

## On Kakarimusubi in Old Japanese and Labeling under Minimal Search

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### 1 Kakarimusubi constructions: An important question to ask

(1) a. The question particle *ka* appears in sentence-final position in questions.

... pototogisu ima-mo naka-nu **ka**  
little cuckoo now-still sing-not Q

'... little cuckoo, do you still not sing for me?' (Man'yo shu: 4067)

b. *Ka* can appear in sentence-medial position as well, typically in the vicinity of a Wh-phrase.

... nani-**ka** sayareru  
what Q do harm

'... what does harm?' (Man'yo shu: 870)

c. In Modern Japanese, *ka* appears only in sentence-final position.

Dare-ga/John-ga kimasita **ka**  
Who-NOM/John-NOM came Q  
'Who came?/Did John come?'

(2) a. A declarative sentence ends with the conclusive form (Shushi kei) of a predicate.

... si-wa asiki mono **nari** ...  
death bad thing be

'... death is something to hate.' (Man'yo shu: preface to 897 in volume 5)

b. *Ka* in sentence-medial position forces the predicate to take attributive/substantive form (Rentai kei).

... nani-ka tune **naru**  
what-Q eternal be

'... what is eternal?' (Kokin waka shu: 45307)

(3) a. QUESTION

How should we see the two different positions of *ka* in questions in Old Japanese?

b. ANSWER

Question sentences in Old Japanese just instantiate the two possibilities in the labeling of syntactic objects proposed in Chomsky (2013, 2014).

\*For possible answers for the question why a predicate is forced to take its attributive/substantive form with *ka* in sentence-medial position, see Ikawa (1998) and Watanabe (2002) among others.

### 2 Labeling Algorithm (under Minimal Search)

(4) a. {H, XP} --->H as a label

b. {XP<F>, YP<F>} ---><F, F> as a label

(5) a. (I wonder) what you think that John bought.

b. [<-Q> (<what>) [<sub>c</sub> that<-Q>] [you bought <what>]]<---labeling in (4a)

c. [<Q, Q> what <Q> [<sub>c</sub> <Q>] [you think ...]]<---labeling in (4b)

(6) Free application of Merge

The applications of Merge (movement) are totally free. Syntactic objects are properly interpreted at the C-I interface if the applications of Merge in them successfully lead to their labeling in (4a) or (4b).

(7) a. \*( I wonder) you think [what that you bought].

b. [<sub>α</sub> what<Q> [<sub>C</sub> that<-Q> [ you bought <what>]]

In the presence of the non-matching features <Q> in *what* and <-Q> in *that*, α is not labeled.

(See Epstein, Kitahara and Seely (2017) for detailed discussion of how labeling interacts with Merge.)

### 3 Wh-questions in Old Japanese: Instantiating two possibilities in Labeling Algorithm

#### 3.1 Word order in Wh-questions with *ka* in sentence-medial position

(8) The general precedence of a Wh-constituent with *ka* over the subject

a. ... ta-ga tamoto-wo-**ka** wa-ga makurakamu  
who-GEN arm-ACC-Q I-NOM make-pillow

'Whose arm can I make my pillow?'

(Man'yo shu: 439)

b. ... iduku-ni-ka kokoro-no ara-mu

where-at-Q soul-NOM be-auxiliary for speculation (Utsuho monogatari: Toshikage)

(See Nomura (1993) for the statistical data supporting this observation.)

(9) Movement of a Wh-constituent with *ka* in Old Japanese

a. Movement to the SPEC of AGRP/TP (Ikawa 1998)

b. Movement to the SPEC of CP (Watanabe 2002, Aldridge 2009, 2015)

--->Under the free applications of Merge, it is not of importance to see where the moved constituent lands (such as the SPEC of CP, the SPEC of FOC, or the SPEC of TOPP). What matters is whether or not the syntactic object formed by the movement is successfully labeled and interpreted at the C-I interface.

#### 3.2 Two ways of forming a Wh-question in Old Japanese: instantiating two possibilities in Labeling Algorithm

(10) *Ka* in sentence-final position

a. [Kotodesi-pa ta-ga koto-ni aru **ka**] [wo-yama-da-no napasiro  
taliking first-TOP who-GEN words be Q honorific-hill-paddy-GEN seeding bed  
midu-no naka yodo-ni site  
water-GEN inside stagnant be

'Who first talked to me? Like the stagnant water in the mountain paddies (you don't come to see me at all).'

(Man'yo shu: 776)

b. [wagimoko-ga ika-ni omopye **ka**] nubatama-no itiya-mo otidu yume-ni-si  
my lover-NOM how think Q one night-also miss dream-in  
miyuru  
see

- 'How does my lover think? I dream about him/her every night.' (Man'yo shu: 3647)
- (11) *Ka* in sentence-medial position
- a. ... ta-ga tamoto-wo-**ka** wa-ga makurakamu  
 who-GEN arm-ACC-Q I-NOM make-pillow  
 'Whose arm can I make my pillow?' (Man'yo shu: 439)
- b. ... [ika-ni tire to]-ka kaze-no puku-ramu ...  
 how get blown away that-Q wind-NOM blow-auxiliary for speculation  
 Lit.' ... How might the wind be blowing telling the flower [to be blown away t]?'  
 (Man'yo shu: 86)

(10a, b): H-XP structure in (4a)

(10) a'. [ $\langle Q \rangle$  [kotodesi-pa ta-ga koto-ni aru] [ka $\langle Q \rangle$ ]]

(11a, b): XP-YP structure in (4b)

(11) a'. [ $\langle Q, Q \rangle$  ta-ga tamoto-wo-ka $\langle Q \rangle$  [wa-ga  $\langle$ ta-ga tamoto-wo-ka $\rangle$  makurakamu][ $\langle \langle Q \rangle \rangle$ ]]

(12) Wh-questions in Old Japanese just instantiate the two possibilities in Labeling Algorithm

### 3.3 Similar Wh-questions in modern languages

#### 3.3.1 Modern Japanese

- (13) a. Kimi-wa nani-o kaimasita ka  
 you-TOP what-ACC bought Q  
 'What did you buy?'
- b. Nani-o John-wa [Mary-ga  $\langle$ nani-o $\rangle$  tabeta ka] siritagattairu no  
 what-ACC John-TOP Mary-NOM ate Q want-to-know Q  
 'What does John want to know whether Mary ate?' (Takahashi 1993: 657)

Takahashi (1993): Scrambled *nani* (what) can only take the matrix scope; it cannot be moved back to its original position and form an indirect Wh-question.

(13) a'. *Ka* labels the entire sentence as  $\langle Q \rangle$  on its own, like *ka* in Old Japanese in (10a).

[ $\langle \langle Q \rangle \rangle$  [kimi-wa nani-o kaimasita] [ $\langle \langle Q \rangle \rangle$ ]]

b.' Scrambled *nani* is internally merged with the sentence *no* heads, leaving its copy, and the formed syntactic object (XP-YP) can be labeled as  $\langle Q, Q \rangle$ , based on the presence of  $\langle Q \rangle$  in scrambled *nani* and *no*, as in the Wh-question in Old Japanese in (10b).

[ $\langle \langle Q, Q \rangle \rangle$  nani-o $\langle Q \rangle$  [ $\langle$ John-wa [Mary-ga  $\langle$ nani-o $\rangle$  tabeta ka] siritagattairu] [ $\langle \langle Q \rangle \rangle$ ]]

#### 3.3.2 Singapore English: Forming Wh-questions in more than one way

- (14) a. You think I go where ah?  
 b. You think where I go ah?  
 c. Where you think I go ah?  
 d. Where ah you think I go? (Yeo 2010: 9)
- (14) a'. H-XP structure  
 [ $\langle \langle Q \rangle \rangle$  [you think I go where][ $\langle \langle Q \rangle \rangle$ ]]

- b'. H-XP structure with the internal merger of *where* with the complement clause  
 [<sub>C</sub> <Q> [you think where I go <where>][<sub>C</sub> ah <Q>]  
 (See Obata (2016) for how the syntactic object formed by the partial movement of *where* can survive the C-I interface.)
- c'. *Where* is internally merged with the clause headed by *ah* and based on the presence of <Q> in *where* and *ah*, the entire syntactic object is labeled as <Q, Q>.  
 [<sub>C</sub> where <Q> [you think <where> I go <where>][<sub>C</sub> ah <Q>]]
- d'. *Ah* is spelled out as <Q>-feature of *where* and, *where ah* is internally merged with the clause headed by C with <Q>. Based on the presence of <Q> in *ah* and C, the entire syntactic object is labeled as <Q, Q>.  
 [<sub>C</sub> where ah<Q> [you think <where> I go <where>][<sub>C</sub><Q>]]  
 \*We are abstracting away from the surface position of C.

#### 4. Yes-no questions in Old Japanese: Instantiating two possibilities in Labeling Algorithm

##### 4.1 Word order in Yes-no questions with *ka* in sentence-medial position

(15) The general precedence of a constituent with *ka* over the subject

- a. Tawakwoto-**ka** pito-no ipi-turu  
 nonsense-Q people-NOM say-completive auxiliary  
 'Did people say nonsense?' (Man'yo shu: 3333)
- b. ... miyako idu to-**ka** pito-no tuge-uru  
 Kyoto leave that-Q people-NOM tell-completive auxiliary  
 '... Did people say that (s/he) is leaving Kyoto?' (Go shui waka shu: 14)

(16) Movement of a constituent with *ka* in Yes-no questions in Old Japanese

Movement to the SPEC of AGRP (Ikawa 1988)

##### 4.2 Two ways of forming a Yes-no question in Old Japanese: Instantiating two possibilities in Labeling Algorithm

(17) *Ka* in sentence-final position

- a. ... pototogisu ima-mo naka-nu **ka**  
 little cuckoo now-still sing-not Q  
 '... little cuckoo, do you still not sing for me?' (Man'yo shu: 4067)
- b. ... wotomera-ga tamamo-no suso-ni sipo mitu-ramu **ka**  
 ladies-GEN beautiful hem-to sea fill-auxiliary for speculation Q  
 '... might the sea be reaching the hems of the beautiful kimonos of the ladies?'  
 (Man'yo shu: 40)

(18) *Ka* in sentence-medial position

- a. Tawakoto-**ka** pito-no ipi-turu  
 nonsense-Q people-NOM say-completive auxiliary  
 'Did people say nonsense?' (Man'yo shu: 3333)
- b. ... miyako idu to-**ka** pito-no tuge-turu  
 Kyoto leave that-Q people-NOM tell-completive auxiliary

- '... Did people say that (s/he) is leaving Kyoto?' (Go shui waka shu: 14)
- (17a, b): H-XP structure in (4a)
- (17) a'. [ $\langle Q \rangle$  [pototogisu ima-mo naka-nu] [ka $\langle Q \rangle$ ]]
- (18a, b): XP-YP structure in (4b)
- (18) a'. [ $\langle Q, Q \rangle$  tawakoto-ka $\langle Q \rangle$  [pito-no ipi-turu][ $\langle Q \rangle$ ]]
- (19) Yes-no questions in Old Japanese just instantiate the two possibilities in Labeling Algorithm.

### 4.3 Similar Yes-no questions in modern languages

#### 4.3.1 Modern Japanese: H-XP structure

- (20) Kimi-wa sono hon-o yomimasita ka  
 you-TOP that book-ACC read Q  
 'Did you read that book?'
- (20') [ $\langle Q \rangle$  kimi-wa sono hon-o yomimasita] [ $\langle Q \rangle$ ]]

#### 4.3.2 Finnish (Holmberg 2014): XP-YP structure

- (21) a. Lontoossa-ko Jussi kävi  $\langle$ Lontossa-ko $\rangle$ ?  
 London.INE-Q Jussi went  
 'Did Jussi go to London?'
- b. Ollin autolla-ko te tulitte  $\langle$ Ollin autolla-ko $\rangle$ ?  
 Olli's car-ADE-Q you came  
 'Did you come in Olli's car?'
- (21) b'. [ $\langle Q, Q \rangle$  Ollin autolla-ko $\langle Q \rangle$ ] [ $\langle Q \rangle$ ][te tulitte  $\langle$ Ollin autolla $\rangle$ ]]

\*It is not clear that we need to structurally represent the interpretation of the moved constituent as a focus. See Chomsky, Gallego, and Ott (2017) for some critical comments on inflating functional structures for accommodating elements such as Topic and Focus.

## 5 Deriving the finality of *ka*

### 5.1 *Ka* needs to be found under Minimal Search.

- (22) *Ka* cannot precede a case-particle or a postposition in questions (Yamada 1936).
- a. ... ta-ga tamoto-**wo-ka**/**\*ka-wo** wa-ga makurakamu  
 who-GEN arm-ACC-Q Q-ACC I-NOM make-pillow  
 'Whose arm can I make my pillow?' (Man'yo shu: 439)
- b. Tukubane-ni kakanaku wasi-no ne-nomi-**wo-ka**/**\*ka-wo**  
 Tsukuba mountains-in sing around eagle-GEN voice-only-ACC-Q Q-ACC  
 naki watari namu ...  
 cry around auxiliary for speculation  
 'Should I cry around just like eagles singing around in the mountains of Tsukuba? ...'  
 (Man'yo shu: 3390)
- c. ... ika naru koto-ni-ka/**\*ka-ni** ara-mu  
 how be thing-at-Q Q-at be-auxiliary for speculation  
 '... what is going on?' (Genji monogatari: wakamurasaki)

- d. ... kamiyo-**ni-ka**/ \***ka-ni** ide kaperu-ramu ...  
 distant past-to-Q Q-to come out return-auxiliary for speculation  
 '... Might (the moon) come out and then return to the distant past?...'

(Man'yo shu: 1080)

(23) Minimal Search

The matching features must be found in the immediate constituents of XP and YP in an XP-YP structure.

- (22) a'. [XP [ZP ta-ga tamoto-wo]-ka<Q>]

*Ka* is an immediate constituent of XP, and hence can be found under Minimal Search.

- a". \*<sub>[XP [ZP ta-ga tamoto-ka<Q>]-wo]</sub>

*Wo* and ZP are the immediate constituents of XP, and we cannot look into the constituents of ZP *ta-ga tamoto-ka* (whose arm-Q). Thus, *ka* followed by *o* cannot be reached under Minimal Search.

- (22) c'. [XP [ZP kamiyo-ni]-ka<Q>]

*Ka* is an immediate constituent of XP, and hence can be found under Minimal Search.

- c". \*<sub>[XP [ZP kamiyo-ka<Q>]-ni]</sub>

*Ni* and ZP are the immediate constituents of XP, and we cannot look into the constituents of ZP *kamiyo-ka* (distant past-Q). Thus, *ka* followed by *ni* cannot be reached under Minimal Search.

- (24) a. (I wonder) [who [you saw <who>].

- b. \*(I wonder) [[pictures of whom] you saw <pictures of whom>].

(Fukui and Takano 1998: 67)

- c. (I wonder) [whose pictures [you saw <whose pictures>]

- (24) b'. \*<sub>[pictures [of [whom]]]</sub>: *Whom* cannot be an immediate constituent of the moved phrase.

--->It cannot be found under Minimal Search, and the embedded clause cannot be labeled as <Q, Q>.

- c'. [Whose pictures]: *Whose* is the immediate constituent of the moved phrase.

--->It can be found under Minimal Search, and the embedded clause is successfully labeled as <Q, Q>.

**5.2 *Ka* attached to larger constituents: Large-scale pied-piping**

- (25) *Ka* is attached to an adjunct clause containing a Wh-phrase.

- a. [watatumi-no idure-no kami-wo inoraba]-**ka** ikusa-mo kusa-mo  
 God of the sea-GEN which-GEN God-ACC pray-Q going-also coming-also  
 pune-no paya-kyemu  
 boat-NOM fast-auxiliary for speculation

Lit.'Which God of the sea will your voyage be over early if I pray to?' (Man'yo-shu: 1784)

- b. [suma-no ama-no sioyaki kinu-no narena-ba]-**ka** pitopi-mo  
 Suma-GEN diver-GEN salt-heating cloth-GEN get-used-to-if-Q one day-also  
 kimi-wo wasure te omopa-mu  
 you-ACC forget think-auxiliary for speculation

- 'If I get used to (being on this trip) like the clothes for salt heating divers in Suma put on, could I forget my lover even one day?' (Man'yo shu: 947)
- (26) *Ka* is attached to a constituent containing a relative clause containing a Wh-phrase (Ikawa 1993, 1998 and Whitman 2001).  
 [[ika naru koto-wo omopi-keru] wori-ni]-**ka** yome-ru  
 how be thing-ACC think past auxiliary time-at Q made-honorific auxiliary  
 Lit.'What kind of thing did he make this poem while he was thinking about \_?'  
 (Tosa nikki: 124)
- (27) *Ka* is attached to a complement clause containing a Wh-phrase.
- a. ... [[idure-wo saki-ni kopi-mu] -to] -**ka** mi-si  
 which-ACC first love-auxiliary for speculation that Q think-past auxiliary  
 '... Which did I think that I would love first?' (Kokin waka shu: 850)
- b. ... [miyako idu to]-**ka** pito-no tuge-uru  
 Kyoto leave that-Q people-NOM tell-completive auxiliary  
 '... Did people say that (s/he) is leaving Kyoto?' (Go shui waka shu: 14)
- (25) a'. [<sub>C</sub> <Q, Q> [watatumi-no idure-no kami-wo inoraba]-**ka**<Q> [<watatumi-no idure-no kami-wo inoraba-**ka**> ikusa-mo kusa-mo pune-no paya-kyemu] [<sub>C</sub> <Q>]]  
 --->*Ka*, pied-piping the entire adjunct clause, is the final element of the moved constituent.
- (26) [<sub>C</sub><Q, Q> [[[ika naru koto-wo womopi-kyeru] wori]-ni-**ka**<Q>] [<sub>C</sub> <ika naru koto-wo womopi-kyeru ori-ni-**ka**> yomeru [<sub>C</sub> <Q>]]]  
 --->*Ka*, pied-piping the noun phrase containing the relative clause, is the final element of the moved constituent.
- (27) b'. [<sub>C</sub><Q, Q> [[[miyako idu]-to]-**ka**<Q> <miyako idu-to-**ka**> pito-no tuge turu] [<sub>C</sub> <Q>]]  
 --->*Ka*, pied-piping the complement clause, is the final element of the moved constituent.
- (28) a. *Ka* is always in the position which can be found by Minimal Search.  
 b. XP-movement in questions in Old Japanese is likely to be clause-internal (cf.: Motoori 1785=1970).  
 c. Large-scale pied-piping seems to be possible in a language in which <Q>-feature can be singled out and realized as a particle such as *ka* in Old Japanese (See Hagstrom 1998 and Cable 2010 for relevant discussion assuming Q-particle movement).

### 5.3 The positions of the particles not contributing to the labeling of a question

#### 5.3.1 The position of *sura* (even) in Old Japanese

- (29) a. ... parusame-**sura**-wo madukapi-ni suru  
 spring rain-even-ACC watch as make  
 '..., she sent me even spring rain as a watch.' (Man'yo shu: 1698)
- b. pitopye-nomwi imo-ga musubamu obi-wo-**sura** ...  
 one fold-only lover-NOM tie sash-ACC-even  
 'Even the sash which was just single-folded when you put it on me...' (Man'yo shu: 742)

(30) As *sura* (even) does not contribute to the labeling of a syntactic object, it is free from Minimal Search, so it can either precede or follow a case-particle.

### 5.3.2 The position of *ka* inducing the indefinite reading of interrogative phrases in Modern Japanese

(31) *Ka* inducing the indefinite reading of an interrogative phrase precedes a case-particle and a postposition (cf.: Kinuhata and Whitman 2010).

a. John-ga dare-**ka-o**/?\***o-ka** hihansita (koto-wa tasika da)  
 John-NOM who-Ka-ACC/ACC-Ka criticized thing-TOP clear be  
 '(It is clear that) John criticized someone.'

b. John-ga dare-**ka-to**/?\***to-ka** hanasite ita (koto-wa tasika da)  
 John-NOM who-Ka-with/with-Ka talking was thing-TOP clear be  
 '(It is clear that) John was talking with someone.'

--->As *ka* in sentence-medial position just induces the indefinite reading of an interrogative phrase, and hence does not contribute to the labeling of a syntactic object, so it is not subject to Minimal Search.

(32) a. (Zettai) John-wa dare-**ka-no** hon-o/ \*dare-no hon-**ka-o** yonda  
 absolutely John-TOP who-Ka-GEN book-ACC/ who-GEN book-Ka-ACC read  
 '(It is clear that) John read someone's book.'

b. (Zettai) John-wa [dare-**ka-ga** kaita e]-o/ \*[dare-ga kaita  
 absolutely John-TOP who-Ka-NOM drew picture-ACC/ who-NOM drew  
 e]-**ka-o** mita  
 picture-Ka-ACC saw  
 '(It is clear that) John saw a picture that someone drew.'

--->*Ka* inducing the indefinite reading of an interrogative phrase is directly attached to an interrogative phrase no matter where the interrogative phrase is, as it is free from Minimal Search and hence does not have to be the "final element."

## 6 Implications

### 6.1 Equivalence of H-XP (Head-complement) structure and XP-YP (SPEC-head) structure

(33) Head-complement structures and SPEC-head structures as distinct classes of structure (Chomsky 1986)

- a. Head-complement structure: selection
- b. SPEC-head structure: agreement

(34) For Labeling, H-XP and XP-YP structures are equivalent.

- a. {H, XP}--->H as a label
- b. {XP<F>, YP<F>}---><F, F> as a label

(35) Question formation in Old Japanese provides direct support for assuming the equivalence between Head-complement structures and SPEC-head structures.

(36) Given (34), what needs to be explained is the "obligatoriness" of an operation in the formation of a syntactic object observed in the application of Wh-movement in English.

## 6.2 From Old Japanese to Modern Japanese: A possible story

(37) *Ka* can be attached to a clause even when it induces movement.

- a. ... [[idure-wo saki-ni kopi-mu] -to] -ka mi-si  
which-ACC first love-auxiliary for speculation that Q think-past auxiliary  
'... Which did I think that I would love first?' (Kokin waka shu: 850)
- b. ... [miyako idu to]-ka pito-no tuge-uru  
Kyoto leave that-Q people-NOM tell-completive auxiliary  
'... Did people say that (s/he) is leaving Kyoto?' (Go shui waka shu: 14)  
--->*Ka* is in clause-final position.

(38) H-XP structure and XP-YP structure can converge on *ka* in sentence-final position.

- a. [<Q> S-[ka<Q>]](H-XP structure)  
b. [<Q, Q> S-ka<Q>][<S-ka>][<Q>]] (XP-YP structure)

A possible story:

(38a) does not involve string-vacuous movement.

--->*Ka* has come to be in clause-final position in all Japanese questions.

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