The movement of question particles

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1. The proposal

(1) dare-ga hon-o kaimasita ka? who-NOM book-ACC bought.POLITE Q
"Who bought a book?"

The question particle undergoes syntactic movement from a clause-internal position (by the wh-word) to the clause periphery (in the complementizer system).

2. Evidence, part one: Intervention effects in Japanese

Assume:
Movement obeys Attract Closest.

Scheme:
Put an eligible alternative to Q along the path of movement.

This should interfere with the movement.

Some intervenors for attraction of ka "Q":
- disjunction particle ka
- indefinite-forming particle ka

And, indeed: Another -ka cannot be on the path of Q-movement (noticed by Hoji 1985)

(4) ?? John-ka Bill-ga nani-o kaimasita ka? John-NOM Bill-NOM what-ACC bought.POLITE Q ("What did John or Bill buy?")

(5) nani-o, John-ka Bill-ga t, kaimasita ka? what-ACC John-NOM Bill-NOM bought.POLITE Q ("What did John or Bill buy?")

Q attracted from below the subject—thus, ka "or" intervenes.

Q scrambles (with nani) above intervenor. From there, attraction is unimpeded.

3. Evidence, part 2: Island effects in Japanese—or a lack thereof

Islands block movement, yet Japanese allows wh-words in islands…

(6) Hiro-ga [Sue-ni nani-o ageta hito-ni] aima-sita ka?
H-NOM S-DAT what-ACC gave man-DAT met.POLITE Q
"What did Hiro meet [the man that gave t to Sue]?"

So if ka is moving, it must be moving from outside…

(7) [Island … nani … ] … t, … ka?

Whoa—does this mean islands are useless for diagnosing movement?
Well, no—but we have to be more clever.

Suppose: Emphatic ittai locates the launching site of ka.

(8) John-ga ittai t, nani-o kaimasita ka?
John-NOM ittai what-ACC bought.POLITE Q
"What in the world did John buy?"

ittai inside an island ⇒ ka moved out of the island.
(11) ill-formed as expected.

(9) Hiro-ga ittai nani-o tabeta?
H-NOM ittai what-ACC ate
"What in the world did Hiro eat?"

(10) ?? Hiro-ga ittai nani-o tabeta?
H-NOM ittai what-ACC ate
("What in the world did Hiro eat?")

(11) * Hiro-ga [Sue-ni ittai nani-o ageta hito-ni] aima-sita ka?
H-NOM S-DAT ittai what-ACC gave man-DAT met.POLITE Q
("What in the world did Hiro meet the man that gave t to Sue?")

(12) Hiro-ga ittai [Sue-ni nani-o ageta hito-ni] aima-sita ka?
H-NOM ittai S-DAT what-ACC gave man-DAT met.POLITE Q
"What in the world did Hiro meet the man that gave t to Sue?"

4. Combining islands and intervention effects

Idea:
- Independent -ka blocks Q-movement ("intervention effect")
- Q-movement takes place from outside of islands.
- Therefore, Q-movement should be insensitive to intervenors inside island
Embed “intervention effect” in an island and it becomes well-formed, cf. (4) on previous page.

(13) Mary-wa [John-ka Bill-ga nani-o katta ato de ] dekakemasita ka?
Mary-TOP John-or Bill-NOM what-ACC bought after left.POLITE Q

(14) Mary-wa [nani-o John-ka Bill-ga t, katta ato de ] dekakemasita ka?
Mary-TOP what-ACC John-or Bill-NOM bought after left.POLITE Q

‘Mary left after John or Bill bought what?’

5. Ok, maybe you’re right about Japanese, but so what?

Well, this isn’t just about Japanese.

• “Q-movement” happens in other languages.
• There may be a semantic motivation for it.

Sinhala: Indo-European (Sri Lanka),

SOV language with scrambling,

wh-in-situ.

(15) Chitra mokak da gatta?
Chitra what Q bought-E

‘What did Chitra buy?’

Premodern Japanese and (Shuri) Okinawan
look a lot like Sinhala in these respects too.

Sinhala da (16) corresponds to Japanese ka (17):
Reason one: Wh+Q = Indefinite

Chitra what Q bought who-Q-NOM book-ACC bought.POL

‘Chitra bought something.’

‘Someone bought a book.’

Sinhala da (18) corresponds to Japanese ka (19):
Reason two: declarative+Q = y/n question

(18) Chitra ee pota gatta da? (19) Taroo-ga hon-o kaimasita ka?
Chitra that book bought Q who-Q-NOM book-ACC bought.POL

‘Did Chitra buy that book?’

‘Did Taroo buy a book?’

Sinhala da (20) corresponds to Japanese ka (21):
Reason three: Q used for disjunction

(20) mahatteatoo tea koopi da oona?
gentleman-DAT tea Q coffee Q necessary

‘Do you (sir) want tea or coffee?’

John-ka Bill-(ka)-ga hon-o katta.
John-Q Bill-(Q)-NOM book-ACC bought

‘John or Bill bought books.’

So: We have identified da as an analog in Sinhala to Japanese ka.

But da sits inside the clause,
while Japanese ka sits at the periphery.

The idea:

Sinhala and Japanese are showing us two sides of the same movement.

In both languages, there is a movement relation involving Q.

Q starts where we see it in Sinhala
and winds up where we see it in Japanese.

6. Evidence for Q-movement in Sinhala

First of all, sometimes da appears overtly at the clause periphery in Sinhala—
but at the expense of -e morphology on the verb.

Ranjit who Q came-E that know
‘Ranjit knows who came.’

Ranjit who Q came Q that know
‘Ranjit knows who came.’

That -e morphology determines the scope of the question word

Ranjit who Q came-E that know
‘Ranjit knows who came.’

Ranjit who Q came Q that know
‘Ranjit knows who came.’

Also: notice that the -e morphology only appears when da is not after the verb.

What could look more like feature-driven movement?

Idea: -e is a morphological reflex of the feature which will drive movement (attraction) of Q.
Where Q goes is tied to its semantic scope.
So $do$ in Sinhala and $ka$ in Japanese are the same thing, following the same route.

But we can see in Sinhala where $Q$ moves from, something we can’t see in Japanese.

Well when a $wh$-word is inside an island, does $Q$ really move from outside?

We deduced that it must from looking at Japanese—but in Sinhala we can see it directly:

### Sinhala: Question words allowed in islands—but only if $do$ is immediately outside the island.

(26) $*$ [Chitra *monawa* $do$ $kana$ $ko$] $Ranjit$ *pudum* $unee$?
   Chitra what $Q$ ate when Ranjit surprise became-$E$
   ('Ranjit was surprised when Chitra ate what?')

(27) [Chitra *monawa* $kana$ $ko$] $do$ $Ranjit$ *pudum* $unee$?
   Chitra what ate when $Q$ Ranjit surprise became-$E$
   ('Ranjit was surprised when Chitra ate what?')

#### Look... Sinhala provides overt evidence for the syntactic structure we could only infer in Japanese.

7. Multiple questions

If $Q$ “starts by the $wh$-word,” what happens in multiple questions?

Specifically, there’s only one $ka$ in (28). Where does it move from? By which $wh$-word?

(28) *dare*-ga $nani$-$o$ *kaimasita* $ka$?
   who-$NOM$ what-$ACC$ bought.POLITE $Q$
   ‘Who bought what?’

Again, we can turn to Sinhala to help answer this question—

(29) a. [kauru mokak $do$ kieuw $kiyala$] dannawa $da$?
   who what $Q$ read-$E$ that know $Q$
   ‘Do (you) know who read what?’

b. * [kau $do$ mokak kieuw $kiyala$] dannawa $da$?
   who $Q$ what read-$E$ that know $Q$
   ('Do (you) know who read what?')

### Conclusion

$Q$ can’t start by the higher $wh$-word, it must start by the lower one.

### Caveat

The data is fairly shaky here. It is also possible to have $do$ by both $wh$-words. Sumangala (1992) suggests that (30) may in fact be derived via ellipsis from (31), citing as evidence that both cannot be answered with a list of pairs, whereas (29a) can be. Perhaps that’s right, but it requires more investigation.

(30) kau $do$ monawa $do$ kieuw?
   who $Q$ what $Q$ read-$E$
   ‘Who read what?’ (requires stress on both $kaud$ and $monawa$)

(31) kau $do$ kiewe monawa $do$ kiewe?
   who $Q$ read-$E$ what $Q$ read-$E$
   ‘Who read, what did s/he read?’

7. $Q$ and the pair-list question

Suppose we force the situation in Japanese by putting two $wh$-words inside an island. We know $Q$ can’t get out of an island—it can’t start by either $wh$-word in this case. Rather, it will have to start outside of the island.

(32) Taroo-ga [dare-ga $nani$-$o$ katta toki-ni] okotta *no*?
   Taro-NOM who-NOM what-$ACC$ bought when got.angry $Q$
   ‘Taroo got angry when who bought what?’ (*PL, SP)

(32) is grammatical—
    but can only be answered with a single pair of person and purchased item.

It appears that having $Q$ start out by the lower $wh$-word is crucial to getting the PL reading.

### Speculative answer

It’s an economy condition, which works like this:

If a $wh$-word is merged into the representation (the structure being built from the bottom up) and a $Q$ is available in the “numeration”, merge it immediately.

The intuition: Introducing a $wh$-word causes a great deal of “work” until $Q$ is merged.
That’s pretty vague—what is Q anyway? And what’s so hard about a wh-word?

Recall that Q appears (16–21) in several contexts. It is not directly linked to interrogativity:

- questions in Japanese need not have ka—recall (9).
- ka can appear in non-questions—e.g. in the declarative (17) (with dareka ‘someone’).

A rapid sketch of the semantics of Q and wh-words developed in Hagstrom (1998).

Following Hamblin (1973),

- interpret a wh-word as a set of individuals.
- interpret a question as a set of propositions.
- allow function application to be “flexible”

Since dare ‘who’ and ka ‘Q’ are both in wh-questions and in indefinites (like dareka ‘someone’), and [dare] is a set of individuals, what must ka mean?

Proposal: Q introduces existential quantification over choice functions.

So: [who left?] comes out to be the set \( \lambda p. \exists x = f(\text{who}) \). left,
and [someone left] comes out to be the proposition \( \exists f(\text{who}) \leftarrow \).

Syntactic movement of Q creates a chain. The syntactic location of the top of the chain (where Q moves to) determines the scope of the existential quantifier (\( \exists f(\text{who}) \)), and the syntactic location of the bottom of the chain (where Q starts from) determines where the choice function variable (\( f(\text{who}) \)) is (e.g., by who).

Now: The “work” involved in a wh-word comes from the “flexible” functional application.

If a function which takes something of type \( \alpha \) instead gets a set of things of type \( \alpha \), the evaluation is carried out on each member of the set individually. So, you have a set of resulting outputs of the function instead of a single output.

Q introduces a choice function, which takes a set and chooses one member. After Q is introduced, the type is resolved and flexible functional application is no longer needed.

Consider combining what with transitive bought. Without Q, the result of combining them would be a set of predicates \( AP(x) \leftarrow [buought(x) \times x < \text{what}] \), whereas if Q introduces a choice function variable as a sister of what, you would have a single predicate (with an unbound variable which will be bound by Q in its landing site) \( bought(f(\text{what})) \).

If flexible functional application is “costly”, there is motivation to introduce Q as soon as after a wh-word as possible.

8. So...

Q-movement…
- seems to happen in several—unrelated—languages.
- may be a crucial part of the semantics of questions and indefinites.

So, it may in fact be a general fact about language(s)—even where you can’t see it happening. (See Bošković 1998 for an attempt to extend this to English).

References and pointers


This poster is a condensed version of parts of Hagstrom (1998)—see there for elaboration.