

集合、ラベル、包含関係に基づくインターフェイスでの解釈メカニズム
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研究の概要

- ・C-I/SM interface では、Merge が作る集合の包含関係に基づき解釈が行われると考える。
- ・集合間の関係を label が媒介する。
- ・集合に label を提供する要素は関連する feature 等の解釈についてその集合での解釈が義務的になる。
- ・interface に関して、実質的には dominance, m-command を用いた representational model を作る。

1. Minimalist Program と labeling theory

1.1. Minimalist Program と label

- (1) We can regard an account of some linguistic phenomena as principled insofar as it derives them by efficient computation satisfying interface conditions. *A very strong proposal, called “the strong minimalist thesis,” is that all phenomena of language have a principled account in this sense, that language is a perfect solution to interface conditions*, the conditions it must satisfy to some extent if it is to be usable at all. If that thesis were true, language would be something like a snowflake, taking the form it does by virtue of natural law, in which case UG [Universal Grammar—NH] would be very limited. (Chomsky (2009: 26), emphasis added)
- (2) [M]inimalism is nothing more than a willingness to seek scientific explanation, not just description. A research goal is to determine the exact nature of derivation, at a deep, explanatory level, and not to describe data using whatever stipulated technicalia seem to do the job, nor are convenient (non-explanatory) definitions over representations allowed even if they seem to do the trick. (Epstein, Kitahara & Seely (EKS) (2011: 302))
- (3) Minimalist Program の提案は次のいずれかに基づくものでなければならない。
 - a. basic properties of language (structure-dependency, discrete infinity, ...)
 - b. the interface conditions (bare output conditions)
 - c. the third-factor principles
- (4)
 - a. PF ← syntax → LF
 - b. SM ← syntax → C-I
- ⌚ 解釈システム (或いは mapping system) としての interface の働きを考える。
- (5) Merge (X, Y) = {X, Y} (cf. (3a))
- (6) 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)) (cf. (3b, c))
- (7)
 - a. $\{\alpha X, YP\}$ ($\alpha=X$)
 - b. $\{\alpha XP, YP\}$ ($\alpha=X$)
 - c. $\{\gamma \{\alpha X[uF], WP\}, \beta Y[F], ZP\}\}$ ($\alpha=X, \beta=Y, \gamma=< F, F>$)
- (8) VP → V+NP
- ⌚ (1), (3), (5) より、Merge は集合を作り、interface は label を基に集合を解釈する。ただし、その解釈規則の大本の考えは phrase structure rule (8) から変わらない。

- (9) label に関して phrase structure rule とは (決定的に) 違う点
- labeling algorithm
 - bare phrase structure
- (Chomsky (1995a, b))
- ⌚ 以前までの「構造の label=category」の直接的な関係は無くなり、lexical item 及び feature が label として機能するようになり、統語構造と解釈との関連がより直接的な方法で示されるようになった。
- ⌚ Merge, label, Contain を interface における基本的な概念と考える。
- (10) 参考: Chomsky (2008) における label
- Each SO generated enters into further computations. Some information about the SO is relevant to these computations. In the best case, a single designated element should contain all the relevant information: the *label* [...]. The label selects and is selected in EM [external Merge—NH], and is the probe that seeks a goal for operations internal to the SO: Agree or IM [internal Merge—NH].
- (Chomsky (2008: 141), emphasis in original, underline added)
- (11) Chomsky's (2008) LA
- In $\{H, \alpha\}$, H an LI, H is the label.
 - If α is internally merged to β , forming $\{\alpha, \beta\}$ then the label of β is the label of $\{\alpha, \beta\}$.
- (12) We therefore have two syntactic relations: (A) set-membership, based on Merge, and (B) probe-goal. Assuming composition of relations, (A) *term-of* and *dominate*. These seem to be the minimal assumptions about the available relations. If we add “sister-of,” then composition will yield c-command and identity (the latter presumably available independently). Whether c-command plays a role within the computation to the C-I interface is an open question. I know of no clear evidence that it does, so will keep to the relations that seem unavoidable, set membership and probe-goal.
- (Chomsky (2008: 141), emphasis in original, underline added)
- ### 1.2. Chomsky (2015)
- (13) The first-located lexical item by Minimal Search (henceforth, MS) serves as the label of the set.
- ⌚ MS は何を以て minimal なのか?
- (14) Kitahara (2020)
- $\{\beta X \{_\alpha Y \{Z, W\}\}\}$
 - 集合 β について: path(X) = β , path(Y) = (β, α)
 - 集合 α について: path(Y) = α , path(Z, W) = (α, \dots)
- ($\alpha=Y, \beta=X$)
- ⌚ 片方の path がもう片方の path の proper subset になっている場合にラベルが一義的に決まる。 (but see also Krivochen (2021))
- (15) a. $\{_\alpha X, Y\}$
- b. path(X) = path(Y) = α
- (16) a. $\{\gamma \{\beta X, \dots\} \{_\alpha Y, \dots\}\}$
- b. path(X) = (γ, β) , path(Y) = (γ, α)
- (17) $\{\gamma \{\beta X[uF], \dots\} \{_\alpha Y[F], \dots\}\}$
- ($\alpha=Y, \beta=X, \gamma=<F, F>$)
- (18) a. $\{\varepsilon \{\delta Z, \dots\} \{\gamma \{\beta X, \dots\} \{_\alpha Y, \dots\}\}\}$
- b. path(X) = $(\varepsilon, \gamma, \beta)$, path(Y) = $(\varepsilon, \gamma, \alpha)$, path(Z) = (ε, δ)

- (19) a. 文明国が男性が平均寿命が短い (Kuno (1973: 71))
 b. $\{\delta \text{DP}[u\text{Case}] \{\gamma \text{DP}[u\text{Case}] \{\beta \text{DP}[u\text{Case}] \{\alpha \text{T}[\text{Nom}], \dots\}\}\}\}$
 $(\alpha=\text{T}, \beta=<\text{Nom}, \text{Nom}>, \gamma=<\text{Nom}, \text{Nom}>, \delta=<\text{Nom}, \text{Nom}>)$
- (20) $\{\{\alpha \text{Y}, \dots\} \dots \{\gamma \{\beta \text{X}, \dots\} \{\alpha \text{Y}, \dots\}\}\}$ ($\alpha=\text{Y}, \beta=\gamma=\text{X}$)
- (21) to take [an SO] α to be ‘in the domain D’ if and only if every occurrence of α is a term of D. (Chomsky (2013: 44))
- (22) Chomsky (2015) の想定
- a. Semantic root R in every language is too weak to serve as the label because of its indeterminacy of the category.
 - b. English T is too weak to serve as the label because of its deficiency of inflection of [phi] features.
 - c. Weak SOs are strengthened to serve as the label by the label <phi, phi> immediately above.
- (23) a. $n+\sqrt{\text{SEE}} \rightarrow \text{sight}$
- b. $v+\sqrt{\text{SEE}} \rightarrow \text{see}$
- (24) a. John likes Mary.
- b. $\{\alpha \text{R}, \text{Mary}[\text{phi}]\}$
 - c. $\{\beta \text{Mary}[\text{phi}]\} \{\alpha \text{R}, \text{Mary}[\text{phi}]\}\}$
 - d. $\{\delta \text{John}[\text{phi}]\} \{\gamma v^*[\text{uphi}]\} \{\beta \text{Mary}[\text{phi}]\} \{\alpha \text{R}, \text{Mary}[\text{phi}]\}\}\}$
 - e. $\{\delta \text{John}[\text{phi}]\} \{\gamma v^* \{\beta \text{Mary}[\text{phi}]\} \{\alpha \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}$ ($\alpha=\text{R}, \beta=<\text{phi}, \text{phi}>$)
 - f. $\{\delta \text{John}[\text{phi}]\} \{\gamma R-v^* \{<\text{phi}, \text{phi}> \text{Mary}[\text{phi}]\} \{\text{R} \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}$
 - g. $\{\eta \text{C}[\text{uphi}]\} \{\zeta \text{John}[\text{phi}]\} \{\varepsilon \text{T} \{\delta \text{John}[\text{phi}]\} \{\gamma R-v^* \{<\text{phi}, \text{phi}> \text{Mary}[\text{phi}]\} \{\text{R} \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}\}\}$
 - h. $\{\eta \text{C} \{\zeta \text{John}[\text{phi}]\} \{\varepsilon \text{T}[\text{uphi}]\} \{\delta \text{John}[\text{phi}]\} \{\gamma R-v^* \{<\text{phi}, \text{phi}> \text{Mary}[\text{phi}]\} \{\text{R} \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}\}\}$
 $(\gamma=\delta=R-v^*, \varepsilon=T, \zeta=<\text{phi}, \text{phi}>)$
 - i. $\{\eta \text{C} \{<\text{phi}, \text{phi}> \text{John}[\text{phi}]\} \{\tau \text{T}[\text{uphi}]\} \{R-v^* \text{John}[\text{phi}]\} \{R-v^* R-v^* \{<\text{phi}, \text{phi}> \text{Mary}[\text{phi}]\} \{\text{R} \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}\}\}$
 - j. $\{\text{C C} \{<\text{phi}, \text{phi}> \text{John}[\text{phi}]\} \{\tau \text{T}[\text{uphi}]\} \{R-v^* \text{John}[\text{phi}]\} \{R-v^* R-v^* \{<\text{phi}, \text{phi}> \text{Mary}[\text{phi}]\} \{\text{R} \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}\}\}$
- (25) Phase Level Operations
- a. feature inheritance
 - b. MS for labeling
 - c. R-to-v* internal pair-Merge
 - d. the application of the phase impenetrability condition (PIC)
- (26) The Phase Impenetrability Condition (cf. Chomsky (2000, 2001, 2008))
 Keep the phase domain intact except for its edge (the phase head and its spec).
- (27) *Who do you think that likes Mary?
- a. $\{\delta \text{that} \{\gamma \text{who}[\text{phi}][uQ]\} \{\beta \text{T}[\text{uphi}]\} \{\alpha \text{who}[\text{phi}][uQ]\} \{\text{likes Mary}\}\}\}$ ($\alpha=R-v^*, \beta=T, \gamma=<\text{phi}, \text{phi}>$)
 - b. $\{\varepsilon \text{who}[\text{phi}][uQ]\} \{\delta \text{that} \{\gamma \text{who}[\text{phi}][uQ]\} \{\beta \text{T}[\text{uphi}]\} \{\alpha \text{who}[\text{phi}][uQ]\} \{\text{likes Mary}\}\}\}$ ($\alpha=R-v^*, \beta=\gamma=??$)
- (28) a. Chi credi che verrà a visitarci?
 who think.2SG that come.FUT INF visit
 ‘Who do you think that will come to visit?’ (Pesetsky (1982a: 299), glosses added)
- b. $\{\varepsilon \text{who}[\text{phi}][uQ]\} \{\delta \text{that} \{\gamma \text{who}[\text{phi}][uQ]\} \{\beta \text{T}[\text{uphi}]\} \{\alpha \text{who}[\text{phi}][uQ]\} \{\text{likes Mary}\}\}\}$ ($\alpha=R-v^*, \beta=\gamma=T$)

- (29) Who do you think likes Mary?
- $\{\delta \text{ that}[\text{uphi}] \{\gamma \text{ who}[\text{phi}][\text{uQ}] \{\beta \text{ T} \{\alpha \text{ who}[\text{phi}][\text{uQ}] \text{ likes Mary}\}\}\}\}$
 - $\{\delta \text{ that} \{\gamma \text{ who}[\text{phi}][\text{uQ}] \{\beta \text{ T}[\text{uphi}] \{\alpha \text{ who}[\text{phi}][\text{uQ}] \text{ likes Mary}\}\}\}\}$ ($\alpha=R-v^*$, $\beta=T$, $\gamma=\langle\text{phi}, \text{phi}\rangle$)
 - $\{\delta \{\gamma \text{ who}[\text{phi}][\text{uQ}] \{\beta \text{ T}[\text{uphi}] \{\alpha \text{ who}[\text{phi}][\text{uQ}] \text{ likes Mary}\}\}\}\}$
- (30) Phase Level Operations
- feature inheritance
 - MS for labeling
 - deletion of C
 - the application of the PIC
- (31) What is the general condition for the labelizability of heads, that is, their ability to serve as labels?
- richness of agreement inflection for T
 - (in)determinacy of a category for R
- (32) a. John expects Bill to win.
- $\{\varepsilon R-v^* \{\delta \text{ Bill} \{\gamma R \{\beta \text{ to} \{\alpha \text{ Bill}, \text{win}\}\}\}\}\}$ ($\alpha=R-v^*$, $\beta=??$, $\gamma=R$, $\delta=\langle\text{phi}, \text{phi}\rangle$, $\varepsilon=R-v^*$)
- (33) (僕は) りんごを食べた。
- ⌚ infinitive T や日本語の T の labeling の問題 (cf. Saito (2016, *et seq.*)).

2. 理論装置

2.1. c-command のとてもとても簡単な歴史

- (34) Klima (1964), Ross (1967), Langacker (1969): in construction with, command
- (35) Reinhart (1976, 1981), Aoun & Sportiche (1981), Chomsky (1981): (representational) c-command
- (36) Epstein et al. (1998): (derivational) c-command
- (37) Chomsky (2000, 2001): (compositional) c-command
- (38) Merge ($\{x \dots\}$, $\{y \dots\}$) = $\{\kappa \{x \dots\}, \{y \dots\}\}$
- (39) a. Sister: Sister (X, Y), Sister (Y, X)
- Immediately Contain: IC (K, X), IC (K, Y), IC (K, K) (=reflexive)
 - Immediately Contain は transitive: Relation R (a, b), R (b, c) → R (a, c)
- (40) a. Merge ($\{w \dots\}$, $\{z \dots\}$) = $\{x \{w \dots\}, \{z \dots\}\}$ (cf. (38))
- b. $\{\kappa \{x \{w \dots\}, \{z \dots\}\}, \{y \dots\}\}$
- (41) a. IC (K, X), IC (X, W) → (immediately) Contain (K, W)
- b. Immediately Contain ≈ Contain
- (42) the elementary operation of composition of relations
- (Sister(Sister)) → Identity
 - (Sister(Contain)) → c-command
- (43) Epstein et al. (1998: 8, 24): representational c-command は non-explanatory.
- (44) Chomsky (2000: 146, note 67): derivational c-command に何故 “Contain” の概念が入ってくるのか。
- ⌚ Minimalist Program では derivational c-command か compositional c-command のどちらかに従う。

2.2. Agreement Effect

2.2.1. Two Types of Agreement

(45) a. probe-goal Agree: {...X[uF]...{...Y[F]...}...}

b. spec-head agreement: {...{_{YP} {_{XP} X[F], ZP}} {_{Y'} Y[uF], ...}}}

(46) {_η C {_ζ John[phi] {_ε T[uPhi] {_δ John[phi] {_γ R-v* {_{<phi, phi>} Mary[phi] {_R R[uPhi], Mary[phi]}}}}}}}}

($\gamma=\delta=R-v^*$, $\varepsilon=T$, $\zeta=<\text{phi}, \text{phi}>$) (=24h))

⌚ spec-head agreement は X'-schema を前提にしているため、Minimalist Program では probe-goal Agree が用いられるが、それでも weak head が強化されるのは agreement ではなく spec-head relation により与えられる label のためであり、spec-head relation は理論の中に残っている。

2.2.2. Problems with Agree

(47) EKS (2017, 2018)

a. {_δ C[uPhi] {_γ SUBJ[phi] {_β T {_α SUBJ[phi], v*P}}}}

b. {_δ C {_γ SUBJ[phi] {_β T[uPhi] {_α SUBJ[phi], v*P}}}} ($\alpha=R-v^*$, $\beta=T$, $\gamma=<\text{phi}, \text{phi}>$, $\delta=C$)

⌚ feature inheritance の際には主語はもう copy になっている。

(48) Chomsky (2019)

a. {_δ C[uPhi] {_γ SUBJ[phi] {_β T {_α SUBJ[phi], v*P}}}}

b. {_δ C[vPhi] {_γ SUBJ[phi] {_β T {_α SUBJ[phi], v*P}}}}

c. {_δ C {_γ SUBJ[phi] {_β T[vPhi] {_α SUBJ[phi], v*P}}}} ($\alpha=R-v^*$, $\beta=T$, $\gamma=<\text{phi}, \text{phi}>$, $\delta=C$)

⌚ probe-goal Agree → feature inheritance

(49) 二番目の問題

a. Which girl does John like?

b. {_δ {_γ which[uQ], girl} {_β C[int] {_α John T like which girl}}}} ($\alpha=<\text{phi}, \text{phi}>$, $\beta=C[\text{int}]$, $\gamma=\text{which}$, $\delta=<\text{int}, \text{int}>$)

⌚ C[int] は wh[uQ] の c-command 領域には無い。

2.2.3. Agreement without Agree (EKS (2017, 2018))

(50) a. The label <F, F> only has the information of the valued feature.

b. A natural place for feature-assignment (valuation) to [uF] is the morpho-phonological component.

c. MS replaces probe-goal Search.

(51) {_η C {_ζ John[phi] {_ε T[uPhi] {_δ John[phi] {_γ R-v* {_{<phi, phi>} Mary[phi] {_R R[uPhi], Mary[phi]}}}}}}}}

($\gamma=\delta=R-v^*$, $\varepsilon=T$, $\zeta=<\text{phi}, \text{phi}>$) (=24h))

(52) a. Which girl does John like?

b. {_δ {_γ which[uQ], girl} {_β C[int] {_α John T like which girl}}}} ($\alpha=<\text{phi}, \text{phi}>$, $\beta=C[\text{int}]$, $\gamma=\text{which}$, $\delta=<\text{int}, \text{int}>$)

(=49b))

- (53) a. Framework with (syntactic) Agree
 i) Valuation of $[uF]$ via Agree and ii) MS in syntax for labeling → iii) Morphological assignment at the SM interface
 b. EKS (2017, 2018)
 i) MS in syntax (labeling and agreement are executed simultaneously) → ii) Morphological assignment to $[uF]$ via the label $\langle F, F \rangle$
 ⌚ Agree を採用しても morphological assignment は必要。

2.2.4. Interpretation by Contain

- (54) a. C-command is insufficient to capture the agreement phenomena.
 b. The agreement effects should be relegated to the interfaces.
 ⌚ interface では Merge が適用されないので、Merge に基づく (derivational/compositional) c-command 以外のものが用いられる可能性。
- (55) $\{\beta X \{_\alpha Y, Z\}\}$
 a. locating the member of the set β
 b. identifying the merge-mate set of X
 c. identifying the intra-set member Y (Z)
 d. forming some relation between X and Y (Z)
- (56) Interpretation by Contain
 The interpretation of an SO X is defined by the identification label of the set containing X .
- (57) McCawley (1968a: 244, emphasis added)
 A tree is a finite set of objects (called ‘nodes’) with three relationships ρ ‘directly dominates’, λ ‘is to the left of’, and α ‘bears the label,’ satisfying the following axioms: (1) there is a node x_0 such that for no node x does $x \rho x_0$ (x_0 is called the ‘root’ of the tree); (2) if x is a node distinct from x_0 , then $x_0 \rho^ x$, where ρ^* is the relationship which holds between two nodes a and b if there is a chain of nodes a_1, \dots, a_n such that $a \rho a_1, a_1 \rho a_2, \dots, a_n \rho b$ (ρ^* can be read ‘dominates’; this axiom asserts that a tree is ‘connected’);...*
- ⌚ Aspects のモデルでは dominance, precedence, label の三つが tree の定義だった、それから precedence は SM interface の問題になったため、残るのは dominance (ここでの Contain) と label。
- (58) $\{\gamma \{\beta Z[F], \dots\} \{_\alpha X[uF] \{...Y[uF]\dots\}\}\}$ $(\alpha=X, \beta=Z, \gamma=\langle F, F \rangle)$
 a. X/Y の $[uF]$ は集合 $\gamma = \langle F, F \rangle$ に含まれることにより interface で解釈が与えられる。
 b. X-Z: local (spec-head) agreement, Y-Z: long-distance agreement
- (59) Immediately Contain
 A set A with label L immediately contains an SO X iff X provides (part of) L .
- (60) 集合 γ は Z, X を immediately contain、 Y を contain する。
- (61) Given the following structure and some operation that can assign $[F']$
 $\{\gamma \{\beta Z[F], \dots\} \{_\alpha X[uF] \{...Y[uF]\dots\}\}\}$ $(\alpha=X, \beta=Z, \gamma=\langle F, F \rangle)$
 then, the interpretation of $[uF]$ on Y may be $[F]$ or $[F']$, whereas $[uF]$ on X has to receive the interpretation of $[F]$.

- (62) a. $\gamma = \langle F, F \rangle$ が与えられるのは Minimal Search で見つかる $Z[F]$ と $X[uF]$ の値が *nondistinct* であるため。従って、 $\gamma = \langle F, F \rangle$ を与えつつ interface で X が $[F]$ と *distinct* な $[F']$ の値を得ることはできない。
 b. 要素は自身が *identify* している集合で関連する解釈を受けなければならない。

(63) Interpretation by Contain

Given the structure

$$\{\gamma \{_\beta Z[F], \dots\} \{_\alpha X[uF] \{\dots Y \dots\}\}\} \quad (\alpha = X, \beta = Z, \gamma = \langle F, F \rangle)$$

- i. Y , contained in the set labeled $\langle F, F \rangle$, may be given the relevant interpretation according to the label at the interfaces.
- ii. X , immediately contained in the set labeled $\langle F, F \rangle$, must be given the relevant interpretation according to the label at the interfaces.

2.2.5. A-Over-A Principle

(64) The A-Over-A Principle

[I]f a transformation applies to a structure of the form

$$[s \dots [A \dots]_A \dots]_s$$

for any category A, then it must be so interpreted as to apply to the *maximal* phrase of the type A.

(Chomsky (1968: 45), emphasis in original)

- (65) a. John kept the car in the garage. (Chomsky (1968: 45))
 b. What (garage) did John keep the car in? (Chomsky (1968: 45))
- (66) a. $[DP [DP \text{ the car}] \text{ in } [DP \text{ what}]]$
 b. $[VP [VP \text{ kept the car}] \text{ in } [DP \text{ what}]]$
- ⌚ A/A principle により (66b) の構造からのみ *what* の抜き出しが可能。
- (67) Ross (1967): A/A principle はある意味では強すぎていて、ある意味では弱すぎる制約。
 →island の提案。

- (68) a. Chomsky (1968: 49): the A-over-A principle has a certain naturalness
 b. Fukui (1999: 110-111): the [A-over-A] principle, despite its naturalness and attractive generality, has been largely ignored or even forgotten in the subsequent development of the theory of locality, such as subadjacency, the Barriers system, etc.

(69) The Modified A-Over-A Principle with Labels

Under the following configuration, Y cannot refer to the inner label A.

$$\{Y \dots \{A \dots \{A \dots\} \dots\}\}$$

⌚ (69) は移動の制約ではなく解釈規則。

(70) Chomsky (1973: 235):

- a. Notice that the condition ([64]) does not establish an absolute prohibition against transformations that extract a phrase of type A from a more inclusive phrase of type A. Rather, it states that if a transformational rule is nonspecific with respect to the configuration defined, it will be interpreted in such a way as to satisfy the condition.
- b. the A-over-A Condition to be an integral part of an evaluation measure

- ⌚ これらすべての提案は interface condition であり、representation に従って構造を解釈する。representational c-command、X'-schema が棄却されたのはそれらの representational theory が *why question* に答えることができず、(3) の要求を満たすことができないため。ただし、Chomsky (1995a: 223) は representational/derivational model のどちらが正しいとも述べていない (cf. Ishii (1997: 42))。

2.3. Beyond C-Command

- (71) a. Condition A: An anaphor must be locally c-commanded by its coreferent nominal.
 b. Condition B: A pronoun must not be locally c-commanded by its coreferent nominal.
 c. Condition C: An R-expression must not be c-commanded by its coreferent nominal.
- (72) a. Condition A: An anaphor must be locally contained in the set labeled <phi, phi>, whose value comes from its coreferent nominal.
 b. Condition B: A pronoun must not be locally contained in the set labeled <phi, phi>, whose value comes from its coreferent nominal.
 c. Condition C: An R-expression must not be contained in the set labeled <phi, phi>, whose value comes from its coreferent nominal.
- (73) {_α ...anaphor[*uphi*]...} (α=<phi, phi>)
- ⌚ condition A/B は domain の違い。問題は condition C (see also Ishii (1991))。
- (74) a. *John* is so careless that *the idiot* will get killed in an accident one of these days.
 b. Only *JOHN* likes *John*.
 c. *John* only likes *JOHN*.
 d. *A linguist working on binding theory* was so devoid of any moral sense that *he* forced a physicist working on particles to hire *the linguist's* girlfriend in his lab.

(全て Nediger (2017: 100), emphasis in original)

- (75) Nediger: R-expression は anaphor や pronoun と入れ替えて同じ意味を出す場合には使えない (cf. Schlenker (2005), Reinhart (2006)).
- (76) a. Someone in every city_k loves its_k (*their_k, *his_k) weather. (Baker (2008: 122))
 b. Every boy_i's mother dislikes his_i friends. (Norris (2014: 35))
- ⌚ bound variable は c-command が無くても可能。

3. Labeling without Weak Heads

- (77) a. John likes Mary. (=(24a))
 b. {_δ C {_γ John[phi] {_β T[*uphi*] {_α John {R-v* likes Mary}}}}}} (α=R-v*, β=T, γ=<phi, phi>, δ=C)
- ⌚ [*uphi*] は interface まで unvalued、SM interface で解釈が与えられる。→C-I interface では?
- (78) The Full Interpretation (Chomsky (1995a: 27))
 [T]here can be no superfluous symbols in representations.
- (79) C-I interface での[*uphi*]を解決する方法
 a. [±CI] feature を仮定する。 (EKS (2010, 2017, 2018))
 b. Full Interpretation を改定する。

- (80) a. Sportiche (2016: 1): [The Full Interpretation] applies to syntactic objects rather than their occurrences (for example to a chain – a set of movement copies – rather than to each individual copy), an assumption that is in fact already routinely made, albeit often implicitly.
- b. C-I interface での label <phi, phi>
- (81) The Full Interpretation (revised) (cf. Hazout (2004: 403))
Every symbol in the structure must have any contribution to the C-I or SM interface.
- (82) All LIs, including English T and R in every language, are strong and are qualified as labels.
- (83) a. *Who do you think that likes Mary?
b. {_ε who {_δ that {_γ who {_β T {_α who likes Mary}}}}}} (α=R-ν*, β=γ=T)
- (84) *that*-trace effect は、label <phi, phi>が無いと、
a. T の[uphi]が SM interface で解釈が決定されないため。 (EKS (2017, 2018))
b. (Agree があったとしても) *who* の Case には label <phi, phi>が必要なため。 (section 6)
- (85) Italian: [phi] を ν* (V) が持つ。 (Goto (2017))
love: am-o (1.SG), am-i (2.SG), am-a (3.SG), am-iamo (1.PL), am-ate (2.PL), am-ano (3.PL)
- (86) Italian ν* bears the information of [phi] features in itself, by which [uphi] on Italian T is always assigned the appropriate interpretation.
- (87) a. R-ν*[phi]
b. R-ν*[phi]-T[uphi]
- (88) a. John expects to win. (=32a))
b. {R-ν* {_δ John[phi] {_γ R[uphi] {_β to {_α John[phi] win}}}}}} (α=win, β=to, γ=R, δ=<phi, phi>)
- (89) a. (僕は)りんごを食べた。 (=33))
b. {_γ pro {_β C {_α T {...}}}} (α=T, β=C, γ=<Top, Top>)
☺ 日本語の pro は null topic (Huang (1984))。

4. Head-Internal Relative Clause (HIRC)

4.1. HIRCs and Their Kin

- (90) 太郎は[花子がりんごを机に置いたの]を食べた。
- (91) 「の」の category
a. Kitagawa & Ross (1982), 長谷川 (2002): pronominal modifier
b. Murasugi (1994), 吉村 (2001): C
c. 黒田 (1999), Shimoyama (1999), Hiraiwa (2005, 2008): nominalizer
- (92) 太郎は[花子が机に置いた]りんごを食べた。
☺ 「食べ」の theta-role はどのように与えられるのか。
- (93) a. Kuroda (1999), 長谷川 (2002): (疑似) 長距離付与
b. 三原 (1994), Hoshi (1995), Murasugi (1999), Shimoyama (1999), Nishigauchi (2004), Kitagawa (2005, 2018), Kubota & Smith (2007), and Grosu & Hoshi (2016): pro
- (94) 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))
- (95) 学生たちが先生が二人ドアの後ろに隠れているのにその先生たちに挨拶した (黒田 (1999: 68))

(96) {VP ... {CP ... の}が/に pro V}

⌚ 副詞節にも「の」が使われる。

(97) 太郎は花子がりんごをデザートにとっておいたのを{pro/それを}こっそり食べてしまった。

(98) 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))

⌚ 「のの」節は副詞節としては無いため、(98) は HIRC。許容するか否かは個人差があり (Grosu & Hoshi (2016))、容認しない人は HIRC のようなものは全て副詞節として解釈している (三原 (1994), Murasugi (1999))。

(99) Change RC

a. John は Mary がサンマを焦がしてしまったのをいやいや食べた。 (Hoshi (1995: 14))

b. John は Mary がサンマを焦がしてしまった{やつ/もの}をいやいや食べた。 (Hoshi (1995: 13))

⌚ 「の」が置き換え可能。

(100) *太郎は花子がりんごを机に置いた{やつ/もの}を食べた。

⌚ 純粋な HIRC では不可能 (Hoshi (1995: 16))。

(101) John は Mary がサンマを焼いている匂いに気づいた。 (Hoshi (1995: 14))

⌚ change RC は gapless RC の一種。 (Hoshi (1995))

4.2. 黒田 (1999)

(102) 太郎は[花子がりんごを机に置いたの]を食べた。 (= (90))

(103) *[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))

(104) 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。 (= (98))

(105) [[Mary がいつ論文を仕上げるか] John が Tom に尋ねていたの]が出版された。

(黒田 (1999: 74), cf. Watanabe (1992: 261))

⌚ 長距離選択は A-over-A condition 以外には引っかかるない。

4.3. 長谷川 (2002)

(106) a. 太郎が[花子が本を買ってきていたの]を取り上げた。

b. *太郎が[花子が本を買ってきていたと]取り上げた。

c. *太郎が[花子が本を買ってきていたこと]を取り上げた。

d. 太郎が[みんなが[花子が本を買ってきていたと]信じているの]を取り上げた。

e. ?太郎が[みんなが[花子が本を買ってきていたという]こと]を信じているの]を取り上げた。

(全て長谷川 (2002: 9-10))

(107) ?*[John が[[Mary が素晴らしい論文を買ったという]噂]を聞いたの]が出版された。

(Watanabe (1992: 261))

(108) [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。

(Kuroda (1999: 73))

⌚ (106e) も文法的。

⌚ 長谷川 (2002): 黒田の分析では (106c, e) の違いが説明されない。

- (109) [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))
- (110) a. 私は John が来る{のを/*ことを}待った。 (Kuno (1973: 221))
 b. 私は世界に平和が訪れる{のを/ことを}待っています。 (Kuno (1973: 221))
- (111) The Relevancy Condition (Kuroda (1976-7), (Kuroda 1992: 147))
 For a p.i. [pivot-internal=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.
- (112) 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))
- (113) #太郎は[花子がりんごを昨日皿の上に置いたの]を取って... (Kuroda (1992: 148))
- (114) 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... (Kuroda (1992: 149))
- (115) Kuroda (1992: 154): 主節が表す event と HIRC が表す event が superordinate event の要素として解釈されなければならない。
 ☺ sequentiality/continuity/purposive connotation が superordinate event を作る。
 ☺ (106c): 「こと」では event が表せないため relevancy condition 違反。
 (106e): 「こと」は意味が薄い形式名詞のため A/A principle 違反を引き起こさない。
- (116) 長谷川の分析
 a. [VP [DP [IP ...IH...] D] V]
 b. *[VP [DP [NP ...IH...complex N] ...] D] V]
 ☺ V が D を local に選択、その後 D が internal head (IH) に対し probe-goal Agree を行い、long-distance selection に見える関係を作る。
- (117) 警官が[ヤクザがコソ泥を追いかけているの]を捕まえた。
 a. 「ヤクザ」が IH
 b. 「コソ泥」が IH
 c. 黒田: 「ヤクザ+コソ泥」が IH (split antecedent)→Kigtagawa (2005: 1258): その読みは「二人とも」があつて初めて可能。
 ☺ Agree では ambiguity が捉えられない。

4.4. Proposal

- (118) For an SO X and a predicate P, X receives a theta-role from P iff X is contained in the set labeled P. (cf. (56))
- (119) The Modified A-Over-A Principle with Labels (=69))
 Under the following configuration, Y cannot refer to the inner label A.
 $\{Y \dots \{A \dots \{A \dots\} \dots\}\}$
- (120) a. 太郎は[花子がりんごを机に置いたの]を食べた。 (=90))
 b. $\{\gamma \{\beta \{\alpha \dots \text{IH} \dots\} \text{ の}\} V\}$ ($\alpha=T, \beta=\text{の}, \gamma=\text{食べた}$)
- (121) 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。 (=103))
 b. $\{\delta \{\gamma \{\beta \{\alpha \dots \text{IH} \dots\} \text{ 人}\} \dots \text{ の}\} V\}$ ($\alpha=T/C, \beta=人, \gamma=\text{の}, \delta=\text{出版された}$)
- (122) ??スミス先生は生徒の作品が入選したのをご褒美に映画に連れて行ってやったそうだ。
 (Hoshi (1995: 98))

- (123) 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。 (=117))
 b. $\{\epsilon \{\delta \{\gamma \text{ ヤクザ } \{\beta \{\alpha \text{ コソ泥...V} \} T\}\} \} V\}$ ($\alpha=V, \beta=T, \gamma=<\text{nom, nom}>, \delta=\text{の}, \epsilon=\text{捕まえた}$)
- (124) Tanaka (2010: 10): external argument の方が IH になりやすい。
 [母親がベッドで娘に本を読んでやっていたのがいつの間にか眠りに落ちていた。 (Tanaka (2010: 9))
 a. HIRC1: 「母親」が IH。
 b. HIRC2: 「娘」が IH。
 c. HIRC3: 「母親+娘」が IH。
 d. 副詞節: 逆接とすると pro が「母親」を指す読み。
- (125) context: 夏子は九州八県一周旅行を計画している。彼女はいくつかの県は目的地が決まったが他は決まっていない。俊作が、夏子が目的地が決まっていない県の観光名所を教えてあげている。
 a. 俊作は[[夏子が九州のうち 3 県だけ目的地が決まらないと]困っていたの]{の/を}観光名所を教えてあげた。
 b. 俊作は[[夏子が九州のうち 5 県しか目的地が決まらないと]困っていたの]{*の/を}観光名所を教えてあげた。
- (126) $<\delta \{\gamma \dots \} \} \{ \beta \{\alpha [e]\text{-gen} \text{ 観光名所} \} \} \text{を 教えて} \} >$ ($\alpha=\text{観光名所}, \beta=V, \gamma=\text{adverbial C}, \delta=\text{教えて}$)

4.5. Explaining Properties

4.5.1. Relevancy Condition とその発展

4.5.1.1. Relevancy Condition

- (127) The Relevancy Condition (Kuroda (1976-7), (Kuroda 1992: 147)) (=111))
 For a p.i. [pivot-internal=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.
- (128) 太郎は[花子がりんごを皿の上に置いたの]を取って... (=112))
- (129) #太郎は[花子がりんごを昨日皿の上に置いたの]を取って... (=113))
- (130) 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... (=114))
- (131) [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)
- (132) A phase ($v(*)P$ or CP) must represent one event to construct a consistent proposition.
- (133) a. $\{<\text{RC, head}> V\}$ (head-external relative clauses (HERCs))
 b. $\{\{\dots\text{IH}\dots\} \text{ no}\} V\}$ (HIRCs)
- ⌚ HERC は pair-Merge によって matrix event に埋め込まれ、全体が一つの event を表せるが、HIRC はその操作が不可能なので C-I interface での適切な解釈を保証するために relevancy condition を満たす形で二つの event が繋がなければならない。
- (134) a. 太郎は[花子がりんごを机に置いたの]を食べた。 (=90))
 b. 太郎は[花子がりんごを机に置いたの]を見た。

4.5.1.2. Coordinate Structure Constraint と Adjunct Condition

- (135) 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. (Ross (1967: 168))
- (136) a. {_C I went to the store} and {_C Mike bought the whisky}
 b. {_C {I {went to the store} and {bought the whisky}}}}
- (137) a. Here's <the whisky {_C I go to the store} and {_C Mike buy t}>
 b. Here's <the whisky {_C {VP went to the store} and {VP bought t}}>
- ⌚ (136a): 二つの並列された CP event が合成されて解釈される。
 (137a): 一つの RC が二つの irrelevant independent events を含んでおり解釈がうまくいかない。
 (137b): linear coordination (Postal (1998: 53)) により、二つの VP を含む CP が一つの event を形成する。
- (138) a. *What did John drive Mary crazy [fixing what]? (Truswell (2007a: 1358))
 b. What did John drive Mary crazy [trying to fix what?] (Truswell (2007a: 1358))
- (139) John drove Mary crazy [fixing the plumbing]. (Truswell (2007a: 1358))
- ⌚ (139): matrix event と adjunct event は (136a) のように coordination によって解釈される。
 (Truswell (2007a, b), Bošković (2020))
 (138a): wh 移動により単に coordination をするだけでは解釈できない。wh operator が matrix wh interrogative clause の構成要素となっているため、matrix event と adjunct event が独立の event を表している場合、その wh clause は supraevental なものとなってしまい解釈不可能。従って、二つの event が superordinate event を作るような adjunct の場合でなければ抜き出しができない。

4.5.2. その他の特性

4.5.2.1. 形容詞

- (140) a. ケンは[リサがテーブルの上においしそうなりんごを置いておいたの]を取って食べた。
 b. *ケンは[おいしそうな[リサがテーブルの上にりんごを置いておいたの]]を取って食べた。
 (Hoshi (1995: 23))
 c. *ケンは[リサがテーブルの上にりんごを置いておいた[おいしそうなの]]を取って食べた。
 (Hoshi (1995: 23))

(141) Adjuncts pair-merge to their heads so that they are contained in the set labeled by the heads.

- (142) a. a smart student of syntax
 b. {_δ a <_γ smart {_β student {_α of syntax}}>} (α=of, β=student, γ=student)
 ⌚ smart が student を修飾できるのは
 a. smart が student を label とする集合 β に pair-Merge しているため。
 b. smart が student を label とする集合 β に Contain されているため。
 (143) {<... adj {... IH ...}>}

4.5.2.2. Maximality Effect

- (144) John は[Mary が三個のりんごをむいてくれたの]を[e]食べた。 (Hoshi (1995: 131))
 (145) John は[三個の[Mary がむいてくれた]りんご]を食べた。 (Hoshi (1995: 131))

(146) そして Bill はその残りのりんごを食べた。

(147) a. どの学生も[{そいつが/pro}今学期ペーパーを三本書いたの]を今朝提出した。

b. [[...IH...の]を [e]] V

⌚ Shimoyama (1999): [e]位置に E-type pronoun を仮定。

Kubota & Smith (2007): [e]位置に通常の null pronoun を仮定。

(148) (147a) には二つの event: the writing-three-papers event と the turning-in-three-papers event があり、その両者を superordinate event の下で解釈するためには covarying の解釈が強制される。

4.5.2.3. Split Antecedent

4.5.2.3.1. データ

(149) 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。 (cf. (117))

⌚ 何故「二人とも」がある場合に split antecedent が可能なのか。Kitagawa (2005: 1258) はこの読みが pronoun 分析の証拠とする。

⌚ 「のを」を用いる (149) は副詞節の可能性があるため、「のの」の文を考える。

(150) 太郎は[飼い猫が野良猫を追いかけているの]の身体を二匹とも洗ってやった。

(151) *John が太郎を花子を殴った。

4.5.2.3.2. 一つ目の仮説

⌚ 黒田の long-distance selection はここでは用いない (argument proliferation の問題)。

(152) {v {? {N {HIRC...飼い猫...野良猫...のの} 身体} 二匹} 洗って}

⌚ 「洗って」は「二匹」を argument として select する。→「身体」が何の theta-role も与えられず Full Interpretation の問題。

(153) {v {N {? {HIRC...飼い猫...野良猫...のの} 二匹} 身体} 洗って}

(154) a. 二匹の猫がいる。

b. 猫が二匹いる。

⌚ 「二匹」が (153) から移動する可能性。その場合、(150) は CP 節+prenominal modifier 「の」。

(155) 飲めや歌え*(の) 大騒ぎ (Kitagawa & Ross (1982: 28))

⌚ (150) は HIRC の例ではない。

4.5.2.3.3. 二つ目の仮説

⌚ 二つの argument を一つの V が select する。

(156) John と Bill と Mary (と) が笑い、思い、話した。

(157) John と Bill と Mary (と) がそれぞれ笑い、思い、話した。

⌚ Fukui (2015), Tanaka et al. (2019): group reading と cross-serial reading の二つ。「それぞれ」が無い場合 group reading の方が優勢。cross-serial reading のためには order を指定する必要があるが Merge 自体にはその働きが無いため。同様に、(150) も「二匹とも」が無い場合一つのみ argument を取ることが自然だが、「二匹とも」がある場合、「それぞれ」と同様に通常は許されない読みが可能となる。

(158) 岳人は肉を魚を見境なく次から次に食べていた。

⌚ facilitating expression がある場合には argument proliferation の問題が解決する。

- (159) a. 田中が[男の学生が坂を降りてきたの]を三人途中で見かけた。 (黒田 (1999: 44))
 b. *花子が[太郎が本を買ったと]三冊思った。 (長谷川 (2002: 11))
 c. *太郎は[子供が泣きわめくの]を三人聞いた。 (長谷川 (2002: 11))
- (160) 長谷川 (2002): V-D の local な selection と D-IH の Agree があることで HIRC の場合は長距離の Q-N relation が認可される。
- (161) [VP [DP [IP ...IH...]] D] V] (=116a))
- ⌚ V が「学生」と「三人」の両方を select することによって relation が認可される。(159b, c) では二つの selection が無いため認可されない。

4.5.3. 英語への contribution

4.5.3.1. EPP

- (162) For an SO X and a predicate P, X receives a theta-role from P iff X is contained in the set labeled P. (=118))
- (163) a. John likes Mary. (=24a))
 b. $\{\delta C \{\gamma \text{John}[\phi]\} \{\beta T[u\phi] \{\alpha \text{John} \{R-v^* \text{likes Mary}\}\}\}\}$ ($\alpha=R-v^*$, $\beta=T$, $\gamma=\langle\phi, \phi\rangle$, $\delta=C$) (=77b))
- (164) subject raising は、
 a. α の labeling のため。
 b. β の labeling のため。 (Chomsky (2015))
 c. T が持つ[u\phi]のため。
 d. John の Case のため。 (section 6)
 e. theta-role のため。
- (165) Alexiadou & Anagnostopoulou (1998): V-to-T 移動によって EPP を満たすことが可能。
- (166) $\{\varepsilon R-v^*-T \{\delta EA \{\gamma R-v^* \{\beta IA \{\alpha R, IA\}\}\}\}\}$ ($\alpha=R$, $\beta=\langle\phi, \phi\rangle$, $\gamma=\delta=??$, $\varepsilon=R-v^*-T$)
- ⌚ subject raising が無くても theta-role が与えられる。

4.5.3.2. S-Selection

- (167) *I ate that John made a pizza.

⌚ 非文法性は、

- a. semantic type mismatch のため。
 b. ate の持つ[u\phi]には label<\phi, \phi>が必要だが、that 節は[\phi]を持たないため。
- ⌚ s-selection は (独立のものとしては) 無い。 (cf. McCawley (1968b), Pesetsky (1982b), Chomsky (1995a))
- ⌚ HIRC が許されるのは nominalizer がある言語 (Hiraiwa (2005, 2008))。nominalizer のために英語で見られた問題が解決される。

5. Interrogatives

5.1. Introduction

- (168) wh operator が[uQ]: unvalued quantificational feature を持つ。

(cf. Nishigauchi (1999), Chomsky (2015), Saito (2017))

(169) a. Who likes Mary?

- b. $\{\zeta \text{ who}[\text{phi}][\text{uQ}] \{\varepsilon \text{T}[\text{uphi}][\text{int}] \{\delta \text{ who}[\text{phi}][\text{uQ}] \{\gamma \text{R}-\nu^* \{\beta \text{Mary}[\text{phi}] \{\alpha \text{R}[\text{uphi}], \text{Mary}[\text{phi}]\}\}\}\}\}$
 $(\alpha=\text{R}, \beta=\langle \text{phi}, \text{phi} \rangle, \gamma=\delta=\text{R}-\nu^*, \varepsilon=\text{T}, \zeta=\langle \text{phi}, \text{phi} \rangle / \langle \text{int}, \text{int} \rangle)$

(170) a. Whom does John like?

- b. $\{\theta \text{ whom}[\text{phi}][\text{uQ}] \{\eta \text{C}[\text{int}] \{\zeta \text{John}[\text{phi}] \{\varepsilon \text{T}[\text{uphi}] \{\delta \text{John}[\text{phi}] \{\gamma \text{R}-\nu^* \{\beta \text{whom}[\text{phi}][\text{uQ}] \{\alpha \text{R}[\text{uphi}], \text{whom}[\text{phi}][\text{uQ}]\}\}\}\}\}\}\}$
 $(\alpha=\text{R}, \beta=\langle \text{phi}, \text{phi} \rangle, \gamma=\delta=\text{R}-\nu^*, \varepsilon=\text{T}, \zeta=\langle \text{phi}, \text{phi} \rangle, \eta=\text{C}, \theta=\langle \text{int}, \text{int} \rangle)$

(171) a. *Which dog do you wonder John likes?

- b. $\{\gamma \text{ which} \text{dog}[\text{uQ}] \text{do}[\text{int}] \text{you} \text{wonder} \{\beta \text{which} \text{dog}[\text{uQ}] \{\alpha \text{C}[\text{int}] \text{John} \text{likes} \text{which} \text{dog}[\text{uQ}]\}\}$
 $(\alpha=\beta=\text{C}[\text{int}], \gamma=\langle \text{int}, \text{int} \rangle)$

(172) The label $\langle \text{int}, \text{int} \rangle$ is interpreted as a *wh* interrogative and the label of $\text{C}[\text{int}]$ is interpreted as a *yes/no* interrogative.
 $(\text{cf. Chomsky (2015: 8)})$ ⌚ (171b) では β が *yes/no* 疑問として解釈されるため gibberish。

5.2. Multiple *Wh* Interrogative

(173) Scope Determination Rule of *Wh* Operators (First version)

Wh operators take the scope of the set labeled $\langle \text{int}, \text{int} \rangle$ containing them.

(174) Who wonders where we bought what?

- ⌚ a. どのように *what* の $[\text{uQ}]$ に解釈が与えられるのか。
 b. どのように *what* の scope が決定されるのか。
 c. 何故 *what* の scope のみが自由なのか。

(175) Interpretation by Contain

($= (63)$)

Given the structure

$$\{\gamma \{\beta \text{Z}[\text{F}], \dots\} \{\alpha \text{X}[\text{uF}] \{\dots \text{Y}...\}\}\} \quad (\alpha=\text{X}, \beta=\text{Z}, \gamma=\langle \text{F}, \text{F} \rangle)$$

- i. Y, contained in the set labeled $\langle \text{F}, \text{F} \rangle$, may be given the relevant interpretation according to the label at the interfaces.
- ii. X, immediately contained in the set labeled $\langle \text{F}, \text{F} \rangle$, must be given the relevant interpretation according to the label at the interfaces.

(176) a. Who wonders where we bought what?

($= (174)$)

- b. $\{\delta \text{ who}[\text{uQ}] \{\gamma \text{T}[\text{int}] \dots \{\beta \text{where}[\text{uQ}] \{\alpha \text{C}[\text{int}] \dots \text{what}[\text{uQ}]\}\}\}$ $(\alpha=\text{C}, \beta=\langle \text{int}, \text{int} \rangle, \gamma=\text{T}, \delta=\langle \text{int}, \text{int} \rangle)$

(177) Scope Determination Rule of *Wh* Operators (Second version)

- a. *Wh* operators may take the scope of the set labeled $\langle \text{int}, \text{int} \rangle$ containing them.

- b. *Wh* operators immediately contained in the set labeled $\langle \text{int}, \text{int} \rangle$ must take the scope of the label.

(178) a. In order to foil this plot, we must find out which agent has bats that are trained to kill which senator.

(Hankamer (1974: 67))

- b. $\{\langle \text{int}, \text{int} \rangle \text{wh}[\text{uQ}] \dots \{\text{C}[\text{rel}] \text{that} \dots \text{wh}[\text{uQ}]\}\}$

(179) #Who wants to meet a girl who studies what subject? (Karttunen (1977: 33), judgement in original)

⌚ long-distance feature assignment の boundedness に関して speaker variation 有り?

- (180) Who wonders where we bought what? (=174)) (cf. Baker (1970), Hankamer (1974))
- Q1: for which $\langle x, y \rangle$, x knows where we bought y
A1: John knows where we bought pizza, Tom knows where we bought books...
 - Q2: for which x , x knows where we bought what
A2: John and Tom (knows where we bought what).
- (181) Who will be offended if we invite which philosopher? (Reinhart (1998: 36))
- (182) Wrong interpretation (Reinhart (1998: 36))
- for which $\langle x, y \rangle$, if we invite y and y is a philosopher, then x will be offended
 - $\{P | (\exists \langle x, y \rangle) \& P = \hat{\wedge}((\text{we invite } y \text{ and } y \text{ is a philosopher}) \rightarrow (x \text{ will be offended})) \& \text{true}(P)\}$
 - Lucie will be offended if we invite Donald Duck.
- (183) a. Who will be offended if we invite which philosopher? (=181))
 b. for which $\langle x, f \rangle$ if we invite $f(\text{philosopher})$, x will be offended (Reinhart (1998: 41))
 c. $\{P | ((\exists \langle x, f \rangle) (\text{CH}(f) \& P = \hat{\wedge}((\text{we invite } f(\text{philosopher})) \rightarrow (x \text{ will be offended})) \& \text{true}(P))\}$ (Reinhart (1998: 41))
- (184) Scope Determination Rule of *Wh* Operators (Third and Final version)
- Wh* operators may take the scope of the set labeled $\langle \text{int}, \text{int} \rangle$ containing them.
 - Wh* operators immediately contained in the set labeled $\langle \text{int}, \text{int} \rangle$ must take the scope of the label.
 - The Choice Function yields a pair-list interpretation by assigning in-situ *wh* operators with the scope of a higher *wh* operator.
- (185) a. Who wonders where we bought what? (=174))
 b. $\{\delta \text{ who}[uQ] \{\gamma T[\text{int}] \dots \{\beta \text{ where}[uQ] \{\alpha C[\text{int}] \dots \text{what}[uQ]\}\}\}\}$ ($\alpha=C$, $\beta=\langle \text{int}, \text{int} \rangle$, $\gamma=T$, $\delta=\langle \text{int}, \text{int} \rangle$)
 ☺ pair-list 解釈のためには *what* を *who/where* のいずれかと pair にすることが必要。 *who* と pair にする際には *where* を越えることになるが、interface では label をもとにした locality を考えると、*where* 自体は label になつてないためそれを越えることは問題ない。

5.3. *Wh* Island

5.3.1. Illegible Case

- (186) a. *What did you ask where she ate?
 b. $\{\varepsilon \text{ what}[uQ] \{\delta \text{ did}[\text{int}] \text{ you ask } \{\gamma \text{ what}[uQ] \{\beta \text{ where}[uQ] \{\alpha C[\text{int}] \text{ she ate } \text{what}[uQ]\}\}\}\}$ ($\alpha=C$, $\beta=\gamma=\langle \text{int}, \text{int} \rangle$, $\delta=C[\text{int}]$, $\varepsilon=\langle \text{int}, \text{int} \rangle$)
 ☺ 主張: *what* は集合 γ と集合 ε のどちらにも immediately contain されており、矛盾した scope が要求されるため非文。
- (187) a. $\{\gamma \text{ what}[uQ] \{\beta \text{ where}[uQ] \{\alpha C[\text{int}], \dots\}\}$ ($\beta=\gamma=\langle \text{int}, \text{int} \rangle$)
 b. $\{\gamma \text{ what}[uQ] \{\beta \text{ where}[uQ] \{\alpha C[\text{int}], \dots\}\}$ ($\beta=\gamma=\langle \text{int}, \text{int} \rangle$)
 ☺ derivational history に access できない interface は、multiple spec の (186a) と、copy の不可視性から label が決まる (186b) の区別がつかず、両方を immediately contain されていると扱う。

(188) a. What do you wonder who saw?

- b. $\{\gamma \text{ what}[\text{phi}][\text{uQ}] \text{ do}[\text{int}] \text{ you wonder } \{\beta \text{ what}[\text{phi}][\text{uQ}]\} \{\alpha \text{ who}[\text{phi}][\text{uQ}] \text{ T}[\text{uphi}][\text{int}] \text{ saw } \text{what}[\text{phi}][\text{uQ}]\}\}$
 $(\alpha=\beta=\langle\text{phi}, \text{phi}\rangle/\langle\text{int}, \text{int}\rangle, \gamma=\langle\text{int}, \text{int}\rangle)$

⌚ label $\langle\text{phi}, \text{phi}\rangle$ により *what* は集合 β に immediately contain されていないと見なされる。

(189) Kitahara (2020)

- a. labelable multiple spec construction: two $[\text{uF}]$ and one $[\text{F}]$

$\{\gamma \text{ ZP}[\text{uF}]\} \{\beta \text{ YP}[\text{uF}]\} \{\alpha \text{ X}[\text{F}], \dots\}\}$ $(\alpha=X, \beta=\gamma=\langle\text{F}, \text{F}\rangle)$

- b. unlabelable multiple spec construction: one $[\text{uF}]$ and two $[\text{F}]$

$\{\gamma \text{ ZP}[\text{F}]\} \{\beta \text{ YP}[\text{F}]\} \{\alpha \text{ X}[\text{uF}], \dots\}\}$ $(\alpha=X, \beta=\gamma=\langle\text{F}, \text{F}\rangle, \gamma=??)$

(190) $\{\dots \text{DP}_2[\text{phi}] \dots \{\gamma \text{ DP}_2[\text{phi}]\} \{\beta \text{ DP}_1[\text{phi}]\} \{\alpha \text{ T}[\text{uphi}], \dots\}\}\}$ $(\alpha=T, \beta=\gamma=\langle\text{phi}, \text{phi}\rangle)$

5.3.2. Legible Case

(191) Neglect (Sportiche (2016)) は (186) には適用できない (determinacy の問題)。

(192) a. Which person do you wonder what present to give to? (Kiss (1993: 86))

- b. $\{\varepsilon \text{ which person}[\text{uQ}][\text{Foc}]\} \{\delta \text{ did}[\text{int}][\text{uFoc}]\} \{\text{you wonder } \{\gamma \text{ which person}[\text{uQ}][\text{Fee}]\}\} \{\beta \text{ what present}[\text{uQ}]\} \{\alpha \text{ C}[\text{Q}]\}$
 $\text{to give to } \text{which person}[\text{uQ}][\text{Foc}]\}$ $(\alpha=C, \beta=\gamma=\langle\text{int}, \text{int}\rangle, \delta=\text{C}, \varepsilon=\langle\text{int}, \text{int}\rangle/\langle\text{Foc}, \text{Foc}\rangle)$

(193) 余分な feature があれば同種の要素が作る island を越えられる (cf. Haegeman (2012))。

5.4. Japanese

(194) 君は何を食べたの?

(195) In-situ languages have *wh*-particles. Languages with *wh*-particles are in-situ languages.

(Cheng (1997: 18), but see also Bruening (2007))

(196) The label of *wh* particles suffices to mark the clause as an interrogative one in in-situ languages.

(197) Required Labels for Interrogative Clauses

- a. English: the label $\langle\text{int}, \text{int}\rangle$
- b. Japanese: the label $\langle\text{int}, \text{int}\rangle$ or the label of *wh* particles

(198) [[誰が書いた]本]も面白い。 (Saito (2017: 2))

(199) [[どの論文を書いた]人]が一番有名ですか? (Nishigauchi (1990: 11))

⌚ *wh* が一つなので Choice Function は使えない。しかし、operator 移動もできない。

(200) Scope Determination rule of Wh Operators (Japanese)

- a. *Wh* operators may take the scope of the set with the label of the *wh* particle containing them.
- b. *Wh* operators immediately contained in the set labeled $\langle\text{int}, \text{int}\rangle$ must take the scope of the label.
- c. The Choice Function yields a pair-list interpretation by assigning in-situ *wh* operators with the scope of a higher *wh* operator.

(201) a. 君は何を食べたの? (=194)

- b. 君はりんごを食べたの?

- (202) a. だれが良くお昼にラーメンを取るの↑
 b. EPD consists of, first, an emphatic accent on the Wh-focus, which consists of sharp rise of F0 (indicated by **BOLD CAPITALS**) followed by its fall, and second, *post-focal reduction*, which virtually (though not entirely) suppresses all lexical accents up to the end of some clause by compressing their pitch and amplitude ranges (indicated by shading). (Kitagawa (2005: 304-305), emphasis in original)
- ⌚ Ishihara (2002, 2003): post-focal reduction が *wh* operator を bind する *wh*-particle まで続く。
- (203) John は [Mary が何を食べたか] 知りたがっているの? (Takahashi (1993: 657))
- (204) 何を John は [Mary が何を食べたか] 知りたがっているの? (Takahashi (1993: 657))
- ⌚ Takahashi: 元位置では「何」は matrix/embedded scope 可、scrambling をすると matrix scope のみ可。
- (205) a. ?なにをナオヤは [マリが飲み屋でなにを飲んだか] ユミにもらしたの↑ (Ishihara (2002: 191))
 b. なにをナオヤは [マリが飲み屋でなにを飲んだか] ユミにもらしたの↑ (Ishihara (2002: 191))
- ⌚ Ishihara: 適切な prosody を与えれば解釈可能。
- (206) a. マサオが [花子がどの本を図書館から借りだしたか] 知り違っていること
 b. ?どの本をマサオが [花子がどの本を図書館から借りだしたか]] 知りたがっていること
- ⌚ Saito: long-distance scrambling は LF で undone → 「どの本」の copy が「か」を label とする集合に contain されているため、(200) により embedded scope が与えられる。
- (207) (205) の二つの構造
- a. $\{\gamma \text{ wh} \dots \{\beta \text{ wh} \{\alpha \dots \text{wh} \dots C_{\text{wh}}\}\} \dots C_{y/n}\}$
 b. $\{\gamma \text{ wh} \dots \{\beta \text{ wh} \{\alpha \dots \text{wh} \dots C_{y/n}\}\} \dots C_{\text{wh}}\}$
- ⌚ (206a) において、*wh* が集合 γ に immediately contain されてはならない。
- (208) a. $<_{\gamma} \text{ wh} \dots <_{\beta} \text{ wh} \{\alpha \dots \text{wh} \dots C_{\text{wh}}\} > \dots C_{y/n} >$ ($\alpha = \beta = C_{\text{wh}}, \gamma = C_{y/n}$)
 b. $<_{\gamma} \text{ wh} \dots <_{\beta} \text{ wh} \{\alpha \dots \text{wh} \dots C_{y/n}\} > \dots C_{\text{wh}} >$ ($\alpha = \beta = C_{y/n}, \gamma = C_{\text{wh}}$)
- (209) Additional *Wh* Effect
- a. ??John は [Mary が何を買ったかどうか] Tom に尋ねたの? (Watanabe (1992: 263))
 b. John は [Mary が何を買ったかどうか] 誰に尋ねたの? (Watanabe (1992: 263))
- ⌚ a. Kitagawa (2005: 318): 適切な prosody により additional *wh* 無しで容認可能。→(209a) は (203) と同じ。
 b. Watanabe と同じ判断→
 (209a): 「何」が label 「かどうか」を越えて matrix label C[int]と解釈されることが禁止される。
 (209b): Choice Function が使えるため「何」は「誰」と pair になる解釈。ここで必要なのは *wh* operator を pair にすることであり、label は無関係なので label 「かどうか」の intervention は起こらない。

5.5. Criterial Freezing

- (210) Assumptions in English Interrogative Clauses (EKS (2015: 229))
- a. There is only one C_Q in the (English) lexicon, appearing in both yes/no- and *wh*-interrogatives (Chomsky (1995a)).
 b. Every syntactic object must be labeled at C-I (Chomsky (2013)).
 c. A CP with the label C_Q , unaccompanied by a *wh*-specifier, is interpreted as a yes/no-question at C-I.
 d. A CP with the label Q , when Q is shared by the two heads C_Q and WH_Q (the latter being the head-feature of a *wh*-phrase in “Spec, CP”), is interpreted as a *wh*-question at C-I (Chomsky (2013)).

- (211) a. *Which dog do you wonder John likes? (=171a))

b. $\{\gamma \text{ which dog}[uQ] \text{ do[int]} \text{ you wonder } \{\beta \text{ which dog}[uQ] \{\alpha \text{ C[int]} \text{ John likes which dog}[uQ]\}\}\}$
 $(\alpha=\beta=\text{C[int]}, \gamma=<\text{int}, \text{int}>)$ (=171b))

- (212) Required Labels for Interrogative Clauses (=197))

- a. English: the label <int, int>
b. Japanese: the label <int, int> or the label of *wh* particles

⌚ Jayaseelan (2012): *yes/no* interrogative は disjunctive operator を持ち、それが節を open sentence にする。

- (213) The set with the label <int, int> is interpreted as an interrogative in English;

- i) if the set immediately contains the disjunctive operator, the set serves as *yes/no* interrogative clause, and
ii) if the set immediately contains a *wh* operator, the set serves as a *wh* interrogative clause.

- (214) a. *Which dog do you wonder John likes? (=171a))

b. $\{\delta \text{ which dog}[uQ] \text{ do[int]} \text{ you wonder } \{\gamma \text{ which dog}[uQ] \{\beta \text{ op}[uQ] \{\alpha \text{ C[int]} \text{ John likes which dog}\}\}\}\}$
 $(\alpha=\text{C[int]}, \beta=<\text{int}, \text{int}>, \gamma=<\text{int}, \text{int}>, \delta=<\text{int}, \text{int}>)$

c. $\{\gamma \text{ which dog}[uQ] \text{ do[int]} \text{ you wonder } \{\beta \text{ which dog}[uQ] \{\alpha \text{ C[int]} \text{ John likes which dog}\}\}\}$
 $(\alpha=\beta=\text{C[int]}, \gamma=<\text{int}, \text{int}>)$

⌚ a. (214b): *which dog* は集合 γ に immediately contain され、contradicting scope が与えられる。

b. (214c): 集合 β が英語の interrogative に必要な label を持たないため非文。

6. SM

6.1. Case

- (215) Case Determination Rules (cf. EKS (2012))

- a. The set labeled <phi, phi> by a nominal and T assigns nominative Case to a nominal contained.
b. The set labeled <phi, phi> by a nominal and R assigns accusative Case to a nominal contained.

- (216) a. John likes Mary. (=24a))

b. $\{\eta \text{ C } \{\zeta \text{ John[phi]} \{\varepsilon \text{ T[uphi]} \{\delta \text{ John[phi]} \{\gamma \text{ R-v* } \{\beta \text{ Mary[phi]} \{\alpha \text{ R[uphi]}, \text{ Mary[phi]}\}\}\}\}\}\}\}$
 $(\alpha=R, \beta=<\text{phi}, \text{phi}>, \gamma=\delta=R-v^*, \varepsilon=T, \zeta=<\text{phi}, \text{phi}>, \eta=C)$

⌚ *John, Mary* はそれぞれ label <phi, phi>を持つ集合に immediately contain されており、義務的な Case を得る。

- (217) a. It was I whom public opinion eventually condemned. (Smits (1989: 300))

b. It is me who(m) John is after. (Akmajian (1970: 152))

- (218) a. ?There am I. (Schütze (1997: 136))

b. There's me. (Schütze (1997: 136))

- (219) a. $\{\delta \text{ C } \{\gamma \text{ it[phi]} \{\beta \text{ T[uphi]} \{\alpha \text{ PRN[phi]}, \dots\}\}\}\}$ ($\alpha=\text{C}(\text{RRC}), \beta=\text{T}, \gamma=<\text{phi}, \text{phi}>, \delta=\text{C}$)

b. $\{\delta \text{ C } \{\gamma \text{ there[person]} \{\beta \text{ T[uphi]} \{\alpha \text{ there[person]}, \text{ SUBJ[phi]}\}\}\}$
 $(\alpha=\text{SUBJ[phi]}, \beta=\text{T}, \gamma=<\text{person}, \text{person}>, \delta=\text{C})$

⌚ immediately contain されていない nominal の Case は Contain している集合の label のものか、default Case かのどちらか。

- (220) Er lässt ihn {einen guten Mann/ein guter Mann sein.
 he let-3SG him a good man-ACC/-NOM
 ‘He lets him be a good man.’ (German; Schütze (1997: 87))
- (221) Ég taldi {hana/*hún} vera {kennara/*kennari}.
 I believed her-ACC/*she-NOM to.be teacher-ACC/-*NOM
 ‘I believed her to be a teacher.’ (Icelandic; Maling & Sprouse (1995: 170))
- ⌚ 言語間の variation 有り。Baker (2015) は (220) の accusative Case を dependent Case (Marantz (1991)) とする。しかし、Marantz に従うと default Case は last resort であるため、default nominative Case との optionality が疑問として残る。
- ⌚ a. Agree による Case assignment: (216) の義務的な Case と (217), (218), (220) の optional Case の説明ができない。
 b. [uCase]による Agree (Bošković (2007)): (217), (218) の nominative Case の説明ができない。

6.2. Agreement

6.2.1. One-to-Many Agreement

- (222) Activity Condition (Chomsky (2001))

For an SO to enter into an Agree relation, it must have some [uF].

- (223) a. T[uphi][Nom]-DP[phi][uCase] (✓)
 b. T[uphi][Nom]&V[uphi][Acc]- DP[phi][uCase] (*)
 c. T[uphi][Nom]-DP1[phi][uCase]& DP2[phi][uCase] (*)

- (224) Juma a-li-kuwa a-me-pika chakula.
 J. 3SG-PST-be 3SG-PERF-cook 7food
 ‘Juma had cooked food.’ (Swahili; Carstens (2001: 150))
- (225) Er lässt ihn {einen guten Mann/ein guter Mann sein.
 he let-3SG him a good man-ACC/-NOM
 ‘He lets him be a good man.’ (=220))

6.2.2. Norris (2014)

- (226) Feature Copying (Norris (2014: 126))
 The features of the closest c-commanding K⁰ to any particular Agr node are copied onto it.
- (227) “closest” is determined on the basis of domination (or more properly, inclusion) rather than c-command. (Norris (2014: 132))
- (228) Case Concord (Norris (2014: 150))
- a. Let X and Y be two nodes in a single extended projection, Y immediately dominating X.
 - b. If Y has a valued case feature [CASE: α] (but X does not), then copy Y’s case feature to X.

- (229) a. *Ema praga-s [kõiki kooke sõõ-va-d] poisi läbi.
 mother scold-PST.3SG all.PL.PAR cake.PL.PAR eat-PRS.PCPL.-PL.ACC boy.ACC through
 ‘Intended: Mother scolded the boy eating all the cakes.’ (Estonian; Norris (2014: 119))
- b. Ema praga-s [kõiki kooke sõõ-va] poisi läbi.
 mother scold-PST.3SG all.PL.PAR cake.PL.PAR eat-PRS.PCPL.-(SG).ACC boy.ACC through
 Speaker volunteered alternative to [(229a)] (Estonian; Norris (2014: 119))
- (230) Case stacking (suffixaufnahme)
 ngunha watharri-ku nyurna-yu warrapa-la-ku
 that look=for-PRES snake-ACC grass-LOC-ACC
 ‘He is looking for the snake in the grass’ (Panyjima; Plank (1995: 35))
- (231) Compound Tense
 Masungá má-kil í m-á-yik-u-á.
 6yam 6SA-be.still 6SA-A-cook-PASS-FV
 ‘The yams are still being cooked.’ (Kilega; Carstens (2005: 230))
- (232) Carstens (2005): *uφ*-features have EPP features in Bantu.
- (233) Baker (2008): Bantu は downward Agree をしない。upward Agree のみ。
- ⌚ Norris (とここで提案) では Bantu の generalization を捉えられる。また、Carstens (2011) は gender agreement が現れることで concord が可能だと主張するが、Norris (2014: 246) で述べるように、gender が agreement に現れない言語でも concord があることがあるため、その提案は正しくない。
- (234) a. Norris: {x {x X[vphi]/[vCase], {...}} {...Y[uphi]/[uCase]...}}
 b. ここで提案: {<phi, phi> {x X[uphi], {...}} {z Z[phi], ...Y[uphi]...}}
- ⌚ nominal concord については Norris と同じ。verbal concord について、Norris は syntax の中で agreement が起こることが必要 (label となる head が[vF]を持つ必要があるため)。ここで提案では必ずしもそうではない。
- (235) agreement は SM interface での問題。
 ⌚ upward Agree (Bjorkman & Zeijlstra (2019)) がやりたいことを説明できる？

6.3. Further Issues

6.3.1. Cyclic Agree

- (236) a. g-waabm-in
 2-see-1.INV 1→2=2 (Inverse Context)
 ‘I see you.’ (Nishnaabemwin; Béjar & Rezac (2009: 49))
- b. g-waabm-i
 2-see-DFLT.1 2→1=2 (Direct Context)
 ‘You see me.’ (Nishnaabemwin; Béjar & Rezac (2009: 49))

(237) Derivation of a Transitive vP (Béjar & Rezac (2009: 48))

Step 0: VP constructed as {V, {V, IA}}; v becomes locus

Step 1: Merge(v, VP) \Rightarrow {v_I, {v, {V, {V, IA}}}}}

Step 2: Agree(v_I, IA)

Step 3: Merge(vP, EA) \Rightarrow {v_{II}, {EA, {v_I, {v, {V, {V, IA}}}}}}}

Step 4: Agree(v_{II}, EA), if there is still a probe on v_{II}

(238) Person Specification in Nishnaabemwin: 3-1-2 (cf. Béjar & Rezac (2009: 43))

a. 3rd: [person]

b. 1st: [person], [participant]

c. 2nd: [person], [participant], [addressee]

(239) a. Seely (2006: 190) suggests that “the syntax can’t ‘use’ the label at all, the label is not a ‘functioning element.’”

b. Labels are determined at the end of the phase, before which Agree occurs in the labeling theory (cf. EKS (2017, 2018), Chomsky (2019)).

(240) Deducing Cyclic Agree

a. $\{\delta \text{EA}[\text{phi}] \{\gamma v^*[\text{uphi}] \{\beta \text{IA}[\text{phi}] \{\alpha V, \text{IA}[\text{phi}]\}\}\}\}$

$(\alpha=V, \beta=<\text{phi}, \text{phi}>)$

b. $\{\delta \text{EA}[\text{phi}] \{\gamma v^* \{\beta \text{IA}[\text{phi}] \{\alpha V[\text{uphi}], \text{IA}[\text{phi}]\}\}\}\}$

$(\alpha=V, \beta=<\text{phi}, \text{phi}>)$

c. $\{\delta \text{EA}[\text{phi}] \{\gamma v^* \{\langle \text{phi}, \text{phi} \rangle \text{IA}[\text{phi}] \{\nu V[\text{uphi}], \text{IA}[\text{phi}]\}\}\}\}$

$(\alpha=V, \beta=<\text{phi}, \text{phi}>)$

d. $\{\delta \text{EA}[\text{phi}] \{\gamma V-v^*[\text{uphi}] \{\langle \text{phi}, \text{phi} \rangle \text{IA}[\text{phi}] \{\nu V[\text{uphi}], \text{IA}[\text{phi}]\}\}\}\}$

$(\gamma=V-v^*, \delta=<\text{phi}, \text{phi}>)$

(241) A particular functional head F can search the phase for something to agree with:

i. zero times, or

ii. one time, or

iii. two (or more?) times

(Baker (2008: 100))

⌚ Agree をすると syntax で[uphi]の値が決まるのでそれ以上の agreement は不可。label に基づく interface での agreement の場合は二度以上の agreement が可能となる。操作の違い?

6.3.2. The Structural Condition on Person Agreement (SCOPA)

(242) SCOPA

(Baker (2008: 52))

A functional category F can bear the features +1 or +2 if and only if a projection of F merges with an NP that has that feature, and F is taken as the label for the resulting phrase.

(243) a. Nosotros com-emos las manzanas.

we.M.PL eat-1ps the apples

b. Nosotras com-emos las manzanas.

we.F.PL eat-1ps the apples

c. Nosotros estamos list-o-s.

we.M.PL are.1ps ready-M-PL

d. Nosotras estamos manzanas.

we.F.PL are-1ps ready-F-PL

(Spanish; 全て Baker (2008: 8))

- (244) Ni altxa-tze-n probatu [na-Ø-u-te]_{aux.}
me(ABS) lift-NMZ-LOC attempted 1.ABS-sg.ABS-√-3pl.ERG
‘They attempted to lift me.’ (Preminger (2011: 920))
- ⌚ long-distance person agreement の例。
- (245) Relative Aptitude for Failed Agreement (RAFA) (Preminger (2011: 922))
person at-a-distance ≫ number at-a-distance (≫any agreement at close range)
- ⌚ SCOPA 及び RAFA は immediately contain の反映。

6.3.3. More Cases of Case

- (246) a. Externalize all Cases.
b. Externalize only one Case. (by some economy condition)
- (247) Matching Effect
- a. Wer nicht stark ist, muss klug sein.
who-NOM not strong is must clever be
‘Who isn’t strong must be clever.’ (German; Groos & Riemsdijk (1981: 177))
- b. *Wen/*wer Got schwach geschaffen hat, muss klug sein.
who-ACC/NOM God weak created has must clever be
‘Who isn’t strong must be clever.’ (German; Groos & Riemsdijk (1981: 177))
- c. Was du mir gegeben hast, ist prächtig.
what-NOM/ACC you me given have is wonderful
‘What you have given to me is wonderful.’ (German; Groos & Riemsdijk (1981: 212))
- ⌚ matching effect は、C-I interface で矛盾した情報が許されない (186) 同様に矛盾した SM information が許されないことによって生じる。
- ⌚ SM interface での矛盾した情報は C-I interface と異なりただちに illegibility を引き起こすわけではない。
→Case stacking (Suffixaufnahme)の例 (230)。
- (248) Inverse Case Attraction
- Urb-em qu-am statu-o est.
city-ACC.SG which-ACC.F.SG found-PRS.ACT.1SG be.PRS.3SG
‘The city which I found is yours.’ (Latin; Kholodilova (2013: 97))
- (249) {_ε city[phi] {_δ which[uQ] C[rel] I[phi] T[uPhi] {_γ v* {_β city[phi] {_α √find[uPhi] {_γ which, city[phi]}}}}}}}
($\alpha=R$, $\beta=\langle\text{phi}, \text{phi}\rangle$, $\gamma=v^*$, $\delta=\langle\text{rel}, \text{rel}\rangle$, $\varepsilon=\text{city}$)
- (250) Externalize the marked Case.
(Bergsma (2019), cf. (238)), see also Pullum & Zwicky (1986), Babby (1986, 1987), Young (1988))
- (251) Externalization の parameter
- a. Externalize all Cases.
i. Cases can be different. (cf. (230))
ii. All Cases must have the same exponent. (cf. (247))
- b. Externalize one prominent Case. (Case syncretism, (250), cf. (238))

6.3.4. Case in Syntax

(252) Visibility Condition (Chomsky (1986))

A Chain must include a Case position to assign the theta-role to the nominal.

(253) a. *It seems Mary to be believed *t* likes John.

b. *It seems Mary to be *t* here.

(254) EKS (2014): Merge-over-Move from Labeling

a. *There is likely a man to be *t* in the room.

b. {... { β a man { α to be a man in the room}}}

(α =to, β =??)

(255) Visibility Condition from Labeling

{... { β Mary { α to be believed Mary likes John}}}

(α =to, β =??)

(256) Remaining Problem

a. *who does it seem [*e* to be intelligent]

(Chomsky (1986: 95))

b. { ε who C...{ δ it { γ T ... { β who { α to}}}}}

(α = β =to, γ =T, δ =phi, phi, ε =Q, Q)

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