Illusory licensing of *wh*-phrases in Japanese: A preliminary study using speeded acceptability judgment task

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This study investigates whether 'illusory licensing' occurs in the online comprehension of Japanese *wh*-dependencies. Illusory licensing refers to a phenomenon in which a grammatically ineligible element is licensed by an irrelevant licensor.

Many studies have reported illusory licensing of NPIs in head-initial languages[1][2]. In such environments, from the perspective of incremental parsing, even if the parser encounters a licensor, for example, no or not in English, it is uncertain whether the sentence also has a licensee, such as any. That is because elements that work as licensors (e.g., not, no) do not need licensees. Therefore, only after it encounters a licensee, the parser starts to search for an appropriate licensor that has been encoded in memory (retrospective licensing).On the other hand, in head-final languages, licensees precede licensors. When the parser encounters a licensee, it becomes clear that a sentence has a licensor later since licensees always need their licensors. Therefore, immediately after the parser processes a licensee, it predicts a licensor in the grammatically appropriate position (prospective licensing).

Only few studies have examined illusory licensing in prospective processes[3] and the study used NPI-negation dependency for the test. In order to see how the grammar and prospective licensing mechanisms correlate with each other in more detail, the present study investigates whether illusory licensing occurs in the other type of prospective licensing (wh-licensing) in Japanese. It enables us to see whether illusory licensing occurs in such environments as 1) dependency is prospective and 2) purely morpho-syntactic.

In Japanese, wh-phrases need to be syntactically licensed (i.e., c-commanded) by Q(uestion)-particles. The sentence (1) in Table 1 is grammatical because the wh-phrase dono-seito (which-student) is licensed by the Q-particle -no, which is in the syntactically higher position than the wh-phrase. The sentence (2) in Table 2 is ungrammatical although it has a Q-particle -*ka* since the Q-particle is located in the lower position than the wh-phrase[4]. In terms of online sentence comprehension, noun phrases (NPs) with -*ga* particle are processed as nominative NPs. Two nominative NPs cannot be in the same clause in Japanese, and therefore the appearance of the second -*ga* NP would be a signal of the embedded clause[5]. The sentence (3) is also ungrammatical because there is no Q-particle at all in the sentence.

If the Q-particle -ka in the embedded clause in (2) triggers retrieval of the syntactically ineligible wh-phrase dono-seito (illusory licensing), the acceptability of (2) would be higher than that of (3), which has no Q-particle. To test this prediction, this study compared acceptability rates of these ungrammatical sentences with the grammatical counterparts (4 & 5), using a speeded acceptability judgment task. The grammatical sentences include a Q-particle in a matrix clause, which can appropriately license a wh-phrase in the sentence initial position so that the acceptability of (4) and (5) would not be different.

Twenty native speakers of Japanese participated in the experiment. The participant read totally 48 sentences (24 target and 24 irrelevant filler sentences) in Rapid Serial Visual Presentation. After reading each sentence, they were asked to judge whether a sentence is acceptable or not.

Generalized linear mixed-effects model revealed a significant main effect of GRAMMATICALITY (β = 5.2753, z = 10.439) and interaction of GRAMMATICALITY and EMBEDDED COMPLEMENTIZER TYPE (β = 1.9451, z = 2.709). The interaction would reflect the higher acceptability in (2) than (3) as shown in Figure 1. These results show that the ungrammatical sentence (2) is still unacceptable, but it was rated acceptable more than (3), due to illusory licensing of the *wh*-phrase by the Q-particle in the embedded clause in (2).

This study demonstrates that illusory licensing occurs even in the online sentence comprehension of pure syntactic licensing in prospective dependencies. In the next step, further studies are needed to reveal incremental properties of such processes; whether illusory licensing of *wh*-phrases occurs immediately after the parser encounters the embedded Q-particle although the sentence is grammatical at that point, or only after it realizes the ungrammaticality due to lack of Q-particle at the sentence end.

Table 1. An example of Japanese wh-questions.

(1) **Dono**-seito-ga   kyoositu-de   manga-wo   yonda-**no**?
    Which-student-$_{Nom}$ classroom-$_{Loc}$ cartoon-$_{Acc}$ read-**Q**?
    'Which student read a cartoon in the classroom?'

Table 2. Examples of the experimental sentences.

(2) *__Dono__-seito-ga   [sensei-ga   kyoositu-de   manga-wo yonda-**ka**] kootyoo-ni   itta.
    Which-student-$_{Nom}$ [teacher-$_{Nom}$ classroom-$_{Loc}$ cartoon-$_{Acc}$ read-**Q**]   vice-principal-$_{Dat}$ told.
    'Which student told the vice principal whether the teacher read a cartoon in the classroom.'

(3) *__Dono__-seito-ga   [sensei-ga   kyoositu-de   manga-wo   yonda-to]   kootyoo-ni   itta.
    Which-student-$_{Nom}$ [teacher-$_{Nom}$ classroom-$_{Loc}$ cartoon-$_{Acc}$ read-Decl]   vice-principal-$_{Dat}$ told.
    'Which student told the vice principal that the teacher read a cartoon in the classroom.'

(4) **Dono**-seito-ga   [sensei-ga   kyoositu-de   manga-wo   yonda-**ka**] kootyoo-ni   itta-**no**.
    Which-student-$_{Nom}$ [teacher-$_{Nom}$ classroom-$_{Loc}$ cartoon-$_{Acc}$ read-**Q**]   vice-principal-$_{Dat}$ told-**Q**.
    'Which student told the vice principal whether the teacher read a cartoon in the classroom?'

(5) **Dono**-seito-ga   [sensei-ga   kyoositu-de   manga-wo   yonda-to] kootyoo-ni   itta-**no**.
    Which-student-$_{Nom}$ [teacher-$_{Nom}$ classroom-$_{Loc}$ cartoon-$_{Acc}$ read-Decl] vice-principal-$_{Dat}$ told-**Q**.
    'Which student told the vice principal that the teacher read a cartoon in the classroom?'
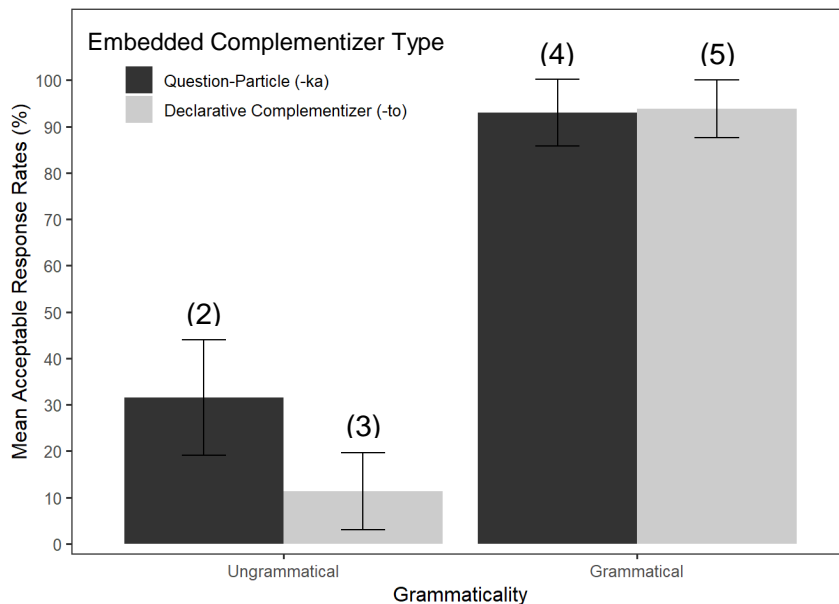

Figure 1. The mean acceptable response rates.
        Error bars indicate 95% confidence intervals of the mean.

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