

Subject Positions and Derivational Scope Calculation in Minimalist Syntax: A Phase-Based Approach

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Abstract

This paper proposes a new scope calculation system named a *phase*-based approach. The new system treats scope calculation as a feature-matching operation between more than one interpretable feature related to quantification (henceforth F_{quant} ¹). We call this matching operation *F_{quant}-matching*. It is shown that the working space of F_{quant} -matching is restricted by a syntactic unit *phases*. Given the matching operation for scope calculation in C_{HL} , scope interpretation can be derivationally determined in narrow syntax as far as it is permitted by the Phase Impenetrability Condition (PIC) proposed in Chomsky (2001). It is demonstrated that various mysterious scope facts in both English and Japanese are reducible to our *phase*-based scope system without any other special implement.

1 Introduction

This paper explores the correlation between subject positions and scope interpretation in Chomsky's (2000, 2001) framework. Section 2 discusses variation in subject positions across languages. We claim that unlike English Nominative Case, C, rather than the finite T, is relevant to *ga*-marking in Japanese. We further argue for A'-properties of Japanese *ga*-marked subjects with emphasis on the parallelism between the *ga-kara* alternating constructions in Japanese and the preverbal and postverbal subject constructions in Greek and Catalan. In Section 3 and 4, based on our different subject positions, we propose a new scope system in terms of a syntactic unit called *phases*. It is demonstrated that the matching operation is subject to the PIC proposed in Chomsky's (2001) *Derivation by Phase*, using various scope facts in both English and Japanese, including Double Object Constructions (henceforth DOCs). It is claimed that scope calculation can be derivationally determined in narrow syntax with only existent basic implements for sentence building, that is, *match* and *PIC*. Section 5 has a conclusion.

2 The Position of *Ga*-Marked Subjects in Japanese

Section 2 discusses the different status of the Nominative subject in English and the *ga*-marked subject in Japanese with the conclusion given in (1).

- (1) a. English Nominative subjects are licensed by T and placed in the TP-layer with A'-properties.
- b. Japanese *ga*-marked subjects are licensed by C and placed in the CP-layer with A'-properties.

2.1 Japanese *Ga*-Marked Subjects Function as A'-Binders: Fukui (1984, 1986)

Fukui (1984) claims that Japanese Nominative subjects show A'-properties in terms of *zibun*-binding and Safir's Parallelism Constraint on Operator Binding (henceforth PCOB). *Zibun* 'SELF' can refer not only to subjects as in (2a), but also to gapless Topic phrases, as in (2b), and relative head nouns, as

¹ The term F_{quant} is borrowed from Watanabe (1998).

in (2c). These positions are considered as typical A'-positions.

(2) a. *ga*-subject

John_i-ga Mary-ni zibun_i-no imoto-o syookai-si-ta.
 John-Nom Mary-to SELF-Gen sister-Acc introduce-do-Past
 'John introduced SELF's sister to Mary.'

b. gapless topic

Sono *hahaoya_i-wa [zibun_i-no musuko-ga sinde simatta].*
 the mother-Top SELF-Gen son-Nom die-Past
 'As for the mother_i, SELF_i's son died.'

(Fukui 1984: 37)

c. relative clause head

[NP [_S *Zibun_i-no hahaoya-ga kinoo sinde simatta] *John_i]*
 SELF-Gen mother-Nom yesterday die-Past John
 'John_i, SELF_i's mother died yesterday.'*

(Fukui 1984: 8)

Fukui (1984) attempts to give a unified account of these binding facts in (2) and proposes (3).

(3) *Zibun* must be bound by the closest A'-binder.

(Fukui 1984: 27)

Namely, Fukui claims that the *ga*-marked subject in (2a) occupies an A'-position on a par with (2b) and (2c). Furthermore, making use of Safir's Parallelism Constraint on Operator Binding, given in (4), he argues for the A'-status of Japanese subjects.

(4) Safir's PCOB (Parallelism Constraint on Operator Binding)

If *O* is an operator and *x* is a variable bound by *O*, then for any *y*, *y* a variable, *x* and *y* are the same in their feature specifications. (slightly modified by Fukui 1984)

The Japanese binding facts illustrated in (5) are subject to Safir's PCOB. *Kare* 'HIS' and *zibun* 'SELF' are not the same in their feature specification. That is why (5a) and (5b) are ungrammatical. The main point is that Safir's PCOB is a constraint on A'-binding and not on A-binding. That is, Japanese *ga*-marked subjects function as A'-binders.

(5) a. **John_i-ga kare_i-no kaban to zibun_i-no syasin-o mot-te-kaet-te-ki-ta*
 John-Nom HIS-Gen bag and SELF-Gen picture-Acc take-TE-back-TE-come-Past
 'John_i came back with HIS_i bag and a picture of HIMSELF_i.'

b. **John_i-ga zibun_i-no kaban to kare_i-no syasin-o mot-te-kaet-te-ki-ta.*
 SELF HIS

c. *John_i-ga kare_i-no kaban to kare_i-nosyasin-o mot-te-kaet-te-ki-ta.*
 HIS HIS

d. *John_i-ga zibun_i-no kaban to zibun_i-no syasin-o mot-te-kaet-te-ki-ta.*
 SELF SELF

(Fukui 1984)

On the other hand, the grammaticality of the English sentence (6) indicates that English Nominative subjects are A-binders.

(6) *John_i came back with his_i bag and a picture of himself_i.*

(Fukui 1984)

To sum up, Japanese subjects have syntactically different properties from English Nominative subjects with respect to the A/A' dichotomy. The former shows A'-status, the latter, whose Case is generally assumed to be licensed by the finite T, A-properties. What then is the position of Japanese subjects? On the basis of his research, Fukui (1984, 1986) proposes the adjunct hypothesis of Japanese subjects, that is, V'-adjoined position for Japanese subjects. In the subsequent subsections, accepting his claim that Japanese subjects are placed in A'-position with A'-property, we will reach a different conclusion with respect to the position of Japanese *ga*-marked subjects. We claim that the most plausible position for Japanese *ga*-marked subjects is the CP-Spec position, which has A'-properties.

2.2 Scope Interaction with Negation

Consider the scope interaction between *ga*-marked subjects and Negation (henceforth Neg). *Ga*-marked subjects in non-scrambled sentences always take scope over sentential Neg as illustrated in

(7).

- (7) a. Daremo-*ga* ohiru-o tabe-nak-atta. (every > Neg, *Neg > every)
everyone-Nom lunch-Acc eat-Neg-Past
'Nobody ate lunch.'
- b. 3-nin no gakusei-*ga* ohiru-o tabe-nak-atta. (3 > Neg, *Neg > 3)
3-CL Gen student-Nom lunch-Acc eat-Neg-Past
'There are three students who did not take lunch.'

If we assume that sentential Neg is generated between ν P and TP (Pollock 1989), it is plausible that Japanese *ga*-subjects are located outside ν P.

To summarize the discussion so far, Japanese *ga*-marked subjects have A'-properties and are placed in the position higher than Neg, at least, outside ν P. In the subsequent subsections, we forward our claim that a position somewhere in CP is one of the most plausible candidates for Japanese *ga*-marked subjects.

2.3 Against the Involvement of Finite T in Ga-Marking

This subsection further narrows down the discussion to the question of the possible positions for Japanese subjects. It is shown that C, rather than finite T, is involved in *ga*-marking in Japanese.

Takezawa (1987) argues that not only English Nominative Case, but also Japanese *ga* is assigned by finite T (*INFL* in his terms). Takezawa (1987) shows that *ga* cannot be assigned to ν P-internal elements without the finite T, using the Small Clause type examples in (8) and causative constructions in (9). The predicates of these types do not permit any Tense morphemes in the embedded clause.

(8) Small Clause type complements

- a. with a finite Tense morpheme

John-*ga* [_{CP} [_{TP} [Mary-no yokogao]-*ga* totemo utukusi-*i*] to] omot-ta.
John-Nom Mary-Gen profile-Nom very beautiful-Pres COMP think-Past
'John thought Mary's profile was ((lit.) is) very beautiful.'

- b. without a finite Tense morpheme

John-*ga* [_{CP} [Mary-no yokogao]-**ga*-o totemo utukusiku] omot-ta.
John-Nom Mary-Gen profile-Nom/Acc very beautiful think-Past
(lit.) 'John thought Mary's profile very beautiful.'

(Takezawa 1987:73-75)

(9) Complement subject positions of *-sase* 'CAUS' and *-moraw* 'receive'

- a. John-wa [Mary-ni/*-*ga* susi-o tabe]-*sase*-ta.

John-Top Mary-Dat/-Nom susi-Acc eat -CAUS-Past
'John made Mary eat susi.'

- b. John-wa [Mary-ni/*-*ga* syukudai-o tetudat-te]-*morat*-ta.

John-Top Mary-Dat/-Nom homework-Acc help-TE-receive-Past
(lit.) 'John received Mary's helping (his) homework.'

(= John had Mary help with his homework.)

(Takezawa 1987:76)

Contrary to Takezawa's claim, there is evidence that the existence of the finite T is not relevant to *ga*-marking. Some subordinate clauses with the non-finite T permit a *ga*-marked subject as illustrated in (10). (11) provides a piece of evidence that the subordinate clauses such as *nagaramo* 'though' and *temo* 'even if' disallow the Tense morphemes *-ru* 'Pres' and *-ta* 'Past'.²

- (10) a. [_{CP} Zen syusyoo-*ga* aredake huhyo-o kai-*nagaramo*],

the former Prime Minister-Nom so much disrepute-Acc buy-though

konkai-no senkyo-wa Zimintoo-*ga* assyoo sita.

this election-Top, the LDP-Nom swept the board

'The LDP swept the board in this election [_{CP} though the former Prime Minister was blamed so much].'

- b. [_{CP} Ame-*ga* hut-*temo*], watasi-wa dekake-ru.

² Kuroda observed the same point with sentences using *nagara* as in (i).

(i) Titioya-*ga* keikan de ari *nagara*, kare-wa tumi-o okasite-simat-ta.
father-Nom policeman be though he-Top sin-Acc commit-Perf-Past
'Though his father is a policeman, he committed a sin.'

To sum up so far, we claim that the availability of *ga*-marking does not depend on the finite T, but on the existence of C.

(16)C, rather than finite T, is involved in *ga*-marking in Japanese.

Pushing the idea that C is involved in *ga*-marking, we should further develop our original and independent arguments for A'-status of Japanese *ga*-marked subjects. Next subsection discusses this point cross-linguistically.

2.4 Parallelism between the Preverbal and Postverbal Subject Constructions in Greek/Catalan and the Ga-Kara 'Nom-from' Alternating Constructions in Japanese

Alexiadou and Anagnostopoulou (1998) claim that in Greek/Catalan, the preverbal subjects show A'-status, whereas the postverbal subjects A-status. In this subsection, we observe that exactly the same is true with the *ga-kara* 'Nom-from' alternating constructions in Japanese.

2.4.1 Greek/Catalan: Alexiadou and Anagnostopoulou (1998)

In Greek and Catalan, SVO and VSO word order are both possible, as shown in (17).

- (17) a. *O Petros pandreftike tin Ilektra.* (SVO) (Greek)
 Peter married Ilektra
 'Peter married Ilektra.'
 b. *pandreftike O Petros tin Ilektra.* (VSO)
 married Peter Ilektra
 'Peter married Ilektra.'
- (A & A 1998: 494)

A & A (1998) argue for the A'-status of the preverbal subjects. First, the preverbal subject in Greek can precede sentential adverbs such as *xtes* 'yesterday', as given in (18) and complementizers such as *an* 'if', as in (19).

- (18) *O Petros xtes meta apo poles prospathies sinandise ti Maria.*
 Peter yesterday after from many efforts met Mary
 'After many efforts, Peter met Mary yesterday.'
- (19) a. *Epid O Petros an erthi i Maria tha figi*
 because Peter if comes Mary FUT leave
 'Because if Mary comes, Peter will leave.'
 b. **Because Peter if Mary comes, will leave*³

The second piece of evidence for the A'-status of the preverbal subjects comes from the bound variable interpretation of overt personal pronouns in Catalan. As given in (20), a bound variable reading is impossible in the preverbal position, but it is possible in the postverbal position (Barbosa 1995). They account for these facts on the basis of the assumption that the preverbal subjects occupy an A'-position. Thus, pronouns cannot be interpreted as bound variables.

- (20) a. **Tots els setudeiants_i es pensen que ells_i aprovaran.*
 All the student think that they pass
 'All the students think they will pass.'
 b. *Tots els jugadors_i estan convencus que guanyaran ells_i.*
 All the players are persuaded that win they
 'All the players are persuaded that they are the ones who will win.'

The third piece of evidence is related to the issue of scope ambiguity in Greek. Greek quantificational elements in the preverbal subject position have unambiguous scope, whereas in the postverbal position the subject can have ambiguous scope:

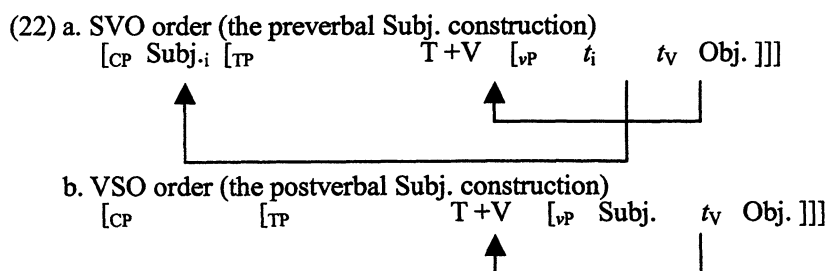
- (21) a. SVO order: (some > every, *every > some)

³ A reviewer of *Japanese/Korean linguistics* pointed out that (19b) is perfect in English if there are a comma and a pose between *Peter* and *if*. However, we ignore the case with special poses and stresses in this paper. We leave the issues open to future studies.

- Kapios fititis stihiothetise kathe arthro.
 some student filed every article
 'There is some student, who filed every article.'
- b. VSO order: (some > every, every > some)
 stihiothetise kapios fititis kathe arthro.
 filed some student every article
 'There is some student, who filed every article.'
 'Every article was filed by a different student.'

In (21a) *kapios fititis* 'some student' in the preverbal position necessarily has wide scope over the universal quantifier phrase *kathe arthro* 'every article' in object position. On the other hand, the postverbal subject in (21b) can have narrow or wide scope.

To summarize, the facts given above indicates that the preverbal subject position in Greek/Catalan has A'-status. (22a) and (22b) are the structures of the preverbal and postverbal subject constructions in Greek and Catalan.⁴



2.4.2 Japanese: *Ga-Kara* 'Nom-From' Alternation

Japanese has a structure parallel to the Greek preverbal and postverbal subject alternation discussed above. Cho (1995), Inoue (1998, 2001), and Ito (2001) observe that a class of verbs, which has the *-ga -ni -o* Case pattern and a *ni*-phrase carrying the feature [+animate] and the sense of *endpoint*, permits the *ga-kara* 'Nom-from' alternation (ex. *okur* 'send', *tutae* 'report', *sikar* 'scold', *iw* 'say', *hanas* 'speak', *ageru* 'give'). Inoue (1998) calls the sentences with postpositional subjects *Disguised Subjectless Sentences* (henceforth DSSs). Typical examples are given in (23).

- (23) a. *Anata-ga/-kara Taroo-ni tegami-o okut-te-kudasai.*
 you-Nom/-from Taro-to a letter-Acc send-TE-imperative
 'Please send a letter (from you).'
- b. *Anata-ga/-kara Taroo-o sikat-te-kudasai.*
 you-Nom/-from Taro-Acc scold-TE-imperative
 'Please scold Taro.'
- c. *Watasi-ga/-kara Taroo-ni sono zizitu-o tutae-te-oki-masu.*
 I-Nom/-from Taro-to the fact-Acc tell-TE-put-Pres
 'I will tell the fact to Taro.'

(Ito 2001)

The *ga-kara* pairs of sentences given in (23) are very similar to the preverbal and postverbal subject constructions observed in Greek and Catalan.

First, the alternating subjects are placed in syntactically different positions. One is a *vP*-internal position. The other is outside *vP*. Unfortunately, the point with respect to word order restrictions given in (18) and (19) in Greek cannot be reproduced for Japanese, because Japanese is one of the head-final languages. However, contrary to the *ga*-marked subject, it is demonstrated that the *kara*-marked subject is in the *vP*-internal subject position by the causativization test. In Japanese, *-ga* '-Nom' cannot occur in the embedded clause in causative constructions. It has to be replaced with an embedded subject marker *-ni* 'NI', as illustrated in (24).

⁴ With respect to the EPP-satisfaction of T, A&A (1998) propose the EPP parameter as in (i).

(i) The EPP parameter

In Null Subject Languages (NSLs), it is parameterized as to whether the EPP-feature in T can be satisfied with a head X^0 .

Greek and Catalan take a value such that the EPP-feature in T is satisfied with X^0 via V-raising.

- (24) a. John-*ga* ringo-o tabe-ta.
 John-Nom apple-Acc eat-Past
 'John ate an apple.'
 b. Mary-*ga* [John-**ga*^{OK}-*ni* ringo-o tabe]-sase-ta.
 Mary-Nom John-Nom/-Dat apple-Acc eat-CAUS-Past
 'Mary made John eat an apple.'

As I mentioned above, it is not a sentential adverb, but a VP adverb that the embedded clause in (24b) can take, as illustrated in (25).

- (25) a. VP adverb
 Mary-*ga* [*gatugatu to* John-*ni* ringo-o tabe]-sase-ta.
 Mary-Nom hungrily John-Dat apple-Acc eat-CAUS-Past
 'Mary made John eat an apple hungrily.'
 b. sentential adverb
 *Mary-*ga* [*saiwai* John-*ni* ringo-o tabe]-sase-ta.
 Mary-Nom fortunately John-Dat apple-Acc eat-CAUS-Past
 **'Mary made [John eat an apple fortunately].' (only a matrix reading)

(25) shows that the size of the embedded clause is smaller than TP, that is, *vP*. Next consider (26), where one of the DSS verbs, *setumei-s* 'explain-do', is the head of the complement *vP* of *-sase* 'CAUS'.

- (26) Troo-*ga* [_{DSSvP} *watasi-ni* *kanozyo no byoozyoo-o setumei-s*]-*(s)ase-ta*.
 Taro-Nom I-NI her condition-Acc explain-do-CAUS-Past.
 'Taro made me explain her condition (to someone).'

However, once the goal *ni*-phrase of *setumei-s* 'explain' is phonetically realized in the embedded clause, *ni*-subject is avoided and should be replaced with *kara*-subject:

- (27) a.?? Troo-*wa* [_{DSSvP} *watasi-ni Mary-ni* *kanozyo no byoozyoo-o setumei-s*]-*(s)ase-ta*.
 Taro-Top I-NI Mary-to her condition-Acc explain-do-CAUS-Past.
 'Taro made me explain her_i condition to Mary_i.'
 b. Troo-*wa* [*watasi-kara Mary-ni* *kanozyo no byoozyoo-o setumei-s*]-*(s)ase-ta*.
 Taro-Top I-from Mary-to her condition-Acc explain-do-CAUS-Past.
 'Taro made me explain her_i condition to Mary_i.'

(27) indicates that the embedded subject marker *ni* 'NI' can alternate with *kara* 'from' within the *vP* embedded clause. Furthermore, (28) shows that the *kara*-subject allows only VP adverbs on a par with *ni*-subject observed in (25).

- (28) a. VP adverb
 Troo-*wa* [*yukkurito* *watasi-kara* *Mary-ni* *kanozyo no byoozyoo-o setumei-s*]-*(s)ase-ta*.
 Taro-Top deliberately I-from Mary-to her condition-Acc explain-do-CAUS-Past.
 'Taro made [me explain her_i condition to Mary_i deliberately].'
 b. sentential adverb
 *Troo-*wa* [*saiwaini* *watasi-kara* *Mary-ni* *kanozyo no byoozyoo-o setumei-s*]-*(s)ase-ta*.
 Taro-Top fortunately I-from Mary-to her condition-Acc explain-do-CAUS-Past.
 'Taro made [me explain her_i condition to Mary_i fortunately].' (only a matrix reading)

It follows that the *kara*-subjects are generated as a *vP*-internal argument subject, unlike the *ga*-marked subjects. This is parallel to the Greek non-inverted subject constructions. Namely, the subject in VSO order in Greek corresponds to the DSS *kara*-subject.

Second, the same contrast with respect to variable binding observed in Catalan, mentioned in (20), can be found between the *ga*-marked subject and the DSS *kara*-subject in Japanese, as illustrated in (29). In (20), the bound variable interpretation with overt personal pronouns is impossible in preverbal position, but it is possible in postverbal position.

- (29) a. *Daremo_i-*ga* [*karera_i-ga* *Taroo-o* *sikar-u to*] *it-ta*.
 everyone-Nom they-Nom Taro-Acc scold-Pres Compsay-Past
 *'Everyone_i said that they_i will scold Taro.'

- b. Daremo_i-ga [karera_i-kara Taroo-o sikar-u to] it-ta.
 everyone-Nom they-from Taro-Acc scold-Pres Compsay-Past
 'Everyone_i said that they_i will scold Taro.'

Finally, in Greek, quantificational elements in the preverbal subject position have unambiguous scope, whereas in the postverbal position the subject can have ambiguous scope. In (21a), *kapios fititis* 'some student' in preverbal position has necessarily wide scope over the universal quantifier phrase *kathe arthro* 'every article' in object position. On the other hand, the postverbal subject in (21b) can have both narrow and wide scopes.

What is remarkable is that exactly the same contrast between the two subject positions in Greek can be observed in Japanese as a contrast between the *ga*-marked subject and the DSS *kara*-subject:

- (30) a. *ga*-subject: (some > every, *every > some)
 Dareka-*ga* dono tegami-mo okut-te-oi-te-kudasai.
 someone-Nom every letter send-TE-put-TE-imperative
 'I hope that there is someone who sends every letter.'
 *'I hope that each letter is sent by someone.'
- b. *kara*-subject: (some > every, every > some)
 Dareka-*kara* dono tegami-mo okut-te-oi-te-kudasai.
 someone-from every letter send-TE-put-TE-imperative
 'I hope that there is someone who sends every letter.'
 'I hope that each letter is sent by someone.'

We have observed that Japanese sentences with the *ga-kara* alternating constructions parallel syntactically the preverbal and postverbal subject constructions in Greek and Catalan. It follows that like Greek and Catalan, these contrasts between the *ga*-subject and the *kara*-subject are reduced to the idea that the two subjects are placed in different syntactic positions. The *kara*-subject is placed in a ν P-internal position and has A-properties, whereas the *ga*-subject is in a position higher than [Spec, TP], namely, in the CP-layer, and has A'-properties.⁵

3 Proposals: Scope Interpretation

Assuming the difference in subject positions, we propose that Watanabe's (1998, 2000) F_{quant} -movement in overt syntax is reducible to Chomsky's (2000, 2001) *Agree*. We call this operation *F_{quant}-matching*. Following Watanabe (1998, 2000), we assume that if the F_{quant} -matching operation is executed in narrow syntax, then this creates inverse scope reading at LF. As far as *feature-matching* is one of the legitimate operations in narrow syntax, it follows that its application is restricted by the syntactic unit *phases* and that it is subject to the PIC. We call the new scope system a *phase-based approach*. The *phase-based* approach eliminates a parameter with respect to the language variation of the availability of QR or the location of strong feature. Different scope phenomena between languages follow from a more general apparatus for sentence building, namely, *match* and *the PIC*.

3.1 Assumptions

Before demonstrating our new scope mechanism, we summarize our assumptions. First, we crucially use Chomsky's (2001) *Derivation by Phase* version of PIC:

(31) The Phase Impenetrability Condition

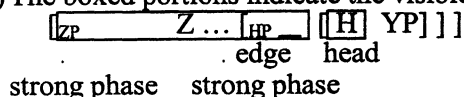
The domain of H is not accessible to operation at ZP, but only H and its edge.

[_{ZP} Z ... [_{HP} [H YP]]] (where ZP and HP are strong phases) (Chomsky 2001)

⁵ As for unavailability of the [Spec, TP] position in Japanese, Ueda (2002) discusses it in terms of the idea that Japanese is one of the non-agreement forced languages in the sense of Kuroda (1998). Ueda attempts to restate Kuroda's insight as the ϕ -defectiveness of Japanese T in Chomsky's (2000 and 2001) framework. The crucial mechanism is as follows: ϕ -features would allow T to be activated, but Japanese T has a null set of ϕ -features. Thus, Japanese T can neither enter into an *Agree*-relation nor have the EPP feature. That is why Japanese [Spec, TP] is unavailable for Nominative subjects. Case-feature of subject NPs must wait for the next probe, that is, C.

The PIC is a syntactic condition, which restricts the size of ‘working space’ of syntactic operations and the timing of Spell-Out. (31) means that *YP*, which is a complement of a phase *HP*, cannot be accessible to operation at the next higher phase *ZP*, because the complement *YP* is spelled-out after the head *Z* is merged, projecting the next phase *ZP*. (32) is a schematic structure of the visible domain at *ZP*-phase level.

(32) The boxed portions indicate the visible domain at *ZP*-phase



Furthermore, we introduce a new notion *deactivated NPs*, given in (33), and assume (34) with respect to the timing of the application of the matching operation.

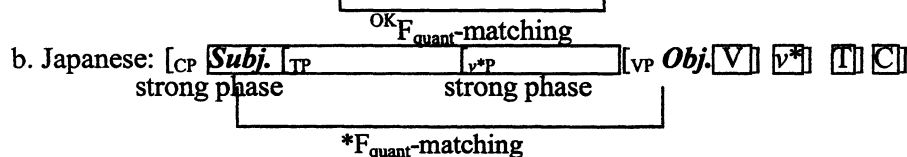
(33) *Deactivated NPs* are NPs all of whose uninterpretable features are marked for deletion.

(34) The F_{quant} -matching operation applies to *deactivated NPs*.

Given (31)-(34), it is demonstrated that mysterious scope takings in declaratives and ditransitives in both English and Japanese are appropriately reducible to the *phase*-based scope system. The typical scopal contrast between the two languages given in (35) is accounted for in the following way.

- (35) a. English: ambiguous (some > every, every > some)
 Someone loves everyone.
 b. Japanese: unambiguous (some > every, *every > some)
 Dareka-ga daremo-o aisitei-ru.

(36) a. English: $[_{CP} C \quad [_{TP} \text{Subj. T} \quad [_{v^*P} v^* [_{VP} V \text{Obj.}]]]]]]$

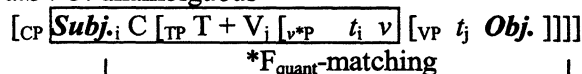


(35a) and (35b) are the schematic structures of (36a) and (36b) respectively. Assuming the notion of *deactivated NPs*, given in (33) and the research results in Section 2, English subject QP becomes a deactivated NP when its uninterpretable Case-feature is marked for deletion by T. Thus, English subject QP can be a probe for F_{quant} -matching at the completion of TP. Therefore, in English, the Obj. QP is visible from the Subj. QP in [Spec, TP], because TP is not a strong phase and the complement of v^*P , namely, VP, is not spelled-out yet. The boxed portion is the visible domain of a relevant F_{quant} -probe, namely, the Subj. QP in (36a). As the result, F_{quant} -matching is possible between the Subj. QP and the Obj. QP in English, resulting in the inverse scope at LF. Thus, (35a) is two-way-ambiguous at LF. One is the wide scope reading of the existential quantifier *someone* in the canonical order. The other is the inverse scope reading via F_{quant} -matching, that is, the universal quantifier *everyone* takes scope over the existential quantifier *someone*. On the other hand, as discussed in Section 2, C, rather than T is involved in *ga*-marking in Japanese. That is, Japanese *ga*-marked subjects can be a deactivated NP at the completion of CP. When C merges with TP, the complement of the lower strong phase v^*P , namely, VP is spelled-out and the Obj. QP is invisible from the subj. QP in CP-layer. F_{quant} -matching is impossible. Thus, Japanese shows the fixed scope in canonical order.

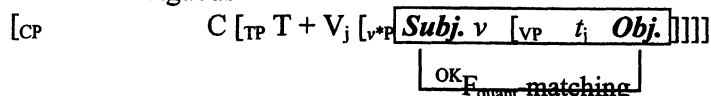
Furthermore, scope facts in Catalan given in (21) can be also reducible to our *phase*-based scope system. The schematic structures of (21a) and (21b) are given in (37).

(37) Catalan (= (21))

a. SVO: unambiguous



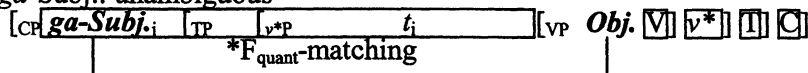
b. OSV: ambiguous



In SVO order, the Obj. QP in v^*P phase is invisible from the preverbal Subj. QP in CP phase, whereas in VSO order, the postverbal Subj. QP is in the domain of the same phase as the Obj. QP, namely, v^*P . Thus, $F_{\text{quant}}\text{-matching}$ is possible, resulting in scope ambiguity. (38) shows that the same is true of the scope facts in *ga-kara* alternating constructions in Japanese.

(38) Japanese (= (31))

a. *ga*-Subj.: unambiguous



b. *kara*-Subj: ambiguous



4 Mysterious Scope Taking in Double Object Constructions

This section discusses DOCs, whose scopal behaviors have been shrouded in mystery in the history of scope studies. It is shown that the *phase*-based approach sheds new light on this mystery. On the basis of a series of studies of Hale and Keyser (2002) and Takezawa (2000), we provide the three-layered vP structure (39) for DOCs in English and a class of ditransitive constructions in Japanese. In (39), v_3 projects an external argument for the subject NP, which is the same as a normal transitiviser in transitive clauses. A remaining v^*P_1 guarantees the possessor relation between IO and DO in a sense of Hale and Keyser (2002) and Takezawa (2000). Furthermore, we propose that not only the subject NP, but also the IO moves from [Spec, v^*P_1] to [Spec, v^*P_2], because only the IO in DOCs allows quantifier stranding on a par with subject NP, as shown in (40). We assume that the IO gets a new theta-role, [+affected], in [Spec, v^*P_2], because the IO is subject to the animacy condition in both English and Japanese.

(39) $[CP \quad C [TP \quad \text{Subj.}_j [_{v^*P_3} \quad t_j \quad v_3 [_{v^*P_2} \quad \text{IO}_i \quad v_2 [_{v^*P_1} \quad t_i \quad v_1 [_{VP} \quad V \quad \text{DO}]]]]]]]$



(40) a. The students $[_{VP} [\text{all}_i \quad t_i]$ passed the exam.]

b. *John passed exams_i $[\text{all}_i \quad t_i]$.

c. John gave students_i $[\text{all}_i \quad t_i]$ apples.

Given the structure (39), the mysterious scope facts in both English and Japanese given in (41), (42), and (43), are also naturally accounted for under our *phase*-based approach without any other stipulative conditions.

(41) *Scope fixing between IO and DO:*

The IO always takes scope over the DO in both English and Japanese.

a. John gave *someone everything*. (IO > DO, *DO > IO)

IO DO

b. John-ga *dareka-ni dono hon mo* age-ta. (IO > DO, *DO > IO)

John-Nom someone-NI every book give-Past

(42) *Asymmetrical scope taking:*

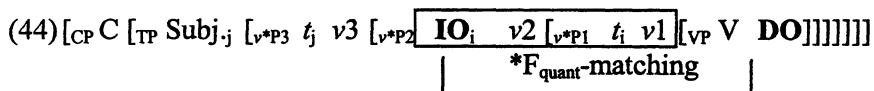
The DO cannot take scope over the subject, but the IO can in English.

a. *Someone gave everyone* his report card. (Subj > IO, IO > Subj)

⁶ We assume that Case-feature of the *kara*-subject NP is vP -internally licensed by the postposition *kara* 'from'. Therefore, the *kara*-subject can be a deactivated NP in the position within vP -layer.

- Subj IO
 b. *Someone* gave Bill *everything*. (Subj > DO, *DO > Subj)
 Subj DO (Hornstein (1995): 178)
- (43) **No contrast with respect to scope-taking between Subject-IO and Subject-DO in Japanese**
 a. *Dareka-ga daremo-ni hon-o age-ta.* (Subj > IO, *IO > Subj)
 someone-Nom everyone-NI book-Acc give-Past
 'There is someone, who gave a book to everyone.'
 b. *Dareka-ga Taroo-ni doremo-o age-ta.* (Subj > DO, *DO > Subj)
 someone-Nom Taro-NI everything-Acc give-Past
 'There is someone, who gave everything to Taro.'

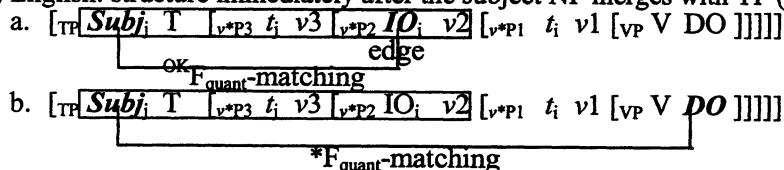
Asymmetrical scope between the IO and the DO in both English and Japanese given in (41) can be predictable from the schematic structure (44)(= (39)). The complement of v_1 , namely, VP, is spelled out when v_2 merges with v^*P_1 and thus, the DO is not visible from the IO position. Therefore F_{quant} -matching is impossible between the IO and the DO in both English and Japanese.



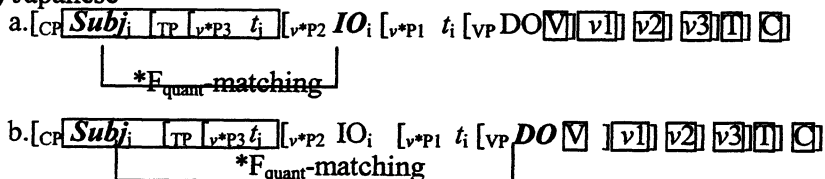
The contrast between English (41a) and Japanese (42a) is attributed to the difference in subject positions in those languages discussed above. As shown in (45a) and (46a), the IO is visible from the English subject in [Spec, TP], because [Spec, v^*P_2] is an edge and is not spelled-out yet at the v^*P_3 -phase level, whereas it is invisible from the Japanese *ga*-marked subject in CP-layer. That is why only English permits ambiguous reading between the subject QP and the IO.

As for the scope interaction between subject QP and DO, the DOs in both English and Japanese are too far from the subject positions. Thus, neither English nor Japanese allows F_{quant} -matching, resulting in unambiguous reading.

(45) English: structure immediately after the subject NP merges with TP (T')



(46) Japanese



5 Conclusion

In this paper, it has been shown that unlike English Nominative subjects, *ga*-marked subjects are placed in the CP-layer with A'-properties. We observed that the *ga*-marked subjects and *kara*-marked subjects syntactically parallel those of the inverted and non-inverted subjects in Greek and Catalan.

Based on the assumption of different subject positions, we proposed a new scope calculation system called the *phase-based* approach. In our system the operation to create binary-absorbed quantifiers is reducible to a syntactic operation *Agree*. We called this operation F_{quant} -matching. This matching operation creates the inverse scope reading. We have demonstrated that our new scope system can give a unified account for various mysterious scope phenomena in several languages. Given our *phase-based* approach to scope calculation, scope interpretation can be derivationally determined in narrow syntax at every strong phase as far as Chomsky's (2001) PIC permits. That is, the derivation in narrow syntax directly feeds the interpretation. Furthermore, if this approach is on the right track, the adequacy of the existence of *phases* as a syntactic unit as well as the relevance of the PIC in Chomsky's *Derivation by Phase* is also demonstrated by the results of our research.

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