The movement of question particles

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1. The proposal

(1) dare-ga t_{ka} hon-o kaimasita **ka**?
who-NOM book-ACC bought.POLITE Q
'Who bought a book?'

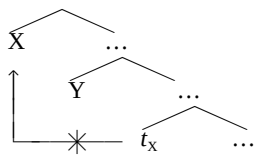
The question particle undergoes syntactic movement from a clause-internal position (by the *wh*-word) **to the clause periphery** (in the complementizer system).

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.



Attract Closest: Movement is motivated by the need to check a feature. Only the closest element with the relevant feature is eligible for movement. (Chomsky 1995)

Y **INTERVENES** for movement of X if Y is equally eligible to move, since Y is closer to the target of movement than X was.

Some intervenors for attraction of ka 'Q':

- disjunction particle *ka*
- indefinite-forming particle *ka*

(2) John-**ka** Bill-ga hon-o kaimasita.
John-or Bill-NOM book-ACC bought.POLITE
'John or Bill bought a book.'

(3) dare**ka**-ga hon-o kaimasita.
someone-NOM book-ACC bought.POLITE
'Someone bought a book.'

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-or Bill-NOM what-ACC bought.POLITE **Q**
('What did John or Bill buy?')

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

(5) nani-o_i John-**ka** Bill-ga t_i kaimasita **ka**?
what-ACC John-or Bill-NOM bought.POLITE **Q**
'What did John or Bill buy?'

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] aimasita **ka**?
H-NOM S-DAT **what**-ACC gave man-DAT met.POL **Q**
'*What did Hiro meet [the man that gave *t* to Sue]?'

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

(7) [$_{\textbf{island}}$ … nani …] … t_{ka} … 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_{ka} **nani**-o kaimasita ka?
John-NOM **ittai** **what**-ACC bought.POL Q
'What in the world did John buy?'

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

ittai outside an island, *ka* could move from outside.
(12) is fine.

This isn't crazy. *ka* can sometimes be dropped, but never with *ittai*.

(9) Hiro-ga nani-o tabeta?
H-NOM what-ACC ate
'What 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] aimasita **ka**?
H-NOM S-DAT **ittai** **what**-ACC gave man-DAT met.POL **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] aimasita **ka**?
H-NOM **ittai** S-DAT **what**-ACC gave man-DAT met.POL **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$_i$ John-**ka** Bill-ga t_i 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 .

Question word remains in situ
Question word followed by Q
Verb takes special “-e” form

(15) Chitra **mokak** **də** gatte?
Chitra **what** **Q** bought-**E**
‘What did Chitra buy?’

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

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

(16) Chitra **mokak** **də** gatta.
Chitra **what** **Q** bought
‘Chitra bought something.’

(17) **dare-ka**-ga hon-o kaimasita.
who-Q-NOM book-ACC bought.POL
‘Someone bought a book.’

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

(18) Chitra ee potə gatta **də**?
Chitra that book bought **Q**
‘Did Chitra buy that book?’

(19) Taroo-ga hon-o kaimasita **ka**?
Taroo-NOM book-ACC bought.POL **Q**
‘Did Taro buy a book?’

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

(20) mahatteaṭə tee **də** koopi **də** oonə?
gentleman-DAT tea **Q** coffee **Q** necessary
‘Do you (sir) want tea or coffee?’

(21) 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 *də* as an analog in Sinhala to Japanese *ka*.

But *də* 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 *də* appears *overtly* at the clause periphery in Sinhala— but at the expense of *-e* morphology on the verb.

(22) Ranjit [**kau** **də** aawe kiyəla] dannəwa.
Ranjit **who** **Q** came-**E** that know
‘Ranjit knows who came.’

də … aawe

(23) Ranjit [**kauru** aawa **də** kiyəla] dannəwa.
Ranjit **who** came **Q** that know
‘Ranjit knows who came.’

… aawa *də*

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

That *-e* morphology determines the scope of the question word

(24) Ranjit [**kau** **də** aawe kiyəla] dannəwa.
Ranjit **who** **Q** came-**E** that know
‘Ranjit knows who came.’

-e marks embedded verb
⇒ embedded question

(25) Ranjit [**kau** **də** aawa kiyəla] danne?
Ranjit **who** **Q** came that know-**E**
‘Who does Ranjit know came?’

-e marks matrix verb
⇒matrix question

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 *də* 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 *də* is immediately outside the island.

(26) * **[** Chitra **monəwa** **də** kanə koṭə **]** Ranjit pudumə une**e** ?
Chitra **what** **Q** ate when Ranjit surprise became-**E**
('Ranjit was surprised when Chitra ate what?')

(27) **[** Chitra **monəwa** kanə koṭə **]** **də** Ranjit pudumə une**e** ?
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**? *Japanese*
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 **də** kieuw**e** kiyəla] dannəwa də? *Sinhala*
who what **Q** read-**E** that know Q
'Do (you) know who read what?'

b. * [kau **də** mokak kieuw**e** kiyəla] dannəwa də?
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 *də* 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 **də** monəwa **də** kieuw**e**?
who **Q** what **Q** read-**E**
'Who read what?' (requires stress on both *kaudə* and *monəwadə*)

(31) kau **də** kiew**e** monəwa **də** kiew**e**?
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.

How is it that Q has to start with the lower *wh*-word? Why must it be attached there?

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"

Roughly: For some set A containing elements of type α and for some function *f* from type α, *f*(A) is interpreted as being the set $\lambda x \exists a \in A.x=f(a)$.

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 $\lambda p.\exists f.p=f($⟦ *who* ⟧ $)$ *left*,
and ⟦ *someone left* ⟧ comes out to be the proposition $\exists f.f($⟦ *who* ⟧ $)$ *left*.

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 ($\exists f$), and the syntactic location of the bottom of the chan (where Q starts *from*) determines where the choice function variable (*f*) 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 α instead gets a *set* of things of type α, 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 $\underline{\lambda P \exists x[P=\text{bought}(x) \wedge x \in ⟦ \textit{what} ⟧]}$, 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) $\underline{\text{bought}(f(⟦ \textit{what} ⟧))}$.

If flexible functional application is "costly", there is motivation to introduce Q as soon 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

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