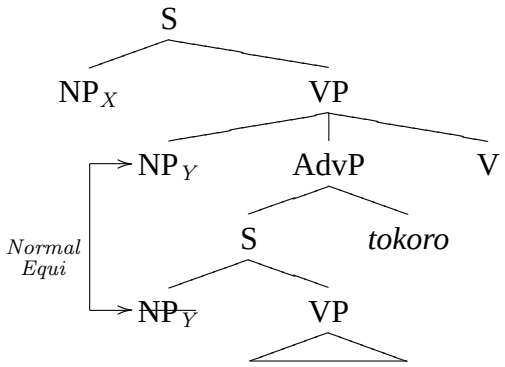
c. cleft of (117b) (ii)

[keisatu-ga e_i [(soitu-ga)$_i$ nige-dasita *tokoro*]-o tukamaeta
police-NOM he-NOM escape-began TOKORO -ACC arrested
no]-wa **sono doroboo -(o)**$_i$ datta.
NO -TOP that burglar -ACC was
"It was that burglar$_i$ that the police arrested e_i [at the moment when he$_i$ tried to escape]."

Harada proposed that examples like (117a) and (117b) share the same underlying D-structure schematized in (115a), and that examples like (117b) is derived by applying not Counter Equi but *Normal Equi* to the D-structure. Normal Equi is a deletion operation that deletes an NP in identity with an NP c-commanding it. Normal Equi is the complementary counterpart of Counter Equi, which rather deletes an NP in identity with an NP c-commanded by it.

(119) Normal Equi (Compare it with (115b))

S-Structure



However, our Project Both analysis cannot derive examples like (117b) from the same underlying structure as that of the TRC counterpart (117a), because we assume that there is no underlying object NP distinct from the TRC. Rather, our analysis predicts that the example in (117b) (and those in (118) as well) has a syntactic structure different from the TRC counterpart in (117a), contra Harada's suggestion.

Empirical evidence suggests that the prediction that our analysis makes is on the right track. I would like to point out the fact that the particle *o* attached to the *tokoro*-clause in the examples in (117b) can be replaced by another postposition *de*.

(120) Japanese:

keisatu-wa sono doroboo-o$_i$ [(soitu-ga)$_i$ nige-dasita *tokoro*]-*de*
police-TOP that burglar-ACC he-NOM escape.go TOKORO -/at
tukamaeta.
arrested

"The police arrested that burglar$_i$ [at the moment when he$_i$ began to escape]."

We can derive the passive and cleft sentences corresponding to (118) with *de* as well:

(121) Japanese:

a. Passive of (120)

sono doroboo -ga$_i$ (keisatu-niyotte) [(soitu-ga)$_i$ nige-dasita
that burglar -NOM police-by he-NOM escape-began
tokoro]-*de* tukamae-rare-ta.
TOKORO -at arrest-PASS-PST

"The burglar$_i$ was arrested by the police [at the moment when he$_i$ began to escape]."

b. cleft of (120) (i)

[keisatu-ga sono doroboo -o$_i$ e_j tukamaeta no]-wa [(soitu-ga)$_i$
police-NOM that burglar -ACC arrested NO -TOP he-NOM
nige-dasita *tokoro*]-(*de*)$_j$ datta.
escape-began TOKORO -at was

"It was [at the moment when he$_i$ began to escape] that the police arrested that burglar$_i$."

c. cleft of (120) (ii)

[keisatu-ga e_i [(soitu-ga)$_i$ nige-dasita *tokoro*]-*de* tukamaeta
police-NOM he-NOM escape-began TOKORO -at arrested
no]-wa sono doroboo -(o)$_i$ datta.
NO -TOP that burglar -ACC was

"It was that burglar$_i$ that the police arrested e_i [at the moment when he$_i$ tried to escape]."

In fact, most of the *tokoro*-clauses similar to the one in (117b) that would be derived by Normal Equi in Harada's analysis seem to have the *de*-marked counterparts. These data strongly suggest that the *tokoro*-clauses in examples like (117b) is not in a Case-marked NP-position but generated as an adverbial adjunct clause with Case supplied by postposition. On the other hand, *tokoro*-clauses in the TRC construction generally resist being *de*-marked, as our analysis naturally predicts.

(122) Japanese: TRC (=(77a))

keisatu-wa [**sono doroboo-ga** nige-dasita *tokoro*]-o/*de tukamaeta.
police-TOP that burglar-NOM escape-began TOKORO -ACC/at arrested

lit. "The police arrested [at the moment when that burglar began to escape]."

Thus, I would like to propose that *tokoro*-clauses in examples like (117b) is base-generated as adverbial adjunct clauses, with Case supplied by postpositions like *o* or *de*. The structure is quite different from that of the corresponding TRCs, which instantiates a Project Both structure discussed above and base-generated in a θ-position (and subsequently undergo *Tokoro*-float).

In this way, our Project Both analysis naturally incorporates Harada's insight of Counter Equi into our PSOC movement analysis, while overcoming the empirical difficulties that Harada's original analysis faces.

3.6 Summary for §3

In this section we have extended our Project Both analysis developed in §2 to the TRC construction. The similarities and differences between HIRCs and TRCs are discussed in §3.2 and §3.3, respectively. The resolution I have proposed in §3.4 posited an adjunction operation dubbed *Tokoro*-float, which dislocates the TRC to some event predicate phrase adjunct position. I proposed that this adjunction operation is driven by *tokoro*-CP's adverbial nature. The difference in distribution between HIRCs and TRCs is naturally accounted for by the assumption that only TRCs are subject to *Tokoro*-float. Finally, Harada's classic Counter Equi analysis was quickly mentioned, and I argued that our PSOC movement analysis of TRCs can be seen as a reformulation of Harada's Counter Equi analysis in the current minimalist framework.

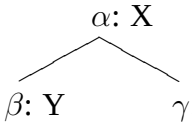
4 Concluding Remarks

In this thesis, I investigated the head-internal relative clause (HIRC) construction in Japanese, adapting the framework of bare phrase structure theory (Chomsky 1994, 1995). I proposed that this consruction instantiates a "Project Both" structure where a single node is labeled by more than one head. Specifically adapting Chomsky's (2005b) labeling algorithm, I have proposed that the N head of the I-pivot undergoes a phonologially inaudible movement to the edge of the HIRC, from which it projects its label one step further to the entire HIRC. I have shown that this Project Both structure straightforwardly captures a number of curious properties of HIRCs, some of which indicate that this construction involves movement, others of which suggest it does not. Moreover, I have proposed that the N-raising in question is an instance of Pre-Spell-Out Covert (PSOC) movement, and that the covertness of this movement is forced by the "unlinearlizability" of the dually labeled structure (in a head-final language like Japanese). I argued that this type of covert movement is a completely cyclic operation, free from many of the theoretical problems that the notion "covert movement" has posed throughout the history of generative grammar. The core part of this analysis is extended to the *Tokoro*-relative Clause (TRC) construction as well.

Though a large part of this work focused on an empirical investigation into the nature of Japanese HIRCs (with treating TRCs as a subvariety of it), the specific analysis proposed here has a certain generality that I expect can be extended to a number of other linguistic phenomena crosslinguistically. In particular, if the core part of my proposal is essentially on the right track, it will make a quite strong and intriguing prediction:

(123) Any movement operation that results in a "Project Both" structure will take the form of PSOC movement in head-final languages.

This prediction is made by our assumption that the head parameter is a real theoretical object located in the phonological component of human language. Implementing this idea, I have proposed the following linearization procedure ((18), repeated here as (124)):

(124) For a syntactic object Σ = 

(order irrelevant),

where "*σ: L*" means a node σ labeled by an LI L,

i. demerge α and concatenate β and γ in the order $\{\beta{+}\gamma/\gamma{+}\beta\}$, if γ is an LI X;

ii. demerge α and concatenate β and γ in the order $\beta{+}\gamma$, if otherwise.

and proposed that it is the parameter in (124i) that derives the effect of the head parameter. I have proposed that in head-final languages, the dually labeled structure cannot be properly handled by this linearization procedure, and this "PF-unlinearizability" will force the PF-structure to take the form of PSOC movement. This line of reasoning results in the empirial prediction (123). Japanese HIRCs can be seen as an empirical phenomenon that confirms this prediction.

Though most of its theoretical implications remains uninvestigated, I hope that this work will shed a new light on the study of human language in general. Specifically, this proposal opens up a possibility that a nontrivial portion of the covert movement phenomena may in fact be reduced to instances of PSOC movement induced by the unlinearizability of a Project Both structure, an intriguing research topic that I must leave for the future research.

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