Head internal/external relative clauses in Japanese:

Contribution from current issues in generative grammar

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Aims of this talk: providing the theoretical explanation for observational facts and generalizations for Japanese head-external relative clause (HERC) and head-internal relative clause (HIRC).

HIRC: deducing the relevancy condition from phase

HERC: deducing the highest clause sensitivity from Form Copy

Prospect of future research: constructing the representational framework of how the interpreting systems interpret the structure

Syntax: forming the structure by Merge and cutting up the accessible domain by phase

Minimal Search for labeling and Form Copy provide the instructions for the interpreting systems.

Interpreting systems: interpreting the configuration according to the structure; such as theta-relation, (part of) agreement, scope, ruling out improper relations...

1 HIRC

1.1 Introduction

- (1) a. 太郎は[花子がりんごを机に置いたの]を食べた
 - b. 太郎は[花子が机に置いた]りんごを食べた
- (2) a. 午前中は雨が降っていたのが午後になると日がカンカン照り出した

(黒田 (1999: 36))

- b. 学生たちが先生が二人ドアの後ろに隠れているのに挨拶した (ibid.: 68)
- (3) No also serves as adverbial C.
- (4) [VP][CP] ...apparent internal head (IH)...のが/のを/のに] pro[V]
- (5) 太郎は花子がりんごをデザートに取っておいたのを {pro/それを} こっそり食べてしまった
- Some idiolects do not allow HIRCs.

(cf. Mihara (1994), Murasugi (1994), Grosu and Hoshi (2016))

- (6) Mary が[John が自分の学生が重要な**仮説**を提案したと]自慢していたの]の欠陥を 指摘した (Watanabe (1992: 259))
- (7) 黒田 (1999): long-distance selection

- (8) Hoshi (1995), Shimoyama (1999), Nishigauchi (2004), Kitagawa (2005, 2018), Kubota and Smith (2007), and Grosu and Hoshi (2016), *inter alia*: pronoun [VP [[CP [CP ...IH...no]-case] [e]] V]
- (9) Phase Boundary
 Mary が[John が自分の学生が重要な**仮説**を提案したと]自慢していたの]の欠陥を
 指摘した (=(6))
- (10) Complex NP Constraint
 *[John が[[素晴らしい**論文**を書いた]人]を褒めていたの]が出版された
 (Watanabe (1992: 261))
- (11) Wh Island[[Mary がいつ論文を仕上げるか] John が Tom に尋ねていたの]の出版がようやく決まった (cf. Watanabe (1992: 261), 黒田 (1999: 74))
- (12) Adjunct IslandJohn は[[Mary がりんごをテーブルの上に食べかけた]ままで出かけてしまったの]の残りを食べた (cf. Hoshi (1995: 102))
- © HIRCs are insensitive to islands except for the CNPC.

1.2 Relevancy condition

- (13) The Relevancy Condition (Kuroda (1976-7 [1992]: 147))

 For a p.i. [pivot-independent=head-internal—NH] relative clause to be acceptable, it is necessary that it be interpreted pragmatically in such a way as to be directly relevant to the pragmatic content of its matrix clause.
- (14) a. 太郎は[花子がりんごを皿の上に置いたの]を取って... (Kuroda (1992: 148))b. #太郎は[花子がりんごを昨日皿の上に置いたの]を取って... (*ibid*.)
 - c. 太郎は[花子が**りんご**を昨日皿の上に置いておいたの]を取って... (ibid.: 149))
- (15) 太郎は[花子が昨日皿の上に置いた]りんごを取って....
- © HIRCs must form a superordinate event with the matrix clause, but HERCs need not.
- (16) a. 太郎が[花子が**本**を買ってきたの]を取り上げた
 - b. *太郎が[花子が**本**を買ってきたと]取り上げた
 - c. *太郎が[花子が本を買ってきたこと]を取り上げた
 - d. 太郎が[皆が[花子が本を買ってきたと]信じているの]を取り上げた
 - e. ?太郎が[皆が[[花子が本を買ってきたという]こと]を信じているの]を取り上げた

(The examples are all taken from Hasegawa (2002: 9-10))

(17) a. ?*[John が[[Mary が素晴らしい**論文**を書いたという]噂]を聞いた]のが出版された

(Watanabe (1992: 261))

- b. [太郎が[[花子が素晴らしい**論文**を書いたという]こと]を聞いていたの]が出版された (黒田 (1999: 73))
- © Koto does not induce the CNPC effect (because it is a formal noun).
- (18) [K] *oto* is used for nominalizing a proposition and forming an abstract concept out of the proposition, while *no* is used for representing a concrete event. (Kuno (1973: 221))
- (19) a. 私は John が来る{のを/*ことを}待った

(ibid.)

b. 私は世界に平和が訪れる{のを/ことを}待っています

(ibid.)

1.3 Proposal

1.3.1 Labeling

(20) For a syntactic object SO to be interpreted, some information is necessary about it: what kind of object is it? Labeling is the process of providing that information.

(Chomsky (2013: 43))

- (21) $VP \rightarrow V+NP$
- $(22) \qquad [_{XP} ZP [_{X'} X, YP]]$

(23)

	structural hierarchy (compositionality)	projection	linear order
PSG	PSR	PSR	PSR
X´-schema	X´-schema	X´-schema	externalization
labeling theory	(free) Merge	labeling	externalization

- (24) Merge $(X, Y) = \{X, Y\}$
- (25) labels = "the appropriate 'instructions' for the interfaces"

(Chomsky (2013: 35)

1.3.2 Theta-assignment

(26) a. Interpretation by Contain

(Hayashi (2022: 35))

The interpretation of an SO [=syntactic object] X is defined by the identification label of the set containing X.

- b. $\{\alpha ... X...\}$
- (27) a. For an SO X and a predicate P, X receives a theta-role from P iff X is contained in the set labeled P. (*ibid*.: 120)
 - b. $\{P ... X...\}$

(28) Label-Based A-over-A Principle (*ibid*.: 38)
Under the following configuration, Y cannot refer to the inner label A.

{Y ... {A ... {A ...}}...}}

- (29) a. 太郎は[花子が**りんご**を机に置いたの]を食べた (=(1a))
 - b. $\{_{\beta} \{_{\alpha} \ \$ 花子がりんごを机に置いたの $\} \$ 食べた $\}$ $(\alpha=0,\beta=$ 食べた)
- (30) a. *[John が[[素晴らしい**論文**を書いた]人]を褒めていたの]が出版された (=(10)) b. $\{_{\delta} \{_{\gamma} \{_{\beta} \{_{\alpha} ...$ 論文... $\} \} \}$...の $\}$ 出版され $\}$ (α =TP/CP, β =人, γ =の, δ =出版され)
- (31) a. 警官が [ヤクザがコソ泥を追いかけているの]を捕まえた
 - b. $\{_{\epsilon} \{_{\delta} \{_{\gamma} \ \forall$ クザが $\{_{\beta} \{_{\alpha} \ \exists \ \exists \ \forall \} \} \} \}$ の $\}$ 捕まえた $\}$

 $(\alpha=追いかけて,\beta=\gamma=T,\delta=0,\epsilon=捕まえた)$

- (32) 警官が [ヤクザがコソ泥を追いかけているの]を二人とも捕まえた
- split antecedent by Kuroda (1976-7 [1992]): a facilitating expression is necessary
 (Kitagawa (2005: 1258))
- (33) 太郎は[飼い猫が野良猫を追いかけていたの]の体を二匹とも洗ってやった
- (34) *John が太郎を花子を殴った
- (35) a. John と Bill と Mary (と) が笑い、思い、話した

(Fukui (2015: 126), Tanaka et al. (2019: 5))

- $b. \quad \{\{NP_1,\,NP_2,\,NP_3\}\;\{V_1,\,V_2,\,V_3\}\}$
- (36) a. John と Bill と Mary (と) がそれぞれ笑い、思い、話した (ibid.) b. $\{\{\underbrace{NP_1, NP_2, NP_3}\}\{\underbrace{V_1, V_2, V_3}\}\}$
- © Group reading is predominant in (35a) because it only requires the set Merge generates. Cross-serial reading requires more than Merge. Thus, (even if it is possible in principle), cross-serial reading is hard to obtain in (35a). However, some interpretive cue allows us to find such reading in (36a).
- ⑤ In (33), both *kaineko* and *noraneko* are the candidates of the argument of *karada*. Since one argument is enough to satisfy the theta-criterion, either one is interpreted as the argument without *nihikitomo*. With the facilitating expression, the suppressed (but available) split antecedent reading becomes salient.
- (37) 太郎は肉を魚を手当たり次第に食べていた
- (38) a. ??マサオがハナコを頬をぶった (Saito (2017: 7))

b. マサオがハナコをぶったのは頬をだ (ibid.)

- (39) a. *マサオがハナコを指を二本折った (ibid.)
 - b. *マサオがハナコを折ったのは指を二本をだ (ibid.)
- [A] version of the θ -criterion that is generalized beyond thematic roles may be at work as part of Full Interpretation (*ibid*.: 16)

- (41) Each argument bears one and only one θ -role, and each θ -role is assigned to one and only one argument. (Chomsky (1981: 36))
- (42) a. Each argument bears a theta-role. → Aboutness topics are licensed without a theta-role. (Saito (1985: 287))
 - b. Each argument bears only one theta-role. \rightarrow The IH bears two theta-roles.
 - c. Each theta-role is assigned to an argument. → the requirement of the argument structure
 - d. Each theta-role is assigned to only one argument. → It suffices, but the relation does not have to be restricted.
- (43) 魚は鯛が美味しい (Kuno (1973: 62))
- (44) Apparent one-to-one relation between a theta-role and an argument is due to ([phi]) agreement/labeling/semantic type mismatch.

(Kuroda (1988), Kitahara (2020), Hayashi (2022: 132))

1.3.3 Phase and the relevancy condition

- (45) Phases limit the computational domain. (cf. Chomsky (2021: 19))
- (46) {spec {PH {...}}}} (phase impenetrability condition)
- (47) [E]ither a verb phrase in which all theta-roles are assigned or a full clause including tense and force. Call these objects *propositional*. (Chomsky (2000: 106), emphasis in original)
- (48) A phase (v(*)P or CP) must represent one event to construct a consistent proposition.

(Hayashi (2022: 124))

(49) a.
$$\{v^*P\} \{v_P \{D_P \{...IH...V...\}\mathcal{O}\} V\} v^*\}$$
 (HIRC)
b. $\{v^*P\} \{v_P \{D_P \{C_P ...\}, EH\} V\} v^*\}$ (HERC)

- © An HERC is incorporated into the matrix clause as a modifier of the matrix argument.
- ② An IH serves as the argument for both the matrix and the HIRC events, but the two events do not have any relation. Thus, they must be pragmatically close to form a superordinate event.

1.3.4 Extensions (see also Hayashi (2022))

- (50) a. どの学生 i も [{そいつ i が/proi} 今学期ペーパーを三本書いたの]を今朝提出した (Shimoyama (1999: 156))
 - b. [[[...IH...の]を [e]]提出した]
- (51) The relevancy condition can explain the E-type interpretation.
- (52) The Single Event Grouping Condition (Truswell (2011: 157), emphasis in original) An instance of *wh*-movement is legitimate only if the minimal constituent containing the head and the foot of the chain can be construed as describing a single *event grouping*.

- (53) a. *What did John drive Mary crazy [fixing what]? (Truswell (2007: 1358))
 - b. What did John drive Mary crazy [trying to fix what]? (ibid.)
- (54) a. *Here's the whisky which I went to the store and Mike bought the whisky.

(Ross (1967: 168))

b. Here's the whisky which I went to the store and bought the whisky. (ibid.)

1.4 Summary for HIRC

- (55) a. Label-based long-distance selection analysis captures the insensitivity to islands and ambiguity of the IH.
 - b. The relevancy condition is not a specific condition to HIRCs. It is an instance of the general interpretive condition on the phase.

2. HERC

2.1 Introduction

(56) The Highest Clause Sensitivity

a. [花子と太郎; が e 会った]お互い; の友人 (Kizu (2005: 151))

b. [花子と太郎 $_i$ が[先生方 $_i$ が $_e$ 会ったと]思っている]お互い $_{i}$ の友人 (ibid.)

TP お互いの友人
DP T'
花子と太郎 CP 思っている

(58) the picture of himself $_{i/j}$ that John $_i$ thinks that Bill $_j$ likes best

(59) a. $[e_i[$ そいつ $_i$ が批判した女]を殴った]男 $_i$ (Ishii (1991: 41)) b. ?*[[そいつ $_i$ が批判した女]が e_i 殴った]男 $_i$ (ibid.)

(60) Weak Crossover (Lasnik and Stowell (1991: 690))

In a configuration where a quantifier Q locally binds a pronoun P and a trace Y, P may not be contained in an argument phrase XP that c-commands T.

- (62) a. [[そいつ;が批判した女]が[[e;教えた]学生]を殴った]男; (Ishii (1991: 42))
 - b. [警察が $[e_i]$ そこ $_i$ の子会社を調査したと]信じている]二つの大企業 $_i$

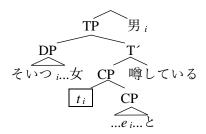
(Miyamoto (2017: 619))

- c. [警察が[そこ $_i$ の子会社が $_e$ i調査したと]信じている]二つの大企業 $_i$ (ibid.)
- (63) The head of a Japanese HERC reconstructs at most the highest clause.
- (64) a. short relativization: movement
 - b. long relativization: pro

(cf. Ishii (1991), Kizu (2005), Miyamoto (2017))

- (65) a. [[そいつ $_i$ が批判した女]が[[e_i 学生を殴った]と噂している]]男 $_i$
 - b. $[[そいつ_i が批判した女]が[[学生が_e_i 殴った]と噂している]]男_i$

(66)



- (67) In the copy theory of movement, a possible reconstruction site must involve a copy.
- (68) a. Why can't (59b) be derived with *pro*?
 - b. Why can't (56b) be derived by movement?

2.2 Proposal

2.2.1 Form Copy

- (69) Strictly-Markovian property (Chomsky (2021: 20))
 [T]he history [of the derivation] is not preserved in the current state(...)
- (70) a. John is killed.
 - b. John is killed John
- (71) The two inscriptions of *John* in (70) are interpreted as copies not because the relation is made by movement but because the copy relation is assigned between the two.
- (72) Form Copy (Chomsky (2021: 17), emphasis in original) [...] FORMCOPY (FC) assigning the relation *Copy* to certain identical inscriptions.

((73)	IM-Configuration	n

a. IM-copy: related by internal Merge (IM)

b. M(arkovian)-gap: introduced independently by external Merge (EM)

- (74) a. John₁ seems [John₂ to win]
 - b. John₁ tried [John₂ to win]
 - c. John₁ saw John₂
- (75) Duality of semantics

(Chomsky (2021: 18))

EM is associated with θ -roles and IM with discourse/information-related functions.

(76) θ-Theory

(*ibid*.: 21)

An θ -assigner assigns no more than a single θ -role to an SO and a θ -position cannot receive more than one θ -role.

- (77) A theta-assigner cannot assign multiple theta-roles to a single SO.
- (78) a. one interpreter each seems [t to have been assigned t to the visiting diplomats]

IM-copy IM-copy (Chomsky (1981: 61))

b. *one interpreter each tried [PRO to be assigned t to the visiting diplomats] (ibid.)

M-gap IM-copy

(79) Reconstructions needs movement.

2.2.2 Reconstruction

- (80) The interpreting systems can only trace the same kind of operation.
- (81) a. which books about himself₁ did John file t_1 before Mary read pg_1 ? (Chomsky (1986: 60))
 - b. *which books about herself₁ did John file t_1 before Mary read pg_1 ? (*ibid.*)

c.
$$\{_{CP} \ \text{WH} \dots \{_{\nu P} \{_{\nu P} \text{ John file WH}\} \{_{ADJ} \ \text{WH before Mary read WH}\} \}\}$$

$$IM\text{-copy}$$

$$IM\text{-copy}$$

2.2.3 Derivation of HERC

- (82) a. Japanese HERCs are derived by FC.
 - b. FC applies at the phase level.

(Chomsky (2021: 17))

c. After the completion of a phase, the next lower phase becomes inaccessible.

(Chomsky (2001), Saito (2017, 2021))

d. After the phase head is introduced, only the phrase-level SOs can merge.

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(83) a. \{ \overline{C} \{_{TP} XP \{ \overline{T} \{...\} \} \} \}
                                                                                                 (English)
(Japanese)
      b. \{C : \{v^* | v^* \} \{v | V, OBJ\}\}
(85) a. [花子と太郎 i が e 会った]お互い i の友人
                                                                                                   (=(56a))
      b. {<sub>DP</sub> {<sub>TP/CP</sub> 花子と太郎が{<sub>v*P</sub> お互いの友人に<mark>会っ} た (T/C)</mark>} お互いの友人} M-gan
(86) a. [花子と太郎 _{i} が[先生方 _{j} が e_{i} 会ったと]思っている]お互い _{i} の友人
      b. {DP {CP {TP 花子と太郎が {CP {CP 先生方が {w*p お互いの友人に会っ} たと} お互いの友人! 思っている}...C} お互いの友人} IM-copy
(87) a. ?*[[そいつ;が批判した女]がe_i殴った]男;
                                                                                                  (=(59b))
      b. {DP {TP/CP {DP そいつが批判した女が} {\(\nu \) 男を殴っ} た (T/C)} 男}
(88) a. [[そいつ;が批判した女]が[[e; 学生を殴った]と噂している]]男;
                                                                                                  (=(65a))
      b. [[そいつ;が批判した女]が[[学生が<math>e_i殴った]と噂している]]男;
                                                                                                  (=(65b))
      c. {DP {TP/CP {DP そいつ…女} {νP {CP {CP {νP …男…<u>殴った}…と}</u> 男} <u>噂している</u>}…<u>T/C</u>}
男}
(89)
            The weak crossover effect is not operative if the theta-position is not visible for
            reconstruction.
(90) a. *? This is the man<sub>i</sub> I interviewed t_i before reading the book you gave to pg_i.
                                                                                    (Chomsky (1986: 55))
           \{_{DP} \text{ the } \max \{_{CP} \text{ } I \text{ } \{_{\nu^*P} \text{ } \{_{\nu^*P} \text{ interviewed the } \text{man} \} \text{ } \{_{ADJ} \text{ the } \text{man before reading } \{_{DP} \text{ the book } \text{ } \\ \text{IM-copy} \qquad \qquad \text{illicit IM-copy} 
           \frac{\{\text{CP you gave to the man}\}\}\}\}\}}{\text{The parasitic element must move in the adjunct clause so as to escape the domain of the}}
0
            phase impenetrability condition (it must be visible when the FC applies at the matrix clause).
(91)
            Who<sub>i</sub> did you stay with t_i [before [his<sub>i</sub> wife] had spoken to pg_i]
                                                                        (Lasnik and Stowell (1991: 691))
(1)
            Why FC? FC requires external Merge.
            魚は鯛が美味しい
(92)
                                                                                                    (=(43))
(93)
            In Japanese, NP externally merged with a sentence receives a topic-comment interpretation
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(cf. Murasugi (2020: 167-169), Chomsky (2019: 165, note 5))

(possibly, a kind of semantic role).

- (2) Why aboutness topic?—Contrastive topic/focus require variable interpretation.
- (94) Similarity to topicalization (Kuno (1973)): the derivation of aboutness topics also involves external Merge
- Remaining question: why are Japanese HERCs derived only by FC, not by movement or pro?

2.2.4 Extensions

(95) a. *How sick_i did John look t_i without actually feeling pg_i ? (Postal (1993: 736))

M-gar

- b. $\{_{CP} \text{ how sick did John } \{_{\nu^*P} \text{ look how sick} \} \{_{ADJ} \text{ how sick without actually feeling how sick} \} \}$ IM-copy
- Why only nominals?
- (96) a. Nominals have the property that allows them to be M-gaps.
 - Lexical categories other than nominal have the property that prohibits them from being M-gaps.
- (97) a. Lexical categories are divided into theta-assigners and theta-assignees.
 - b. Lexical categories other than nominal are theta-assigners.
 - c. M-gaps mean that the two inscriptions of the SOs are independently introduced by EM.
 - d. If theta-assigners are M-gaps, the two inscriptions of the SOs complete their argument structures in different positions before FC.
 - e. If FC gives the two inscriptions the copy relation, the number of arguments proliferates in the argument structure.
 - f. Therefore, lexical categories other than nominal can only have the IM-copy relation.
- ⊕ How about (37) and (38)?

- (100) a. In (98) and (99), EM introduces only one theta-assigner.
 - b. In (98) and (99), the other argument (external argument) must be the same. In (95), on the other hand, the identity of the external arguments is only accidental.
- (101) How sick did John look t_i and (Betty) say he actually felt t_i ? (Postal (1993: 736))
- (102) a. They turned into derelicts.
 - b. [What kind of derelicts] $_i$ did they turn into t_i ?
 - c. *[What kind of derelicts]_i did they analyze t_i after their children turned into pg_i ?
 - d. *[What kind of derelicts]_i did they turn into t_i after their children analyzed pg_i ?

(All the examples are from Postal (1994: 84))

- (103) Only NP can be extracted from islands.
 - a. Anna, che me ne sono antdato via senza neanche salutare,...

'A. who I went away without even saying goodbye to'

(Cinque (1990: 103))

b. *Anna, con la quale me ne sono andato via senza neanche parlare,...

'A., with whom I went away without even speaking'

(ibid.)

(104) Cinque: referentiality is crucial for extraction from islands.

2.2.5 Problem

(105) a. 着ている洋服が汚れている紳士

(Kuno (1973: 239))

- (106) 太郎が花子に[[[着ている洋服]が汚れていると] 伝え た紳士
- These examples are kinds of gapless HERCs.
- (107) a. ドアが閉まる音
 - b. 魚が焼けるにおい
- (108) $\{DP \{CP ...\} EH\}$

2.3 Summary for HERC

(109) a. short RC: movement

long-distance RC: pro

RC from island: pro

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b. short RC: FC

long-distance RC: FC

RC from island: no gap

(110) The highest clause sensitivity is deduced from i) HERCs are derived by FC, ii) FC applies at the phase level, and iii) Reconstruction occurs up to the uniform operation.

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