Prediction of Japanese Q-Particles

1 Detecting Structural Prediction

My work has been concerned with structural prediction by the parser. Namely, **what**, **when**, **why**? But verifying that the parser is performing structural prediction in online processing is *hard*. Several reasons:

- Surprise (>RT) and facilitation (<RT) effects often have multiple explanations.
- A common explanation is that predictive effects are actually due to integration.

Consider the following example:

(1) a. $AuxP \rightarrow [Aux\ VP]$
b. $VP \rightarrow V'$
c. $V' \rightarrow [(Adv)\ V]$
d. $V' \rightarrow [V\ NP]$

"He has (really) (never) (...) gone to Europe."

Consider we observe a facilitation at *gone*. Is it due to parser's prediction triggered by *has*? Or, is it because *gone*....? Need an experiment with prediction and integration saying different things.

2 Wh-Licensing w/ Q-particles

In Japanese wh-interrogative sentences, a wh-phrase must be licensed (c-commanded) by a verbal suffix -ka or -no (a Question-particle), which is located in the complementizer position:

(2) a. No c-commanding QP → BAD

*Dare-ga [Hanako-ga ringo-o tabeta-ka] tazuneta.
Who-nom Hanako-nom apple-acc ate-Q asked

Intended: Who asked if Hanako ate an apple?

b. (Matrix) Wh is c-commanded by QP → GOOD

Dare-ga [Hanako-ga ringo-o tabeta-ka] tazuneta-no.
Who-nom Hanako-nom apple-acc ate-Q asked-Q

Who asked if Hanako ate an apple?

c. (Embedded) Wh is c-commanded by QP → GOOD

Hanako-ga [Keiko-ga nani-o tabeta-to] itta-no.
Hanako-nom Keiko-nom what-acc ate-Q said-Q

What did Hanako say that Keiko ate?

In addition, two wh-questions (matrix and embedded) can be licensed by a single QP!

(3) Dono gakusei-ga [kyoushi-ga nani-o chuumon-shita-to] kuwashi-ku tazunemashita-ka
Which student-nom teacher-nom what-acc order-did-dec in-detail asked-Q
Which student asked what the teacher ordered in detail?

3 Potential for Prediction Effects

Example 3 presents an **ambiguity at the embedded Wh** to the parser.

"Dono gakusei-ga kyoushi-ga nani-o..." $\rightarrow$ 1 or 2 QPs coming?

Either we have 1 QP which licenses both *Dono* and *nani-o* or we have 2QPs, each within the CP of each Wh question. As below:

"chuumon-shita-to kuwashi-ku tazunemashita-ka" (Just matrix QP)
–OR–
"chuumon-shita-ka kuwashi-ku tazunemashita-ka" (Both matrix and embedded QP)

- It is presumed that the parser picks the option of 1QP as this prevents it from doing extra work to resolve the licensing constraint.
- We should, as a result of this prediction, observe surprise if we come across an embedded QP.

4 Prediction vs. Integration

Let us compare what a predictive theory and an integrative theory would say about such items.